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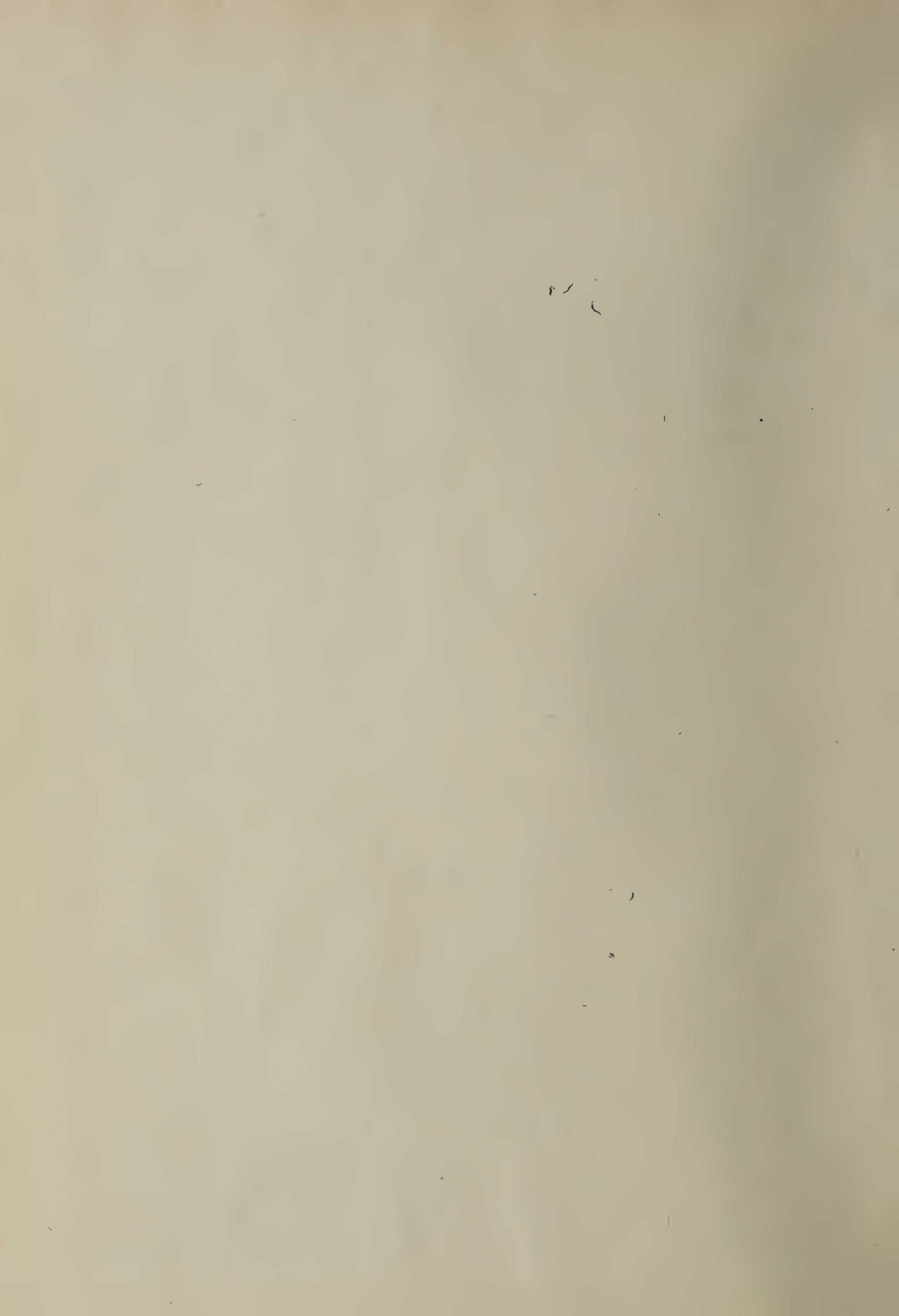
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THE CAMPAIGN AGAINST INFANTILE TUBERCULOSIS IN FRANCE

AND THE PRESERVATION OF CHILDHOOD AGAINST
ITS RAVAGES BY THE SYSTEM OF THE
"ŒUVRE GRANCHIER"

PAUL ARMAND-DE LILLE, M.D.

Médecin des Hôpitaux de Paris; Médecin Major de l'Armée Française;
on Special Mission to the United States

PARIS, FRANCE

Tuberculosis is an infection unhappily too frequent in France—as well as in all other countries—though not having the extent that has been attributed to it by certain unthinking or ill willed publicists who apparently have wished to convey the impression that France is a country sanitarily and morally decadent.

One can understand easily, today, that France has retained her former virtues, as demonstrated by her valor on the field of battle and her sacrifices for the defense of the right and liberty of the world.

France unfortunately counts a certain number of the tuberculous, in proportion relatively small, but nevertheless sufficient to contribute a grave danger to her reconstruction after the war. In the same manner in which you are here to aid us on the field of battle, you desire to aid us in saving the generations of tomorrow.

If one refers to the most recent statistics, with the reserve always necessary because of the personal equation in medical diagnosis, especially in those forms in which bacilli are not demonstrated, one can say that among 37,000,000 inhabitants in France only 250,000 persons are suffering from tuberculosis. This is based on the following figures: The military statistics, which naturally include all the men from 18 to 48 years, give us the figure of 85,000 invalided from the army because of tuberculosis. This number may be considered as absolutely a maximum, because it includes a definite percentage of men who passed the examining board twice before they were declared unfit for service, and that a certain number of suspects are taken a second time. Further, one may consider that the number is practically the same for the women. There is a maximum figure of 30,000 for persons over 48, and finally, at the outside limit, probably much too large, 50,000 children. This totals 250,000 and gives a percentage of 0.68. This number is infinitely less than the calumnies and untruthful statements of a certain press. Also a great number of the cases are curable, so that our death rate for tuberculosis is probably never more than 100,000 persons per year. Nevertheless, all physicians know that pulmonary

tuberculosis is contagious from the time the patient begins to expectorate bacilli, even if it is a curable case, and that even if well tolerated by the patient, it can still be infectious to another person, causing in him a fatal form.

It is by this association with tuberculous parents that children are most often infected, very much more than from a bovine origin. The young child frequently dies from tuberculous meningitis, against which form we as yet can do nothing. In an older child, the tuberculosis manifests itself sometimes in a granular form, often fatal, or a pulmonary type, occasionally also as a pleural form, in which the prognosis is bad. But the most frequent forms of tuberculosis in children, are well known, the localized glandular, ostearticular or peritoneal infections: those which are on the contrary essentially curable by an appropriate treatment. This treatment, purely physiotherapeutic, is the marine or the sun cure, or what is better, the combination of the two, the heliomarine.

I will explain first what has been done in our country for the cure of tuberculous children, or to protect them, and then I will tell you what remains to be done and in what manner we count on your fraternal aid to complete the necessary measures.

EARLY EFFORTS IN CURING TUBERCULOUS CHILDREN

France has accomplished a great deal in this sense, and many years ago, in 1847, there was founded in Cette, by a charitable woman, a small hospital at the seaside, comprising twenty-four beds. It was similar to two other institutions, the one installed at Margate in England in 1796, the other at San Remo, if I remember correctly, in Italy, in 1841. Nevertheless, those feeble efforts did not attract the attention of either the public or the physicians, and it was the contribution of the Maritime Hospital at Berck-sur-Mer, in Pas de Calais, which demonstrated the all important influence of a sojourn at the seashore for the cure of local manifestations of tuberculosis. The origin of the hospital of Berck is very curious, and demonstrates the part of chance in the production of scientific results at the same time as that of interpretation of those results by a good observer.

The service of the Enfants assistés in Paris had organized the individual placement of children in nurseries in the country, a long time previously, in order to prevent the agglomeration of children in the orphanages of the city. As early as 1850, it had sent those children to certain regions, especially to the department of the Pas de Calais, which is the one that the Germans have attempted to invade during the past

few weeks. At that time, in the village of Berck, situated 4 kilometers ($2\frac{1}{2}$ miles) from the sea, there was a good woman who had apparently a real passion for nursing. She was continually asking that she be sent the sickest children, the rachitics, and those then called "scrofulous," that is to say, the children who had glandular or osseous tuberculosis. This good woman had an instinctive faith in the reaction to be obtained at the seashore. Every morning, even in good or bad weather, the children were placed in a large wheelbarrow, which she herself pushed to the shore, while those who were larger or strong enough walked the distance with her. When she reached the sand, she installed her little charges, leaving them to sleep or to play on the beach, and returning them to the house only when evening came on. At the end of a few months of this treatment, the little patients were transformed. The results which she obtained were so astonishing that they were soon noticed by the inspector of the Assistance publique. It thereupon confided to her a larger number of children for whom she purchased a donkey cart and continued her daily trips to the beach.

Success continuing, and the number of children becoming too large, she decided to construct a small home with twenty-five beds at the seashore itself, the donkey cart then being reserved for the provisioning of the little hospital. Soon the house was increased in size, and the inspector induced the Assistance publique to construct in the same district a true hospital of a hundred beds, which construction was completed in 1861. It still remains, and I myself saw it only a few years ago, now surrounded by the great modern establishment.

They had then only empiric treatment, directed by a good woman, almost ignorant, but guided by an admirable instinct as well as by a charitable heart.

DEVELOPMENT OF THE WORK

The administration of the Assistance publique decided finally to send a physician for children, then very well known, Dr. Bergeron, later president of the Académie de médecine, who was directed to inquire into the results obtained at this new hospital. For the eminent and devoted physician, the results were a veritable revelation. In his report, which created a sensation, he demonstrated by figures, which carried proof, the marvelous efficiency of life in the open air, especially sea air, for the cure of rachitic and scrofulous children. Because of this, the Assistance publique decided to build a new hospital of 600 beds, under the direction of a physician, and it was inaugurated in 1869. It has been increased by new buildings since that time, and today, including superb sun galleries, etc., cares for 2,000 patients.

In the neighborhood of the hospital there have been constructed various private clinics and villas where people in easy circumstances come in order to remain with their sick children, in such a way that the station of Berck-sur-Mer, exclusively consecrated to ostearticular and glandular tuberculosis, today counts more than 4,000 little patients, and its population, comprising nurses, physicians, employees and parents, totals more than 10,000 persons. Perhaps this is nothing compared to the growth of American cities, but in an ancient country like France, it is an interesting fact, especially since it was constructed entirely for children ill with tuberculosis.

The example given by the Paris Assistance publique at Berck was soon followed in other districts, even by private institutions, and by the cities or communities which contained a sufficient number of physicians and philanthropists, devoted to the interests of childhood, who joined together in order to coordinate their efforts and give a safe guide to the application of this marine cure. This federation proceeded, in 1887, to the creation of the National Association for Maritime Sanatoriums, which founded shortly afterward two hospitals, one at Banyuls-sur-Mer on the edge of the Mediterranean, and the other at St. Trojan, not far from Bordeaux, on the shore of the ocean.

Since these were founded, many others have been installed, on all the shores of France, especially at Dinard, Roscoff, Peu-Bron, Arcachon, Cape Breton, and at Hendaye, where the Assistance publique has also 1,200 beds, and on the Mediterranean at Hyères, Cavalaire, Cannes and Palavas.

HELIO THERAPY

For the past ten years, a new therapeutic factor has been added to that of the marine cure, namely, that of heliotherapy. The treatment of sluggish lesions, and particularly of fistula, by the sun is due to Ollier, a professor of surgery of the medical school of Lyons, who recommended it since 1880: but the development of heliotherapy by external sun baths was due to the efforts of Rollier, a surgeon of French Switzerland, who has given the devotion of an apostle in spreading the propaganda for this extraordinarily successful method.

Encouraged by his first results, Rollier established at Leysin, at an altitude of 4,000 feet in the mountains of Switzerland near the French frontier, a series of sanatoriums where the tuberculous children are exposed entirely nude, by successive stages, to the rays of the sun. Under the influence of this treatment, the tuberculous, even those with fistula, are cured in from six to eighteen months; and the most interesting fact is that it is not necessary to make use of plaster or other apparatus except those for extension, a definite mobilization of the joint usually returning. The sun cure is now combined everywhere with the marine cure, particularly at the Mediterranean stations, where it is possible to remain out doors during all the year.

Although we have at present a great number of marine sanatoriums, they are still not sufficient to receive all the little patients in France—and for that reason we wish to increase them, much more since some of them have been taken at the present time by the Service de Santé for the treatment of tuberculosis in soldiers infected with local lesions.

For the cases of pulmonary tuberculosis among the children, for which type of case the sea air is not particularly beneficial, we have established a certain number of sanatoriums in the neighborhood of Paris, built by the Société des enfants tuberculeux de l'Hôpital d'Ormesson from private charity, and the station of Bevanne, supported by the Assistance publique.

There are also a certain number of clinics which exist in different localities of France. For example, the Service des rapatriés at Evian has established one, under my direction, in the mountains of Savoy, in which are also taken children with local tuberculosis for heliotherapy.

I have spoken up to this point of active tuberculosis in children. It is now my object to tell you what is done for those children affected with latent types of tuberculosis or simply suspected of the disease.

TREATMENT OF CHILDREN WITH LATENT TUBERCULOSIS

These are discovered by the various skin reactions and by careful examinations of the tracheobronchial glands, either by auscultation or by roentgenography. It is well known that these forms are frequent, and this is also true in France, where in a study of 4,000 schoolchildren from the poor quarters of Paris, made with Dr. Grancher, we discovered approximately 15 per cent. suspects. Florid tuberculosis is naturally not present, but it is among these children that such cases will develop, sooner or later, sometimes only after puberty. It is necessary that these remain in the country throughout the entire year, in order to be strengthened by country life.

We have for these only a half measure—the so-called vacation colonies. They each year take the children from the large cities for two months and transport them to the country. In the care of a number of children, this almost suffices more or less to retard the development of the malady; but it is only a compromise, for these children whom we have strengthened in two or three months, whose weight we have increased by 2 or 3 kilograms, sometimes more, return at once to their former unhygienic homes, in their narrow lodging without sun or air, with food often exceedingly bad, and usually accompanied by that fearful poison, alcohol. Nevertheless, it is a fine and useful work. The vacation colonies succeeded in 1912 in sending to the country 13,000 children. As an act of charity it is enormous: as regards its results, it is not sufficient.

It is necessary that those children already infected change their mode of life. It is necessary to transport them to the country, where they may be under medical surveillance. But it is not possible to place them all among the peasants, because there are certain children whose lesions are glandular and in whom open tuberculosis may declare itself at any moment. For them, it is better that they should be placed in an open air school—the open air school which has arrived at more or less complete perfection in different countries.

From this standpoint I can tell that the German Red Cross took the initiative. Its method is imperfect but nevertheless gives results. In the neighborhood of Charlottenburg, which is sandy and dry, there are great pine woods. All the pretuberculous children are each morning grouped together in their districts about the electric tramways, which have been especially organized for them and are supported by the Red Cross. They are thus transported in a half hour to the forest.

Nevertheless it is not a perfect method, because these children are returned in the evening to the family quarters, where they are to breathe all night that unhealthy air. If the father or the mother is tuberculous, they will certainly contaminate their children.

Professor Grancher had decided (and it is a thing which would have been realized if he had not been so soon taken from us) to create a sanatorium-school for this type of child. He wished to have established in the neighborhood of Paris schools which were at

the same time hospitals. The children in these schools would have had a double ration of fresh air, rest and food, and a half one of work—the ideal, as I have said. He had elaborated a complete program which is still being studied, after five years, by the municipality of Paris, but its only outcome was the sending of a hundred children to a fresh air school before the war. There are always numerous demands on the budget, appeals, and no money to meet them. The city of Paris, however, is making a blunder in calculation, for if it would care for the children soon enough, it would eliminate osseous and glandular tuberculosis, and would also relieve itself of the much greater expense which falls on it with the necessity of sending the children to Berck or Hendaye or to some other hospital.

At Lyons there is one open air school with fifty children, due to the initiative of the Mayor, Mr. Herriot. They are all under the surveillance of physicians who examine them each month. Most excellent results have been obtained.

In regard to the possibilities for the Parisian children, two opportunities are offered: the type of open air school, only for the day, or what would be still more efficacious, a sanatorium-school. These are the ways open for charitable initiative.

Despite all our efforts, the proportion of tuberculosis remains considerable. Despite the care which we are giving, the precautions that we are taking with a certain number, the malady continues its fatal course, it develops and ends in the generalized forms, chronic suppurations, or the fearful meningitis which is so often a cause of death in children's hospitals. In the hospital with which I was connected as chief of clinic, l'Hôpital des enfants malades, one of the large hospitals of Paris, it causes three deaths a week. For the Congress of Rome I made a statistical summary which showed the results among the children before we became seriously interested in the problem. From these statistics one finds out of five or six children affected with tuberculosis three or more dying of tuberculous meningitis. They die, most often, toward the second year, at the time when the child is making rapid intellectual development. The proportion of deaths from tuberculous meningitis is truly dreadful; before making the summary I could not have believed it. There lies a frightful danger.

Tuberculosis, once in the body, can still be cured. It is cured more easily among the well-to-do classes, in whom all the necessary precautions can be taken, the child strengthened and costly apparatus supplied. It is almost impossible among the poorer classes, among whom the parents cannot make the necessary effort to care for their children. It is often necessary, too, to wait for them from three to six months before a child may be sent to Berck or to Hendaye, the resources of those institutions being all too meager for the number of patients to be cared for.

THE PREVENTION OF TUBERCULOSIS AMONG CHILDREN

Professor Grancher, even before the idea which we are now discussing, possessed one even more feasible and productive of marvelous results, because of its simplicity of consummation. Grancher believed that if it was important to cure tuberculosis, it was above all important to prevent tuberculosis—to snatch away the prey before its hand could close on its vic-

tim. At the time when the Germans were covering their country with sanatoriums, Grancher saw very clearly that this was not the correct formula, because the sanatorium which takes the sick mother or father and abandons the child to its more miserable surroundings is accomplishing relatively nothing in the fight against tuberculosis. The much desired serum for the cure of tuberculosis has not been found in spite of the careful researches in thousands of laboratories.

Because of this, the idea of Grancher of preventing contagion must be followed. In this problem of preservation, the work of Pasteur in silk culture has served as the basis. The great services rendered by Pasteur in the silkworm industry in 1860 are well known. They were the first researches to stimulate work on the human microbial infections.

Pasteur demonstrated that the silkworm disease was due to a germ: that this germ was deposited by the butterfly on the leaves where later the eggs would be placed, and that there was some sort of contamination in this breeding place, for the preceding generation had contaminated the area, and at the moment of hatching, the worm issuing from the egg at once fed on the germ. Pasteur saw clearly that the worm was not hereditarily infected with the disease, but that it was at the moment of hatching that it became infected. He then had the idea of disinfecting completely all the seed and of transplanting the eggs at once, as soon as laid, to appropriate places. The worm hatching in a noncontaminated place develops without the disease. It was thus possible to transpose the process of hatching of the silkworm, a national industry, and to save it from ruin.

It was this idea which inspired Grancher. He said that, in order to prevent tuberculosis when the father or mother is tuberculous and is running the risk of contaminating the children about them, it would be necessary to separate the children from the parents—to save the seed.

In this there is something which at first sight seems cruel—to separate the child from its parents. Nevertheless these unhappy parents to whom we address ourselves understand the situation very well and themselves ask us to save their children.

The idea of Professor Grancher was to place the healthy children in healthy families where they might be adopted, which families were as good as (and I may say many times better than) their natural families. This view seems shocking at first thought, but I really speak of those children of Paris whose fathers are sometimes alcoholic, the mothers too ill to care for them, and who are thus found abandoned to the gutter.

These children we transported to the chosen families, physically and morally healthy, and those who have had the futures of Apaches are regenerated and have become good French men and women.

METHODS OF THE ŒUVRE GRANCHER

In my position as secretary of the organization, I will explain as briefly as possible its methods. The first problem confronting Dr. Grancher was the method of finding healthy peasant families in the country. It was his idea to address certain men who were his former students, physicians in the country. They were well acquainted with the peasants who lived on the neighboring farms of their particular

rural community. They could tell if the people were honorable, if they enjoyed good health and were capable of bringing up children confided to their care. They could tell if the peasants were well enough placed financially, which is an indispensable point, for we do not pay a very large price for boarding the child. It is necessary that these persons taking the children do not do so in the interest of money: we do not wish to make a business of the work, we do not wish professions: we wish only those persons who will take the children as companions. It is the country physician who chooses, frequently gratuitously, the house in which we place our children.

At the beginning we especially chose families possessing other children. We have since learned to recognize that this presents certain inconveniences: there are at times jealousies, rivalries, etc. More often now we take the homes of peasants which are so often seen, where the children are already married and established in life, families remaining alone, a middle-aged couple, happy at having the company of a child. I know of old peasants perfectly enchanted at having a little girl with them who, for instance, can read the newspapers to them. We do not object if they are not allowed to read too diverse facts. In this way we have made most excellent choices, and many physicians are able to designate to us from their own clientele as many as thirty families of this sort.

We always place the brothers and sisters together, in this way not suppressing the family tie. Our organization serves as a sort of guardian—an intermediary between the peasant family and the Parisian family. The latter confides the child to us with the following formula: "You have designated such and such a family in the country: I confide by your intervention my child to Mr. Blank who will care for him as his own and who will occupy himself with his instruction and religious education."

Our organization takes children from 3 to 15 years of age. Children younger than that we accept only occasionally, placing them in a nursing home but in a special way. After having had a number of children, it sometimes happens that the exhausted mother develops tuberculosis. If this occurs we take all the children over 3 and under 13, treating the younger ones, if there are any, in a different way.

The children thus placed in the peasant families pass all of their school life with them, remaining our pupils even if the parents themselves disappear.

In cases in which the parents are cured, happy results to which we have contributed by taking their children, they are returned to them at the age of 13 years. We have thus assisted the parents in the up-bringing and instruction of their children, particularly the mother, who has not been obliged to occupy herself exclusively with them and has thus had an opportunity of being more easily cured.

We take only the healthy children. If they are ill, we refuse them without pity. It would be dangerous, indeed, to install among the country peasants children who could develop tuberculosis. We do not even take suspected children, those having the signs of latent tuberculosis. Those are sent to the vacation colonies or sanatoriums, or are placed in open air institutions, but are not placed with us. For them the ideal is the sanatorium-school, of which I have previously spoken. Further details are given in the brochures of the society.

We require a certificate stating that the father, mother, sister or brother is affected with tuberculosis, but that the child is healthy. Further, we ask for the birth and baptismal certificates in order to place the child in the religious surroundings desired by the parents.

The children supplied with their papers pay a visit to the central office of the organization. There they are outfitted with clothes, are operated on if necessary for adenoid vegetations in order to forestall throat infections, and then, in small groups they are conducted to their destination by the devoted women who serve as patronesses.

For the Parisian society we make use of the following regions particularly: A series of homes is at present at Lille, Toulouse, Montpellier, Dijon, etc. We have especially chosen the valley of the Boire, where life is comparatively easy, where one finds the peasants fairly well to do, and with good morals, who possess sufficient effects, fields and cattle, and who are not excessively alcoholic. The districts of Calvados and Manche would be superb if they were not ravaged by alcoholism. This factor also eliminates the use of the region of the Oise.

The children are seen daily, one may say, by the physician, who with a small motor car can make his round of country visits; he sees them on his route or passes by way of the school and requests information as to their condition from the teacher or again from the curé. Further than that, each year a certain number of us, either myself as general secretary, or others who wish to join me, make a complete tour of the colonies of our small protégés.

The results are unquestionably marvelous. Not one of our children has become tuberculous. I am wrong to say not one: since 1904 we have lost three children, who died of tuberculous meningitis in the first four weeks following their arrival in the society centers. That is to say, they were children who, despite appearances, had departed while incubating tuberculosis and died shortly after their arrival. One can be assured that, aside from these cases, our children have all been definitely saved from tuberculosis.

Aside from physical results, one can say that the moral and social results are most admirable. These children arriving in the country seem to be rejuvenated in some fashion in this healthy environment, coming as they do from the disgusting promiscuity of the purlieus of our great cities. Numbers of them who were almost little Apaches, for we take them from the most miserable surroundings, are absolutely transformed: more than that, they become robust peasants later.

When the children have reached the age of 13 years, if the parents are still living we ask them if they still desire their children. Many have so fully appreciated the service which we have rendered to them and to their children that they request us to find for the children a suitable place in the country.

The parents, at least those who are ill, are authorized to pass forty-eight hours with their children two or three times a year.

In case of the death of the father or mother, the surviving one occasionally recalls them. This is what usually happens if it is the mother who has survived the father, dead of tuberculosis.

As the danger of contamination no longer exists, we willingly return the children, frequently enough

by that time beautiful children, happily fortified and strengthened for the rest of their existence. If it is the father who survives, since his home is now nonexistent, he is apt easily to forget the children and they are rarely reclaimed.

In this and other ways there remain for us a considerable number of children, in the first place, those who have become orphans. These are adopted, morally and actually, sometimes financially, by their foster-parents. We knew of such a family of country people, in the Cher, a home which enjoyed no children, and who recently said to us, "We have no children; if the little one is agreeable all that we have will be his."

One sees thus how these children are permanently attached to the country. We operate in the manner defined by Mr. Meline two or three years ago at a congress at which he presided and according to his views. This congress had for its object the very grave question of the depopulation of the country districts.

The Grancher Society renders a true social service, in preventing the propagation of tuberculosis, in giving to its children a good moral education, in making good future French men and women, and, as I have said, in often bringing them back to the life of the country, so much more healthy and normal than that of the large cities.

There is also, on the other hand, an economic result of which I will speak incidentally. To cure a case of florid tuberculosis is very expensive to a society, to the Assistance publique or to a private charity. For a patient cared for in a hospital or sanatorium, three years is usually necessary, with a minimum price of 4,000 francs (\$800) a year, which makes a total cost of 12,000 francs (\$2,400). On the other hand, for 400 francs (\$80) a year at the maximum, we can take care of a child. Thus, from the economic point of view the Grancher Society realizes the highest comprehension of the fight against tuberculosis.

GROWTH OF THE SOCIETY

Our society is developing. It counted at its beginning twenty-seven patients. Before the war it counted 810. It is now reduced to 400. I may state that many of our children have entered the army and a certain number have died for France. Speaking only of the Parisian branch, it is certainly growing, thanks to the sacrifices of private charity and thanks also to certain subscriptions which are received from the government from the General Council and from the Municipal Council.

The provincial societies count, on their side, 290 children.

But what is 800 children in Paris or 290 in the provinces in comparison to the proportion of children fatally attacked by tuberculosis whom we cannot care for? It is nothing; it is only a demonstration: an experience. It would be necessary to save each year in Paris not 800 children, but 5,000, and consequently a larger number still for the rest of France.

The American Red Cross has been kind enough to interest itself in the Œuvre Grancher.

Following a visit to two of our centers in the neighborhood of Tours and Blois made by Dr. W. P. Lucas, chief of the Children's Bureau, and Prof. Salskar M. Gunn of the Rockefeller commission, the American Red Cross allotted to the Œuvre Grancher a sum

permitting us to take new children, divided among the rapatriés and the children of tuberculous soldiers.

The Œuvre Grancher has already placed a certain number of these children, who are regularly reached by a visiting nurse appointed by the American Red Cross.

That allows the society to develop its work for Paris, but of course not sufficiently at the present time. The committees of assistance to the tuberculous have been organized in each French department, and the American Red Cross and the Rockefeller Commission are furnishing them with aid for the organization of the different fields of activity—in constructing sanatoriums, dispensaries, etc. There exist actually eleven chapters of the Œuvre Grancher in the principal towns of the provinces, but we wish to organize them in every department.

This system will be, with that of the protection of infancy, the best means of saving the France of the future.

We are particularly grateful, my dear American friends, for the aid which you are giving, not only on the fields of battle, but also for the safeguarding of the new generations of France in order that, working with yours, she may continue her mission for humanity, in defending the right, the justice, and the liberty of peoples and of man.

SECONDARY TUBERCULOUS PERITONITIS

ITS CAUSE AND CURE*

W. J. MAYO, M.D.

ROCHESTER, MINN.

Tuberculous peritonitis is not a primary disease, but, like septic peritonitis, is symptomatic, having its origin in some local focus of infection. The most common sites of such local foci are the fallopian tubes in women, some part of the intestinal tract in both women and men, and the lymphatic glands and channels, especially in children. Occasionally the primary focus will be found in the stomach, the spleen, the liver, the gall-bladder or the genito-urinary tract. To consider tuberculous peritonitis an entity, or to treat it as such, leads to confusion, whereas if it is looked on as a secondary process, due to some primary focus, we are led to search for the primary focus and to direct treatment leading toward cure.

REMOVAL OF THE LOCAL FOCUS

In 1904, in the Address on Surgery, presented before the Mississippi Valley Medical Association, I¹ called attention to the fact that when the local lesion could be found and removed in operating for so-called tuberculous peritonitis, a cure might be expected in a much higher percentage of cases than by the performance of a simple laparotomy, with or without medication, the latter being unsatisfactory at best. At that time I was particularly interested in the relation of tuberculosis of the fallopian tubes to tuberculous peritonitis, and reported in detail some cases in which simple laparotomy with the evacuation of fluid had been carried out from three to seven times with a reaccu-

mulation of the fluid and failure to cure, followed by prompt cure after the removal of the tuberculous tubes. Murphy² pointed out that in tuberculosis the fimbriated extremities of the fallopian tubes were usually open, quite the opposite from the condition that exists in gonorrheal infection of the fallopian tubes, in which they are closed. In gonorrheal infections, therefore, pus tubes are common, while in tuberculosis, tubal retention is much less common, and the material from the tuberculous process passes out from the fimbriated extremity of the tube into the abdominal cavity, causing a more or less generalized peritonitis. Such peritonitis is essentially a conservative process leading to the destruction of the noxious agents. When the source of the infection can be removed, the peritoneum returns to normal. At a subsequent laparotomy the peritoneum will be shown to be quite free from disease and without signs of past involvement, beyond adhesions in some locality that had been subjected to prolonged infection, as in the vicinity of the primary lesion. It is true that simple laparotomy sometimes cures the peritonitis when tapping would be of no avail, because when the fluid is completely removed from the peritoneal cavity, for example by operation, the fimbriated ends of the tubes, which had been mechanically separated by the fluid from the surrounding tissues, may become adherent to neighboring structures, thus closing the ends and preventing further leakage. Under such circumstances, tubal retention of the tuberculous products results, and these pus tubes may be recognized as gradually increasing masses in the pelvis. Further experience developed the fact that the tube thus closed became surrounded by a mass of adhesions, and occasionally, in the course of long months or years, a spontaneous "near" cure resulted. The tubal content became caseated and was rendered more or less innocuous with the gradual disappearance of the pelvic masses, but with permanent fixation of the pelvic organs. The ciliated epithelium of the tubes, like the ciliated epithelium of the pulmonary tract, is very susceptible to tuberculosis. Whether the tubercle bacilli reach the tubes primarily through some other focus in the abdominal cavity and then gravitate into the pelvis infecting the tubes, or whether they pass directly by way of the vagina and uterus or through the lymphatics, is a mooted question.

Tuberculosis of the endometrium is rarely found in the menstruating uterus. When tuberculosis involves the endometrium, it is usually found in children before menstruation begins or in women after the menopause. If it occurs during normal menstrual life, menstruation will have ceased, although in its place there may be a bloody discharge, the result of the tuberculous lesions.

Fourteen years of experience since the publication of these observations has confirmed them in every respect, and it may be said that in tuberculous peritonitis which is the result of tubal tuberculosis, the removal of the fallopian tubes may be expected to cure, unless other incurable tuberculous lesions coexist. It is not at all necessary in such cases to remove the ovaries or the uterus, as their involvement is only superficial, and in no way different from that shown in the peritoneal coverings of the intestines and the other viscera.

Our knowledge of tuberculous peritonitis, the result of tubal disease, is fairly adequate; but, when the local lesion is elsewhere, great difficulty may be experienced in locating and removing the primary source of the

* From the Mayo Clinic.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Mayo, W. J.: Surgical Tuberculosis in the Abdominal Cavity, with Special Reference to Tuberculous Peritonitis, *THE JOURNAL A. M. A.*, April 15, 1905, pp. 1157-1160.

2. Murphy, J. B.: Tuberculosis of the Female Genitalia and Peritoneum, Chicago, 1903.

peritoneal infection. Rarely, in our experience, has the appendix alone been the cause of tuberculous peritonitis. Tuberculosis of the ileocecal coil, including the appendix, especially of the hyperplastic type, is often accompanied by tuberculous peritonitis which, as a rule, is limited to the immediate vicinity of the primary disease, and the removal of the involved bowel promptly cures. This is equally true of localized tuberculosis of the small intestine.

We have encountered a considerable number of cases of peritoneal tuberculosis, confined to the region above the transverse colon, in which the lesion was particularly marked in the vicinity of the gallbladder and the pyloric end of the stomach. In most of these cases the gallbladder, which had shown cholecystitis, was removed; but we have not been able to determine that there were tubercle bacilli in the gallbladder or its contained secretion, nor have we found local lesions that might have been the result of focus in the liver. However, such patients, without exception, have quickly and permanently recovered. It is questionable whether such recovery might have taken place without the removal of the gallbladder.

Barker³ estimates that 50 per cent. of cases of tuberculous peritonitis are due to bovine tuberculosis. It is interesting to note that the English Commission on Tuberculosis (1911) showed that tuberculous peritonitis was due to bovine tuberculosis in nearly 47 per cent. of the cases, and the German commission showed it to be due to this cause in 63 per cent. It is possible that bovine tuberculosis gives a more favorable prognosis than human tuberculosis.

SIMPLE LAPAROTOMY.

The possibilities of the cure of tuberculosis of the peritoneum by simple laparotomy, when the local focus cannot be discovered and removed, are limited to the ascitic forms of the disease. It may at least be said that an open operation with careful removal of all fluid, with or without medication, has therapeutic value. It would seem, however, that the surgical profession has been over enthusiastic in its praise of the simple operation. The fibroplastic types are benefited only if there are sacculations containing fluid; but operation is contraindicated when the adhesions fill the entire abdomen without collections of fluid, or if the collections consist of multiple small pockets filled with turbid tuberculous exudate containing pus. Operation in these cases with separation of adhesion is of little value, and often results in intestinal fistula. Fortunately the adhesion type of tuberculosis of the peritoneum giving rise to the swollen, hard (wooden) abdomen are most favorable for spontaneous cure.

It seems probable that tubercle bacilli alone tend to produce tuberculous peritonitis with a minimum of adhesions, and that to a considerable extent the adhesions are the result of a mixed infection; but as the pyogenic bacteria that are admitted with the tubercle bacilli are shorter lived, they disappear, leaving only the tubercle bacilli to be discovered at the time of operation. In several subacute cases of this description I was able to find not only a mixed infection but also localized pockets of pus, containing colon and other bacteria having their origin in the intestinal tract. Later, these pyogenic bacteria would have disappeared and only the tuberculous process would have been discoverable.

Koenig,⁴ in 1890, was the first to call attention to the value of simple laparotomy in the treatment of tuberculous peritonitis, reporting 139 cases with eighty-four recoveries. How long these recoveries lasted was not recorded. Shattuck,⁵ in 1902, showed a medical mortality of 68 per cent. and a surgical mortality of 37.5 per cent. in ninety-eight cases of tuberculous peritonitis at the Massachusetts General Hospital. Two thirds of his patients were females. Wunderlich,⁶ in 1899, collected 344 cases in which the patients were treated surgically, and 176 of whom were traced. At the end of three years only 26 per cent. of these were in good health. Bircher,⁷ in 1907, collected 1,295 surgical cases, and found 69 per cent. of immediate cures; but only 31 per cent. of these patients were well after a year or more. Osler⁸ noted 131 females to 60 males. Curiously enough, while all the surgical cases, and for that matter all the medical cases observed, show an excess of females over males, the postmortem findings show peritoneal tuberculosis to be more common in the male.

The English school has strongly advocated drainage following laparotomy for tuberculous peritonitis; but drainage has been almost abandoned in this country on account of the frequency with which mixed infection has followed, often with fistulas which became feculent. After laparotomy, as a rule, there is a reaccumulation of the fluid, which is said to have a higher opsonic index and therefore a higher resistance against tuberculosis than the fluid that was originally removed. The fluid reaccumulated directly from the blood has marked sterilizing properties.

It should not be forgotten that tuberculous pleurisy or tuberculous pericarditis may exist in conjunction with tuberculous peritonitis. When there is doubt as to whether or not an ascites is due to tuberculous peritonitis, the finding of fluid in one or both of the pleural cavities is strong but not positive evidence, as the same condition is found in Concato's disease. Chronic irritative peritonitis or chronic proliferative polyserositis, as described by Concato,⁹ may be local or general. The spleen or the liver, or more often both, may be encapsulated, or the entire abdominal cavity may be involved with most extraordinary shortening of the mesentery of the intestine. The contracted intestinal tract may be covered with an adhesive membrane and be drawn close to the spine. Chronic ascites is usually marked. The peritoneum, in the later stages, may be a quarter of an inch or more in thickness and of a white color. In the more extensive cases, both pleural cavities are involved, and often the pericardial sac as well.

Pick's disease is undoubtedly only a syndrome, a subdivision of chronic proliferative serositis, in which the chief manifestation is cardiac crippling, due to pericardial adhesions, although Pick believes that the pleural and peritoneal involvements are results of changes brought about in the circulation by interference with cardiac action. In none of the cases of chronic proliferative peritonitis that I have seen was the diagnosis made until the abdomen

4. Koenig: Die peritonale Tuberkulose und ihre Heilung durch den Bauchschnitt, *Centralbl. f. Chir.*, 1890, **17**, 657-660; *Verhandl. d. N. internat. med. Cong.*, 1890, Berlin, 1891, **3**, Part 7, pp. 31-47.

5. Shattuck, F. C.: Prognosis and Treatment of Tubercular Peritonitis, as Based on the Experience of the Massachusetts General Hospital for the Past Ten Years, *Am. Jour. Med. Sc.*, 1902, **124**, 1-12.

6. Wunderlich, O.: Ueber die Misserfolge der operativen Behandlung der Bauchfelltuberculose, *Arch. f. Gynäk.*, 1899, **59**, 216-276.

7. Bircher, E.: Die chronische Bauchfelltuberculose; ihre Behandlung mit Röntgenstrahlen, Aarau, Sauerländer, 1907.

8. Osler, William: *Principles and Practice of Medicine*, Ed. 8, New York, D. Appleton Co., 1917, p. 180.

9. Concato, L.: Sulla poliorromennite scrofolosa o tisi delle sierose, *Gior. internaz. d. sc. med.*, 1881, n. s., **3**, 1037-1053.

3. Barker, L. F., Editor: *Monographic Medicine*, New York, D. Appleton Co., 1916, **3**, 684.

was opened, and I am confident that in my earlier experience the condition was confused with tuberculous peritonitis. However, some observers believe that tubercle bacilli are the causative factor. It is altogether probable that chronic proliferative polyserositis is frequently, if not usually, confused with the ascitic forms of tuberculous peritonitis. Except for the temporary relief of the ascites, laparotomy is of no value in Concato's disease. It is said that the fluid aspirated may be distinguished by chemical analysis from tuberculous fluid; this has not been confirmed in our cases. As to the frequency of Concato's disease, Fagge¹⁰ states that he saw one case of ascites from this cause to three of cirrhosis of the liver.

It will be seen from this brief summary that the cases of tuberculous peritonitis, in which surgical treatment promises to be of great aid, rather naturally divide themselves into two groups: First and most favorable are those cases in which a definite anatomic portion or viscus of the peritoneal cavity is involved, such as the fallopian tubes, the ileocecal coil, and the appendix, which can be removed. Second, and less favorable, are those in which the peritoneal cavity contains a considerable quantity of fluid, occupying either the entire peritoneal cavity or a large part of it, or in which the fluid is contained in loculi composed of peritoneal adhesions, dividing the peritoneal cavity into compartments containing fluid.

ABSTRACT OF DISCUSSION

DR. ROBERT T. MORRIS, New York: I think not quite enough is said about the follow-up treatment in cases of surgical tuberculosis. Whenever we care for surgical tuberculosis of any sort I like subsequently to send the patient to a 5,000 foot elevation in the mountains, then to the seashore, and give them the best of food. Now a very essential thing is the use of tuberculin, the old formula, used in connection with the follow-up treatment. I have had two cases of adhesive peritonitis in which the patients are now perfectly well. One was a patient of Dr. Besemer of Ithaca, supposed to be a case of abdominal tumor. I operated and believed the patient had malignant papilloma, and said that she had about six weeks to live. I forgot all about the case and a year later I met the patient, when she had gained 40 pounds and was apparently perfectly well. I realized then that she had had tuberculous peritonitis of this adhesive type. The second case was one which I operated on in St. Elizabeth's Hospital. Having in mind the Ithaca case, I removed a specimen which proved to be tuberculous, and this was confirmed by the subsequent history. We did not remove the primary focus, or find it, in this case. Under tuberculin and the influence of general, first rate follow-up treatment that patient has become perfectly strong and well.

DR. DANIEL N. EISENDRATH, Chicago: I want to take up two features of Dr. Mayo's paper: First, what shall we do with tuberculous tubes? Up to about four years ago I felt as did Dr. Mayo. I then had an experience which made me wonder whether we were doing the proper thing in removing these tubes. I had a patient, a young girl of 17, unmarried, who had tuberculous tubes and a large secondary mass of tuberculous glands in the region of the sigmoid. We laparotomized her, intending to remove the tubes, but after section decided to leave them. She married later and to my surprise went through two successful pregnancies at full term. This made me rather wonder whether we had not better be a little conservative in removing tubes under those conditions. I have always been inclined to believe the other way. The second point is Dr. Mayo's experience of having very few cases of tuberculous peritonitis following tuberculous appendicitis. The opposite has been my own experience. I believe

this is due to the fact that frequently the appendicitis attack and the tuberculous peritonitis symptoms are months apart; frequently the appendix is taken out at an earlier period, probably six months or a year before the patient is treated for tuberculous peritonitis, when, unfortunately, the appendix was not examined carefully. I recall several cases in which only microscopic examination showed submucous tuberculosis in the appendix. I have seen a number of cases in which the patients presented typical histories of tuberculous peritonitis and laparotomized them even when they had been appendectomized several years before. Evidently the focus had been at that time in the appendix.

DR. HORACE G. WETHERILL, Denver: Our experience in Colorado would confirm the opinion just expressed by Dr. Eisendrath, that general tuberculosis not infrequently does follow what appears to be a primary focus in the appendix. I want simply, in addition to this, to substantiate what Dr. Mayo has said so impressively, that it is distinctly and definitely unwise to drain cases which have been operated on for tuberculous infection in the peritoneal cavity whatever the primary focus may have been. We have learned only within the last few years, apparently, how much resistance to infection the peritoneum has and how well it may take care of itself. If we drain these cases we are in definite danger of producing tuberculous adhesions, and furthermore, we run the very great risk of producing tuberculous fistulas in the intestine, because the intestine will ulcerate through to the drainage tube. Otherwise it would be protected by plastic exudate. In Colorado we take no risk whatever with the drainage tube.

DR. CHARLES H. MAYO, Rochester, Minn.: In reference to what Dr. Morris said, it is true that operating on the dry adhesive type of peritonitis is of no advantage to the patient; but not that a bad prognosis should be given in such a case. Ultimately these patients are likely to develop tuberculosis in some other region. In writing the paper it was not the intention to say that appendiceal tuberculosis did not exist, but that it was more rare than other diseases that would cause it as a focus. It is more rare in the woman. Man makes up for the difference in that his genital tract gives him tuberculosis which does not extend into the peritoneum. The woman develops general peritonitis. Nature can deal with that if you take the fluids out. Take plenty of time and see that the fluids are out when the intestines are dropped down. Nature will then deal with the condition as in caseous glands. I am sorry that more of the large sanatoriums have not representatives here. If in such sanatoriums as Pottenger's in California, and that at Saranac Lake, where an enormous number of cases are handled, such treatment could be tried and the results checked up, it would be an advantage. Quantitative work in these days gives us real help. The mistake is sometimes made of regarding tuberculosis of the ileocecal coil as a primary tuberculous lesion of the appendix. We will often find the ileocecal coil making very little trouble. In opening the abdomen, if operation can be delayed until the primary fever is over, the cases do better than with operation at an earlier period. Patients will develop their own antibodies if you give them the opportunity. When you find the peritoneum covered with miliary deposits it is easy to differentiate between the discrete and the confluent. When the confluent form is present, there is your focus. When widely separated, the lesion is in the upper abdomen, but you cannot always find just where it is located.

Maternal Mortality.—The March number of the *Monthly Bulletin* of the department of public health and charities of Philadelphia gives a table of figures showing the comparative mortality of women in childbirth and after labor in certain foreign countries and in various cities in this country. It is shown that in 1916 Philadelphia, with a death rate of seven, or one in 143 births, had the highest rate of any city or country for which figures are available. In New York City the rate was 4.6, or one in 217; in Newark, 2.2, or one in 454; in Detroit, 3.7, or one in 270; in St. Louis, 5.2, or one in 192; in Cleveland, 5.6, or one in 180; in Boston, 6.5, or one in 153; in Baltimore, 6.8, or one in 147; in Buffalo, 3.2, or one in 312.

10. Fagge, C. H.: *Text Book of Medicine*, Ed. 4, Philadelphia, P. Blakiston's Son & Co., 1902, 2, 488.

THE SIN OF TREATING SYMPTOMS

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BIRMINGHAM, ALA.

The seven deadly sins were enumerated before the days of modern medicine or specialism. The sin of omission would then have been classed as venial; but now, omission is often deadly to our patients, and might be classed by modern moralists as unpardonable.

This paper is intended to report some groups of cases that have been improperly diagnosed by observing leading symptoms without taking the patient as a diagnostic problem and viewing him as a whole. Medicine is no longer a one man's job—it is team work. It is, indeed, rare for one to be able to diagnose an obscure case alone. Team work with its proper limitations is our hope for the best results. Diagnostic units are now essential. There is much truth in the saying that only the very poor and the very rich get proper medical attention. The poor may go to a well organized hospital, where a department chief collects all required data, proper diagnosis is made, and required treatment instituted.

The omission may be due to the lack of using one's own faculties. This fault has been hammered so long that one rarely sees the glaring errors once so common. The omission is more often the refusal to accept, or the inability to secure, outside help. I once heard of a physician who refused consultation, saying that a patient who had him needed no other physician. Such an egotist is a menace to the community. The men who refuse consultation fear for their own reputations and care very little for the welfare of their patients.

Jealousy has wrecked many a small mind. The real physician, the one who has only the good of his patient in mind, never fears roentgen-ray findings, laboratory results, dental examination, or specialists' reports. The specialist is with us to stay, and is most useful, but he must not be permitted to subsidize the whole patient to aggrandize the disease of one particular organ.

The clinician must not allow the laboratory or the specialist to make his diagnoses; if so, his days of usefulness are gone. These factors are only aids. One cannot always delay until the pathognomonic symptom appears. One who waits for the laboratory to find tubercle bacilli in the sputum before diagnosing pulmonary tuberculosis, will realize that he has waited too long to be of real value to his patient. The patient must be viewed as a whole, the laboratory and specialists' findings being subsidiary to one grand summing up. Who shall weigh these findings in the balance and be the final arbiter? The one who should be most capable is the practitioner or internist.

If in these case reports, some physician should recognize an old friend, I beg of him not to take it as a personal criticism. The intent is to point out one of those broad truths applicable to us all, and is in no sense personal or intended as petty criticism.

MISTAKES IN DIAGNOSIS

Group 1.—Many inoffensive appendixes have been operated on, many normal tubes and ovaries have been sacrificed and many useful gallbladders drained; many ptosed viscera have been stitched up or colons removed, and many healthy stomachs have had a new opening, only for some painstaking surgeon later to

diagnose a diseased kidney and thus cure a long suffering and nervous patient.

CASE 1.—Mrs. W., aged 35, had a diseased heart, had been an invalid for many years, and was hysterical and unmanageable. She had attacks of vomiting and pain in the upper left side of the abdomen. These occurred every few weeks and she had been treated by some of the best physicians in Birmingham without obtaining relief. She was considered a neurotic. She had gone to one of our leading medical centers, where she had been given a rest cure, with some temporary relief. After changing physicians many times, she fell into my hands. A series of roentgenograms revealed ptosed viscera. One of our best surgeons removed several feet of her colon, an operation followed by temporary relief, only to see her relapse into her old attacks again. She was then seen by many surgeons and internists, all of whom assured her that she was a neurotic and that she should "quit her foolishness." Finally she found a surgeon who had her ureters catheterized, discovered a suppurating kidney, and removed it. This took place several years ago. She is now well.

CASE 2.—Mrs. D., aged 32, married, with two children, had definite deformities following a multiple neuritis, complicated by a severe attack of typhoid. At frequent intervals since the age of puberty, she had attacks of nausea and vomiting called indigestion, headaches, neurosis, etc. Finally her ureters were catheterized and she was found to have calculi in both kidneys. The stones were removed, and the operation gave much relief.

Group 2.—The Wassermann test alone will not aid in diagnosing all our indefinite and latent cases of syphilis.

CASE 3.—X., a man, aged 41, who had lived a strenuous and dissipated life without any previous history of syphilis, suddenly began to have jacksonian and epileptic convulsions. The blood Wassermann reaction was negative. He was treated for epilepsy. But the irregular pupils, the slightly slurring speech, the tremor, just discernible, about the lips, and a pleocytosis in the spinal fluid definitely labeled him a victim of early general paresis.

It has long been recognized that epileptic seizures appearing in the adult are often precursors of an early general paresis. Even focal infection and a neurosis due to menopausal changes will not always be sufficient.

CASE 4.—Mrs. S., aged 43, had found her health beginning to fail. Focal infection was suggested. The tonsils were removed and the teeth were gone over without improvement. The ailment was then diagnosed as a neurosis due to menopausal changes. When I first saw her, there were double choked disks and aphasia. The spinal fluid and the blood showed a negative Wassermann reaction. A diagnosis of temporosphenoidal tumor was made. At operation she was found to have multiple gliomas.

Group 3.—Prolonged rest and polypharmacy are no longer sufficient, if one is to secure the best results in definite chorea.

CASE 5.—H., a schoolgirl, aged 17, had her tonsils removed several years ago. She had been rather a delicate girl. She came to me with definite chorea. The chorea without tonsils was indeed puzzling. Her teeth were irregular and she had been wearing a brace to correct dental deformity. On examination it was found that she had definite pyorrhea. Rest in bed and the curing of the pyorrhea have restored her to health.

CASE 6.—L., aged 9, a schoolboy, came into my office on crutches. The right side suggested a mild hemiplegia. The case was easily diagnosed as chorea, with chronically diseased tonsils. Tonsillectomy and rest in bed cured the hemiplegia and chorea.

CASE 7.—S., a schoolgirl, aged 16, had often suffered during the winter from catarrh and colds. She was found to be

suffering from classical chorea. Removal of the tonsils and rest in bed soon restored her to perfect health.

Group 4.—Other things may suffice to relieve hyperthyroidism, rather than resort to the surgery of the thyroid gland.

CASE 8.—Mrs. B., a housewife, aged 23, mother of two children, had had goiter for several years. When I saw her, the symptoms were tachycardia, tremors, an enlarged thyroid, von Graefe's sign, sweating, emotionalism, insomnia, a phobia of being alone, etc. The tonsils, which had given trouble for years, were removed. After two weeks in bed and a trip to the country for six weeks, she was markedly improved.

CASE 9.—L., a barber, aged 20, had the ordinary symptoms of hyperthyroidism. He had suffered with tonsillitis every winter since childhood. His tonsils were removed and he was soon able to go on with his work without any further thyroid disturbance.

Group 5.—Let us beware of that old hobbyhorse we have so often ridden—a nervous breakdown from overwork. If we look closely, we shall find something else to account for the patient's condition.

CASE 10.—Dr. D., aged 39, after a rather careful examination, had been sent to the seashore with his wife to recover from "overwork." His nervousness had increased and when I saw him, general paresis was easily diagnosed. He afterward died in the insane asylum.

CASE 11.—B., a traveling man, aged 41, was considered overworked, notwithstanding his robust physical condition. The symptoms were irregular pupils, insomnia, depressed spirits and a ++++ Wassermann reaction. It was decided best to send him to an institution for treatment and confinement.

Group 6.—The last and largest group includes cases of oral infection, pyorrhea, and abscessed and carious teeth. Everybody is talking about oral infection and, perhaps, exaggerating its importance.

CASE 12.—Mrs. C., housewife, aged 62, who had been a rheumatic for years, and was recently found to have high blood pressure, was suddenly seized with anginoid attacks. After about three weeks of waiting for death to claim her and of exhausting a large supply of amyl nitrite pearls, she was sent to a hospital and found to have abscessed teeth and diseased tonsils. These foci were removed, and she became a useful woman. Her intercostal neuralgia is now a harrowing memory to a very good doctor.

CASE 13.—D., aged 45, a robust man of good habits, had severe rheumatic pains and intense, diffuse bronchitis, with asthmatic breathing. He was unable to lie down at night. On examination, he was found to have pyorrhea, with many abscessed teeth. Extraction of the teeth and treatment of the gums for a short time, followed by two weeks at the seashore, completely restored him.

CASE 14.—L., aged 17, a clerk, had been troubled with a number of painful abscesses. An abscessed tooth was extracted. His general health improved and no furunculosis has since occurred.

CASE 15.—O., a man, aged 66, who was in the insurance business, had a well defined arrhythmia. The heart sounds were almost inaudible, and the blood pressure was low. He experienced dyspnea on the slightest exertion, and his liver was enlarged. His spirits were markedly depressed. He was found to have five abscessed teeth, which were removed at two sittings. He has greatly improved, and the normal heart condition has been completely restored.

CASE 16.—C., a man, aged 50, suffered from asthenia, from an intense depression of spirits, that was almost melancholia, from marked insomnia, and loss of appetite. He was practically bedridden. A number of severely abscessed teeth were removed, and he is making a slow but definite recovery.

CASE 17.—C., a man, aged 67, had been troubled with a number of furuncles. He was found to have almost the same symptoms as the patients in the two foregoing cases. All his teeth had to be removed. He insisted on trying to attend to some business, which proceeding made his convalescence slow.

In the Hillman Hospital there are many of the adult and aged "down and out" class, who, in times past, have been healthy and useful citizens. As a rule their mouths and teeth have been grossly neglected. Their teeth are irregular, loose, carious and broken, and set in gums seething with pus. I have often asked myself the question, "Is there any connection between oral infection and being 'down and out'?"

Then comes the practical problem, What are we going to do about it? Prevention, by teaching oral hygiene, will help the future generation. But our own patients must be taken care of. Shall we deal with this pathologic condition radically or conservatively? Many deaths have been reported from too radical treatment. Apparently the best results are obtained by putting the patient to bed, clearing up the pathologic condition a little at each sitting, allowing from three to ten days between treatments, according to the amount of reaction and recuperation of the patient.

Is oral infection a passing fad? Perhaps we are reading too much into it. It is certainly easy to become too enthusiastic. To me it is one of the present problems in medicine, extending into all the specialties. We should, however, remember the plea to view the whole patient as a diagnostic problem. If we work and watch while waiting, oral infection will find its proper place in medicine.

CHRONIC SEPTICEMIC ENDOCARDITIS

WITH SPLENOMEGALY TREATMENT BY SPLENECTOMY

DAVID RIESMAN, M.D.

PHILADELPHIA

In the face of a disease like cancer or sarcoma we accept our helplessness with resignation; but we chafe against our helplessness in so-called malignant endocarditis, for we feel that we should be able to master it, the disease being an infective process due to well known bacteria, which in other circumstances may be successfully combated. Dr. Libman has shown that patients suffering from this type of endocarditis may become bacteria free and yet succumb to the disease. If death were an early event, the failure of our efforts might be more readily understood; but the affection may last for months or even for one or two years, so that ample time exists for treating it, and yet nearly every case terminates fatally.

I shall not go into detail regarding the symptoms of the affection, with which the writings of Osler, Dock and Libman have made us familiar. The outstanding features are fever of long duration, which may resemble that of tuberculosis or malaria; anemia of varying intensity, sometimes so severe as to suggest one of the primary anemias; pains in the joints; petechial spots on the skin and mucous membranes; and a heart murmur. Albuminuria is common, and in later stages the signs of a true nephritis may appear. Abdominal pains, sometimes sudden in onset and suggesting embolic processes in the spleen or kidneys, are not infrequent. Cough and insomnia are often very troublesome. From the diagnostic point of view, the

heart murmur is the most important thing; it may be very faint or it may be loud and distinct. I have seen cases with mitral, with aortic and with pulmonic lesions; on the whole, however, I have gotten the impression that the aortic cases are the most frequent. The affection nearly always attacks a valve previously diseased as the result either of rheumatism or of some allied condition, such as tonsillitis or chorea. It may, however, have its starting point on an intact valve, as I have observed in gonorrhea and in one case of pneumonia, in which the pulmonic valve became involved. Such cases generally run a more acute course, with higher fever, and do not present so prominently the renal features. There is a primary chronic form of endocarditis, however, which in its course and termination is indistinguishable from that in which the lesion is a secondary one on a previously diseased valve.

One other feature is important, and that is the condition of the spleen. This organ is practically always enlarged, and in some cases so much enlarged that it becomes the dominant feature to the point of completely obscuring the underlying heart affection. It is of this group of cases, those characterized by a true splenomegaly, that I wish especially to speak. The spleen may extend down to the level of the umbilicus or even lower; it is smooth, rather firm and rarely tender, though often the seat of spontaneous pain. Such a striking enlargement may readily lead to a wrong diagnosis, especially to that of splenic anemia or of Banti's disease. It is easy to see why such a diagnosis might be made. There is the prominent spleen, the profound anemia, at times a striking leukopenia; and if a murmur is found, it will often be attributed to the anemia. Petechial hemorrhages, so valuable in the diagnosis, may be entirely absent throughout the long course of the disease.

I am inclined to think that in more than one case of so-called splenic anemia or Banti's disease treated by splenectomy, the condition was in reality chronic septicemic endocarditis. The leukopenia in a disease in which one would expect leukocytosis might readily, though erroneously, tilt the diagnostic scale in favor of splenic anemia.

Watching a number of cases in the last two or three years, and finding that neither autogenous nor stock vaccines, transfusions, drugs or other measures did aught to avert death, I began to wonder whether there was not some other factor besides the heart that was of importance in the fatality of the disease. Bachr,¹ Löhlein,² Ophüls³ and others have called attention to embolic processes in the kidney. While these undoubtedly play an important rôle in the course of the disease, I believe it is wise to direct attention to the possible significance of the large spleen. The spleen is a filter for bacteria. Whether it kills them or only benumbs them, leaving their final execution to the liver, is not definitely known. Bacterial filtration is not a passive process, but according to Rosenow, and to Ozaki,⁴ it is dependent on vital activity of the cells, on a selective action on their part, a bacteriotropism. The filtration causes an accumulation of bacteria in the spleen which leads to hypertrophy, a sort of work hypertrophy, as William Mayo calls it. Through the

multiplication of bacteria, and perhaps through their subsequent autolysis, increased quantities of toxins are thrown into the circulation. Moreover, living bacteria are often present in old infarcts of the spleen, as shown by Ophüls.⁵ In these ways an infectious disease may be kept up and perpetuated, although the primary focus is no longer existent or active. An example or two will serve to illustrate this point. In syphilis the spleen at times is greatly enlarged, and in such cases antisyphilitic treatment does little or no good, probably because the spirochetes are well protected in the spleen pulp and tissues. Removal of the spleen brings about a cure, especially if it is followed by a course of antisyphilitic treatment. In chronic malaria the blood is often free from plasmodia, while the spleen shelters them in enormous numbers.

May not therefore the long continued existence of bacteria in the spleen in endocarditis be the principal reason why the so-called bacteria-free cases go on to a fatal termination? If we could get rid of the large disease-harboring focus represented by the spleen, it might be possible to deal with the bacteria present in the heart valves. Enough antibodies might be developed to destroy them; while as long as the spleen continues to pour toxins into the blood, the body, as we know only too well, can never make any headway.

There is another factor to be considered. Enlargement of the spleen is brought about chiefly by a proliferation of cells, to a lesser degree by an increased blood content. This proliferation, according to the theory of cellular toxemia which I⁶ proposed several years ago, causes the pouring into the circulation of enormous quantities of metabolic products that have to be handled by the liver and other organs and tissues.

In view, therefore, of the hopelessness of our treatment of chronic septicemic endocarditis, and in view also of the value of splenectomy in other infectious diseases—as in syphilis, malaria, and in splenic anemia, if that be infectious—I believe we are warranted in removing the spleen in cases of septicemic endocarditis in which the organ is enlarged. In this connection it should be remembered that, as William Mayo⁷ has pointed out, enlargement of the spleen may exist even though the organ cannot be palpated.

On the basis of these thoughts we undertook the operation in one case, and while the ultimate outcome was not all we had hoped, failure was due to an unusual complication which caused the patient's death some time after the operation.

REPORT OF CASE

I. F., a man, aged 57, a patient of Dr. H. B. Shmookler, had been failing in health for a year. In the past four months he had a more or less continued fever, associated with joint pains but without joint swellings. His spleen had been enlarging, at first gradually, of late more rapidly. A profound anemia had coincidentally developed. From time to time there had been attacks of sharp pain in the left hypochondrium. At no time had he had any hemorrhage from the nose, mouth or bowel. Twelve years before, following an injury to the head, he began to have epileptiform seizures of jacksonian character, which later gave place to attacks of petit mal. When I saw the patient, Oct. 31, 1917, I found him exceedingly pale and weak. The heart was somewhat enlarged and there was a systolic murmur at the mitral area transmitted into the axilla. This murmur I

1. Bachr: *Am. Jour. Med. Sc.*, September, 1912, p. 327.

2. Löhlein: *Arb. a. d. path. Inst. zu Leipzig*, 1907, No. 4.

3. Ophüls, William: *Nephritis*, *THE JOURNAL A. M. A.*, Nov. 13, 1915, p. 1719; *The Etiology and Development of Nephritis*, Oct. 13, 1917, p. 1223.

4. Ozaki, Y: *Jour. Med. Research*, 1917, 36, 413.

5. Ophüls, William: *Nephritis*, *THE JOURNAL A. M. A.*, Nov. 13, 1915, p. 1719.

6. Riesman, David: *The Cellular Factor in Infectious Diseases*, *THE JOURNAL A. M. A.*, Feb. 20, 1915, p. 619.

7. Mayo, W. J.: *Reports from the Mayo Clinic*, 1916, 8, 628.

learned had existed for many years. Petechial spots were present over the legs. The most striking feature, however, was an enlarged spleen which extended to the level of the umbilicus. A blood examination revealed: hemoglobin, 45 per cent.; red cells, 2,220,000; white cells, 4,800, with 82 per cent. polymorphonuclear cells. Considering the case to be one of septicemic endocarditis with splenomegaly, I advised removal of the spleen preceded by transfusion. Two transfusions were done, the second, which was of appreciable benefit, Feb. 3, 1918. February 5, the patient was admitted to the Lankenau Hospital, where an immediate blood count revealed: hemoglobin, 40 per cent.; red blood cells, 2,020,000; white blood cells, 4,450; polymorphonuclears, 80; lymphocytes, 6; large mononuclears, 8; transitionals, 6; eosinophiles, 0.

The urine was yellow; of acid reaction; specific gravity, 1.015, and showed albumin, a faint trace; sugar, none; urea, 1 per cent.; bile, 0; indican, 0; diacetic acid, 0; acetone, 0; many granular casts; epithelial cells; white blood cells.

The phenolsulphonephthalein test resulted as follows: the first hour, 7 per cent.; second hour, 12 per cent.; third hour, 14 per cent.; total, 33 per cent.

The blood urea was 66 mg. per hundred c.c. of blood.

February 6, the spleen was removed by Dr. Deaver under ether anesthesia. It was found to be enormously enlarged and adherent to the diaphragm at the upper pole.

The spleen with blood weighed 1,570 gm.; without blood, 1,160 gm. The surface showed two scars, evidently the result of infarction. Dr. Reimann, pathologist of the Lankenau Hospital, reported on the microscopic examination: "The spleen is not the spleen of Gaucher's disease, Banti's disease, malaria, tuberculosis, syphilis, Hodgkin's disease, or the leukemias. There is endothelial hyperplasia, diffuse around the blood sinuses, just as in the ordinary acute splenic tumor, e. g., typhoid. The inference is that the patient had a long standing infection of very low virulence or a long standing toxemia."

The day following the operation the hemoglobin rose to 50 per cent. and the red cells to nearly 4,000,000 from 2,020,000. At the end of a month the hemoglobin was 55 per cent. and the red cells just under 3,000,000, and the leukocytes had risen to 6,250, with 68 per cent. polymorphonuclears instead of 80 per cent.

On the ninth day the stitches were removed, but there was no healing and the patient eviscerated himself. The bowels were reduced and the wound closed under chloroform anesthesia. No infection ensued.

After the operation the patient improved amazingly in appearance; his hands were no longer cold, and he lost the yellowish cachectic pallor which had been such a striking feature. Both Dr. Deaver and Dr. Shmookler feel that the operation justified itself by the improvement that followed.

March 9, the patient began to have trouble with his larynx and extreme difficulty in breathing. Dr. Butler, on examination, thought there was an abscess of the larynx. Before anything could be done, the man died.

COMMENT.

The man thus lived a month after the operation; and notwithstanding the fact that he had eviscerated himself and had to have a second operation, his general condition as well as the blood showed a decided improvement. While we do not know what would have happened had the laryngeal abscess not supervened, it is reasonable to suppose that the improvement would have continued.

I have reported this single case in the hope that the operation may be undertaken by others.

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A CLINICAL STUDY OF FIVE HUNDRED CASES OF CHOLECYSTITIS

WITH SPECIAL REFERENCE TO DIAGNOSIS

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BISMARCK, N. D.

We live in an age of conservation. Every newspaper we pick up contains articles on the conservation of food, of clothing, of fuel; in fact, we are urged and taught to conserve all the resources of this bountifully productive land, but we see and hear very little on the conservation of the nation's greatest asset, the conservation of human life.

We live in an age of preventive medicine, and although we are not yet able to prevent a great many diseases, we, as physicians and surgeons, frequently are in a position to prevent complications of diseases and through opportune intervention prevent a serious, if not fatal, outcome, thereby doing our bit in the conservation of human life.

While looking over the mortality records for the last five years, and the causes of death in our clinic at Bismarck, I was impressed with the fact that a large percentage of these deaths were preventable, provided these patients had received earlier attention. Some died without operation, while others submitted to surgery as the only possible means of recovery. I refer particularly to the acute intra-abdominal lesions, namely, appendicitis, gastric and duodenal ulcers, and cholecystitis.

We are all familiar with the importance of early diagnosis and surgical treatment of acute appendicitis and perforating gastric ulcer, but I do not think that the profession at large has been strongly enough impressed with the importance of early operations for the relief of gallbladder inflammations and their results. It is especially cholelithiasis and active cholecystitis to which I wish to call attention, not only because of the suffering they entail, but also because of the more serious consequences which have not been sufficiently emphasized and which swell our mortality rate, namely, cancer of the gallbladder or ducts, rupture of the gallbladder with septic peritonitis, empyema of the gallbladder, suppurative cholangitis, abscess of the liver, hepatitis, pancreatitis and other less serious complications, all of which can be averted by an early diagnosis and operative treatment.

The practice of waiting for further developments, for the appearance of jaundice to verify the diagnosis, or until direct danger to life is evident, is still too general.

Realizing that many lives are thus sacrificed that might be saved, and that the voice of the internist is sometimes heeded by the general practitioner and the patient more than that of the surgeon, I thought that this report might be of help to those who are still holding back, as well as to those on whose diagnostic skill and judgment depend the welfare and the lives of a great many people. I have, therefore, reviewed the histories of the last 500 cases of inflammation of the gallbladder in which operation was performed in our clinic either by Dr. Quain or by Dr. Ramstad, and have tabulated the symptoms as they were recorded at the time these histories were taken and the patients referred for operation. According to Table 1 it will be seen that the diagnosis of gallbladder disease rests almost entirely with the anamnesis, and the patient will

Overweight at 50.—There is every reason why a man who is overweight at 50 should reduce until he reaches the weight he was when he was 35. According to Fisk he is a better insurance risk if after 35 he is under the weight which is the average of those of his years.—Lusk, Food in War Time.

frequently relate the history of an attack of colic which is so definite that it seems almost stereotyped.

The reason so many cases of cholecystitis or cholelithiasis are taken, or rather mistaken, for disease of the stomach is that disease of the gallbladder produces symptoms that are referable to the stomach. These are reflex symptoms, and they are in no way related to the taking of food—a fact of which we must never be forgetful—and yet hardly a day passes by on which patients do not present themselves at our clinic with a typical gallbladder history, but with a previously made diagnosis of acute gastritis, gastralgia, gastric catarrh, dyspepsia, indigestion and other erroneous names. I have divided this series of 500 cases into two groups, namely, those in which stones were found, and those in which no stones were present, but in which the examination indicated a pathologic condition of the gallbladder. In the first group there were 340 cases and in the second 160.

TABLE 1.—SYMPTOMS IN FIVE HUNDRED CASES OF INFLAMMATION OF THE GALLBLADDER

	Cholelithiasis, 340 Cases		Cholecystitis, 160 Cases	
	No.	Per Cent.	No.	Per Cent.
Tenderness	292	86	150	94
Belching	271	79.7	107	67
Vomiting	269	79.1	76	47.5
Cramps, radiating....	244	71.8	61	38.1
Dyspnea	243	71.8	63	39.4
Epigastric distress ...	117	34.4	72	45
Prostration	96	28.2	7	4.4
History of Jaundice...	79	23.2	13	8.2
Cramps, not radiating.	69	20.3	84	52.5
Bile in urine	59	17.3	3	2
Sex	M. 36, F. 304		M. 40, F. 120	
Parity	0 to 15, average 6		Average 5	
Gastric Acidity	0 to 100; average: free, 24; combined, 18.		Average: free, 35; combined, 17	
Duration of illness....	1 month to 26 years		1 month to 37 years	
Time of day.....	Day, 2%; night, 10%; day and night, 88%		Night, 6%; day and night, 94%	

SYMPTOMS

Tenderness.—The most constant symptom in this series was tenderness over the gallbladder region, and it was present in more than 86 per cent. of the cases with stones, and more than 94 per cent. of the cases without stones. The degree of tenderness depends on the severity of the inflammation and the degree of distention of the gallbladder. The most satisfactory manner of eliciting this symptom is the following: The examiner places his left hand firmly, with the palm up, in the patient's right flank, and the tips of the fingers of his right hand below the right costal arch over the region of the gallbladder. The patient is then asked to breathe deeply. On expiration, when the abdominal muscles are relaxed, a sudden pressure upward with the right hand is made. If the gallbladder is distended a sharp sting is experienced by the patient, which manifests itself by a typical expiratory "catch" or "grunt." Pressure over an inflamed empty gallbladder also causes pain, but not of so stinging a character. During active inflammation or during an attack of colic the gallbladder is extremely tender, and there is present marked muscle spasm, the result of a local peritonitis.

Belching.—Gas often troubles during the attack and gives the sensation of bloating and upward pressure, and is relieved only by eructations. It was positive in approximately 80 per cent. of the cases with stones, and in nearly 67 per cent of the cases without stones. In gastric ulcer we frequently find belching, and it is claimed by some authorities that it is of no significance

in differentiating ulcer from cholecystitis. My experience has been entirely different, as is shown by the high percentage of positive cases in our series. Of particular importance is the fact that belching in cholecystitis is independent of the taking of food; it may be most pronounced between meals, often coming on suddenly, of short duration and followed by prompt relief from the annoying bloating, distress, upward pressure, etc., whereas in ulcer it usually occurs at a specified time after meals and disappears when gastric digestion is completed.

Vomiting.—Infections of the biliary tract are frequently accompanied by antiperistalsis, bile is regurgitated into the stomach, and because of its emetic qualities there is vomiting or nausea, the vomitus nearly always consisting of bile. Of the 269 cases, in twenty-eight, or slightly more than 10 per cent, there was nausea without vomiting, while in thirty-four of the seventy-six cases without stones, or approximately 45 per cent, there was nausea without vomiting. Sometimes the vomiting will relieve the attack the same as in gastric ulcer, but often the patient keeps on vomiting until the bile ceases to flow into the stomach. I have made it a rule—and it has served me well—that whenever vomiting is present in an upper abdominal lesion, and an obstruction of the pylorus can be excluded, to look to the gallbladder as the offending organ.

Radiating Cramps.—When the gallbladder becomes overdistended from obstruction of the cystic duct or the common duct, there occurs sudden severe epigastric pain with radiation either to the right costal arch or to the left, and through to the back or the region of the shoulder blade, or to the right or left shoulder, which, after a longer or shorter terrific spell, ceases as suddenly as it appeared. It is of a sharp, lancinating character, coming on at irregular intervals, by day or by night, often bears no relation to food, and is without apparent cause. This is the typical gallstone attack, and was found present in 244 patients with stones, or in 71.8 per cent. of the first group, and in sixty-one, or 38.1 per cent., of the second group. There are many variations in the character of the pain, in its radiation and in its severity. Although no definite knowledge can be gained by it as to the location of the stones, I have often seen a cystic duct stone at operation when the pain radiated to the left costal arch.

I use the word "cramps" for these pains, because its use has often brought out a typical gallbladder history, which otherwise would have been difficult or impossible to get. This is particularly true of the German and Russian patients who present themselves with an indefinite stomach history, and seem altogether forgetful of the attacks of *Magenkrampf* or *Mutterweh* from which they suffered ten or twenty years ago, but which are promptly recalled by the use of these expressions. As a rule, the attacks of colic due to cholelithiasis are more severe, and when they cease there is usually sudden return to health; whereas in cholecystitis the attacks are less severe, but of longer duration, with a succeeding soreness which lasts sometimes several days.

Dyspnea.—Deep respiration gives pain during an attack of colic, and there is a subsequent spasm of the diaphragm which allows only a limited excursion, causing a marked shortness of breath. The pain is sharp and stabbing, and is frequently mistaken for pleurisy or pneumonia. As soon as the attack of colic is completed the dyspnea disappears, and the patient is able to breathe with little or no discomfort.

Epigastric Distress.—Many of the patients with chronic cholecystitis come for advice for stomach trouble, the reflex symptoms of digestive disturbance causing far more annoyance than the local gallbladder manifestations. A great many of our series, 117, or 34.4 per cent., of the first group, and seventy-two, or 45 per cent., of the second group, gave a history of epigastric distress, which characterized itself by its irregularity of appearance. It may vary in degree, and all foods cause distress, which is not influenced by soda or acids, but usually by belching or vomiting. As a whole, epigastric distress is so much like that of ulcer or other stomach trouble that no conclusion can be arrived at until careful questioning brings out the fact that the patient has had recurring attacks of severe pain in the pit of the stomach, accompanied by much gas and bloating, which puts us at once on the track of a correct diagnosis.

Prostration.—During an attack of gallbladder colic there are often great anxiety and free perspiration, and the patients have a feeling of impending death, and without being asked the direct question they frequently make the statement, "I thought I was going to die." This symptom is present much more frequently when there are stones than in cholecystitis without stones; but in either case when it is present it is almost pathognomonic of gallbladder obstruction. This feeling of impending death was recorded in only ninety-six, or 28.2 per cent., of our series of stone cases; but I am confident that it will be found present in a much larger percentage of cholelithiasis cases if careful inquiry is made. I never omit the question in the anamnesis in suspected gallbladder cases, and it has frequently helped me out when the diagnosis was in doubt.

History of Jaundice.—When we have radiating pains in the epigastrium followed by jaundice, our diagnosis is nearly always made for us. About 23.2 per cent. of our stone cases gave a history of jaundice following one or more of the attacks, while in the cholecystitis group only thirteen, or 8.2 per cent., gave such a history. The jaundice is nearly always due to duct obstruction, mostly of the common duct. If a patient has a colic that is followed by jaundice, the colic was caused by the moving of a solid body or by an obstruction due to adhesions. If the jaundice comes first and then the colic, it is presumably due to an infection or a neoplasm. Many patients give a history of only one attack of jaundice, although they suffered from colic many times a year for many years. The jaundice may vary from a yellowish tinge of the conjunctiva to a dark-green discoloration of the entire body.

Cramps Not Radiating.—In only 20.3 per cent. of our stone cases was there a history of epigastric cramps that were not radiating, while in 52.5 per cent. of the cholecystitis cases without stones there were cramps in the epigastrium that did not radiate. It will then be seen that nonradiating cramps in the epigastrium, when accompanied by other gallbladder symptoms, favor the diagnosis of cholecystitis rather than cholelithiasis. These cramps must not be confounded with epigastric distress; they are severe, lancinating pains, but do not radiate to the back or shoulders.

Bile in the Urine.—If we had a chance to examine the urines in all cases of gallstone colic within the first twenty-four hours after an attack, approximately 80 per cent. would react positively to bile. In our gallstone cases only 17.3 per cent. gave a positive reaction, while in only 2 per cent. of the cholecystitis cases bile was found. This small percentage is due to the fact

that we see very few patients during or immediately after an attack, although in most cases they give a history of a dark brown urine immediately after the attack of colic.

Sex.—Statistics vary greatly as to the percentage of men and women suffering from cholecystitis. In our series we found thirty-six men and 304 women, or one male to nine females harboring stones. Of the second group, or that without stones, the proportion of men was much higher, namely forty males and 120 females. This would lead one to believe in the theory of bile stasis in the gallbladder due to pressure either from tight bands, apron strings or the like, rather than in that of infection, because most of our stone patients were fleshy women who were in the habit of wearing aprons with tightly drawn strings.

Parity.—Of the stone cases in the first group, seventeen women were nulliparas, and the highest number of births was fifteen, the average being six, while in the second group the average was slightly lower, namely, five. Whether or not pregnancy is an etiologic factor in gallstones has not been proved, although many patients experience their first attacks during a period of pregnancy—probably the result of a stasis due to pressure from below.

Gastric Acidity.—At a recent medical meeting I heard a discussion on the gastric acidity in gallstone disease that amused me very much. One eminent clinician found the acidity above normal, while another physician of equal renown found a low acidity. In an analysis of our cases I found the acidity varying from a hydrochloric acid deficiency to 100 per cent. The average for the first group was free hydrochloric acid 24, combined 18, or slightly below normal, while in the second group the average was free hydrochloric acid 35, combined 17, or slightly above normal. In the acute cases there was usually hyperacidity, while in the chronic there was nearly always a low acid content.

Duration of Illness.—This factor is of no particular interest from a diagnostic standpoint, yet it is interesting to note that the patient who suffered from the disease for thirty-seven years presented no stones at the operation. Whether or not the stones were passed into the bowel is a matter of speculation; yet, it seems barely possible that one should suffer attacks for that long a period without the formation of gallstones. The shortest period of suffering was one month.

Time of Day.—In the first group, 88 per cent. of the patients had attacks both day and night; 10 per cent. had only night attacks, and 2 per cent. suffered in the day time. In the second group, 94 per cent. suffered both day and night, and 6 per cent. had only night attacks.

Of the 340 cases of cholelithiasis, fourteen were discovered during the progress of some other operation; but in nearly all of these close inquiry after the operation brought out an unmistakable gallbladder history.

In studying the symptoms of our series of cases, certain conclusions were arrived at which warranted tabulation of the symptoms in groups or combinations, and I believe that a careful analysis of these combinations will be of immense help to us in arriving at a proper diagnosis of gallbladder disease. I have taken the five most prominent symptoms and have called them the "five cardinal symptoms" of cholelithiasis (Table 2). I have omitted "tenderness" and "epigastric distress" because they can be demonstrated in so many different diseases of the upper abdomen, and have therefore much less value as a diagnostic factor.

Since in this article I am taking up only the early diagnosis of cholelithiasis and cholecystitis, I have refrained from mentioning symptoms of complications and sequelae because the disease should not be allowed to progress to this point.

AIDS IN DIAGNOSIS

Regarding the roentgen ray as an aid in the diagnosis of gallstones, I will say that our experience has not been very encouraging. All our gastro-enterologic patients are sent to the roentgen-ray laboratory for examination, but the results, so far as the diagnosis is concerned, are rather discouraging. Such men as Case, Pfahler and George assert that they are able to demonstrate gallstones with the roentgen ray in from 50 to 85 per cent. of their patients. If these reports are correct, their work must certainly be commended. Their success is due to the fact that a great many plates are made which vary in density, one from the other, by variation in the exposures and the employment of a different intensifying screen for each plate. This, of course, entails a large expense, as well as a great deal of time, and we have consequently discontinued the search for gallstones by this method in

TABLE 2.—CARDINAL SYMPTOMS OF CHOLELITHIASIS

Groups of Symptoms *	Cholelithiasis		Cholecystitis	
	No.	Per Cent.	No.	Per Cent.
1 and 2.....	202	59	34	21.2
1, 2 and 3.....	189	55.6	29	18.1
1, 2, 3 and 4.....	173	50.9	22	13.8
1, 2, 3, 4 and 5.....	82	24.1	7	4.5
1, 2 and 4.....	172	50.6	26	16.2
1, 2, 4 and 5.....	82	24.1	9	5.6
1, 2 and 5.....	82	24.1	9	5.6

* In this column, the numbers indicate: 1, radiating pains; 2, vomiting; 3, belching; 4, dyspnea; 5, prostration.

our clinic. When the patients give a definite history of cholelithiasis, even though the roentgen-ray findings are negative, they are referred for operation because negative roentgen-ray findings do not exclude gallstones. The duodenal tube of Einhorn, which he says will often help out in the diagnosis of cholecystitis, I have used in approximately 100 cases with very uncertain results, and it has helped me to make a diagnosis in a very small percentage of our patients. I have found infected bile and mucus in an apparently normal gall-bladder, and on the other hand I have recovered sterile bile, "golden yellow," etc., in patients who at operation showed gallstones.

CONCLUSIONS

From a consideration of all of the foregoing facts, it is logical to assume, in order to get the most successful results, that early surgical treatment is indicated in gallbladder disease, and that in order to be able to operate early, an early diagnosis is essential. From a study of this series of cases with reference to the more modern roentgen-ray and laboratory aids in diagnosis, I have drawn the conclusion that the older methods of diagnosis are still the ones on which we must rely. A complete history of the patient's complaint, elicited with the most painstaking efforts, particular attention being paid to the previous personal history, and intelligent use of the eyes, ears and fingers being practiced, together with the keen judgment of interpreting the facts, is still the paramount method in diagnosis.

In 90 per cent. of all cases of cholecystitis and cholelithiasis a correct diagnosis can be made from the history alone, and in more than 95 per cent. of these cases the diagnosis of gallstones is an established fact when the "five cardinal symptoms" are present.

THE CIRCULATION OF ARSENIC IN THE CEREBROSPINAL FLUID *

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The infrequency with which arsenic has been found in the cerebrospinal fluid, following the intravenous injection of arsphenamin, forces the conclusion that this dye does not as a rule pass from the blood into the cerebrospinal spaces. Barbat¹ believes that the transition is aided by drainage of the lumbar cistern shortly after the injection. By this technic, he was able at the end of twenty-four hours to demonstrate 0.25 part of arsenic per million in twenty-three fluids of twenty-six examined. His deduction, however, is vitiated by the fact that, as early as twenty minutes after the intravenous injection, and unaided by the auxiliary puncture, 42 per cent. of the fluids examined showed 0.20 part of arsenic per million, which is practically as much as was found in twenty-four hours.

The results reported in Table 1 are based on an examination of 123 cerebrospinal fluids collected from random neurosyphilitic patients, at arbitrary intervals following the intravenous injection of from 0.3 to 0.6 gm. of arsphenamin. The analytic method used is a refinement of the Marsh technic and permits the quantitative recognition of a micromilligram of arsenous oxid, as a characteristic mirror. The attempt was made to exclude possible sources of contamination in the collection of the fluids. Controls were run with the fluids of patients, not under active treatment, and each determination was preceded by one or more blanks.

TABLE 1.—RESULTS OF EXAMINATION OF SPINAL FLUID

Interval After Injection	Samples Analyzed	Posi-tive	Nega-tive	Aver. Mg. Arsenous Oxid in 1 C.c.
5 min.	2	0	2	0.00
20 min.	1	0	1	0.00
30 min.	6	1	5	0.10
45 min.	3	0	3	0.00
1 hr.	29	19	10	0.18
1½ hr.	23	4	19	0.18
2 hr.	35	15	20	0.17
3 hr.	7	0	7	0.00
5 hr.	2	0	2	0.00
6 hr.	3	0	3	0.00
7 hr.	4	0	4	0.00
23 hr.	8	0	8	0.00

It is thus seen that of 123 fluids, the arsenic contents of thirty-nine became appreciable within one or two hours. Whether the fluids found negative were so because their arsenic contents at the time of collection had not reached the limit of delicacy of the analytic method or because they had already depreciated there-

* From the Psychopathic Department, Boston State Hospital.
* Because of lack of space, this article is abbreviated by omission of a table of findings. The complete article will appear in the reprints, a copy of which may be obtained from the authors.
1. Barbat, J. H.: Permeability of the Meninges to Arsenic in Paresis and Tabes, THE JOURNAL A. M. A., Jan. 19, 1918, p. 147.

from cannot be stated. Also, because of the few samples collected at intervals beyond two hours, it cannot be concluded from these data that no arsphenamin passes into the cerebrospinal fluid after the second hour or that it does not remain there in appreciable amounts for periods longer than one hour.

The recent work of McClendon² suggests that the cerebrospinal fluid is an ultrafiltrate of the blood. Its arsphenamin concentration at the place it is formed must then progressively decrease with that of the blood. Adler and Wetmore,³ using the same analytic method as did the present authors, found that at the end of one hour, following the intravenous injection of 0.6 gm., 80 per cent., of the drug had disappeared from the blood stream. In three hours 98 per cent. had gone, and the concentration of arsenous oxid was only from 0.25 to 0.50 mg. per cubic centimeter. It seems probable, therefore, that the arsphenamin concentration of the cerebrospinal fluid attains its maximum during the first hour. This probability is strengthened by consideration of what happens when arsphenamin is intrathecally introduced by the Swift-Ellis technic. Twelve c.c. of blood serum drawn one hour after the intravenous injection of arsphenamin, and fortified by the addition of 0.3 mg., represents about 150 mmg. of arsenous oxid. Two hours after its introduction, the fluids of three patients examined showed less than 0.05 mg. of arsenous oxid per cubic centimeter. By the latter technic, therefore, a maximal concentration of 1.2 mg. of arsenous oxid per cubic centimeter of cerebrospinal fluid may be obtained and maintained for a period certainly not over two hours.

It is now fairly definitely established⁴ that the cerebrospinal fluid filters through the arachnoid villi into the greater sinuses, and the absorption from the cranial subarachnoid space is held to be much more rapid and greater in amount than from the spinal portion. Also, there is said to be an accessory drainage of the fluid by way of the perineural lymphatics. Cushing and Weed⁴ report the excretion within two hours of from 19 to 25 per cent. of the phenolsulphonephthalein placed in the lumbar subarachnoid space of cats. Mehrtens and West⁵ state that the same substance under similar conditions appears in the urine of normal human subjects in less than ten minutes. In neurosyphilis the period is lengthened as much as seventy minutes. How long the excretion can be demonstrated or what becomes of the major part of the substance was not determined.

It might be questioned whether the minute amounts of arsphenamin that find their way into the cerebrospinal fluid have any spirillicidal value. Knowing what we do about its rapid excretion, it is probable that 0.6 gm. of the dye given intravenously cannot, when dispersed through the tissue juices of a 70 kg. (154-pound) man, represent a higher concentration of arsenous oxid per cubic centimeter than is found in the cerebrospinal fluid; and its efficacy in systemic syphilis has never been questioned. Its failure to attain a spirillicidal concentration may be manifested by such phenomena as neurorecurrences, the Herxheimer and other reactions, corresponding to the bi-

ologic law that small quantities of a poison excite, large ones kill, the micro-organism.

The best histologic and physiologic evidence⁶ represents the cerebrospinal fluid as "not only the secretion of the choroid plexus, but the fluid waste products of nerve-cell activity as well, poured into the subarachnoid spaces by way of the perivascular channels." Spina⁶ has shown that the amounts yielded by the lymph spaces may be considerable. Hence it cannot be said that any amount of arsphenamin placed in the cisterns is therapeutically the equivalent of the minute amounts excreted into the cerebrospinal spaces from the capillary bed. The rate of filtration of the fluid through the arachnoid villi is a function of the pressure difference between the cerebrospinal fluid and the venous blood. To reduce the pressure of the former by withdrawal of a maximal amount of fluid at lumbar puncture, as practiced by Barbat,¹ may indeed have the effect of suspending the outflow for a certain period and thus conserve the arsphenamin concentration of the fluid. The therapeutic advantage to be so gained is problematic, since it is in the perivascular and perineural spaces that occur the chief inflammatory changes characteristic of neurosyphilis, and it is doubtful whether the various cisterns are in direct communication with the former.

It has been urged in favor of intrathecal therapy that the serum introduces the antitoxin, which, after all, constitutes the effective curative agent. Sherrington⁷ has shown that following intravenous injections of antitetanic serum into monkeys, the cerebrospinal fluid acquires antitoxic properties. In effecting cures of acute tetanus, the intrathecal administration of the antitoxic serum was shown to be more efficient than the intravenous. Golla⁸ denies that the relation holds for man, and cites Irons, who treated sixteen unselected acute cases by the lumbar method with a mortality of from 81 to 83 per cent., and eleven similar cases by the intravenous route, with a mortality of 72 per cent. In a chronic granulomatous disease like syphilis, conditions are much different. Taking the Wassermann reaction as an index, the antitoxic molecule is frequently, in the later stages of neurosyphilis, to be found in the cerebrospinal fluid, while absent in the blood serum. The autochthonous formation of antitoxin, indeed, becomes a necessity, if we are to regard it as the reaction of the host against the constituent contents of the invading organism, e. g., its toxin, and in neurosyphilis the perivascular spaces are the chief seats of the spirochetosis, and hence also the chief seat of antitoxin formation. There is strong indirect evidence that the antitoxin molecule represents nothing more than the molecule of some everyday constituent of the blood (and to a lesser extent of the cerebrospinal fluid), that has acquired an exalted adsorptive capacity. The Wassermann reaction would, then, represent a physical competition between the adsorptive capacities of two molecules for complement, resembling the competition between two acids of different avidity for base. As will be brought out by one of us (Rieger) in a separate paper, this increase in adsorptive capacity of the normal molecule, x , sufficient to deviate complement from the hemolytic molecule, y , of rabbit's serum, may often be brought about in a simple way both in vitro and in vivo. The injection of arsphenamin, per se, can often accomplish this, so

2. McClendon, J. F.: The Formation and Composition of the Cerebrospinal Fluid, *THE JOURNAL A. M. A.*, April 6, 1918, p. 977.

3. Adler, H. M., and Wetmore, A. T.: *Boston Med. and Surg. Jour.*, 1914, **171**, 900.

4. Cushing, Harvey, and Weed, L. H.: *Jour. Med. Research*, 1914, **31**, 1.

5. Mehrtens, H. G., and West, H. F.: The Absorption of Phenolsulphonephthalein from the Subarachnoid Space in Diseases of the Central Nervous System, *Arch. Int. Med.*, October, 1917, p. 575.

6. Spina, A.: *Arch. f. d. ges. Physiol.*, 1900, **80**, 370.

7. Sherrington, C. S.: *Lancet*, London, 1917, **2**, 964.

8. Golla, F.: *Lancet*, London, 1917, **2**, 965.

that after repeated injections, a previously negative blood serum becomes positive, without the mediation of spirochetes.

The intensive treatment of neurosyphilis in all stages, by the intravenous injection of arsphenamin, has, in the hands of one of us (Solomon) thus far given the most satisfactory results. The latter will be presented separately. The cases in Table 2 were taken at random and simply represent those on whose fluids two or more arsenic determinations had been made. It will be noted that the fluids in general show progressively smaller amounts of arsenic for the same time interval, with successive injections. This increased rapidity of elimination corresponds with the increased tolerance for arsphenamin shown by most patients. Adler and Wetmore, working with blood, similarly report that "increased tolerance to salvarsan seems to run parallel to increased rapidity of excretion. This circumstance may form the basis for the belief that the spirilla become "arsenic fast" under intensive treatment. It will also be seen that those patients consistently showing the larger amounts of arsenic in their fluids made the more rapid progress, as judged from the serologic findings.

What, then, is emphasized by the foregoing is the necessity of maintaining a maximal concentration of arsphenamin in the blood for longer periods than has heretofore been the practice, so that increasingly greater amounts will pass into the perivascular spaces. The pleocytosis, increase in protein and in the positivity of the Wassermann reaction in the midst of apparently intensive treatment, can only mean that the arsphenamin has failed to reach the seat of the spirochetosis in lethal concentration, and has stimulated rather than checked the process. It is hoped to meet the condition set forth, by successive intravenous injections at one or two hour intervals of small doses, perhaps supported by multiple intramuscular injections.

SUMMARY.

1. Of 123 cerebrospinal fluids collected at intervals ranging from five minutes to twenty-three hours after intravenous injection of from 0.3 to 0.6 gm. of arsphenamin, thirty-eight showed appreciable amounts of arsenic.

2. The largest amount found was 0.6 mg. of arsenous oxid in 1.0 c.c. The average amount was 0.18 mg. per cubic centimeter. The shortest interval at which arsenic was found was thirty minutes; the longest two hours.

3. With successive injections, the fluids in general show progressively smaller amounts of arsenic for the same time interval.

4. In general, those patients consistently showing the larger amounts of arsenic in their fluids made the more rapid improvement.

5. It is suggested that intravenous injections of divided doses at one or two hour intervals would prove more effective in maintaining a high concentration of arsphenamin in the blood for longer periods, and thus possibly allow increasingly greater amounts to pass into the perivascular spaces.

To Detect Simulation of Unilateral Blindness.—A. Trantas of Athens has found instructive the vertical black band which is seen with binocular vision when two opaque screens are moved toward each other until they cover both pupils. On each side of the opaque line there is a luminous line owing to the physiologic diplopia.

Military Medicine and Surgery

THE NATURE OF NERVOUSNESS IN SOLDIERS *

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FRANCE

For eighteen months the term "shell shock" has been employed in medical literature and, colloquially also, in the British Army to cover all cases of nervous instability occurring in the course of war.

Under this heading have been massed cases of amnesia, anergic stupor, sleeplessness, nightmare, mutism, functional blindness, tremors, palsies, and further, anxiety neuroses, occurring not only under fighting strain but also in individuals who, failing in self confidence, suffer doubts and apprehensions while still waiting for transport overseas. Further, the term became commonly used in newspaper journalism, whence it passed into common speech, always associated with a train of thought in the mind of the speaker, at once fearful and mysterious.

The general acceptance of this term and the apparent recognition by both medical officers and the public of a concrete, and above all quite novel, condition induced by experiences of unimaginable horror—the moving accidents of flood and field—had the obvious result of satisfying most patients as to the propriety of his ailment; there was inevitably induced in him an easy rationalization of his illness, an easy self-justification in the very label tied to his tunic in the field ambulance, which, in all but the most redoubtable spir-its, facilitated acceptance of his fate and to some extent inhibited effort on his own part toward his own cure.

Let me not be misunderstood: A conscious assumption of symptoms by soldiers in my experience—and in this I am completely supported by all other medical officers—is exceedingly rare; it is not rare for a man to go sick for a few hours to obtain a temporary alleviation of his lot, but very seldom does one meet a man malingering with a view to discharge from the service.

The conditions under which the present war is being fought are the rudest and largest experiment in biologic adaptation to which the human race has been exposed. Before 1914, it seemed to most of us that civilization with its drains, and its banks, its social amenities by which to prevent friction of the emotions, and its policemen and law courts to stop even the suggestion of physical clash, had stifled in us any possibility of living in an environment of danger and destruction, of dirt and foul odors. In the vast majority, the power of the human animal to exist in quite novel and abominable surroundings has been amply vindicated; but in a certain number the adaptation has been less complete, and be it noticed these people have been most often those who found even the normal life of peace time a hard and tempestuous affair.

Much has been written—notably by Mott and certain French observers, together with the strong support of Oppenheim in Berlin—on the theory that the neuroses of war are the result of direct aerial concussion produced by the explosions of heavy shells.

* Read before the American Neurological Association, May 10, 1918.

Brains have been sectioned belonging to soldiers alleged to have been killed by "commotio cerebri" resulting from such concussion, and petechial hemorrhages have been demonstrated in such brains in the medulla, midbrain and basal ganglions. One may submit here the great difficulty of obtaining accurate details as to the circumstances of death on the field. It is not often easy to learn whether or not the man killed was buried and asphyxiated though not outwardly wounded, and one should also bear in mind the power of a heavy shell explosion to deoxygenate the air in its vicinity, before coming over-rapidly to the conclusion that not only the obvious factors of concussion and compression—even to the extent of 10 tons to the square yard—are the sole destroying agents involved in the question.

Almost never are generalized psychoneuroses seen in soldiers suffering also from physical wounds.

It is not conceivable that of two men exposed in equal proximity to a heavy shell burst, he who has no injury can have sustained a greater concussion than he who, for example, has also suffered a transverse lesion of the spinal cord; yet I have never seen any sign of nervous instability—not to mention stupor, amnesia, functional abolition of the special senses or tic—in any individual at the same time dangerously wounded.

In his Chadwick lecture, Mott, speaking of the importance of the personal factor in determining the production of a neurosis, contrasts the case of a commercial traveler (a drummer) of nervous make-up, who after three days in the trenches was returned to the base with tachycardia and tremor, and who six months later had developed an almost complete functional paraplegia, with the calm and well poised attitude of another, an Australian soldier, suffering a spinal paraplegia, the result of a cord lesion inflicted by the explosion of an 8-inch shell 2 feet behind his dugout. Should we accept this comparison thoughtlessly, we should miss what I believe to be one of the most important considerations in all this momentous matter. The comparison is false in that it compares two essentially unlike situations and leads us to the superficial and quite trite conclusion that a flabby, nervous fellow stands strain badly while a robust individual stands strain well.

Such a conclusion is, of course, true as far as it goes; but my experience makes me believe that, had the little commercial traveler been shot in the spine, his emotional apparatus would have remained under control, and had the Australian not been wounded in his narrow escape from destruction, he might very well have come down the line with a mutism, generalized tremor, or some such expression of nervous breakdown.

MORALE

The emotions of fear and pain constitute together our machinery of self preservation; in most of us swathed in the cotton bandages of our civilized lives but little call is made on them. Constant exposure to imminent destruction in war produces, however, a tautness of the nervous system, a strain due to powerful excitement and, I would submit, to the organic stress induced by the mobilization of biologic instincts heretofore dormant. These instincts of self preservation do not always, and perhaps not often, become conscious realizations. I mean that men, though in great danger, quite honestly may not feel afraid; their nervous systems may be said to be frightened, but their awareness knows no fear.

This submersion of such a powerful emotive force below the threshold of consciousness is due partly, perhaps, to the person's knowledge of the debilitating effects on his energies of the entrance of fear into his conscious life, but much more, one feels sure, to the inhibitory influence of his morale. Now what is this thing we call morale? Is it not the expression in each soldier of his herd instinct, of his willingness to sacrifice himself for the benefit of his kind, and for the ideals held in common by his countrymen and himself? It is a loyalty to his mates, to his officers, to his regiment, to his nation, and, in the last instance, to the ideals of life for which his nation stands, and it is measured by his conscious willingness to suffer, his capacity for sacrifice in the common good. It is a quality born of the tribe, a product of gregariousness and so held socially in good repute. It is constantly expressed in thought; it is a real component of the soldier's conscious intellectual life. The shrinking from loss and the fear of death on the other hand are but rarely scrutinized in their realities; they are anti-social in trend and so are cast down, by good citizens, into the limbo of subconsciousness.

Perhaps I seem to you to have been wandering from my subject by these considerations; but for some months past I have been trying to discover something of the dynamic influences in our men, and I feel that a clue to the genesis of the neuroses is to be found in the antagonism on the one hand of the conscious emotions of loyalty and morale with their concomitant urge to self-sacrifice, and, on the other hand, the more or less satisfactorily repressed instincts for the conservation of individual life.

The British soldier is not given overmuch to self analysis and investigation of his emotional processes; but questionings carried out as tactfully as possible have elicited in innumerable instances the information that being wounded, subsequent to or during heavy shell fire, is followed by a period of mental rest. And it would be strange were it otherwise. Such a man experiences a sense of an honorable relaxation of effort; he is, for the moment, quit of his obligation to others, and freed from his fear of death. Further, his fate, for the moment, is decided, and, despite his pain, he feels himself more fortunate than many of his fellows whom many times he has seen horribly destroyed. He waits for the stretcher bearers to take him, and in most men there is a conscious hope of a time of rest and home coming.

In such experiences, there are satisfied at once the man's biological instinct for self preservation and his social instinct of loyalty to his comrades and to that ideal of conduct which has been his buttress in times of agony and stress.

The converse situation, in which a soldier suffers the stupefaction and profound bewilderment consequent on exposure to heavy shell bursts without being wounded, is one in which the obligation to persevere still remains with him, together with a prospect of indefinite repetitions of like abominations, culminating, as after a time becomes certain, in horrible mutilation or death. Under such circumstances, the conscious morale and idealism of the man—qualities, as has been suggested, of later growth than other instinctive processes—become drowned with the rising tide of his desire for life. The longing for safety, usually overborne by his conscious will, becomes overwhelmingly insistent, and is expressed by the entire organism being given over to the phenomena of fear. The indi-

vidual becomes, in mind and body, an automaton impelled by one instinct and one emotion; the mind, dazed and numbed, ceases to record impressions and is later found to be for that period amnesic. "Dumb and palsied by fright" are only popular expressions of the loss of special senses and the generalized tremors which ensue. The defensive reflexes, the dodging movements of the head, the sheltering movements of the arms and the crouching movements of the body maintained for hours and days, and, under improper influences, for weeks after the lapse of the exciting physical cause, are an indication of the continued emotional tyranny under which he labors.

In different individuals this conquering of the nobler altruistic part of the man by the lower and more selfish instincts takes place in different ways. It may and most often does occur as the result of profound fright, as has been just described, or, after a long period of mental conflict and strain, there may come a situation carrying with it complexes of such emotional strength as to render almost helpless the will power to endure. Such a case was that of an officer of my acquaintance who, having borne the racking experiences of the landing and trench fighting at Gallipoli, one day, jumping to what he took for solid ground, found himself—as he put it with a gesture of infinite disgust—squelching thigh-deep in decomposed Turkish dead. For weeks this experience recurred to his consciousness both by night in dreams and by day in dreaded interruptions to his normal train of thought, rendering him for that period incapable of duty, a prey to the paralyzing influences of both repulsion and fear.

In the beginning of this paper I said that I had not seen generalized psychoneuroses coexist with somatic injury. Such, you may say, is not the opinion of all observers; but one must point out that such observers are speaking of patients seen after transfer to England who on and near the field exhibited no evidences of nervous unrest. In other words, the neurotic symptoms in such cases developed after the elapse of an interval of days or weeks from the date of injury, which proves conclusively the psychogenetic character of these symptoms and also, I fear, the uncomfortable fact that unwise suggestion from medical officers can do much to evolve and perpetuate somatic symptoms of psychic origin.

Further, the subject is confused by inadequate classification. I have used the term "generalized psychoneurosis" to include those patients whose inability "to carry on" is the result of their mental and emotional conflicts having been decided against their higher selves, whose morale has given way before the aggrandizement of their emotions of self-preservation; these are the tremblers, the amnesic, the disoriented, those with night and day dream deliria, the stuporous. The anxiety neuroses are a milder type of the same great category, are most often developed in officers, and result from prolonged strain and mental conflict rather than from single external catastrophe.

Associated with the foregoing symptoms, or more often occurring independently, are various losses or perversions of localized function, usually classed as hysterical stigmata. These may persist after the patient has superficially resumed normal emotional control. On the whole, however, mutism, deafness, functional monoplegia, paraplegia and functional spasms of the limbs are the result of localized suggestion rather than of generalized overwhelming of all the mental and emotional qualities, producing automa-

tism and the temporary replacement of volitional by instinctive life.

By "localized suggestion" I mean some circumstances calculated to produce in a mind already apprehensive and strained a more or less fixed idea of localized injury.

ILLUSTRATIVE CASES

CASE 1.—A motor truck driver, an Australian of fine character and physique, in the autumn of 1917 was worn out by constant night work in the front areas during which time his feet were almost always numbed with cold. He contracted so-called trench fever and was sent to the base. When in bed, he found that he had developed an acute dorsiflexion of the right foot and toes: this condition persisted through sleep and constituted a deformity of quite alarming appearance. Consultations were held in the case, and various opinions as to the character of the condition were expressed in the man's hearing. No conclusion was reached, and for some months electricity and massage were empirically given without modifying the position of the foot.

An attitude of complete confidence on the part of the medical officer in his diagnosis and in his ability to cure the condition, followed by strong faradism to the calf muscles and to the sole of the foot, and then by rapid reeducation in walking later abolished the spasm in two sittings. The purely mental nature of the ailment was explained to the patient; he was told how, when one wished to move, for instance, one's arm, it was necessary, first of all, to will to move the arm, how that act of will caused energy to come from certain brain cells, which energy went down certain nerves to the arm, which then was put into motion. He saw quickly enough how an injury in either the battery, i. e., the brain, or the wire, i. e., the nerve tracts, could prevent movement taking place: whence, he came himself to the conclusion that in order to initiate the progress, it was also necessary to throw in the switch, i. e., to will to move.

He was shown that by his defect of will power he had become for a time no longer master in his own house. It was made very clear to him, without, of course, crude words, that the medical officer knew he was not malingering, but appreciated and sympathized with his condition of fatigue which antedated the outset of the spasm. On the other hand, reference was made to the prolonged period of rest which had been his; our need of fit and capable men like himself was touched on, and there was brought to his mind the price daily being paid by our comrades for our security. In this way his morale was stimulated and, with gratitude for his recovery, he applied for an immediate return to the line.

CASE 2.—Another case of paralysis due to local suggestion is that of a young man wounded by a shell fragment on the inner side of the left upper arm in May, 1915. The wound was slow in healing, and the arm was held by apparatus in the horizontal position for eight weeks to permit of irrigation and dressing. The wound healed with some adhesions round the ulnar nerve, causing a partial ulnar palsy and minor secondary adhesions in the shoulder joint through immobilization. Since then, till a week ago, he had a complete flaccid paralysis of the entire left upper extremity from the trapezius down to and including the intrinsic muscles of the hand. He had been in a number of hospitals. More than eighteen months ago he was discharged from the army and, with satisfaction to himself, finally pensioned. He was seen by me because he returned of his own accord to a London hospital, to which I was temporarily posted, to ask that the arm should be amputated at the shoulder as it grievously interfered with his activities. No electrical assistance was invoked in this case, owing to the hypersensitiveness of the ulnar nerve through injury; but two conversations of explanation, persuasion and tactful reeducation—each of which, however, lasted for some two hours—restored complete range of movement to the arm and hand, as far as was permitted by the organic disability.

It does not seem advisable to burden a short communication of this kind with many case reports. That

has been done most fully by other observers. Indeed, the perversions and abrogations of function due, as has been said, to localized suggestion do not differ essentially from those seen in all neurologic hospitals of civil life. Naturally, the suggestions producing these conditions are of the most varied character—the two patients just described are cases in point—and identical disabilities may occur through a minor injury from being struck by flying earth or as a result of a more serious injury from the diagnostic or verbal indiscretions of a medical officer.

Almost all injuries of the extremities, in my experience, are accompanied, for a short period at least, by a natural "defense immobilization" of the limb quite apart from any organic nerve injury. This is a natural reaction from pain in tired persons. A flesh wound of the upper arm, for instance, easily produces in such men the impression of inability to move the wrist and hand. And any doubts expressed by a physician as to whether or not, for example, a brachial plexus injury might not possibly account for the condition of the hand, sow the seeds of a fixed idea, which later may assume a very sturdy growth.

PSYCHOLOGIC CHARACTER OF THE PROBLEM

This brings us to the vital factor underlying the successful treatment of all somatic expressions of psychic unrest. In a word, it is accurate technical knowledge. The power to make a careful physical examination, to weigh evidence with precision and thereby to attain correct diagnosis is the only power that will give the medical officer sufficient self-confidence to be able to communicate healing to his patient.

Time and again has one seen a half doubt in diagnosis prevent a coming together of the minds of physician and patient: if the medical officer is not entirely certain of the nature of the condition under review, his ability to cure it will be inhibited by a suspicion of the existence either of an organic nerve lesion, on the one hand, or of a conscious malingering, on the other.

In short, functional motor and sensory palsies, and functional perversions of the special senses, are created by suggestion directed toward the affected faculty or member, and are susceptible of cure by like means and only by like means. To differentiate them easily and rapidly from similarly appearing organic conditions is the first and most important step in their treatment, and one which, having been taken with firmness and accuracy, will confer on the medical officer the self-confidence and authority to exorcise the system of false ideas that has been the immediate cause of the condition.

I say "immediate cause," for in these cases due to localized suggestion there is undoubted evidence of the presence and effects of the same mental conflict, the strain of which produces in other men states of anxiety or other generalized psychoneurosis still more incapacitating for military duty.

We are indebted to Freud and his school for our realization that neurotic symptoms may be produced by the antagonism of mutually incompatible emotional trends. The tremendous mass of material made available by war demonstrates the general rightness of this principle, but still more definitely proves the peculiar wrongness of the details with which the psychoanalysts have applied it, and entirely invalidates their deduction—elaborated as a pontifical dogma—that the sexual instinct in, albeit, various disguises, is the only dynamic force possibly concerned. Further, as has

been pointed out by Trotter with regard to the neuroses with which we are familiar in times of peace, the nature of the repressive force has never been properly grasped by them, in its true character of gregariousness and group loyalty, an instinct of which each one of us becomes aware through what he calls his conscience and his sense of duty, the claims of which grow more overwhelmingly insistent under the whip of war than under the quiet influences of gentler times.¹

Soldiers since the beginning of armies have been clear eyed in this knowledge. They have not, of course, dealt in the turgid phrases of our schools, but they have felt surely the binding qualities of the herd, and have seen in them the only emotive force fit to overcome in their men their fear of death. They too have known that the cement of the herd is the suggestibility of man—and their instrument of suggestion is called discipline.

So in this matter the medical officer has an onerous and difficult task. He acts both for the state and for the soldier and, to deal fairly with both clients, it is vital that he should appreciate the truly psychologic character of the problem with which he has to wrestle. Only by so doing can he free his patient of his symptoms and, what is still more important, protect the armies from the contagion of suggestion so apt to sweep through such closely coordinated communities, each individual of which is exposed to identical causative conditions.

INAPTFNESS OF THE TERM "SHELL SHOCK"

The essential feature of these ailments having been grasped, they must be classified and christened. In the beginning of this paper it was pointed out how the term "shell shock," founded on false premises, not only served to suggest an incorrect etiology, but also, by its pitiful and romantic sound, tended to perpetuate symptoms and to excite no determination in the mind of the sufferer to recover his control, or, in the fighting man, still to endure. So far is it from making an appeal to conscience or to discipline that it stifles both, and stultifies effort toward cure.

The name is a mistake: we must be rid of it. Let us have instead a true term which will be neither a compromise nor a technicality, unintelligible to the mind of the soldier.

Hysteria is unsuitable in that its significance to laymen and physicians is not identical; nor does it embrace, for instance, such conditions as the anxiety neuroses. The simple word "nervousness" comprises all the neurotic manifestations seen in war. It furnishes an appeal to the sense of discipline in the armies, and further promotes the growth of a public opinion, both military and civil, which would be of the greatest prophylactic and therapeutic power.

This diagnosis would continue to be divided into nervousness (sick) and nervousness (wounded), as now obtains, according to the external conditions to which the man was exposed at the time of breakdown. This change in military nomenclature would make clear to both soldiers and civilians that such diagnoses need not necessarily be followed by a return to home or to the base, and would clearly indicate the propriety of dealing with such cases diagnostically and therapeutically.

1. It is a pathetic comment on the mode of thought of our times that it should require a cataclysm to make some of us realize the affected futility of such perpetrations as, in painting, "The Nude Descending a Staircase"; in poetry, the cacophony of Futurist verse; in politics, the blinding disasters that follow a vapid internationalism, or in psychology, the notion that because a young man confesses to a weakness for cream cheese he must needs be enamored of a maiden aunt who kept a dairy!

peutically in rest camps, and especially work camps, in front areas and on the lines of communication.

SUMMARY

What has been written here is simply an attempt to set down in general terms the nature of the problem with which we are confronted. In doing so, only the psychologic aspects have been regarded, because these mental symptoms can be examined easily and treated successfully, though empirically, by rest, persuasion, reeducation and the restoration of self-confidence through suggestion and discipline. I have not been unmindful, however, of the physical changes which, accompanying violent emotional disturbances, result in alterations in the physiologic balance of the involuntary nervous system. We cannot yet know whether or not such reflex and secretory activities are the cause or the result of mental and emotional stress.

The collection of clinical and experimental data on such phenomena as, for instance, the functional disorders of cardiac rhythm following emotional tension (for example, for two days after being unpleasantly bombed I found my pulse rate irregular and uniformly over 100, though conscious of no mental strain once the danger was over), or dyspnea accompanied by increased absolute blood acidity, and similar cognate problems may in the future throw light on the association or integral activities of mind and body.

Such data, however, do little, as yet, to reveal the intrinsic nature of mind. To cope adequately with the wastage of health and of armies involved in this question, we must perforce deal with mental phenomena rather than with mind, and apply, with some empiricism, psychologic remedies to psychologic ills.

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TRENCH FEVER

A REPORT OF CLINICAL OBSERVATIONS AND RESEARCH AS TO THE ETIOLOGY, PATHOLOGY, PROPHYLAXIS AND TREATMENT OF TRENCH FEVER AMONG TROOPS

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HAMPSTEAD, ENGLAND

Note.—The work on which this paper is based has been carried out at Hampstead for the War Office Trench Fever Investigation Committee, of which Major-General Sir David Bruce, K.C.B., F.R.S., A.M.S., is chairman. The members are: Lieut.-Col. D. Harvey, C.M.G., R. A. M. C.; Prof. H. Plimmer, F.R.S.; A. W. Bacot, Esq.; Major W. Byam, R. A. M. C.; Lieut.-Col. H. French, R. A. M. C. (Temp.); J. A. Arkwright, Esq.; Sir W. M. Fletcher, K.B.E., F.R.S., and Lieut. A. F. Hird, Gen. List. (Temp.), Secretary.

THE ACUTE DISEASE

The importance of trench fever lies in the fact that large numbers of soldiers, both officers and men, have suffered from it during the present war, and that though it is not fatal, the morbidity resulting from it on the western front exceeds that from any other disease. Those affected are in many instances permanently unable to resume their former duties, and some pass back to civil life incapacitated and a charge on the state. There is no evidence that the incidence of the disease is decreasing naturally, and some, in fact, that its virulence is tending to increase. From the knowledge of its mode of transmission at present available, there is every reason to suppose that, unless adequate measures are taken to prevent it, the disease may arise and spread wherever the body louse is prevalent, provided that men already infested are sent there from endemic areas.

To emphasize further the importance of trench fever we would state at once that, in its later stages, it is the direct cause of a large percentage of the cases of disordered action of the heart, or the irritable heart of soldiers, of neurasthenia, myalgia and rheumatism with which the beds of our hospitals and spas are now filled. Any campaign undertaken to combat the disease must be supported by even more vigorous measures against scabies than those taken at present, for the etiology of trench fever is intimately connected with the incidence of that disease. The sufferer from scabies presents the necessary skin lesions essential to infection with trench fever and scratches himself in a way that will insure inoculation if the trench fever virus is present.

DEFINITION OF TRENCH FEVER

As no pathognomonic sign or symptom of trench fever is at present recognized, we would define the disease as a blood infection communicable from man to man by means of the louse (*Pediculus humanus*) and possibly other parasites. It is characterized in its early febrile stage by recurrent pyrexia, headache, giddiness, which may be due to disturbances of joint or muscle sense, but early in the disease is generally a true vertigo, pain in the back, pain in the limbs which is chiefly in the legs and often of very considerable severity, a slow pulse in comparison to the degree of fever, conjunctival congestion, sweating, polyuria, a moderate leukocytosis at the height of the fever, with evidence of blood infection in involvement of the spleen and, in a proportion of the cases, of the liver also. A period of unstable temperature follows. Eventually a certain percentage of the patients pass into a stage of chronic ill health. These patients suffer from recurrent pains in the limbs, headaches and nervous manifestations, such as mental depression, excessive tendency to sweating, disordered action of the heart (D. A. H.), and abnormal response to stimuli, all of which are accompanied by a mild degree of anemia and some loss of weight. Damp weather produces exacerbations of all pain in sufferers from the late stages of the disease. The infection, in some cases, is very persistent, and acute febrile relapses may occur after months of quiescence.

THE SEASONAL INCIDENCE

We are unable to speak of the seasonal incidence with certainty, but it appears that the number of

infections gradually increases during the cold weather, when delousing is accompanied by increased discomfort and when men huddle together in order to keep warm. The number of cases decreases but slowly throughout the warm months. The incidence must vary directly with the degree of louse infestation in any unit.

CLINICAL CHARACTERISTICS

The following is a summary of the histories obtained in 200 consecutive cases of trench fever in which the patients were sent to Hampstead:

The onset was uncertain in 16 per cent. of these; of the remainder we have classed 32 per cent. as gradual in onset and 52 per cent. as sudden. Some have been quite dramatic in their suddenness; others apparently only felt giddy or shaky during an hour or two before the attack was ushered in by a "splitting headache" and weakness so marked that the victim "could hardly crawl."

A picture of the sudden onset is as follows: "Felt perfectly fit, did a heavy day's work without any distress. Suddenly felt giddy and weak and shaky on the legs; splitting headache, shivers and hot sensations alternately; could not get comfortable in bed, ached more or less all over—worse in loins and legs. Got up two or three times to pass water. Slept badly. A little better in the morning; got up; could hardly stand; pains returned severely."

The typical shin-bone pains may come on at once but, as a rule, appear considerably later.

Prodromal symptoms in the cases of gradual onset were noted in the following order of frequency: pain in the head, pain all over, weakness, pain in the legs, malaise, dyspnea, giddiness, pain in the loins, shivering, pain in the abdomen, diarrhea, constipation, anorexia, nausea, frequent micturition, restlessness or insomnia.

The prodromal period lasted for two days or longer. Such prodromes are really the early symptoms of definite onset, as in many cases the severity of the symptoms increases gradually during the first few days of the disease. It should be noted that the symptoms in a relapse are often more severe than in the initial attack.

Without doubt trench fever is more often sudden in onset than gradual.

Men from all branches of the service become affected with trench fever, nor does any particular previous illness seem to predispose to the condition.

In our series of 200 cases the symptoms of onset occur in the following order of frequency: pain in the head in 74 per cent.; in the shins, 46 per cent.; in the loins, 31 per cent.; in the knees, 21.5 per cent.; in the ankles, 19 per cent.; in the thighs, 15 per cent.; in the calves, 13 per cent.; shivering and chilliness, 26 per cent.; sweating, 19 per cent.; frequent micturition, 13 per cent.; dizziness, 12 per cent.; nausea and vomiting, 11 per cent.; pain in the shoulders and arms, 8 per cent.; pain in the abdomen, 7.5 per cent., and diarrhea in 5.5 per cent. A similar table including symptoms from the onset to a later period in the disease naturally shows an increase in the frequency of their occurrence; e. g., pains in the head, 92 per cent.; pain in the abdomen, 24 per cent.; pain in the shins, 77 per cent.

Tenderness of the shins, as apart from pain, was remembered by 9 per cent. of the patients as an early symptom, while several referred vaguely to "feeling sore" and as if "they had been kicked" on the day of onset. Thus, in addition to fever, headache may be the only symptom at the onset of the disease. There is reason to think that dizziness is much more common than the figure given would indicate.

The "restlessness" complained of bears some resemblance to the discomfort of "growing pains" of youth, in that position of comfort can be found, and so is unlike the pain of "rheumatism," in which one finds a position of minimum discomfort and is glad to maintain it.

The headache is most commonly felt across the forehead and behind the eyes; but it may be bitemporal or occipital or, less commonly, vertical. Some describe the pain as being right inside the head. Usually one of the earliest symptoms, it is often one of the most severe, persistent and commonly recurrent. It is not associated with tenderness of the scalp. When occipital it is often accompanied by stiffness in the back of the neck.

The character of the pain in the limbs is twofold: (a) dull aching or gnawing; more or less continuous, always worse at night, and (b) acute pain—shooting or stabbing—which

may last many hours, especially at night. The latter pain is nearly always felt in the bone, and most frequently in the tibiae. [Spinal puncture and withdrawal of a small quantity of cerebrospinal fluid has given speedy relief in some of our cases with very acute leg pains. Sometimes the pains recur, but never so severely. The fluid withdrawn has always been clear, though sometimes under slight pressure.]

There is no part of the body which invariably escapes from pain. After a few days, however, the "pain all over" subsides, and localized pain becomes prominent. The loins and lower limbs are most often affected. Pain is usually, but not invariably, symmetrical. The situation of the pain may vary from day to day. Certain observers have suggested that there are two distinct diseases at present termed trench fever and would differentiate them by the presence or absence of shin-bone pain. We are convinced that this is not so, both from clinical observation and from experimental work.

When pain is complained of in the joints, we have not noticed any concomitant swelling; the joints are sometimes painful or stiff to move, but this is due to pain on movement in the neighboring structures.

It will be seen that 7.5 per cent. of the patients had pain in the abdomen within the first twenty-four hours, while 24 per cent. noticed it at some time within the first week or two of their illness. In six cases the pain was associated with early diarrhea. Of the 24 per cent.: three patients complained of pain in the right hypochondrium; twenty-nine patients complained of pain in the left hypochondrium; thirteen patients complained of pain in the right iliac region, and thirteen patients complained of pain in the left iliac region. The pain in the right iliac region may be so severe as to give rise to a diagnosis of appendicitis.

The pain complained of in the left hypochondrium points in most instances to involvement of the spleen. In early cases the splenic region is frequently so tender that examination is impossible on account of stiffness of the muscles over the organ. An appreciable percentage of all our patients have had palpable spleens during some period of the disease, though such enlargement has never been of more than two finger breadths below the costal margin. Such definite enlargement is most often the result of a prolonged infection. (The spleen was palpable, early in the disease, in three cases.)

Pain in the right hypochondrium over the liver points probably to changes in that organ, but how far trench fever is responsible is not clear.

A diagnosis of pleurisy had been made in some of the patients sent to us on account of splenic or liver pain.

A peculiar and very constant feature is the rapidity with which there are alternations of shivering and sweating, such alternations occurring several times in the course of a single day or night. True rigors are rare, but have been observed by us and were very marked in an instance of five day fever.

The frequent micturition which was complained of by 13 per cent. of our patients was not associated with pain but resulted in the passage of an increased amount of urine. The polyuria occurs as the temperature falls, and in two of our cases, in which the amount was estimated, 110 and 86 ounces were passed in twenty-four hours toward the end of the initial attack.

During the acute attack the pulse rate is slow in comparison to the degree of fever. The rate rose with each rise of temperature, and a mild degree of disordered action of the heart developed after the fifth week, followed by bradycardia. Such a case may be considered as severe.

A fairly constant feature of the initial attack is a mild degree of conjunctival congestion sufficient to be designated as "pink eye." The condition is usually transient, though it frequently recurs with subsequent rises of temperature.

At first the tongue is lightly coated with fur, though there is nothing characteristic about its appearance. It soon clears and remains remarkably clean.

Affections of the respiratory tract are usually conspicuous by their absence.

Areas of tenderness are frequently associated with the pains, and may involve the skin, muscles, tendons, bones or joint cartilages. The nerve trunks themselves do not appear to be involved. Such tenderness may occur independently of pain, or pain independently of tenderness, and either or both may persist for long periods after the fever has subsided. The extent of the areas of tenderness usually increases with exacerbations of the disease. Such exacerbations may be entirely afebrile. As with the pain the areas of tenderness are usually bilaterally symmetrical, with the exception of those over the front of the chest, where it is common to

find only the skin over the left lower ribs involved. The area of skin most frequently found to be hyperalgesic runs from knee to ankle along the outer border of the tibiae.

As curiosities we have observed instances of nystagmus, aphonia during pyrexia, herpes on lips and trunk, dermatographia, flushing of the skin over the tibiae, and tingling of the fingers and toes.

During an acute attack the patient's general condition obviously deteriorates, and he presents an appearance of exhaustion, the result of constant severe pain and repeated sleepless nights. He becomes anemic, though the color index is rarely below 0.8, and he steadily loses weight.

One patient, while with us, lost 36 pounds in weight during five months.

After a period varying from a few days to about a fortnight from the onset of the disease, the acuteness of the patient's pain subsides, he sleeps well, and his appetite returns. There is even then generally some return of pain each night in some part of his limbs—most commonly the shins, calves or ankles. If he is allowed to get up he finds that walking increases the pain.

During the next week or two, whether pyrexia occurs or not, there are recurrences of symptoms—especially leg pain, each exacerbation being a short replica of his original attack or of some portion of it. When accompanied by marked pyrexia, such recurrences nearly always involve recurrences of headache, pink eye, sweating and often of polyuria. The muscle or bone pain may at such times occur in hitherto unattacked parts. It is during such times that splenic involvement has been most often noted.

In some cases such recurrences are few and slight, and the patient soon feels fit and complains of nothing but slight pain or still slighter tenderness in a limited area of the legs from the knees downward.

In others the recurrence, even if quite late in the disease, may be more severe than in the original attack.

PYREXIA

Much confusion seems to exist as to the various temperature curves encountered in trench fever, and their relation to one another. Some observers would accept only periodic fevers with shin pains as evidence of this disease. Neither periodic fever nor shin pain is essential.

Although we have carefully considered the various types of temperature charts, we find no constant correlation between the fever curve and the clinical course. Any grouping of symptoms may be found associated with each of the various types. Our experimental work supports this view.

As we have stated in a previous paper, there are two forms of fever which occur in different stages of the disease. The first form is an irregular remittent and intermittent fever lasting for a period which rarely exceeds four weeks. The second is a definitely intermittent fever, often showing a regular periodicity and sometimes extending over a period of many weeks.

The first form of fever invariably precedes the second, though the initial attack may be unrecognized owing to the mildness of the symptoms in certain cases.

In the initial attack (first form of fever), three types of curves are seen:

1. A fever wave lasting roughly three days. The maximum temperature observed by us was 104.4, followed by recovery. Such cases are usually diagnosed as influenza. There are probably no continuous fevers if sufficiently frequent observations are made. Some remissions are extremely brief.

2. A similar wave followed, most commonly on the sixth, seventh and eighth days, by a febrile relapse, the interval between the initial wave and relapse being afebrile. Irregular fever may follow.

3. A continuance, more or less complete, of the original fever wave into the relapse. Charts in such cases have been termed "saddle-back" and "pseudo-typhoid." They are often followed by a prolonged period of irregular fever.

On the other hand, the second form of fever occurs late in the disease, and its chart is the one which caused trench fever to be recognized as a definite clinical entity. This form of fever occurs at shorter or longer intervals after the original attack. We have seen it begin immediately after the initial or first form of fever, and also after many months of quiescence, reinfection being excluded.

Such fever may be represented by a single "spike," when it is generally recognized as a relapse, or by a series of such "spikes," when it is most frequently and wrongly considered to be a reinfection.

These spikes of fever, often reaching 104 (the maximum temperature observed by us was 105), recur at intervals which are most often variable in duration, but which may be so regular as to give a periodicity of four days or longer.

PATHOLOGY

Little can be said under the heading of pathology. The causative organism of trench fever remains to be found. The blood picture indicates abnormal activity of the bone marrow, and a moderate and rapidly varying leukocytosis precedes and accompanies the fever waves. The increase of white cells is due to an outpouring of immature polymorphonuclears. In the afebrile intervals the mononuclear elements are relatively increased. The last is probably a condition common to many soldiers at present in the field.

With the fall of temperature the amount of urine passed frequently increases, a trace of albumin is often present, and there is a deposit of cellular elements, though evidence of true nephritis is very rare.

DISTRIBUTION OF LOUSE-BORNE DISEASES

Since trench fever is conveyed by lice, the possibility must be considered of its being carried to all parts of the world where conditions favor the spread of louse-borne diseases. For this reason the distribution of the three diseases, typhus exanthematicus, relapsing fever and trench fever, which are known to be conveyed by lice, has been shown in a map compiled from the writings of several authorities.¹

An attempt has been made to show the relative prevalence of typhus and relapsing fever in different parts of the world in recent years. Strict accuracy, however, is not possible because information is scanty from the less civilized parts, and much doubt prevails about the nature of certain epidemics. No account has been taken of the war epidemics, information concerning these being fragmentary. That there have been many outbreaks of typhus in Germany and Austria, not only in the prisoners' camps, but also among the civil population, is well known. Terrible epidemics have also occurred in Serbia and Roumania, relapsing fever raging at the same time as typhus.

Typhus Fever.—This disease, once common in western Europe, is now very rare there, though it still lingers in an endemic form in parts of Ireland and in Brittany, and possibly in South Portugal. On the other hand, it occurs frequently in Austria, especially in Galicia. In the Balkans before the war it was not a serious menace, but in Turkey it was often encountered at that time. Over the whole of Russia and the mainland of Asia from about 25° N. it is very prevalent, and frequent epidemics are the

1. Clemow: *The Geography of Disease*, Cambridge University Press, 1903. Low, R. Bruce: *The Epidemiology of Typhus Exanthematicus in Recent Years*, Report 44 of the Local Government Board, London, 1914-1915. Nuttall: *The Part Played by Pediculus Humanus in the Causation of Disease*, Parasitology, 1917, 10, No. 1.

rule. In Japan and south of 25° N. on the mainland it is less frequent, and is apparently absent from the central and southern parts of India, East Indies, and the Malay Peninsula, but reappears again in the Celebes. From the rest of Australasia it is absent. In Africa it is very prevalent north of the Sahara, and frequent epidemics occur; south of this barrier it is unknown. It has occurred as localized outbreaks in Canada and the United States, but has never become endemic there. The introduction of the disease was generally traceable to Irish immigrants, to whom the outbreaks were often confined. In Mexico it flourishes on the high ground both in endemic and epidemic form, while the same is true of the line of the Andes in South America. It has been encountered throughout the greater part of South America, but not recently in Guiana or the West Indies.

Relapsing Fever.—The distribution of this disease in Europe and North Africa corresponds exactly to that of typhus. In Asia it is less prevalent to the east of the Obi River in the north and the Ural River in the south than to the east of those rivers, though this line has no significance so far as the prevalence of typhus is concerned. The disease has not been definitely reported from Japan, East India, the Malay Peninsula and Australasia (with the possible exception in Australasia of a single death in West Australia [Clemow]). It has been reported from the greater part of India.

Louse-borne relapsing fever has been described as occurring spasmodically over the greater part of North America; the form occurring in Central and South America is possibly tick-borne (Nuttall). South of the Sahara in Africa, relapsing fever has the tick *Ornithodoros moubata* as vector.

Trench Fever.—So far as we are aware, this disease has been reported only from the war zones and places approximating thereto. It is known to have occurred in Flanders and in France, at any rate from the Vosges to the sea, on the Italian front, at Saloniki, and to a small extent in Mesopotamia. It has not been reported from Egypt, Syria or East Africa. It has prevailed in Poland, Galicia and the Bukowina, though whether it has followed the eastern front to the sea we do not know. Most probably it has. Wells and Perkins² make no mention of it in their detailed account of war diseases in Roumania.

While we are unable, in the present state of our knowledge, to state definitely that lice occur in every inhabited part of the world, it is probable that they do. They are, however, undoubtedly less plentiful in hot than in cold climates. The known distribution of louse-borne diseases, therefore, by no means corresponds to the distribution of lice. These diseases are diseases of cold rather than of hot climates, of mountainous rather than of low-lying countries, and prevail in winter rather than in summer. They would appear to have originated in the Old World and to have been carried to Mexico and Peru by the Spaniards, where they became endemic on the high ground. In the Old World the tropical belt appears to have formed a barrier which they have been unable to cross, with the curious anomaly of Celebes. In view of what has occurred in America and the distribution of lice, the introduction of louse-borne disease into any country should be carefully guarded against.

PROGNOSIS

About 90 per cent. of all cases yield quickly to ordinary symptomatic treatment, and the patients return to duty in a few weeks.

We make this statement on the authority of observers in France, supported by the evidence of our experimental infections, but are unable to say what numbers of the 90 per cent. have really recovered or subsequently relapsed.

In the smaller group of 10 per cent. the disease pursues a more obstinate course, and the patients in consequence are evacuated to England. It is the group with which we are now specially concerned and to which our experience of the naturally acquired disease is limited.

The character and course of the initial attack is the same for both the groups mentioned above.

An analysis of 236 cases in which the patients were evacuated to England leads to the conclusion that the most reliable guides to prognosis are the physical unfitness of the man, a definitely palpable spleen and the development in the second or third week of a low, irregular type of fever.

Of forty-three patients, or 18.2 per cent. of the whole group, who were physically unfit when they contracted the disease, none were discharged to duty and the average duration of disability was 5.4 months. Twenty per cent. were invalided from the army as permanently unfit. Six men in this subgroup had acute febrile relapses after periods varying from two to five months of apyrexia as observed by us.

Twelve patients, or 5 per cent. of the whole group, showed a definite palpable spleen. Two of these, or 16.6 per cent. of the twelve, were discharged to duty, and four, or 33.3 per cent., were invalided from the army as permanently unfit. The average duration of disability was 5.8 months. One of this group had a febrile relapse after five months of apyrexia.

Of fourteen patients, or 5.9 per cent. of the group, showing an irregular low type of fever after the second week, none were discharged to duty. All were transferred to convalescent hospitals still suffering from symptoms of trench fever, with the exception of two, who were invalided as permanently unfit. The average duration of disability was 8.9 months, when the patients left us. One had a febrile relapse after four months of apyrexia.

These figures should be compared with the results obtained for the whole group, in which fifteen men, or 6.2 per cent., left us free of symptoms. The average duration of disability for the 236 patients was 4.5 months. Febrile relapses occurred in all types of cases. Eight per cent. of 236 patients showed a definite febrile relapse with a temperature of 102 or more after an afebrile period, varying from two to five months, during which the temperature did not exceed 99.4. This percentage would have been much higher were this arbitrary standard of apyrexia not adhered to.

In addition to the foregoing, four patients at present in the hospital have shown similar definite relapses after periods varying from twenty-one to sixty-three days.

Finally, neither the intensity, the seat or the character of the pain, the height of the initial temperature or its duration, nor the suddenness or otherwise of the onset give any indication of the future course of the

2. Wells, H. G., and Perkins, R. G.: Observations on Medical Conditions in Roumania, THE JOURNAL A. M. A., March 16, 1918, p. 743.

disease. The patient's weight is the best guide to prognosis in a chronic case. As recovery takes place, the weight steadily increases.

TREATMENT

Clinical signs being our only guide as to the value of any treatment as a specific, we have controlled our results with a large number of unselected patients who were treated by palliative measures. By means of this control we are able to say that until now we have found no drug or system of therapy which we can consider a specific.

We have seen nothing to convince us that these patients really benefit by physical drill; but we have been most favorably impressed by the results obtained by rest combined with moderate exercise and thyroid therapy. This is not regarded as a specific treatment but as one which reduces the incidence of disordered action of the heart, provided it is begun early enough.

A selected diet, rich in antiberiberi vitamins, was tried in one group of cases, but these patients did not show any better results than those fed on ordinary hospital diet.

Many trench fever patients remain a long time in the hospital on account of concomitant conditions. Of these the most frequent are flat or weak foot, old injuries of the feet, pelvic and lumbar muscles, trench foot, chronic joint changes, pyorrhea alveolaris and intestinal intoxication.

PROPHYLAXIS

Prophylaxis centers around the destruction of lice. In civilian life, wherever organized and sanitary work exists, this should not be a difficult matter. While trench fever has not yet been recognized away from the war zone, the possibility of its appearing when infected men return to their homes must be borne in mind. Body lice still exist in considerable numbers in the poorer parts of towns and in agricultural districts, while outbreaks of head lice are not uncommon even in well regulated schools. Whenever a case of pyrexia of uncertain origin occurs, the clothing and head of the patient should be carefully examined for traces of lice, and if these are found immediate measures should be taken to disinfect those who have been living in close contact with him, and their dwellings. Any of the methods successfully used in the army are available for this purpose. Cleansing stations are already organized in many large towns, but it is of little use cleansing the child and allowing him to return to an infested home.

Among the armies the problem is at once more difficult and more acute.

Successful disinfection, in addition to reducing the incidence of trench fever, will offer security against typhus and relapsing fever and relief from discomfort, which may be so great as even to cause definite neurasthenia. In consequence, since typhoid fever ceased to be an anxiety to army medical officers, the systematic destruction of lice becomes their most urgent duty. Especially is this so as any measures taken against lice are also effective in checking the spread of scabies. In the present war, the head louse and the crab louse, *Phthirus pubis*, have given little trouble, while the body louse has been and is extremely numerous.

It is not enough to allow a man a hot bath and to cleanse his clothing. Eggs are frequently present on the pubic and axillary hair and give at once a new

focus of infestation, while the men at present often returned to untreated beds and billets. Blankets, beds, dugouts, hats and billets should all receive attention. That lice are not seen in these does not necessarily mean they are not present. While Peacock³ is doubtless right in his statement that lice spread mainly from person to person, the important thing is to remove every possible source of reinfestation. In a series of experiments carried out at Hampstead Military Hospital, in which the movements of lice on febrile men were being observed, from 6 to 20 per cent. of the lice employed disappeared in the course of the various trials, of which each lasted for about twenty-four hours. Careful searching did not discover the wanderers, though they would certainly be still in the room.

Lice have a proclivity for wandering, and are able to exist without feeding for a week at ordinary room temperatures, and longer under cooler conditions. Nuttall⁴ records ten days at a temperature of 5 C. (41 F.) as the longest period which lice have been known to survive unfed.

Disinfestation of Troops.—For the details and working of the various devices for disinfestation, reference should be made to the writings of Bacot,⁵ Nuttall⁴ and Peacock.³

The following notes are the merest summary of what has become a very bulky subject:

All men from one set of billets, huts or dugouts should be paraded together at the same time for disinfestation, with their blankets and kits if possible.

The men should be shaved free of pubic and axillary hair and chest hair if thick. Their heads should be very closely cropped, and they should be given a hot bath. After the bath their underclothing should be smeared over with some louse-destroying grease to render them repugnant for a time to fresh infestation and to destroy any nits still adhering to them. Every care should be taken when removing hair not to abrade the skin, as careless shaving has been found to increase the incidence of other diseases conveyed by the excreta of lice. The shaving or very close cropping of the body hair is essential, as otherwise nits, which are often present there and are not killed by bathing, remain to reinfest the man. The most satisfactory grease for application to the underclothing is one composed of crude unwhizzed naphthalene from the coke oven, 4 parts; soft soap, 1 part (Bacot and Copeman). That the naphthalene should be as specified is of great importance, and a sample of each delivery should be tested by an expert entomologist. Its odor is not unpleasant to most persons and it causes little or no irritation to the skin. Men should be discouraged from using proprietary remedies, as many of these are useless, disheartening the men and making them skeptical about the efficacy of any remedy. The men should be carefully inspected a week after disinfestation and be urged to report immediately on any reappearance of lice. The entire clothing and bedding of men should be treated by heat or some louse-destroying solution.

Disinfestation by Heat.—All clothing should be included in the treatment, blankets and kits, when possible. The heat may be wet or dry; the latter is preferable, as clothing may then be worn immediately after treatment. Moist heat should never be used for leather articles.

To kill lice and their eggs with certainty, 55 C. (131 F.) for thirty minutes or 60 C. (140 F.) for fifteen minutes must be attained. Such temperatures will not disinfect the excreta of lice. The necessary temperatures for this purpose have not been yet determined.

The heat throughout the chamber should be as even as possible. The garments should be hung on rails or loosely packed to insure the heat's reaching every part. If pegs are used, garments are apt to get torn.

3. Peacock: Jour. R. A. M. C., July, 1916.

4. Nuttall: Parasitology, 1917, 10.

5. Bacot, A. W.: Brit. Med. Jour., 1916, 2, 447.

The heat of the chamber should be indicated by a maximum thermometer placed so that it can be read from the outside. The Grant Peacock hut and the hot chamber adopted by the Canadian army have been found efficient, as also has the Serbian barrel, though the latter is small. The ideal device for regimental use has yet to be invented. It should be as mobile as a field kitchen, capable of dealing with the clothing of twenty men at a time, simple to work, and economical in firing. It should be capable of being easily loaded and unloaded, and attain the requisite temperature quickly. One end of the chamber should open completely, and all material under treatment be on a movable rack, running on wheels or slides. When treatment is complete, this rack is drawn out and a second, already loaded, thrust in. By this means a minimum of heat is lost and a maximum of time saved. According to Peacock, the time usually occupied in loading, heating up and unloading is about equal to the time of actual disinfestation.

TABLE 1.—DISPOSAL ON DISCHARGE FROM HAMPSTEAD MILITARY HOSPITAL OF TWO HUNDRED AND THIRTY-SIX TRENCH FEVER PATIENTS *

	Number	Per Cent.
To duty	14	5.9
To lower category	12	5.0
To command depot	22	9.3
To convalescent hospital	171	72.4
To civil life as permanently unfit	17	7.2

*Of these, fifteen, or 6.2 per cent., were free of all symptoms of trench fever on discharge. The average duration of disability on day of discharge was 5.4 months.

The ironing of clothing, especially along the seams, with heavy hot irons has been found useful. It is a palliative and not a thorough treatment. In the German army the clothing is pressed against hot iron plates, in preference to hand ironing.

Disinfestation by Solutions.—Bacot and Lloyd have found that all lice and eggs on clothing are destroyed by soaking in a 2 per cent. solution of either (a) liquor saponatus cresoli fortis, or (b) compound solution of cresol (crude phenol [carbolic acid] and soft soap in equal parts) at any temperature above 32 F. for twenty minutes. One per cent. compound solution of cresol at from 60 to 63 F. was found to be equally effective in twenty minutes, but liquor cresolis less so. The 2 per cent. solutions allow a margin for the weakening of the solutions during use. If fuel is scarce, such soaking may be found preferable to heat.

Fumigation.—While the men are undergoing treatment, their billets, dugouts and huts should be fumigated, together with articles of bedding or clothing not treated by heat or solution.

The best gases to use are sulphur dioxide or hydrocyanic acid gas. The latter is dangerous except in buildings which can be readily ventilated, but it is the more certain of the two. For its production Howard recommends potassium cyanid (from 98 to 99 per cent.), 1 ounce; sulphuric acid, 1½ ounces; water, 3 ounces, for every hundred cubic feet of space.

The percentage of the potassium cyanid should be stated when ordering, as it is sold in three strengths.

The water and sulphuric acid should be mixed in a large vessel, and the requisite amount of cyanid, wrapped up in paper, dropped in. As the gas is released with violent effervescence at once, the operator should leave the room without delay.

Formaldehyd is useless, and it must not be thought that any gas which is fatal to man is necessarily so to the louse.

Finally we particularly wish to advocate the provision of disinfestation equipment for every unit as part of the appanage of every regimental medical officer. This disinfestation could then be applied by all sanitary squads, who would need but little instruction to make them efficient. The only things necessary would be some simple form of mobile oven as suggested already and a plentiful supply of the naphthalene paste. An oven which would take the

clothing of twenty men would enable a company to be cleansed in about ten hours. Little or no disorganization would thus be caused, and disinfestation could be carried out as frequently as was found necessary.

In all disinfestation the watchword must be thoroughness. The more thorough the treatment, the less frequent the repetition.

Now that trench fever is known to be a louse-borne disease, it is certain that active measures will be taken to combat it, but there are many practical difficulties which make it more than unlikely that the army in the field will ever be freed from lice under present circumstances. During a period of stress such as our armies are now passing through, disinfestation, no matter how well organized, is bound to be imperfect, and unless some simpler means of repelling or destroying can be devised, trench fever will continue to claim its victims. Nothing short of specially treated clothing capable of preventing lousiness would meet the case. From what we have seen of experimental trench fever infections, it is probable that most of the mild and indefinite attacks of pyrexia of uncertain origin must be attributed to the same source as recognized cases of this disease. The total then becomes appalling.

While still looking to the destruction of lice as our best hope for reducing this wastage, our efforts at home should now be turned to the production of a treatment which will render the blood of a trench fever patient incapable of infecting lice.

Of the men considered to be recovered and returned to the fighting line, many will undoubtedly have further febrile relapses. During such relapses they will be capable of infecting lice. Our present methods of treatment do nothing to prevent this and must therefore be improved on. This is necessary not only in the interests of those in the field but also in order to prevent men infected from becoming the unhappy inva-

TABLE 2.—INCIDENCE OF DISORDERED ACTION OF THE HEART IN FOUR HUNDRED AND TWO CASES OF TRENCH FEVER *

	Number	Per cent.
Due to all causes	155	38.5
Due to causes other than trench fever	44	10.9
Due to trench fever with onset of disordered action of heart after admission to Hampstead	42	10.4
Due to trench fever with onset of disordered action of heart after admission to Hampstead	42	10.4

*Average day of disease on which disordered action of heart was first recorded in cases developing disordered action of heart in Hampstead Hospital, 27.3. Extremes of onset of disordered action of heart from the fifteenth to the sixty-second day.

lids whose condition, at present, time alone can cure. To this end the organism of trench fever should be our chief quest, as knowledge of its nature is essential to sound work on the production of a specific therapy.

(To be continued)

An Efficient and Safe Insecticide.—An emulsion of petroleum and soft soap has been used successfully in India for ridding houses of plague infested fleas. A better composition, according to the *Medical Press and Circular*, is that devised by Cousins in which soft soap, petroleum and naphthalene are the ingredients. This combination, it is said, seems to enhance the action of each in a remarkable way when used as an insecticide. It is easy to prepare, keeps indefinitely, and is a soapy substance easily dissolved in cold water. In the proportion of 1 ounce to the quart of water it forms a wash in which fleas and pediculi are said to perish almost instantly. It is suggested that this would be an easy and practical way of dipping and washing clothes infested with *Pediculi vestimenti* in the army and elsewhere.

PHYSICAL EXAMINATIONS UNDER THE SELECTIVE SERVICE

A MEETING OF THE SECTION ON MISCELLANEOUS TOPICS, HELD IN THE STUDEBAKER THEATER, CHICAGO, THURSDAY, JUNE 13*

The meeting was called to order by Major John M. Dodson, Medical Aide to the Governor of Illinois, who acted as secretary of the meeting.

Introduction by Major John M. Dodson

MAJOR JOHN M. DODSON said: In many respects the topic for discussion this afternoon is the most important subject before the medical profession of America today. It concerns a larger number of physicians than any other, because between 23,000 and 25,000 physicians in this country are today engaged in the important task of examining registrants. On the physical quality of the men who are inducted into service depends the efficiency and strength of the forces that we are sending abroad to help our allies. It is most important that these examinations leave no fit man who ought to serve behind, and that they induct no unfit man into the service. One of the main purposes of the discussion this afternoon is to bring together the various agencies concerned in these examinations, to the end that there may be the most complete coordination and cooperation.

The meeting will be presided over by Major Hubert Work, Medical Aide to the Provost Marshal-General.

Address of the Chairman, Major Hubert Work, Medical Aide to Provost Marshal-General Crowder

MAJOR HUBERT WORK said: We hear a great deal in these troubled times. Everything we do hear is tinged by the sentiment of patriotism. We see on the buildings and on the fences as we travel over the country that food will win the war; in another place that fuel will win the war. But I am here from the Provost Marshal-General's Office to say that in my opinion the men connected with the Selective Service system will win the war—you men connected with the Local Boards, with the Medical Advisory Boards and the District Boards. The character or efficiency of the registrants who are inducted into the service lies with you. It is not possible for this or any other country, or any other countries joined together, to win the war against the Hun except through its man power. You who select these men must determine whether or not we shall win the war.

My position in the Provost Marshal-General's Office is rather an anomalous one. I think I am the "trouble man." Medical members of Local Boards and Medical Advisory Boards send their complaints and grievances to the Adjutant-General of the state. He, in turn, sends them to the Provost Marshal-General's Office, and the chief clerk of that office very kindly lays them on my desk.

This committee has selected speakers to address you, one from a Local Board, another from a District Board, an examining surgeon from a camp, and the man also who has joined the Provost Marshal-General's Office with the Surgeon-General's Office in a medical way.

I take pleasure in introducing as the first speaker Dr. James B. Herrick of Chicago, representing the District Board of Appeal.

Point of View of the District Boards of Appeal, Dr. James B. Herrick, District Board, Chicago

DR. JAMES B. HERRICK said: The District Board has original jurisdiction in claims for exemption or deferred classification on occupational grounds. In nearly all other cases that come before it the board acts as a court of appeal; the registrant appeals from the decision of the Local Board that he is qualified for Army service, or the government appeals from the decision that the man is unfit to serve, or some knotty case is sent to the District Board for its decisive ruling.

Among the appeals there is always a large number in which the question of physical qualification is concerned. For this reason one member of the District Board is usually a physician. Because of the technical medical character of the appeal and the papers accompanying it, the board commonly delegates the investigation of the merits of such a case to the physician member and generally decides accord-

ing to his recommendation. This throws a considerable load of responsibility on the medical man of the board.

Now, according to the regulations governing the Selective Service, the District Board is explicitly forbidden to reexamine a registrant. "In considering a case appealed on the ground of physical qualification, the District Board shall neither conduct any new physical examination, nor shall it receive or consider any evidence which was not considered by the Local Board" (S. S. R., Sec. 126, p. 65). The physician of the District Board must reach his conclusion solely on the evidence as shown in the record of the examination by the Local Board and the Medical Advisory Board.

NECESSITY OF GOOD RECORDS

Has it ever occurred to the members of these boards what a difficult task they sometimes set the District Board physician because of the meagerness of their record? A Local Board physician says tersely "tbc right apex." The Medical Advisory Board writes "lung neg." How can the District Board physician decide? Where is the evidence? He can merely set one man's opinion—not evidence—against another's and, if he happens to know the two examiners, attach the greater weight to the opinion of the one he regards as the more reliable, and decide accordingly; or he can do, as he should, send back the papers for a reexamination with a full record of findings. Often the District Board physician longs for the days of the first draft, when it was his privilege and duty, personally or through his selected aides, to examine appealing registrants. He often wishes he could listen for a few seconds to the doubtful apex, place his hand over the questionable heart, see for himself the varicose veins called trifling by one, extensive by another, dreadfully severe by the appellant. He would in this way have real evidence on which to base his opinion and his recommendation to his board. Numerous errors due to hasty examination come before the District Board physician, many unjust decisions are due to failure to read or comply with the Selective Service Regulations concerning physical qualifications, but the most exasperating cases are those in which Local and Medical Advisory Boards make these unsatisfactory records of opinions only, without evidence. Particularly when the opinions of these two boards differ should the reasons for the disagreement be clearly set forth. Not only would this lighten the work of the District Board, but what is of more importance, would result in more even justice and often save unnecessary trouble and expense to the drafted man and the government.

HISTORY OF REGISTRANT

It has seemed to me that there was at times a tendency to overlook or underestimate the value of the health history of the registrant. In private practice the history—*anamnesis*—counts for much. In many illnesses it is of far more value than the physical or laboratory findings. Naturally the history of previous or present illness, as related by a drafted man anxious to escape service, should be viewed very differently from that of the man eager to volunteer. The statements, even though sworn to, of interested relatives and obliging family physicians or paid consultants should be accepted with caution and some suspicion. But epilepsy, previous spells of insanity or other nervous troubles can usually be learned about only from the history. An apparently innocent heart murmur may acquire new significance in the light of a preceding rheumatism; a clear history of ulcer of the stomach, loose cartilage of the knee joint, or of hematuria, should justly have weight in the reaching of a decision as to the physical qualifications of a prospective soldier. Local and Medical Advisory Boards should not be too ready to turn a deaf ear to the history.

CORRELATION OF EXAMINATIONS

There is an injustice that has sometimes been done patriotic young men who have volunteered, sometimes more than once, for service—perhaps long before the first registration of June 5, 1917—but have been rejected on account of physical defects but who are now adjudged physically fit by the physicians examining for the draft boards. Such men, after being turned down by the government, may naturally have regarded

* Report of special meetings held as a part of the scientific assembly at the Sixty-Ninth Annual Session of the American Medical Association.

themselves as physically unfit, may have assumed business responsibilities they would not otherwise have assumed, may have married after June 5—the dreadful late marriage—and now are ordered by the government to serve. Some more uniform standard or more uniform practice should obtain so that a man once definitely refused admittance to the Regular or National Army for physical defects may not, except in time of great emergency, be liable to be called to forced service. I know of men who have served in the Regular Army and have been rejected after trial as unfit, but who were adjudged fit by Local Boards, though the certificates of discharge from the Army were presented as well as statements of rejection by recruiting officers of Army, Navy, or Medical Reserve Corps. I have seen letters from Army officers to some of these young men who were being subjected to the annoyance of these examinations, and their indignant recognition of the injustice of it all was clearly set forth by such words as “insult,” “outrage,” “ought not to be permitted,” etc. The new rules, as I understand it, will be uniform for all branches of the armies of the United States. This will help much to do away with this difficulty.

DANGERS OF SUPERSPECIALISM

I am a little perturbed also at what has seemed to me to be a danger all along the line from what might be called superspecialism, the overuse of specialism in our Army hospitals, cantonments and Medical Advisory Boards. The necessity for specialists—oculists, aurists, heart specialists, neurologists, brain surgeons, bone surgeons and others—is plain; it needs no defense. But the tendency of many specialists to overestimate the defect found in their particular lines or to ignore conditions in other organs than those with which they are well acquainted is well known. There should always be some big, broad-minded physician or surgeon of learning, good judgment and experience to sum up all the findings, and, both on the record and on his own inspection of the soldier or registrant, reach the final conclusion. The soldier has to be judged as a whole, and not in small anatomic or even physiologic fragments. The wise microscopist looks at his specimen of tissue, not alone with the oil immersion lens, but with the low power as well. Only in this way does he get the large, full image with the proper relation of parts. A sick man or one thought to be ill should be viewed in the same way. I was much impressed with what one of our brightest and keenest Medical Reserve Corps men told me after he had spent many weeks in examining large numbers of recruits. His first inclination, he said, was to examine according to the rule of the textbook, the laboratory, the instrument of precision, and this in many cases was indispensable. But he soon learned to respect most highly the shrewd observations of an old, experienced, Regular Army colonel who, sitting in a chair, seemingly idly smoking, was yet watching everything, and whose diagnoses of acceptability or unfitness seldom went wrong. He, without touching the man, sized him up as he stood stripped before him—from his build, color, gait, breathing, method of answering questions, while the younger doctors were going through the detailed examination. Is there not a danger that this element may be sacrificed to the necessary but narrowing specialism, unless particular care can be taken to guard against it?

VALUE OF EXAMINATIONS

There is still one fact that sometimes cuts a little deep, gets beneath the skin of the Local, Medical Advisory or occasionally the District Board physician and it is this: Men are sometimes returned from camp or cantonment as physically unfit because the Army physician has examined them and so declared them to be. Now the Army physician's examination is final and authoritative as it should be. But the reason the taunt of the returned man cuts when he hints or plainly says to the board physician that he, the board physician, evidently did not understand his business, is that sometimes the Army examination has been made by a physician who in civilian life was known as comparatively young, inexperienced, and in every way outclassed by the board doctor who, perhaps, was his teacher or medical adviser, and whose ability to recognize tuberculosis, heart disease, hernia or flatfoot is surely equal to that of the Army man. But the rank of officer, the uniform, has changed all this. These cases may be exceptional, but the point I wish to make is to speak in defense of the physicians on the Local and Advisory Boards who, though not in uniform, are not necessarily to be regarded as inferior in ability or good judgment to the physician in khaki.

The District Board has occasionally been criticized on the ground that it is a stickler for mere form and technicality. This criticism seems to me unjust. At least, I know that in the District Board with which I have been connected, and in those with whose workings I have been personally acquainted, such has not been the intent of the members. When, late in August of last year, the papers began to filter through from the Local Boards, we were in despair because so few were in proper form and so many important documents were often lacking. But we believed we were in office to try to give to each man whose case was before us, and to the government that had asked us to serve, a square deal. In order to secure justice, technical points and trifling irregularities were inconsequential. Physical examination blanks were often lacking, affidavits were poorly executed, papers might be missing; but no request by a government agent for most careful scrutiny of a case, no statement by a registrant, however brief or poorly worded it might be, no long-winded affidavit drawn up by the prominent attorney for his wealthy client, no plea from the poor widow who claimed her son was her only support, was ruled out as evidence if it had the ring of sincerity about it. We viewed nothing as a “mere scrap of paper.” Those scraps of paper too often meant whether it was this boy or the other boy, yours or mine, who was to go, perhaps to his death. Even now, with such marked improvement in the form in which appeals come before the District Boards, the essential aim is to secure justice, and not to stand too much on the smaller technical points. And this is clearly the intent of the government, as orders from the Provost Marshal-General's Office have more than once indicated.

When I was asked to speak today it was requested that I make suggestions and criticisms. And such I have freely made with the hope that they may be helpful. No other motive is conceivable in such a time as this.

It is easy to criticize the Selective Service Law and its operation. But when one considers the stupendous character of the undertaking, the orderly way in which a splendid army of nearly 1,600,000 has been raised, the essential justice with which this end has been accomplished, all criticism sinks into insignificance. But all had to learn, from the highest in rank to the humblest clerk in the Local Board; mistakes were made—the greatest one, in my judgment, being the injection of the element of haste into the work from the first day. But by experience, by correction, by a process of evolution, the Selective Service Law now operates smoothly, rapidly, effectively. Well may General Crowder be proud of the accomplishments of his large body of civilian soldiers; and the various boards of this country are surely proud to be commanded by such inspiring and efficient commanders as the Provost Marshal-General and his staff. But when the complete history of the operation of the Selective Service shall be written, I believe our hats will be lifted to those pioneer men of the Local Boards who, nearly one year ago, took oath agreeing to perform faithfully the duties of an office newly created, duties of unknown character, who, with new tasks piled on them day after day, often with insufficient directions or supplies, sometimes with the criticism of a curious and not always scrupulous press, with the frequent command: “Hurry up! Hurry up!” made the attempt to examine and classify double the number planned for in the shortest possible time. There may have been some incompetent men in the Local Boards, perhaps some lukewarm or disloyal, some shirks; but the great mass were as capable, loyal, faithful and self-sacrificing of time, money, health and comfort as those who went to the front. And they made good. They delivered the men. All honor to them!

Introduction of Colonel Billings

MAJOR HUBERT WORK said: Soon after the first of the year the Provost Marshal-General asked the Surgeon-General to assign a Medical Reserve officer to his office to take up the medical questions constantly coming before him. The Surgeon-General consented, and recommended Major Billings of Chicago. Major Billings was assigned to this work, and of course, with customary thoroughness, he took up the Selective Service Law in one hand, and Form 64 in the other, and attempted to harmonize them. He assumed at first that it could be done, and that they would both lie quietly together in Group A. He soon realized, however, that quite a little of Form 64 belonged in Group B. After a little further study, he thought perhaps it all belonged in Group C, “Qualified for special and limited service.” A little further study, and, his patience exhausted, he said: “The whole thing belongs in Group D. I will write a new book.”

The Surgeon-General appointed a committee to revise Form 64, and Major Billings was one of the committee. He did the greater part of that work, and the standards of physical examination are being given out today. Colonel Billings formed the connecting link between the Provost Marshal-General's Office and the Surgeon-General's Office, and he has laid a foundation which, I assure you, is going to be difficult for his successor to cover.

Address of Colonel Frank Billings, Surgeon-General's Office

COLONEL BILLINGS said: It is true that when I was assigned to duty in the office of the Provost Marshal-General, I found conditions as to medicine rather below par. They received me kindly and gave me every opportunity to advise the boards in working out their problems. Among the men there who really had the crux of the work to do were two. Colonel Johnson, now General Johnson, was Deputy Provost-Marshal; and I think he knew more about medicine, after the work he did in helping to compile the Selective Service Regulations, than many of us; and his right hand in the doing of that work was Lieut.-Col. J. S. Easby-Smith, whom we are fortunate in having here in Chicago to talk for the Provost Marshal.

THE STANDARDS OF PHYSICAL EXAMINATION

The difficulty that the Provost Marshal labored under was the character of the standards for physical examination. "Changes 3," issued, January 28, to Local Boards, was the fundamental basis for physical examination. That was written for Local Boards. Form 64, issued about March 21, was built on "Changes 3." The men who formulated "Changes 3" and "Form 64" composed a committee of fifteen. Three were the regular medical officers of the Army, and the remainder the Reserve Corps men, representing general medicine, general surgery, and all of the specialties. They, with the Surgeon-General, believed that many men who had defects could be made physically fit for general military service if they were inducted and opportunity given for remedy in camp. But as it happened there were so many men inducted who had what was called small operable hernias and other defects remediable in a short period of time that the facilities in the camps were not great enough to take care of them.

After a few weeks, in an interview, General Crowder said: "I have great sympathy with the great medical profession in its desire to remedy defects and to attempt to improve mankind physically, but, sir, we are not here to remedy defects. We are here to get an armed force trained quickly, and to get it abroad to whip the Germans."

The next thing that troubled us in the office was the fact that "Changes 3," promulgated by the Adjutant-General as the standard of physical examination for all branches of the service, was, unfortunately, not so promulgated. Then when Form 64 was issued, and it was taken with the approval of the Surgeon-General to the Adjutant-General for promulgation to all branches of the service, it was found that "Changes 3" had not gone to all branches. Then it took time to get that off; unfortunately, it was sent by mail, March 28, instead of by telegram. We had the paradox of the Medical Advisory Boards stating certain standards for physical conditions qualifying for general military service, and boards in camps and in different posts using a different standard, which led to confusion. That led to a revision in our camps on the standards that had been in use before, and the acceptance by Medical Advisory Boards of defects that were not disqualifying under the existing standards. Finally, the Surgeon-General was requested to formulate a new standard of physical examination. On that board he appointed practically all Regular Army officers, at my request, because we civilian physicians, qualified as we may be in civil practice, know but little about military medicine.

DISQUALIFIED AND DEFERRED CLASSES

Bearing in mind the objection made by the Provost Marshal, this new standard differs from the old in that no man is accepted for general military service who cannot be immediately inducted into service. It is true that certain small defects are recognized as not disqualifying for immediate induction. It is understood that unless we do recognize certain defects, like the venereal diseases, they might be acquired by many men as a cause of rejection. It is well known that if intensively and properly treated, these defects can soon be overcome. Other slight defects remediable by small operations that would probably not keep a man from active training more than a few days or a week at the most

were accepted as defects not disqualifying for general military service.

Then it was recognized that defects might be recognized as not disqualifying for general military service when those defects are cured. They should be placed in a group of defects which, when remedied, would permit the registrant to be inducted; therefore they should be deferred. So Group B is retained, and in that is placed, for instance, every form of hernia that is remediable. In that group also was placed as remediable—perhaps on first thought one would say the habit or defect is such that the man never could be made whole—drug addiction. However, some man might acquire the habit of drug addiction to escape the draft, so these addicts may be placed in the deferred remediable group and left there for such time as the state may consider requisite. It was also recognized that we could safely do that because it is not expected that those men will be called or inducted into the service until the Surgeon-General shall have organized the physicians to remedy them, and they will not have to remain in camp a long time.

POWER TO REMEDY DEFECTS

Many members of Local and Advisory Boards have written, since Form 64 was promulgated, to know if these men with defects which place them in Group B could be remedied before induction, not under federal authority. No one can compel a man, in civil life, to undergo an operation. As you know, probably, the Judge Advocate-General has rendered a decision that when a man is inducted into the service he may be remedied; and if he refuses to obey the order he is subject to court martial. In some camps court martial has already sentenced men to various terms of imprisonment in federal prisons. However, we cannot compel men before induction, but we may advise them. So Local and Advisory Boards may induce the individual with a defect which would place him in Group B to go to a civilian hospital and be remedied, but not at government expense.

SPECIAL AND LIMITED MILITARY SERVICE

The difficulty has also come, to some degree, with Local and Advisory Boards with reference to the recognition of that group known as Group C for special and limited service. That group has grown enormously. I think that according to the last I heard from the Provost Marshal-General's Office it is now more than 225,000 men. Perhaps many of them had some defects which should place them in Group B, these Local and District Boards not understanding that they had defects that could be remedied. The principle is that the man who has defects which cannot be remedied and which disqualify him for general military service, and yet of such a character that they do not prevent him from following a useful vocation in civil life which he therefore could follow in military life, may be accepted for special and limited service. That the nomenclature is not identical is unfortunate. In the Provost Marshal-General's Office this designation is "special and limited service." In some camps it is known as "partial duty status"; and in the Surgeon-General's Office and in the Division of Sanitation where that class of registrants falls in the camp, it is known as "domestic service," "domestic" meaning not fit for overseas service.

THE NEW REGULATIONS

This new Form 75 of Standards of Physical Examination governs entrances to all departments of the Army. In the Surgeon-General's Office, we who have had to do with this feel that it is a standard that may be accepted by all of you. There are no ambiguous terms in it. It is not intended to be considered entirely, perhaps, as an authority on which you will act. It is intended to be a guide to your work. Nothing can take away from you your judgment and discretion about the medical or the physical fitness of a registrant to serve. If we rob you of that, you are bound to weaken the service. On page 3, Section 8, you will find a section that contains the kernel or the law of truth. Let me read it:

Local Boards and Medical Advisory Boards should be especially careful in the selection of registrants who suffer from defects of vision, defects of hearing, and with chronic discharge from the ear or ears; toxic conditions associated with abnormal conditions of the thyroid gland; valvular disease of the heart; tuberculosis; epilepsy, mental disease or deficiency, and irremediable defects of the feet. In other words, to make a good soldier the registrant must be able to see well, have comparatively good hearing, his heart must be able to stand the stress of physical exertion, he must be intelligent enough to understand and execute military maneuvers, obey commands, and protect himself, and must be able to transport himself by walking as the exigencies of military life may demand.

FAULTS OF FORM 64

The unfortunate statements of Form 64 that were paradoxical in a sense have been removed. You are not told in these standards not to reject a foot case, but an attempt has been made to analyze conditions of the feet. You are not told to reject no abdominal case, because an attempt has been made to make clear conditions requiring rejection. You will not be troubled in this manual with a statement of long explanatory laboratory details about an examination of the stomach, because it is believed that when you go to make use of the facilities of the laboratory in gastro-intestinal diseases you do not need to have it placed in this book for your guide.

Some criticism has been made of Form 64, of the description of roentgenography of the chest. That was prepared by a physician in the Surgeon-General's Office. It is believed by the Surgeon-General's Office that this is only a statement, but it is not necessarily a part of the form, because the statements about examination of the lungs are sufficient without it. I do not say this in criticism, but my feeling was that these members of Local and Advisory Boards who exhausted all the facilities of physical examination of the chest would not need the roentgen-ray plate, and if any description of changes shown by the roentgen ray were long and perhaps confusing, it would not be used.

Surgeon-General Gorgas has had an enormous problem before him for over a year.

Finally, as Dr. Herrick said, I say the medical profession may feel proud of what it has done. When you think that in our generation few, if any, of the men in the medical profession of our country have had any experience in military life, and have had none in examination of registrants or in the examination of records, and when you remember that after the first draft in the selection of over half a million men there were rejected from the camps only between 7 and 8 per cent. of all the men selected, it is wonderful. I am quite sure that with the adoption of this new standard, with its use by the Draft Boards, and its use by every branch of the Army, so that all will be working under the same standard, the acceptances of the registrants will be very much greater and the rejections will be very much less.

I want to compliment, before I cease, Dr. Work, or Major Work. He has been of the greatest assistance to the Provost Marshal-General's Office. He has taken off his coat to hard work, and with a medical officer in the Provost Marshal-General's Office we may feel sure that with the advice which is accepted by the Provost Marshal and his personnel, things will continue to go better.

I want to pay, finally, this other compliment. I have worked in a good many places in my life. I think I have worked hard in some places. I was two months in the Provost Marshal-General's Office continuously, and then they were kind enough to say they would not let me go at once and asked me to continue with this work for over a month longer. I never worked harder in my life than I did there; I never worked more hours, because it required Sundays and nights and every other odd time to do the work and try to get it out of the way. But I never worked with a better set of men in my life. There they seem almost like home folks, like physicians.

Introduction of Mr. Graham Taylor

MAJOR HUBERT WORK said: Mr. Graham Taylor is a resident of Chicago, a well-known and a prominent man, who has spent practically all his life for other people. When war was declared he changed his program a little, and has been giving all of his days and a good number of his nights to the government.

Address of Mr. Graham Taylor, Representing Local Boards

MR. GRAHAM TAYLOR said: To me the draft work is somewhat like a cross-section view of American society. For nearly twenty-five years I have lived in a great cosmopolitan ward of this city on the west side, and I though I knew my neighbors; but when the disclosures of this draft came, there was a depth of human experience and insight into individual and collective life, into personal habits and public policies such as I had never had opportunity to get before. It was a great experiment of a very democratic sort for the government to select some neighbors to pass on the qualifications of other neighbors for military service; but in this respect, as in about every other, the greatest democratic experiment that has ever been made in this country or any other has proved to be an unqualified success.

CONDITIONS IN WARD WITH MANY IMMIGRANTS

First of all, I wish to give you a cross-section view of the physical conditions of people in a ward of this city numbering nearly 70,000 people, of perhaps twenty different nationalities. At one time we estimated that there were not more than 2 per cent. of the registered voters in the ward who were of native birth or born of native parents. We estimated that 98 per cent. were born abroad or of parents who were born abroad. On our registration list we at first registered 6,020 men, and since then we have registered 270 men who have become of age since June 5, 1917. I am going to take the facts I am to give you from the first 4,080 who were called.

Now, on those first calls we left out the aliens from examination, and therefore we had a small proportion of the entire 6,000 that were eligible for military service. Of the 1,889 first examined there were disqualified physically 357. I think Dr. Billings said in the country at large there were about 29.11 per cent. of the total number of registrants who were disqualified; but our disqualifications numbered only about 18 per cent. We physically qualified 1,532 men.

NEED OF DENTAL CARE

In the order of the causes of disqualification, eyesight, hernia and bad teeth were high up in the list; and I want to lay emphasis on the need of dental care. It would pay this country to put in every city such a dental clinic as is in Rochester, N. Y., where not a child under 14 years of age need have his teeth neglected because his parents are unable to pay for dental care. Every child in Rochester who cannot pay for it may have that care free through the public-spirited generosity of one of its prominent citizens. It would pay to give free dentistry to all children of school age at public expense.

Hernia was away up the list, and showed, in part at least, the overstrain of work.

PREMATURE AGE

There was a most extraordinary number of women who were declared to be scarcely ever well, or frequently ill; and when we came to examine into the case we found in the main that the claims were true. When the men with aged and infirm parents began to claim exemption first and deferred classification afterward, it made a man past middle life a little bit sensitive to have them answer the questions as to how old these aged and infirm parents were, by saying that they were from 45 to 57 or 60 years of age; one began to be a little indignant and to demand to see these specimens of premature old age; and I declare when those people came in I would have judged many of them to have been from ten to fifteen years older than they were claimed to be. When I asked how in the world some of them came to look so old so early—well, they said that they had a pretty hard time the first years after they emigrated to America, and the exposures and the pace of American industry had caused it; and I made up my mind that this struggle of theirs had much to do with their premature old age. Until comparatively recently the industrial old age at which large corporations will employ men has been steadily going back even below the margin of a man's best years—35 and even 30 years of age. Of course, the war and the shortage of labor may make some difference now.

Social conditions were disclosed in the claims for exemption or deferred classification; a good many of these were made on the ground of the dependency of widowed mothers and aged and infirm parents and young children, and these conditions were illuminating. It led us back to the great economic problems of casual labor, of intermittent industries, of the industrial depressions, and then increased paces of production, showing how large a basis economic conditions and industrial relationships form of the individual life, physical, intellectual, moral and religious. Somebody has said that at the root all economic questions are religious. Well, including religion, I could almost reverse the statement by saying that at the root almost all problems of human life are economic and industrial. If so we shall have to have an economic ethics that will be commensurate with the national problems which we are trying to solve in this war and by this draft.

QUESTIONS OF CITIZENSHIP

This draft board had jurisdiction over 6,000 registered men, 868 native citizens and 303 naturalized citizens. Adding 1,212 declarants to the number of citizens we had to take the entire quota of 423 men out of less than one third of the entire draft registrants. The whole draft fell on one third of the population. Now, the men that had done their

duty, that had been led to look at it as a privilege and had taken out their papers were really, to an extent, penalized by the failure of the others in such large proportion to do so; and when we came to inquire why there were as many as 3,637 aliens out of 6,020 registrants, we found that it was quite as much the fault of the American-born people and of those of us who had become citizens before them, as it was of the neglect of the foreign-born neighbors of ours. Many of them told me, when I asked them how they had come to live here for five, ten or fifteen years without taking out their first papers: "Well," they said, "nobody ever said anything to me about it. I didn't know I might go back home. I didn't mean anything wrong by it." And it was my feeling that there should be a change made in the immigration laws whereby every one should be expected to take out citizenship papers within a given time or give a good reason to the government for remaining in this country as an alien and have a government permit so to do. Poles from Austria constitute a very large proportion of our fellow wardsmen in this draft division. At first they were admitted into the Army, if they were declarants, though to their utmost surprise, and they said: "You will hold us off for one year or two or three or four years before you will give us our second papers, and allow us to go in and vote with you. But five minutes after we declare our intention of becoming citizens by asking for our first papers, we are found fit to fight and die for you." That was rather a hard proposition to justify. Foreign consuls protested vigorously that these men were still subjects of their home land, and it was extremely difficult to explain why they should be drafted. Now, by amendments to the immigration law the President of the United States has the right to exempt from the classification of "alien enemies" certain groups or classes of people at his discretion. That just provision should be still more widely extended, and the whole question of alien management in the Army should be centralized under the supervision of one commissioner. There should be established also an independent bureau or, better still, a commissioner who would have the handling or management of this most difficult and yet most essential policy dealing with the alien element in our civilian population.

NATIONAL EFFECT OF THE SELECTIVE SERVICE LAW

Lastly, I wish to speak of the wonderful reach of this selective service law. It has registered and classified the occupations of our men of military age. We never knew what they were before. At last we have begun a census of our industrial resources in order to mobilize them for peace as well as for war. After a while we will have a labor exchange system such as even the state and national bureaus of labor have not yet been able to organize, whereby we shall bring the supply to the demand within some rational and economic and reasonable reach of each other.

Introduction of Colonel Phalen

MAJOR HUBERT WORK said: Colonel Phalen is stationed at Camp Grant, and he worked there very effectively. He is here to give you an examining surgeon's point of view of a registrant.

Address of Colonel James Phalen, Division Surgeon, Camp Grant, Rockford, Ill.

COL. JAMES PHALEN said: I claim a large personal experience in the examination of recruits. I was for two years the recording officer at Columbus Barracks, where each day I examined personally from fifty to a hundred men, and made the entire examination. Since that time on two occasions I have superintended the examination for muster into the United States Army of the Illinois National Guard, and once of the Indiana National Guard. When I was sent to Camp Grant, and one of my duties was to superintend the examination of registrants of the camp, I thought I was most competent to judge what should be the physical standards of a man to become a soldier. I found out that to some extent I was mistaken. I endeavored, at the start, to apply the standard direct of the volunteer to the drafted man, and to some extent it did not work. When they sent the first increment to Camp Grant I took it on myself to be the court of last resort of every man that was considered questionable in that draft. I saw them all as they came up before me. I looked at the men and I said: "What is the matter with you?" "Bad feet, sir." I looked at him, knowing, with my experience with the volunteers, and I said: "Those feet are all right. Passed." Next man, I said: "What is the matter with you?" "I have varicose veins." Having had experience with the volunteers,

I said: "Trifling. Passed." And so on down through varicocele and hemorrhoid and various other things. Of that first lot that were brought to me as having been rejected by the examiner, I suppose I sent two thirds of them back to duty. Now, I will say that of the number I returned to duty in this way subsequently a very large proportion of them had to be discharged on a surgeon's certificate of disability. I will say that after I had seen the men come up from that first draft I was a pessimist on the subject of the selective draft. I saw more concentrated malingering and exaggeration than I had ever seen before, and I was pessimistic about it. Of course, I saw every malingerer and every exaggerator in the camp. I will say now that as a very much needed antidote I go down into the camp and look over the ones that have been accepted. Otherwise I should have a very bad impression indeed of our American manhood.

Some time after the first increment had been brought into camp an organization commander brought to me about fifty men, stating that they could not do duty. He gave me the reasons. There were various reasons. I looked them over and said: "These men may be just as worthless as you say they are, but their troubles are not physical. You must go back and make them do duty." About that time we got orders to send men to the southern camps, and you may be quite certain that the men that wanted southern camps were largely men of that class. We heard from them later. There were a number of men sent back from Camp Logan and from some other camps on account of disability. You cannot make these men do duty. That is a problem which the Local Boards are not up against. They may recognize the malingerer or the exaggerator when they see him, but they are only seeing him for a minute. When he gets to the camp we are not through with him. After an examination we may say: "Yes, you are competent to do duty"; but it is then up to the organization commander to see that he does duty. The man may become such a nuisance that he returns time and time again. Finally he is discharged on a certificate of disability. In making examinations when there are defects that are impossible to detect, the man's personal attitude has got to be taken into consideration to the greatest extent. If a man really wants to do duty and be sent to the camp, he can carry around a lot of minor defects with him all right, but if he is determined he is not going to do duty, he will carry around very many defects.

REMEDIAL DEFECTS

I had sent to the camp a large number of men accepted under that remediable defect clause. The Surgeon-General's Office called on me for a statement about the so-called remediable defects, and I sent back an endorsement that there were practically no remediable defects; that is, none that were remediable after the men arrived at the camp. If a man has a defect that should be remedied, it would probably be better not to remedy it. He would better be discharged, so that he can have that needed remedy. At the Base Hospital at Camp Grant we have issued a list of operations that must not be done. I am quite in accord with the plan, which has later been adopted, that these remediable defects must be remedied before the men arrive at the camp.

At Camp Grant we prepared a list of nonoperable conditions, which I will read:

Head and Neck: Suppurative otitis media, chronic; mastoiditis, suppurative, chronic; suppurative conditions, chronic, of the antrum of Highmore; cysts, bronchial, thyrolingual or submaxillary; goiter, any variety; plastic operations for deformity of the face, existing prior to entry into federal service; intralaryngeal operations (except after small benign tumor); scarification; external laryngeal operations; operations of the tongue; enucleation of the eye; muscle operations for the correction of squint; cataract; trachoma operations; pansinusitis, suppurative, chronic.

Trunk: Gallbladder, except acute conditions; gastric ulcer, except perforative; abdominal ptosis; abdominal tumors; kidney operations, except acute traumatic; laparotomy, explorative; hernia, postoperative, of all varieties following operations performed prior to entry into federal service; hernia, umbilical and epigastric; hernia with poor muscular development; operations for the relief of pain where the operation was performed prior to entry into the federal service; cystotomy; prostatectomy; fistula in ano.

Genital Region: Varicocele of any degree; hydrocele, any degree; operations of the testicle or vas; operations for epispadias and hypospadias; stricture.

Extremities: Hallux valgus; tendon plastic operations; old fracture with deformity; ununited fracture, existing prior to entry into federal service; ankylosis; arthroplasty; osteomyelitis, chronic; exostosis or deposits, gonorrheal; spurs on the os calcis; contracture, severe, following extensive burns; Dupuytren's contracture existing prior to entry into federal service; internal derangements of the knee joint (any operation); varicose veins of the leg.

That limited the surgical operations to a great extent. We saw that after those operations a man would not be fit for military service.

EXAMINATION OF RECRUITS

Just a point on the examination, and that is for the Local Board not to let the registrant know what he is troubled with. Quite certainly, if the man is not very strongly disposed to do duty, and you look at him and say "Flatfoot," and then shake your head and deliberate as to whether you had better accept him, you will have trouble at the camp.

Now, we had some trouble to some extent in our examinations at the recruiting depots. I take a look at a man's feet and casually remark to him: "Your feet never trouble you?" "Oh, no, sir, no, sir, no." All right; then I slip over to the top of his head, and I say: "Pes planus." The Latin is not very good, but the clerk got down there the fact that he had flatfoot, and he did not know it; and so it was with a great many of those other conditions.

Our best example is irritable heart. Soldiers find out they have irritable heart, and when a soldier does find it out he is a very difficult man to deal with. At a clinic held in our camp recently we had a cardiovascular specialist give a clinic on irritable heart. We brought in from the wards a number of men with irritable heart, and it was a very good demonstration undoubtedly, but he expended every man; so far as any further service to the government is concerned, he expended every man that we showed him.

The point I can best bring out is: First, that one has to study the attitude and make the most of the attitude of the man. If a man has a defect that one considers questionable, then everything depends on his attitude. If he is disposed to go into the service, he will probably carry it around without a bit of trouble. If he is disposed not to go, and does not want to go, he is going to come back from the camp because if he has a defect and we pass him to an organization commander, he cannot make the man do duty. He is going to come back on us on a sick report time and again until finally he is discharged. The next point is to be very careful about not letting the man who is being examined know of any defect which has been noticed but which does not possibly disqualify him.

Introduction of Lieut.-Col. J. S. Easby-Smith

MAJOR HUBERT WORK said: Lieut.-Col. J. S. Easby-Smith of Washington, representing Provost Marshal-General Crowder, will next speak. If during his talk any question occurs to you, make a note of it and hand it to the secretary. When Colonel Easby-Smith is through speaking he will be glad to answer any questions.

Address of Lieut.-Col. J. S. Easby-Smith, Representing Provost Marshal-General Crowder

LIEUT.-COL. J. S. EASBY-SMITH said: Just before I left Washington, General Crowder said: "I want you to deliver to the medical men assembled in Chicago, and to the members of the boards who may be there, a message." He said: "Neither you nor I can express adequately what ought to be said to them, because there is no language which can express the debt of gratitude which the American people owe to the medical profession of this country for their assistance in the administration of the Selective Service Law. But tell them, as best you can, how much their work is valued and appreciated."

Colonel Billings mentioned me, and so did Major Work, as having had a great deal to do with the formulation of the Selective Service Regulations. They gave you, I fear, a false impression. The one man in this country to whom is due credit for the gigantic success of the Selective Service Law is Major-General Crowder. He is one of the ablest men in public life today. After all, it is the man who finally passes on questions, the man who selects or rejects what is proposed to him, who is responsible; and unless he is a man of the caliber to decide rightly, things will go wrongly. Never from the day he became Provost Marshal-General to this time has General Crowder decided wrongly.

A brief description of the working machinery of the Selective Service System and of its general character may properly be a preface to what I am going to say.

Let us think of the administrative edifice of the law as a pyramid, and begin at the apex. There, at the apex, is the President of the United States, who, by the Selective Service Law, passed by Congress, is given supreme discretion in the making of regulations for the application and administration of this law. Under his Secretary of War he has placed on the Provost Marshal-General the responsibility for the administration of that law. In providing for the machinery for

the administration of the law it immediately because apparent to General Crowder that it was utterly impossible to attempt an administration of this law through a bureau or an office or a department in Washington; impracticable, impossible and also impolitic. Why? Because this law, to be popular and successful, must be enforced by the people at home, by the members of the community whose sons are going forth to battle. So that the very first thing to do was to decentralize this administration and put the control in each state, under your chosen leader in each state, your Governor; and the natural officer to act for him in this matter was, of course, his Adjutant-General. That having been done, it then became necessary for the state to decentralize. The law had practically provided for that, by authorizing Local Boards to pass, in the first instance, on all these cases, whether it be the question of a man's availability or eligibility or liability for draft, or his physical qualifications to go into the Army. So in the next stratum below come the Local Boards, and then the District Boards, to review, as courts of appeal, decisions of the Local Boards in all cases except in industrial and agricultural claims, in which they have original jurisdiction. Of course, Local Boards, with appellate jurisdiction in the District Boards, decide questions of physical qualifications. The only question which is not final with the boards, whether it be a Local Board, a Medical Advisory Board or a District Board, is the question of physical qualification; because, after all, that final decision is vested in the surgeon at the camp.

During the first draft, I have no doubt perhaps the majority of you men served in one capacity or another, either on Local Boards or as examining physicians, or as members of District Boards. The regulations were rather small in number; they were rather small in volume; but the boards taking the law as their constitution, and the few regulations which were issued as their immediate guide, did a tremendous work in a comparatively brief time. After the great rush of the first draft was over, and after you had selected and physically examined enough men to fill the camps that were then available, a breathing spell came. It was apparent to everybody, not only to the Provost Marshal-General's Office, but to you, that some more definite system must be provided. There has been something said here of the regulations having been prepared by the Provost Marshal-General and by his office. That is not wholly correct. When it became necessary to adopt new, and what we hoped would be permanent, regulations, we asked the governors all over this country to send to Washington men, laymen, lawyers and physicians who had shown great proficiency in the administration of the Selective Service Law, so that with their aid and advice a set of regulations might be prepared, not only from the standpoint arising from the experience of the Provost Marshal-General's Office, but from the standpoint of you men in the field who were doing the work and deciding the practical questions.

Therefore, a committee was appointed in the Provost Marshal-General's Office, and I had the honor to be one of that committee, and conferred with these men from the field.

Next to General Crowder the man who has done more as an individual than any other man to make the administration of the Selective Service Law a success is Hugh Johnson, who, entering the Provost Marshal-General's Office a year ago as a captain of cavalry, left it as a colonel, and is now a brigadier-general at the head of one of the most important bureaus of the War Department. With him and with the board members who came in, we worked. We asked for suggestions. We conferred with them for weeks.

We realized that with all these workers in the field it was necessary to have auxiliary forces to aid in this work, because we foresaw then that we should not have to raise merely an army of 687,000 men, but that we should have to take this array of eight or nine million men and examine every one of them, to decide what? First, his availability to go into the army, and that availability measured inversely by his value in the place that he then occupied in our domestic arrangement; and, secondly, to determine the physical qualifications of each of those millions of men. It was the purpose of General Crowder that instead of merely dividing these men into the sheep and the goats as we had before; that is, into the men who were to go and the men who were to stay at home; we must take the whole mass and classify them, group them into classes, so that when the time came—if the time did come, and, as you know, the time has come—when we had to send great bodies of men forward, we should have lists of men classified and prepared, ready to be called in their order of availability, in the order of the inverse ratio to the necessity for their remaining at home, and in direct ratio to their lack of value to the community. So that it was decided to make

five classes, and put into Class 1 men who were immediately available, and so on running down through the five classes to men who were legally exempt, required to be exempted by the law, or put there on account of moral or physical deficiency.

When we finally submitted to the Secretary of War, after a number of conferences, the final classification rules, and he saw the classification sheet, and the various groupings into which we classed these men, and we read off to him that we had in Class 5 the lunatics, the aliens who had not declared their intention, the aliens who had not waived, the morally deficient, the physically deficient, the federal and state, legislative, executive and judicial officers, ministers of the gospel and divinity students, and finally alien enemies, the secretary said: "Well, you have got a queer assortment there, and I am afraid that if I were a few years younger I should belong in Class 5, among the aliens, lunatics and convicts."

However, having prepared the regulations for classification, it became necessary to provide for the physical examinations. We realized that we needed more aid there from the outside than perhaps on any other branch of the regulations, and to some of the prominent medical men of this country, to some of the men who have been high in the councils of the American Medical Association, is due, individually, a large share of the reward that will come to the medical men for the work that has been done in regard to physical examination.

When we first began to study and write these regulations we sent for one man, Dr. George H. Simmons, editor of THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

We also sent for a man who had had a great deal of experience throughout the first draft as a member of the District Board for the District of Columbia, Dr. William C. Woodward, health officer of the District of Columbia, and an honored member of your Association, because we realized the necessity of auxiliary organizations to help the boards do their work, the base of the pyramid. At the same time, we appealed to the American Bar Association for help in another direction. Dr. Simmons and Dr. Woodward came and consulted with us; and as a result of the conferences a joint committee was appointed composed, I think, of three members of the American Medical Association, and representatives of the Surgeon-General's Office and of the Council of Defense.

DEVELOPMENT OF REGULATIONS

It soon became apparent that the one thing that we all ought to strive for with reference to physical examinations was to secure uniformity. You all know perfectly well that the Army regulations, which are the result of years and years of Army experience, were built on the volunteer proposition. They were told to secure a man 100 per cent physically perfect. The Army was small. Men came and volunteered their services. The Army could turn down a man who was not physically perfect, practically, and the regulations were based on that. Of course, the regulations that were to apply to men to be selected under the law did not require a 100 per cent man, and no need to. During the first draft and until recently, and right up to this time, there has been an application of one standard by the boards and another standard by the surgeons at the camp, both doing their full duty. Boards were governed by the regulations issued for their instruction from the office of the Provost Marshal-General, and camp surgeons were governed by their Army regulations. There were about 29 or 30 per cent. of men rejected by the boards in the first draft, and 7 or 8 per cent. of those sent to camp were rejected, making some 38 per cent. of men finally rejected as physically unfit under the first draft. I will show presently how this has been very much improved. Concerning the new regulations, I will not go into detail at any great length, except to say that Form 64 was prepared, not for the purpose of governing camp surgeons, but primarily to give Local and Medical Advisory Boards and District Boards standards for the qualifications of registrants. It was prepared in the Surgeon-General's Office by a committee that had in view the best application of it in the camp; and subsequently it was promulgated for use in camps. Defects were discovered. It became necessary, for various reasons, to print a new edition, and this new edition, Form 75, was prepared for the express purpose of raising the standards for boards as set out in Form 64, and somewhat lowering the standards which governed Army surgeons, so that there could be issued a document which would give the boards and the camp surgeons the same standards, so that they could both proceed according to the same rules, and we hope thereby to reduce this lack of uniformity to a minimum. This was prepared by a committee appointed by the Surgeon-General, of which committee a very important member was Colonel Billings.

I need not dilate on his capabilities as a physician; he was active here as medical aide to the Governor of Illinois, and he was subsequently in the Provost Marshal-General's Office and transferred later to the Surgeon-General's Office. With a thorough familiarity with the needs of the Selective Service System, he worked with this committee of regular Army surgeons in the Surgeon-General's Office; and I believe that they have produced a work here which removes all the inconsistencies and all the doubts in the previous physical examination regulations. It is a book which will live up to its title. It was written in the Surgeon-General's Office, and the title is: "Standards of Physical Examination Governing the Entrance to All Branches of the Armies of the United States: For the Use of Medical Officers of the Regular Army, National Army, National Guard, Medical Reserve Corps, Recruiting Officers of the United States Army, and of Local and District Boards and Medical Advisory Boards Under the Selective Service Regulations."

For the boards it is issued by the Provost Marshal-General's Office. For the camp surgeons, it will be issued by the office of the Adjutant-General of the Army, with perhaps some trifling changes as to procedure to govern Army camp surgeons; but the identical standards will be used. In other words, the edition for the Army issued through the Adjutant-General's Office will be identical in the statement of reasons for rejection and acceptance which are to govern boards; and when that goes out generally, which will be in a few days, we shall then have removed the greatest reason for the lack of uniformity. At present I am glad to say that although under the first draft physical rejections by the boards, plus physical rejections at the camp, ran up to 38 per cent., now, under the statistics which we have today, the total rejections by the boards, plus the rejections at camp, will not run over 30 per cent. Under the old regulations, if a man was not physically qualified for general military service, he was rejected. There were only two classes, men fit for military service and men unfit for general military service. There was no middle ground at all. The grouping here in this book is the same as in Form 64. Group A, men physically fit for general military service; Group B, remediable deferred group.

And let me warn you now: There have been some mistakes made, and abuses must occur while we are dealing with millions of men and with thousands and tens of thousands of men administering the law. Do not ever make the mistake of sending a man to camp, no matter what sort of a call there is, who is in the remediable Group B, unless you get a specific order to send those men forward to be remedied at a place that has been designated by the Surgeon-General.

Then we have Group C men, qualified for special or limited military service, and Group D, those totally rejected.

Now, I want to say that the men in the deferred remediable group, plus the men in the special and limited military service group, plus the men totally rejected and put in Class D, do not aggregate more than 29 per cent. of all the registrants now being examined. And the men who are being held for special or limited military service form the other 10 per cent. of them.

We have today in Class 1 nearly 250,000 men qualified for special or limited military service who, under the old regulations, would have gone into the discard.

There is another thing that the boards ought to be particularly careful about in qualifying or grouping men for special or limited military service, and that is that they must not only find that they are suffering with a defect which cannot be remedied and which disqualifies them for general military service, though it does not disqualify them for special or limited military service, but they must be satisfied that notwithstanding the man's defect, he is successfully following in civil life some occupation which might be useful in the Army. Not only that, but they should be extremely careful to enter on the record the identical occupation which he is qualified to follow.

For example, if you find a man who has lost one or two fingers, which would disqualify him for general military service—of course, not remediable, because you cannot replace his fingers—but you find that man is and has been for four or five years an expert telephone switchboard installer, or something of that sort, then you put that man down as qualified for special and limited military service as a wire man or switchboard installer.

You have another man who may be totally blind in one eye, and the sight of the other eye perfect. You may find that he has been perfectly successful as a telegraph operator, or in some other capacity. You hold him in that special class, and name the particular capacity in which he is available. This is an important thing, so that when we send a call for men, and we need men in these special capacities, we shall know

that we have got 250,000 men from which we can select maybe nearly all of them to fill up these places which must be filled in the Army. If you enlist or induct a thousand men and send them to a camp or post, a proportion of those men, notwithstanding they are soldiers, have to do certain things which do not require the physical capacity of a man who has to carry his knapsack and rifle; and it is to fill the places of men of that sort that we can use these special and limited service men; and we have saved 250,000 of them who would have gone into the discard.

We hope that by the uniform application of the new rules there will be a still smaller percentage of men lost on account of physical rejections.

Mr. Taylor spoke of the enormous amount of free dental work done in Rochester, N. Y. It is a great conception. It fits men not only for military life, but also for civil life afterward.

RECONSTRUCTION WORK

Colonel Billings, now transferred from our office to the office of the Surgeon-General, has been put at the head of what is going to be the greatest work in this country; that is, the reconstruction of our wounded when they come back from France. In the meantime the intention is to attempt a remedy, a reconstruction, of thousands and hundreds of thousands of men of draft age in this country, if possible, and I perhaps will not be revealing any official secrets when I say that in my opinion Colonel Billings, before the time is reached when his force will be occupied in reconstructing our men coming back from France, will be reconstructing and remedying some of these men in the deferred remediable group, so that we shall recall these men, and make them fit.

MARYLAND DOING RECONSTRUCTION WORK

I want to say this, too: States are going ahead, many of them, and doing this remediable work. I think the first state to begin it was Maryland. I believe the Medical Aide from Maryland is here today. I hope he is. I understand that the state authorities, in conjunction with the Medical Aide and the boards, are now, in the State of Maryland, actually doing work of throwing the hospitals open and remedying many of these men put into the deferred remediable group. That is going to be followed in the other states; so that we shall have the state authorities, the county and municipal authorities who will be working hand in hand with the Surgeon-General's Office, preparing many of these men for service. But remember, you have got nothing to do for these men until you get a specific order to send a man of the deferred remediable group to a certain place designated by the Surgeon-General to be remedied.

DENTAL ASSISTANCE

Let me tell you what the dentists have done: The National Dental Association—I forget just the association's name—began several months ago to get the promise of all the dentists of the country, especially those who belong to the Association, to do free dental work for men who have been called; and up to date they have performed 300,000 dental operations; they have remedied 300,000 men who needed dental work done before they went to camp.

You are engaged in a gigantic task. It is hard to conceive what this task is. It is hard to visualize it. Think that one of the lower strata of the pyramid is composed of more than 15,000 members of Local and District Boards. Think of the enormous personnel actively doing work in classifying these men as to availability, and grouping them as to their physical qualifications. But you cannot stop there. Do you know that outside of the medical members of the Local and District Boards there are 20,000 physicians of this country working with Local and District Boards as examining physicians and as members of Medical Advisory Boards, besides the 20,000 that have already gone into the Army? Do you realize that there are more than 15,000 permanent members of Legal Advisory Boards, three to every Local Board, and that the associate members, called in to do the work when the necessity requires throughout the classification period, number more than 90,000 lawyers in this country helping the Local Boards? They have not responded any better than the medical profession has. I am a lawyer myself, but I take my hat off to the doctors.

Do you know we have 3,000,000 men under arms today and that the draft boards of this country have sent to camp 1,600,000 of these men? The other 1,400,000 are men who are enlisted in the National Guard, Regular Army, the Navy and the Marine Corps. And I want to tell you something else: Sixty per cent. of those 1,400,000 who are now in the Regular Army, National Guard, Navy and the Marine Corps came from your registration lists, and most of them went after you

classified them and examined them and found them available for military duty and physically qualified for general military service; so that the draft boards of this country have sent under arms two and a half million men. The other half million are the men, a few of whom are over 31, and the others who are under 21. Do not get pessimistic, and do not be disappointed because the recent registration did not reach a million men. There is only one answer to it, and that is that there were two or three hundred thousand young men of the age of 21 years who voluntarily enlisted in the last twelve months.

I know that I do not have to appeal to your patriotism. You have shown that. You have shown that you realize that there is nothing worth while in human life today except to win this war, because if we do not win it there will not be anything worth while for any of us after it is over.

General Crowder said to me as I left Washington, and I realize the truth of it: "You cannot and I cannot say to these men what ought to be said to them; neither you nor I, nor any human tongue can ever express the gratitude which not only the Provost Marshal-General's Office but the whole American nation owes to these men who have labored faithfully and without compensation." The Local Boards and the District Boards have been paid nothing but a nominal compensation, not with any idea on the part of the government that it is real compensation; and many who are able have declined to receive any. And when you go to the nine or ten thousand members of the Medical Advisory Boards, you know well that they not only receive no compensation, but they furnish material, and frequently furnish for the use of the boards the offices for which they pay rent. So that it is useless to try to describe the gigantic task that has been done or the debt of gratitude which is due to these men for what they have done.

DISCUSSION

The Work of the Dental Profession

DR. CHARLES F. ASH, New York, said: Prior to entry of the United States into the great war, the dental profession conceived the idea to make fit those men who were joining the Army and entering through the recruiting stations, believing, as we did then, that before long the United States would be, of course, one of the Allies. At the time we entered the war there were less than 6,000 dentists in the organization. We got the assistance of the Surgeon-General's Office to promulgate a plan whereby we were to ask the members of the profession to join the league, and we asked each man who joined the league and who was willing to give his service to give one hour a day and furnish the material to make dentally fit those men who became registered, and who were fitted for general military service.

We have today, out of a membership of about 45,000 dentists in the United States, over 15,000 dentists who have joined this league, and are giving service of one hour a day and material.

Up to May 1, we had recorded 236,115 operations. When I say "recorded" I mean we had the individual history of those cases, the name, the board number, and what the operation was, signed by the man who had the operation.

June 1, we had 336,931 operations recorded, showing an increase of over 100,000 operations during the month of May. In addition to that I know we have done at least 150,000 operations of which there was no record kept. So that we are safe in saying that over 500,000 operations were performed by the dental profession since September, 1917.

We are the infant member of the medical profession, and as such we should observe proper modesty, and we are glad to do so; but we are imbued with the idea that we are in this war to a successful finish, no matter how long it may take. The dental profession is satisfied that it is going to try to do its bit. We want to ask the cooperation of the members of the medical boards. If you will give us an opportunity to get the names of the registrants certified for general military service, we will be extremely grateful to you.

Rejected Men at Camp Logan, Texas

MAJOR J. N. HALL, Camp Logan, Texas, said: I was glad to hear the report of the conditions at Camp Grant. I was the chairman of the board at Camp Logan, Texas, for the surgeon's certificates of disability to whom came these men who were sick. I entirely agree with Colonel Phelan in his remark that the men sent must have been the poor ones. We received 4,000 of these men, and in a short time we sent back three solid trainloads, 1,500 of these men, because of various disabilities. There is no need in the world of letting

men come in with such defects as we found in these men. We found cases of arthritis and old tuberculous joints. Twenty-six men had such diseases of the eye as anopia. Of the 3,225 men examined all did not come from the draft, but in part were the regular Guard division, the Regulars in the camp, and also the draft men sent in. I have had 50,000 men pass before me, and I feel I ought to say something about them. There were eighteen with ankylosed joint; there were 164 with defective mental development; 179 cases of various deformities, from an absence of the pectoralis major muscles to absence of fingers and toes. We had a man who could not hold a pencil in his fingers. There were men with tuberculous spines; twenty men with fingers off so that they could not hold a gun in their right hand, and many that had no right forefinger; 250 hernias were operated on and the men returned to service. In that particular, I wish to dissent from the view expressed here today by one of the speakers. We had a dozen men with six toes, and many thrown out because they would not have the extra toe amputated.

(To be continued)

Therapeutics

FRENCH METHODS IN THE TREATMENT OF EPIDEMIC MENINGITIS

In view of the continued presence of epidemic meningitis in both military and civil communities in many different parts of the country, an especially keen interest is now felt in the successful treatment of this much feared disease. It may therefore be of value at this time to review briefly certain phases of the treatment of epidemic meningitis as practiced in France and described in detail by Dopter in his valuable little book.¹

INTRASPINAL INJECTION OF ANTIMENINGITIS SERUM

In France, as elsewhere, it is regarded as essential that antimeningitis serum should be brought in direct contact with the lesions and with the cocci that produce them, which means that in practically all cases of meningococcus infection the serum must be introduced into the subarachnoid space. Of course, cases of meningococcemia without meningitis require intravenous injections of serum, and in the earliest stages of meningococcus infection and meningitis, intravenous injections are being urged by Herrick. Local meningococcus processes outside of the nervous system, for example, pleuritis, arthritis and corneal ulcer, should be treated by direct application of antimeningococcus serum.

For lumbar puncture Dopter recommends the recumbent position on the side at the edge of the bed, with the thighs strongly flexed on the abdomen and the head on the chest. The space between the fourth and fifth lumbar vertebrae is located by drawing a line from one iliac crest to the other, this line passing across the upper limit of the space. The needle is introduced in the median line in a slightly upward direction, and cerebrospinal fluid allowed to escape, as a rule to an extent somewhat larger than the amount of serum to be injected. The serum is warmed to 38 C. (100.4 F.) and injected slowly but continuously. After the injection the patient should be placed so that the pelvis is elevated and the head and chest lowered for two or three hours, in order that the serum more readily may reach upper regions of the subarachnoid space, especially the part about

the optic chiasm which is nearly always most severely involved. Before injecting the serum the spinal canal may be washed out with warm sterile salt solution, as much salt solution being used each time as the quantity of cerebrospinal fluid originally withdrawn; Aubertin and Chabanier believe that this procedure is better than injection of serum only.

In the adult it is recommended that the quantity of serum injected at one time should not be less than 20 c.c.; in grave cases large quantities are indicated; 10 c.c. is regarded as insufficient under all circumstances; even in nurslings, it is necessary to inject from 15 to 20 c.c. and sometimes 30 c.c. From these statements we learn that in France, as in this country and elsewhere, antimeningitis serum is not yet standardized in such manner that the dose can be stated in definite units; as the matter now stands, the physician must use what he believes to be the most potent serum obtainable in maximum quantities.

A single injection even of a large quantity is rarely sufficient to arrest the infection completely; as the serum rapidly passes into the general circulation, remaining in contact with the lesions only a short time, the improvement after the first injection usually is only transitory, and in a day or two the condition becomes worse again and new injections must be given. Hence Dopter advises that as a rule the injections be repeated daily for three or four days. If the symptoms in the meantime become worse, two injections a day may be given, provided there are no indications that the serum is not being absorbed.

IMPORTANCE OF REPEATED EXAMINATIONS OF CEREBROSPINAL FLUID

After a series of injections, the symptoms in most cases subside and the outlook appears good, but Dopter specially emphasizes that the symptoms are not the most reliable guide, and that the best indications as to the progress of the case are obtained from a careful study of the cerebrospinal fluid. Whatever the general condition of the patient may be, if the fluid shows leukocytes and meningococci, the meningitic process is still active and new injections of serum are necessary. It may happen that after injections of serum all symptoms subside to reappear suddenly, the temperature rising again, with headache and stiffness of the neck. This may mean either a reawakening of the meningitis or certain serotoxic phenomena discussed a little later. If it concerns a true meningitic recidivation, the fluid is turbid and contains leukocytes and cocci, and of course more serum is in order; if it concerns the second possibility the fluid may be clear, perhaps amber colored, and without meningococci, and in this case no injections are indicated. Netter advises that in all cases lumbar puncture should be made from five to seven days after the first injection, as one then sometimes, so to speak, may surprise the enemy as it is preparing for a new attack. Dopter says to watch the patient with needle in hand and the eye at the microscope, and continue the injections so long as the meningococcus is present. It may be necessary to puncture and inject serum from as many as eight to twelve times, and to give from 150 to 250 c.c. of serum before success is attained.

When a physician sees a patient with the symptoms of cerebrospinal meningitis, a lumbar puncture should be made at once to determine whether the cerebrospinal fluid is clear or clouded. The fluid should be centrifugated and smears examined with respect to

1. Dopter: *Diagnostic et traitement de la méningite cérébro-spinale*, Paris, 1918.

cells and bacteria. If the fluid is clear and does not contain any abnormal elements, the idea of meningitis must be put aside at least for the time being. But if the fluid, whether clouded or clear, contains polymorphonuclear leukocytes and bacteria, some form of meningitis is present. If the bacteria present are clearly recognizable as streptococci or pneumococci or bacilli, the meningitis would not seem to be due to the meningococcus; but if the smears contain intracellular or extracellular cocci, shaped like coffee beans, and not taking the Gram stain, the case may be regarded as one of epidemic meningitis, and now it would be highly imprudent to wait two or three days for complete bacteriologic identification by means of culture and agglutination before injecting the serum, because the patient then would lose the great benefit of early injection of serum. In case a most careful examination of smears fails to reveal any bacteria at the same time as numerous leukocytes are found to be present, experience has shown that the meningococcus nearly always is the cause of the infection. In the presence of an epidemic, injection of serum should not be delayed under any circumstances if the symptoms point to cerebrospinal meningitis. When it is impossible to examine the fluid bacteriologically, serum should be injected and the injection repeated the next day; if the symptoms subside, one should wait two or three days and then give a third injection; but if the symptoms appear to tend to persist, injection should be made again in from twenty-four to thirty-six hours.

MENINGEAL IRRITATION FROM SERUM—"SERUM MENINGITIS"

Besides the well known phenomena of serum disease, intraspinal injection of horse serum sometimes appears to produce symptoms that suggest an aggravation of the meningitis. Dopter sketches the course of events in such cases somewhat as follows: A patient receives several injections of serum, and the symptoms subside; but a few days later, usually about the seventh to the ninth day after the first injection, headache, stiffness of the neck, vomiting, etc., may reappear; lumbar puncture is made and serum perhaps injected again, and the headache and pain in the back increase with dyspnea and rise in temperature only to disappear again after from twelve to twenty-four hours or thereabouts. These phenomena, sometimes intensified, may come on regularly after each new injection of serum, but the spinal fluid remains clear; leukocytes may be present, but these are well preserved, whereas in meningococcus meningitis they usually are degenerated, and meningococci are absent. These symptoms are associated often with cutaneous eruptions and joint phenomena. The most reasonable explanation of these meningitic manifestations is that they are due to mechanical and toxic effects of reactions leading to the formation of precipitate in the cerebrospinal fluid. We know that specific precipitins

for horse serum develop in the blood of persons injected with antidiphtheria (horse) serum, and the cerebrospinal fluid of patients injected intraspinally with antimeningitis serum may form precipitates when mixed with the serum outside the body. It consequently is possible that precipitates may result in two ways: (1) from the action of the antimeningitis serum on the meningococcal proteins in the cerebrospinal fluid, or (2) from the action of precipitins on the proteins of the antimeningitis serum, the precipitins in this case having passed into the cerebrospinal fluid from the blood of the patient.

CAUSES OF FAILURE OF SERUM TREATMENT

According to Dopter, serum treatment of meningitis by French physicians gives a marked reduction not only in the death rate, but also in the duration and severity of the attack, and especially in the number of calamitous sequels (deafness, blindness and paralysis of various sorts). In discussing the failures of the serum treatment of meningitis, Dopter points out that the death rate is highest under 2 years: that chronic

diseases and conditions of lowered resistance in general also increase the death rate; that in the fulminant attack, which may end in death after a few hours, there is little chance of success; that sometimes the attack at first is so mild that for some days the patient may continue his usual work to fall in a sudden coma and die after a few hours; and that epidemic meningitis may be associated with grave septicemia as shown by petechial and purpuric eruptions with or without internal complications such as pneumonia, pericarditis, etc., and in this group the death rate is high. Here, especially, prompt intravenous injections of antimeningitis serum in large doses are indicated.



Fig. 1.—Ventricular puncture followed by injection of serum.

Like all forms of serum therapy, the antimeningitis serum is most effective when given early; the longer after the onset serum is injected, the less its life-saving effect; in the earliest stages, exudate is just forming; but later, the meninges are covered with a dense fibrinopurulent exudate in the depths of which the meningococci can hardly be reached by the serum, these changes being usually most marked at the base of the brain, and it is evident that the serum cannot possibly have the same local effect in the later stages of the attack as at the beginning. All statistics agree in showing much more favorable results early in the disease than later. Dopter states that early in the war, meningitic patients were sent to the rear before they were injected with serum, and during this time the death rate varied from 45 to 55 per cent.; but from the day when it was made possible to inject the serum more promptly, the death rate fell to about 15 per cent.—a most striking demonstration of the profound influence exercised by the time of injection.

It is now hardly necessary to remark that subcutaneous injections are not effective—the serum must be injected into the cerebrospinal space as the rule,

and in sufficient quantities, and the injections repeated according to the indications in the individual case, special care being taken always not to stop too soon. It may happen that the serum is injected in such a way that it accumulates in a subdural cavity without reaching the subarachnoid space proper, and that on subsequent punctures this serum is withdrawn and new serum injected, the serum at no time coming in direct contact with the infected tissues. Another cause of failure may be mixed infection with staphylococci, streptococci, influenza bacilli, pneumococci, tubercle bacilli or other bacteria. Of course, anti-meningitis serum is without effect in meningitis due wholly to some other microbe than the meningococcus. Cases do occur in which the meningococcus becomes associated with some one or other of the bacteria mentioned, and in such cases the serum treatment may destroy the meningococcus but have no action on the associated bacteria. Cases have recently been described (Netter, Mathers) in which the meningococcus and pneumococcus were associated, and in such cases, in which the prognosis is always bad, double serum treatment should be tried.

Further causes of failure may be peculiarities of the lesions in the central nervous system. Usually the lesions are most pronounced at the base of the brain, but in some cases in the spinal canal. These regions are not equally accessible to the serum as usually introduced, as the serum may not reach readily the cerebral regions, especially when the quantity injected is not large. Dopter says that as a rule the patients that present cerebral symptoms with delirium, etc., resist the action of the serum more than others. Then there may be meningococcal foci outside of the meninges as, for instance, abscesses, large or small, either subpial or deeper. Instances are described of death from meningitis treated with serum, in which the meninges were found perfectly normal after death, there being, however, abscesses in the brain. Sometimes, when the disease is prolonged, conditions develop that prevent the serum from reaching all parts of the meninges. Partitions dividing the subarachnoid space into independent cavities may form; thus the spinal canal may become shut off from the brain cavity, so that serum introduced by lumbar puncture cannot reach the surfaces of the brain, an effect that may be produced by masses of exudate in the region of the bulb. The spinal cavity may be partitioned, as in the case described by Cantas, in which he obtained only 2 cm. of fluid by lumbar puncture, and the injection of serum encountered considerable resistance; here cervical punctures were made, followed by injection of serum, and recovery ensued. When high puncture is being made, the patient should lie on the side with the back bent, and the needle should be introduced in the space between the sixth and seventh cervical vertebrae. Normally,

the subarachnoid space communicates freely with the ventricles of the brain; in the usual form of meningitis it is the subarachnoid space that is the seat of infection, now easily reached by serum introduced by lumbar puncture; but sometimes the infection invades the ventricles and causes ependymitis, and in this case the paths of communication between the ventricles and the subarachnoid space may become more or less blocked so that serum injected in the usual way cannot reach the ventricles at all. In such cases also the membranes may be found normal after death while the ventricles are dilated and filled with clouded, purulent fluid.

Speaking generally, the symptoms in such cases under the usual serum treatment at first improve; the cerebrospinal fluid becomes clear; but soon a remission occurs which resists further treatment, while the cerebrospinal fluid may be practically normal, but scanty. Here the injection into the ventricles after death of a solution of some dye may not result in any coloration of the cerebrospinal fluid, showing that the communications are interrupted, and failure

of serum treatment as usually practiced seems easily explained. Sometimes the main passages are blocked, but minute fissures remain open through which meningococci may find their way from the ventricles and maintain a meningeal inflammation. In France the opinion seems to be growing that most of the protracted cases of epidemic meningitis are of this walled-in type.

TREATMENT OF MENINGOCOCCUS EPENDYMITIS AND WALLED-IN MENINGITIS

As it is essential that antimeningococcus serum must come into direct

contact with the meningococci, it is necessary in cases like these just outlined to inject the serum directly into the ventricles and other cavities. Cushing and Sladen appear to have been the first to do this; they withdrew the fluid in the ventricle and replaced it with an equal quantity of serum. Since then this procedure has been repeated in some cases with success, and now it must be regarded as the duty of the physician who undertakes the treatment of patients with epidemic meningitis to be prepared to puncture and inject the ventricles in cases of blockade. In infants, puncture may be made on a line with the external angle of the anterior fontanel about 2.5 cm. from the median line, the needle passing from above downward and a little inward at an angle of about 20 degrees for from 2 to 4 cm. when the ventricle is reached. Dopter recommends that from 30 to 60 c.c. of fluid be withdrawn and from 20 to 30 c.c. of serum injected, great pains being taken that the direction of the needle is not changed before the commencement of the injection. In older children and in adults, puncture must be preceded by trephining.



Fig. 2.—Section revealing dilatation of the ventricles. The arrow shows the course of the needle.

Three routes are available, the superior or frontal, the lateral or temporal, and the posterior. The superior route is preferred by Dopter; a small, external opening is made at a point 3 cm. in front of the bregma and from 2.5 to 3 cm. away from the median line, and a needle, from 7 to 10 cm. long and 7 or 8 mm. in diameter, is introduced obliquely from above downward and inward at an angle of from 15 to 18 degrees. At a depth of about 4 cm., fluid generally appears; sometimes it may be necessary to aspirate. The fluid should be allowed to run out, but not longer than while the patient seems perfectly well; the needle being maintained carefully in its place, a quantity of serum is injected slowly to the extent of about two thirds of the fluid withdrawn. This is a harmless procedure which has been followed by recovery in some apparently hopeless cases; but the true merits of the method are difficult to determine because so far it has been applied only in very grave, seemingly hopeless cases, and usually late in the disease. Dopter advises that this treatment should be used more freely, and that the injections should be repeated. He says that it must be borne in mind that in some cases both lateral ventricles should be punctured.

The situation established by closure of the ventricles being a most grave one, it should be met by a definite line of conduct, not timidly or blindly. The indications may be thus outlined: Usually the meningeal symptoms improve after intraspinal serum treatment. The cerebrospinal fluid becomes nearly normal; but in a few days the fever rises again, the headache increases, the patient becomes somnolent, perhaps delirious, the reflexes are reduced, and lumbar puncture may yield a fluid which is clear or almost clear and free from meningococci. Sometimes the fluid is a little yellowish, as if the serum injected had not been absorbed, and the fluid may be under but little pressure and scanty; sometimes one observes amaurosis, and there may be such signs of increased intracranial pressures as papillary congestion and contraction of the pupils. In spite of further injections of serum the general condition becomes aggravated, the headache increases and emaciation with muscular atrophy and contractions develops. The process should not be allowed to come to such extremes as this if it can be avoided. The earliest suspicious symptoms should prepare the physician for prompt action; more particularly rapid aggravation after a period of calm following injections of serum, persistence of symptoms in spite of improvement in the cerebrospinal fluid, which is yellow and under low pressure, increase of headache, and convulsions, if a little more serum is injected than cerebrospinal fluid withdrawn. It is true that none of these symptoms are pathognomonic. They may be imitated closely in the so-called serum meningitis; the symptoms in this case, however, soon subside, especially after lumbar puncture, but not in the other.

It is only by careful consideration of all the signs and symptoms that the existence of meningococcus ependymitis with blockade may be suspected or the passing of a meningeal process into a meningoventricular recognized. In the nursling the diagnosis is aided by tension of the fontanel. The diagnosis is more difficult when the phenomena of meningeal and ventricular involvement are present from the beginning; here no improvement follows serum treatment, except possibly in the cerebrospinal fluid. It seems

evident that the early recognition and direct treatment of ventriculomeningitis with blockade will save life.

When the brain cavity as a whole has become separated from the spinal, Dopter urges introduction of the serum directly about the base of the brain. The route mentioned for this purpose is the sphenoidal fissure (*la fente sphenoïdale*), which is reached by a trochar entered just below the supra-orbital notch and passed along the orbital vault. Fluid is withdrawn and serum injected. Cazamian has used this method in three cases, and found it not difficult; two of the patients were moribund and died, but in the third case, in which the patient also was desperately ill, and two injections were given, one on the right side and the other on the left, recovery took place.

When closure is multiple so that many cavities are formed, more than one special method of treatment would be required, for example, puncture and injection of ventricles as well as at the base of the brain by the sphenoidal route. The difficult task in such cases is the diagnosis. In all such cases the condition of the spinal fluid below the occlusion must be carefully determined from time to time, as reinfection from above may take place, requiring new spinal injections.

This summary of Dopter's directions for the treatment of protracted, walled-in cases of epidemic meningitis brings into the foreground the special need of examination after death of the central nervous system of such patients. By careful study of the symptoms and course of the attack followed by a thorough anatomic examination, valuable lessons will be learned in treatment.

Health of English Schoolchildren.—In its comment on the annual report for 1916 of Sir George Newman, president of the Board of Education, the *British Medical Journal* (Oct. 6, 1917), says that the war more than anything else has brought home to the public the conception of the child as a primary national asset, and quotes the president as saying that no investment and no national economy can compare in results with the care of the rising generation. According to the *British Medical Journal's* analysis of the report, "the records of 1916 show all too much ill health, disability and defect of mind and body. Uncleanliness, malnutrition and mental backwardness debar tens of thousands of children from reaping proper advantage from the educational system provided by the country. Disease takes even heavier toll of the six million children in attendance at school. Probably half the whole number need dental treatment, and not less than half a million need it urgently, while a further half million are so defective in eyesight as to be unable to take reasonable advantage of their lessons. Another quarter of a million are seriously handicapped by diseases of the ear, throat and lymphatic glands." It is believed that the situation is no better at present; but the only hope of bettering it, according to Sir George Newman, is in systematic and continuous attention. The machinery for this is already provided, but in some instances it is insufficiently applied, or it is misapplied, or it is ineffectual on account of failure to see its importance, or owing to a sense of false economy or even parsimony. In order to secure the full value of school medical service, there should be periodic direct medical and dental supervision and follow-up; undernourishment should be overcome; medical treatment should be made available for all; well ventilated or open air classrooms should be provided; daily, organized, appropriate physical exercise should be taken; children of school age should be employed for profit only under approved conditions, and school environment and means of education should in no instance exert unfavorable or injurious influence on the health, growth and development of the child.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

CHLORINE-SODA AMPOULES.—Composed of a sealed glass tube stated to contain liquid chlorine (over 99 per cent. pure) 4.8 Gm. and a sealed glass tube stated to contain monohydrated sodium carbonate 21.3 Gm. and yielding, when the contents of the tubes are dissolved in 1,000 Cc. of water, a solution similar in composition to Neutral Solution of Chlorinated Soda.

To prepare the solution the contents of the tube of monohydrated sodium carbonate are placed in a bottle having a capacity of about 2,500 Cc. and dissolved in 1,000 Cc. water. The tube containing the liquid chlorine is suspended from a rubber stopper and is inserted into the bottle and the stopper firmly secured. The large bottle (after covering with a cloth) is shaken to break the chlorine tube. The contents of the bottle (without releasing the stopper) are then shaken for two minutes or longer. The solution, freed from particles of glass by decantation or filtration, is then ready for use, or its available chlorine may previously be checked by titration.

Actions, Uses and Dosage.—See Neutral Solution of Chlorinated Soda (New and Nonofficial Remedies, 1918, p. 154).

Manufactured by Johnson and Johnson, New Brunswick, N. J. U. S. patent applied for. No U. S. trademark.

The finished solution contains from 0.45 to 0.50 per cent. sodium hypochlorite. The available chlorine content is determined by titrating 10 Cc. in the presence of an excess of potassium iodide and acetic acid, with tenth-normal sodium thiosulphate solution. For this titration 12.0 to 13.4 Cc. of tenth-normal sodium thiosulphate solution are required.

To determine if the solution contains an excess of alkali a small quantity of phenolphthalein is mixed by rotation with some of the solution contained in a beaker. No red color should be produced.

CHLORIN-SODA AMPOULES

Report of the Council on Pharmacy and Chemistry

The report of the Association's Chemical Laboratory which appears below was submitted to the Council by a referee. The Council endorsed the report and authorized its publication. The Council also voted to accept Chlorin-soda Ampoules for New and Nonofficial Remedies.

W. A. PUCKNER, Secretary.

THE EXAMINATION OF CHLORIN-SODA AMPOULES

Report of the A. M. A. Chemical Laboratory

H. D. Dakin, in conjunction with A. Carrel and M. Daurfresne, has introduced the so-called "Neutral Solution of Chlorinated Soda," or "Dakin's Solution," different standards and modes of preparation having been described. It is essentially a solution containing from 0.45 to 0.50 per cent. sodium hypochlorite, in a hypertonic solution of sodium chlorid and sodium carbonate and sodium bicarbonate. To prepare the solution, as they describe, requires that the available chlorine content of the chlorinated lime used be known, and that the available chlorine content of the finished solution be checked by titration. To obviate this, various preparations have been placed on the market, claiming to yield, when made according to direction, a solution having the correct strength of hypochlorite and to be "neutral" to phenolphthalein.

Johnson and Johnson offer "Chlorin-soda Ampoules" composed of (A), a sealed glass tube stated to contain 4.8 gm. liquid chlorine having a purity of "approximately over 99 per cent.," and (B), a sealed glass tube stated to contain 21.3 gm. monohydrated sodium carbonate U. S. P. The contents of "B" are placed in a 2.5 liter bottle, and dissolved in 1 liter of water. Tube "A," containing the liquid chlorine, is suspended from the inserted rubber stopper. The large bottle is then vigorously shaken, breaking the chlorine ampule.

Some of the claims made for the product are:

"The Johnson and Johnson method in a few seconds gives the Carrel-Dakin antiseptic solution of standard strength of between 0.45 per cent. and 0.50 per cent. of sodium hypochlorite, free from caustic alkali.

"All settling, decantation and filtering to eliminate lime sludge is avoided; the solution is exact and definite; all necessity for, and the trouble of an analytical test is obviated.

"The Carrel-Dakin solution resulting from this method is perfectly clear and ready for immediate use.

"The method is thus at once adaptable to hospital and field use, as well as to ordinary office practice."

"It is not necessary to make analysis of the solution made up from liquid chlorine by the Johnson and Johnson method, but for those who wish to check up the strength we state that it must contain between 0.45 per cent. and 0.50 per cent. sodium hypochlorite and that this is determined by titrating 10 c.c., in the presence of an excess of potassium iodide and acetic acid, with tenth-normal sodium hyposulphite and that the amount of this hyposulphite solution necessary ranges between 12.0 c.c. and 13.4 c.c."

"The test for caustic alkalinity, as prescribed, consists in throwing some powdered phenolphthalein upon the surface of some of the solution in a beaker and twirling the beaker to mix it. No red color should be produced."

One original package containing three ampules each of chlorine and of "Soda Salts" was sent to the Council by Johnson and Johnson, and another original package was purchased on the open market.

The liquid chlorine was brown, and was contained in colorless hard glass ampules about 7 inches long and $\frac{3}{8}$ inch in diameter. The following quantitative determinations were made:

Chlorin Ampule.—The chlorine was allowed to escape from one tube by opening the pointed end, with due precautions, by heating. The loss in weight of the ampule was 4.600 gm. chlorine. A very small yellow residue remained in the tube.

Sodium Carbonate Ampules.—The weight of the contents of four "soda" ampules was 21.7, 21.5, 21.6 and 21.5 gm., respectively; average, 21.5 gm.

By titration (a) 2.6336 gm. required 41.60 c.c. normal hydrochloric acid solution, equivalent to 97.98 per cent. monohydrated sodium carbonate; (b) 2.2295 gm. required 35.90 c.c. normal hydrochloric acid solution, equivalent to 99.70 per cent. monohydrated sodium carbonate; average, 98.9 per cent.

Sodium Hypochlorite Solution.—The directions given by Johnson and Johnson were followed in preparing the hypochlorite solutions. The titrations were also carried out according to the method described by Johnson and Johnson (essentially the U. S. P. assay method for Solution of Chlorinated Soda).

(A) The chlorine tube broke near the middle, developing pressure, and some chlorine escaped: (a) 10 c.c. of the solution required 9.88 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.37 per cent. sodium hypochlorite; (b) 10 c.c. of the solution required 9.88 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.37 per cent. sodium hypochlorite.

(B) In preparing this sample, the chlorine tube also broke above the level of the water. As the stopper of the bottle was wired down no chlorine could escape at once. Yet when the stopper was taken out, after the bottle had been shaken for about one minute, the strong smell denoted that some uncombined chlorine had escaped: (a) 10 c.c. required 10.35 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.38 per cent. sodium hypochlorite; (b) 10 c.c. required 10.16 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.38 per cent. sodium hypochlorite.

(C) In preparing this sample, the chlorine tube broke near the lower end. After shaking the contents two minutes, no free chlorine escaped, when the stopper was released: (a) 10 c.c. of the solution required 13.3 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.49 per cent. sodium hypochlorite; (b) 10 c.c. required 13.3 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.49 per cent. sodium hypochlorite.

(D) The procedure was the same as C and no chlorine escaped: (a) 10 c.c. required 12.8 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite; (b) 10 c.c. required 12.8 c.c. tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite.

(E) The solution was prepared as above, and after shaking from one and one-half to two minutes, the stopper was released when chlorine escaped: (a) 10 c.c. required 12.8 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite; (b) 10 c.c. required 12.8 c.c. of tenth-normal sodium thiosulphate solution, equivalent to 0.47 per cent. sodium hypochlorite.

(F) This tube could not be broken when vigorously shaken inside of the large bottle. It was therefore removed, cleaned and dried, and the chlorine content determined as described above.

Stability of Solution after Forty-Eight Hours.—Solutions D and E were allowed to remain near a window on dark days for forty-eight hours. In solution D the strength of sodium hypochlorite was 0.46 per cent. In solution E there was no perceptible decrease.

Phenolphthalein Test.—All of the solutions gave no color with powdered phenolphthalein, as described by Dakin, although they did color an alcoholic phenolphthalein solution momentarily before it was destroyed.

DISCUSSION

If loss of chlorine is guarded against, Johnson and Johnson Chlorin-soda Ampoules will give a solution of the strength described by them. To insure this, the stopper should be wired down or otherwise secured firmly and the bottle shaken for at least two minutes after the chlorine ampule has been broken. As the chlorine is under considerable pressure, the ampules when broken, especially if the sealed end is short, are often greatly shattered so that due precaution should be taken to filter off the glass particles. The chlorine tubes would break easier, more surely and with less shattering of glass and less pressure, if the sealed end was either more uniformly drawn out to a longer and somewhat smaller point, or so modified that the breaking would occur at the narrow tip. (With regard to this, Johnson and Johnson write that precautions have been taken to draw out the point of the chlorine tube longer and finer, so that no trouble, on this account, will occur in the future.) As Johnson and Johnson state that the chlorine contained in the ampules has a purity of over 99 per cent., it would be a valuable contribution if they would publish purity tests for the chlorine.

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SATURDAY, JULY 6, 1918

THE EFFECTS OF REDUCED OXIDATION

Forty years have elapsed since Paul Bert, in 1878, offered the first proof that the symptoms and dangers of low barometric pressure depend on diminished oxygen pressure, and consequent insufficient oxygen content in the blood. There are other conditions than barometric pressure, however, that also affect the capacity of the living cells to carry out their customary processes of oxidation. Local circulatory alterations may enhance or retard the usual respiratory exchanges in the tissues in such a way as to bring about more or less profound alterations in the temporary make-up of the cells. Impairment of oxidation, therefore, is not always directly attributable to actual oxygen deficiency in the larger environment of the organism.

In the majority of cases in which the effects of oxygen want have been studied, the symptoms investigated were those associated with grosser physiologic processes. The finer analysis that observes the enforced changes within the living cells has less often been the way of research. The interpretation of the results of cellular changes is always particularly difficult because of the many factors at play. Cells not only require oxygen and food, but also produce carbon dioxid and other decomposition products. Cause and effect in the momentary status of the protoplasm may thus easily become the subject of debate.

Recently undertaken experiments by Martin, Loevenhart and Bunting¹ at the University of Wisconsin were planned to ascertain the morphologic changes in the tissues when a single factor in the chemical environment was changed. In some cases a decrease in the oxygen of the respired air was made the sole factor of change; in others the oxygen was kept constant while the carbon dioxid respired was greatly increased. The investigators assumed, to quote their own words, that they were dealing with results, direct or indirect, in one case of a reduced oxygen supply to the cells of the body, and in the other of an increased carbon dioxid content of the fluids and

tissues of the body. The assumption, however, that the morphologic changes found could be produced in no other way is not made. Death of a cell may, for example, be produced by anemia or by bacterial toxins. A finer analysis might, however, show that in both instances a reduction of vital oxidation was the cause of the lesion; on the one hand through oxygen starvation, on the other through failure to utilize oxygen by interference with the cellular oxidases by the toxin.

In interpreting the lesions found in the Wisconsin experiments, it must be borne in mind that there was a consequent lessened intake of food and increased cardiorespiratory activity when the atmospheric conditions were varied in the way indicated. The compensatory efforts by the cardiorespiratory and hemopoietic systems were not adequate to meet the severe demand made by the lowered intake of oxygen in these trials. The outcome of the series, from the morphologic standpoint, after exposure to an atmosphere of low oxygen content, indicated a stimulation of the cardiorespiratory systems, an extension (hyperplasia) of red bone marrow, and probably a thyroid hyperplasia with the further production of hydropic and hyaline degeneration in the cells of the parenchymatous organs. An atmosphere of high carbon dioxid and normal oxygen content produces, however, a stimulation of the cardiorespiratory systems, but no marrow extension and, in the concentrations used, only slight hydropic degeneration in the parenchyma of the glandular organs. The results can be expressed in another way. The oxygen deficiency series gave evidence of lesions of two types, those of a progressive or hyperplastic variety, and those of a retrogressive or degenerative character, while in the carbon dioxid series, degenerative lesions alone were noted.

Martin, Loevenhart and Bunting point out a further interesting contrast in the location of the degenerative lesions within certain of the affected organs. Thus, in the oxygen deficiency experiments the lesion increases in intensity with increasing distance from the arterial blood supply. On the other hand, in the carbon dioxid experiments the lesions are in general more marked the nearer the tissues are to the arterial supply.

The hyperplasia of the bone marrow, that is, the extension of the red marrow throughout the cavities of the long bones, is not a new illustration of the adaptive response of the organism to oxygen deficiency.² Evidently the proliferation in these cells was not sufficient to compensate for the low content of oxygen available to the animals, so that degenerative processes nevertheless ensued. The opinion is advanced that oxygen deficiency should at least receive consideration as a cause, in the interpretation of lesions similar to those found under the conditions of the experiments cited. In explanation of the actual cellular changes

1. Martin, H. G.; Loevenhart, A. S., and Bunting, C. H.: The Morphological Changes in the Tissues of the Rabbit as a Result of Reduced Oxidation, *Jour. Exper. Med.*, 1918, **27**, 399.

2. Dallwig, H. C.; Kolls, A. C., and Loevenhart, A. S.: *Am. Jour. Physiol.*, 1915-1916, **39**, 77.

observed—an increase in cell size, with an increase of its fluid content and apparently a decrease in the protoplasm resulting in so-called hydropic degeneration, vacuolar degeneration, or serous imbibition—various suggestions present themselves. The accumulation of incompletely oxidized constituents of an acid character presents the possibility, often proposed, that water may be more easily retained and lead to localized edema. This is the swelling of cells so often emphasized by Fischer and others.

The theoretical aspects of the phenomena are not yet entirely clear; but in the interpretation of cellular lesions such as those here described, the factor of reduced oxidation must hereafter always be taken into account. Furthermore, the existence of thyroid hyperplasia in animals subjected to oxygen want is urged in favor of the theory that the thyroid influences internal oxidations. It is pointed out that vigorous thyroid activity increases oxidative metabolism in the body, and that after thyroidectomy degenerative changes have been noted widespread in parenchymatous organs. Thus, new observations may lead a long way.

THE RESISTANCE OF ANTINEURITIC VITAMINS TO ALKALIS AND HEAT

Among the current statements regarding the alleged instability of vitamins toward heat, some are apparently based on experiences gained by heating food substances under conditions of alkaline reaction. Thus it has been announced that bread containing baking soda loses its antineuritic properties during baking.¹ It has also been reported that extracts of rice polishings, which possess marked curative powers when administered to polyneuritic animals, lose this property rapidly when the extracts are made alkaline.² At a recent meeting of the American Society for Pharmacology and Experimental Therapeutics held in Minneapolis, Voegtlin and Lake³ of the Hygienic Laboratory at Washington reported that typical polyneuritis can be produced with great regularity in certain mammals by an exclusive diet of lean beef that has been heated in alkaline reaction for three hours in an autoclave at 120 C. The symptoms evidently associated with typical myelin degeneration of certain peripheral nerves are relieved promptly by preparations of yeast, but not by administration of a protein like casein or by butter fat; hence the conclusion that the detrimental effect of the diet is associated with a lack of antineuritic vitamin rather than the need of the fat-soluble vitamin that facilitates growth, or of suitable undeteriorated protein.

Equally recent experiments of Osborne and Mendel⁴ have shown that even unaltered meat (muscle tissue) is at best not very rich in the water-soluble vitamin, just as Cooper⁵ had earlier found meat to be relatively inefficient as an antineuritic food. From this standpoint, the study of heating meat is not likely to throw light on possible loss of vitamins by heat as other investigations of foods naturally richer in vitamins might be. Accordingly, it is interesting to learn from a recent report by McCollum⁶ at a meeting of the American Public Health Association that such sources of water-soluble vitamin as peas do not lose their growth-promoting properties by being heated in an autoclave at 15 pounds pressure for an hour. This procedure subjects the food to a temperature of between 112 and 115 C., and is probably a more severe heat treatment than is ever employed in the processing of canned goods.

Such information is timely before the advent of the next canning season. McCollum maintains that when cereals, fruits or vegetables are cooked with water, the reaction of the solution in contact with the food is probably never alkaline. Presumably, as he concludes, the physiologically active substance concerned with the prevention and relief of polyneuritis is sufficiently stable in either neutral or slightly acid aqueous solutions to make its destruction by heat a relatively slow process.

THE PATHOLOGY OF MERCURY POISONING

Intoxications produced by compounds of mercury either are acute in character with a rapid sequence of symptoms that are frequently, if not usually, fatal; or the outcome may be exhibited in considerably delayed manifestations of severe disease. The kidneys have usually received most attention in mercury poisoning because at some stage of the intoxication they are likely to show signs of abnormality in performance. Recently reported studies by MacNider⁷ of the University of North Carolina at Chapel Hill throw new light on the acute pathologic condition induced by mercuric chlorid. A number of the animals that died from the intoxication within forty-eight hours after receiving the poison showed a clinical condition comparable with the state of shock and collapse that is observed in man from the use of a concentrated corrosive poison. Although all the subjects receiving mercury developed a gastro-enteritis, this varied widely in severity and duration, depending on conditions of administration and the onset of vomiting. In the group just referred to, however, the gastro-enteritis was always intense, so that necropsy disclosed the

1. Voegtlin, C.: Bread as Food, *Bull., U. S. P. H. S.*, 1916.

2. Vedder, E. B., and Williams, R. R.: *Philippine Jour. Sc.*, 1913, **S**, 175. Funk, C.: *Biochem. Bull.*, 1915, **4**, 306. Voegtlin, C., and Sullivan, M. X.: *Jour. Biol. Chem.*, 1916, **24**, 16.

3. Voegtlin, C., and Lake, G. C.: Experimental Mammalian Polyneuritis Produced by a Diet Deficient in Antineuritic "Vitamine," *Jour. Pharmacol. and Exper. Therap.*, 1918, **11**, 167.

4. Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, I, *Jour. Biol. Chem.*, 1917, **32**, 309.

5. Cooper, E. A.: *Jour. Hyg.*, 1912, **12**, 436; 1914, **14**, 12.

6. McCollum, E. V.: Influence of Heat on Growth-Promoting Properties of Food, *Am. Jour. Pub. Health*, 1918, **8**, 191.

7. MacNider, W. deB.: A Study of Acute Mercuric Chloride Intoxications in the Dog with Special Reference to the Kidney Injury, *Jour. Exper. Med.*, 1918, **27**, 519.

usual picture of an alimentary mucous membrane subjected to a strong corrosive. There seems little doubt that in individuals succumbing in this way, death occurs before sufficient time has elapsed for the development of the kidney injury. Sometimes a decided reduction in kidney output is observed even in these acutely fatal cases. The diminution, MacNider believes, is probably dependent on a disturbance in the functional capacity of the vascular mechanism of the kidney induced by the deflection of arterial blood away from the kidney to the splanchnic viscera. The absence of degenerative changes in the kidney and the presence of an intense congestion of the splanchnic vessels would apparently permit this deduction from the phenomena observed.

Not all poisoned individuals escape acute nephropathy by dying before kidney damage results. When the severe mercury enteritis is averted or survived without death by shock, the delayed kidney injury so long regarded as characteristic puts in its appearance. The renal disintegration may occur with varying severity; it may even be delayed until there is recovery from the initial mercury enteritis. According to MacNider, however, this delayed kidney injury is not due to the action of mercury as such during its elimination by this organ. He points to the development of an acid intoxication as a conspicuous symptom of the action of mercuric chlorid. When it is severe, the animals may even become completely anuric. In this form of the delayed intoxication is found the severe type of kidney injury that has been characterized by an acute swelling and necrosis of the renal epithelium. All these animals have either gradually or acutely developed a severe type of acid intoxication. There has been a definite association between the development of an acid intoxication and the delayed kidney injury, and, furthermore, the animals that have shown the greatest swelling and necrosis of the renal epithelium have also shown the severest type of intoxication.

MacNider⁸ has reported that in acute uranium intoxications the severity of the epithelial damage in the kidneys shows a correlation with the degree of acid intoxication induced by the metal, and, furthermore, that the damage to the kidney may in large measure be prevented by the intravenous injection of an alkaline solution. Our confidence in the prospect of curative procedures has, however, been severely shaken by the studies of Sansum⁹ reported not long ago in *THE JOURNAL*. According to their indications, when once a fatal dose of mercury compounds is actually absorbed, therapeutic attempts are of no avail. Alleged suc-

cesses are ascribed to their accidental efficiency in producing an expulsion of the poison or preventing its absorption.

MEDICAL EDUCATION IN ONTARIO

In dealing with practitioners of medical cults, the Province of Ontario has set an example which should be followed by the legislatures of the various states of this country. When the osteopaths began to clamor for legal recognition, instead of immediately granting the legislation asked for, the prime minister of Ontario appointed a special commission to make a thorough investigation in regard to the osteopaths and other cults; to inquire regarding their relation to medical education and licensure, and to suggest what action should be taken in regard to educational standards and laws for their regulation. Mr. Justice Frank E. Hodgins of the supreme court of Ontario was appointed in September, 1915, to make the investigation, and his report has just recently come from the press.

In this report Mr. Justice Hodgins states that he visited fourteen different cities of Canada and the United States and eighteen different institutions; he interviewed 234 people, and besides an abundance of direct communication, collected nearly 200 pamphlets bearing on all phases of the problem. The investigation went thoroughly into the origin, progress and practice of osteopathy, chiropractic, manotherapy, Christian science and other forms of healing, as well as of medical education, dentistry and nursing.

The report states that osteopathy in the United States is rapidly changing so that it may eventually conform to the educational qualifications required of physicians, and that it would not be wise for Ontario to make any concessions in its practice laws to provide for their licensure in that province. The report quotes several prominent osteopaths to show that osteopaths generally are no longer adhering to the narrow limitations fixed by the tenets of osteopathy, but are "anxious for classification on practically the same standard as that of regular physicians."

Of the chiropractic colleges, the report clearly brings out their grossly commercial character and, in regard to chiropractors, the commissioner states that "their repudiation of all modern scientific knowledge and methods is such that it would be impossible to recommend any way in which they could be allowed to practice and by which the public could be safeguarded. . . . Those who appeared before me saw no necessity for preparatory qualifications, ridiculed and repudiated diagnosis, bacteriology and chemistry, and admitted that a chiropractor acts in all cases on his cardinal principle without examination." He showed that there was a serious division in the ranks of chiropractors as to just what constituted the practice of chiropractic. The report quotes B. J. Palmer,

8. MacNider, W. deB.: The Inhibition of the Toxicity of Uranium Nitrate by Sodium Carbonate, and the Protection of the Kidney Acutely Nephropathic from Uranium from the Toxic Action of an Anesthetic by Sodium Carbonate, *Jour. Exper. Med.*, 1916, **23**, 171; The Efficiency of Various Diuretics in the Acutely Nephropathic Kidney, Protected and Unprotected by Sodium Carbonate, *ibid.*, 1917, **24**, 19.

9. Sansum, W. D.: The Principles of Treatment in Mercuric Chlorid Poisoning, *THE JOURNAL A. M. A.*, March 23, 1918, p. 824.

who refers to his school as "the fountain head of chiropractic," as stating that "a chiropractor did not believe in bacteria and that bacteriology was the greatest of all gigantic farces ever invented for ignorance and incompetency, and as to analysis of blood and urine, he considered it of no value." The commissioner's conclusion is: "I cannot bring myself to the point of accepting, as part of our legalized medical provision for the sick, a system which denies the need of diagnosis, refers 95 per cent. of disease to one and the same cause, and turns its back resolutely on all modern medical scientific methods as being founded on nothing and unworthy even to be discussed."

In regard to Christian scientists, the report states: "Their rights should be carefully restricted to the bona fide exercise of the tenets of their religion, and they should possess no other or different right or immunity from that enjoyed by the clergyman or minister who is called in for the spiritual benefit of a member of his communion and whose ministrations often react beneficially on physical suffering." As to their relation to public health regulations, the report states: "Whether they see the patient or not, or whether they merely pray for him, if their efforts or doctrine really and in practice result in eliminating the regular practitioner, either because the patient desires it or because his friends do so, then the interests of public health throw on them the responsibility for any possible mistake in the nature of the disease. They should, therefore, conform to present or future health regulations and should, where they act for gain, be required to possess sufficient medical knowledge to recognize diseases pronounced by the health authorities to be communicable." Special safeguards in regard to contagious and infectious diseases are advocated in that "a penalty of fine or imprisonment, or both, sufficiently heavy to deter people from incurring it, should be imposed on any one practicing such religious tenets on or in reference to any person suffering from any disease dealt with as contagious or infectious in the Public Health Act, unless before such practice is begun notice in writing is given to the local health authorities of the presence of such disease." The report states that in the Province of Ontario the courts have already decided that those permitting the exercise of Christian science in respect to children, instead of providing tried medical assistance, are guilty of an offense against the Criminal Code. While the commissioner concedes that in certain types of mental errors which produce morbid conditions, or where the psychic effort of faith and hope is really helpful, Christian science may be a useful method of treatment; on the other hand, "its substitution for different and usual medical and surgical methods results in downright harm." The commissioner suggests that where practitioners of Christian science "come in contact with disease it seems hardly

fair or reasonable . . . that there should not be required a sufficient knowledge of elementary medicine or of health and disease to prevent contagious and infectious diseases being unrecognized," and that "to insist on this knowledge would not take away the right of the individual to trust himself to the efficacy of the treatment, absent or present, which depends in large measure on the mental and spiritual. . . . Success in this practice may well depend on spiritual qualifications, but does not exclude the operation of common sense, based on knowledge, in discerning the disease from which the patient may be suffering. Either the Christian science practitioner must possess that information, or it must be supplied by some one else." The report concludes: "To allow attendance upon disease without any precaution against the effects of wrong diagnosis, or without sufficient education to discern whether the method proposed is properly applicable, is to put a premium on ignorance."

This report is of extreme importance and is worthy of careful study. It was made by a representative of the Provincial Government of Ontario, duly appointed for that purpose; it was made by one of the leading justices of Canada and, therefore, by a well qualified as well as a disinterested and unbiased investigator; it was clearly a thorough investigation of the medical cults in their relation to medical education, medical licensure and the public welfare, and its arguments are clear, logical and conclusive. The report will do much to rid the public of the bands of organized quackery represented by the various medical cults.

Current Comment

PHYSICAL EXAMINATIONS UNDER THE SELECTIVE SERVICE

One of the most practical series of meetings at the last annual session of the American Medical Association was that on physical examinations of registrants. The first instalment of the report of these meetings appears in this issue of *THE JOURNAL*. The account should be, and we have no doubt will prove to be, of great interest to every one of the 25,000 physicians directly connected with the work, either as members of the local, of the district appeal, or of the medical advisory boards. They should also be of interest to the camp surgeons to whom the men examined and passed by these boards are sent for final decision as to their physical fitness for military service. Most important, as pointed out by Dr. James B. Herrick, is the necessity of considering every man, not only from the standpoint of the specialist, but also wholly from the point of view as to whether or not he is of the type to make a good soldier. The address of Colonel Billings, as medical aide of the Provost-Marshal, traced the development of the various standards of physical examination which have guided physicians

in this work; Mr. Graham Taylor brought out the civilian's point of view; and Col. James Phelan of Camp Grant, the difficulties which the camp surgeon encounters when he makes the final decision on the material sent to him by the selective service boards. Finally, Lieut.-Col. J. S. Easby-Smith, representing Provost Marshal-General Crowder, outlined in systematic manner the method of operation of the selective service law, the development of the regulations and the application of the regulations to individual cases. He brought to those present the thanks of the Provost-Marshal for the invaluable work of the medical profession which, as much as any other thing, has made the National Army possible. In next week's issue will appear numerous questions asked Colonel Easby-Smith by those in attendance, together with the lucid explanations and answers which he gave to the questions. These will aid many local, district appeal and advisory boards in making a decision which heretofore must have been made with considerable doubt and hesitancy. The review of these meetings indicates beyond question that in their scope, in their service and in their benefit to the country they were a most valuable feature of the scientific assembly.

MEDICAL SUPERVISION FOR INDUSTRIAL WORKERS

In pleading for the assurance of the efficiency and welfare of the girls and women who are entering on men's occupations as an inevitable consequence of the world war, Josephine Goldmark¹ of the National Consumers' League has emphasized three safeguards, namely, equal wages, additional legislation, and adequate medical supervision. With the rapidly increasing demand for physicians in connection with the enormous expansion of the Army and Navy, it might seem as if a call for greater medical effort among the civilian population were an ill timed if not ill advised scheme. We need to keep in mind, however, that the nation's great industrial army also must be maintained in a high degree of physical competence if the supreme effort is to be most successfully carried out. With the experience of the allied nations to guide us, America cannot afford to overlook this important feature. Competent medical supervision may do even more than facilitate the nation's self-preservation. Industrial clinics and all forms of medical supervision are inevitably agencies for public enlightenment in matters of hygiene. Moreover, they strike a blow at the insidious inroads of quackery and nostrum vendors. Dr. Beatrice Webb, whose work for the Health of Munition Workers' Committee of the British Ministry of Munitions has given her unusual opportunities to become familiar with the life and health of the thousands of women and girls brought into the factories, has indicated some of the current tendencies. A widely spread and highly dangerous habit, she writes,² has arisen and is rapidly growing, of taking medicines, recommended by advertisement, by friends,

or prescribed by physicians in bondage to the custom of seeing large numbers of patients in a short space of time. The spread of the habit of self-medication is attributed in part to the migration from rural to urban districts, where conditions are less favorable for right living. Dr. Webb points out, furthermore, that the ubiquitous advertisement of "patent medicines" cannot be without consequence. This can only be met by a counter campaign of education and, we believe, by the provision of suitable medical advisory opportunities. This is not synonymous with the prescription of drugs; rather, it means the establishment of suitable agencies which shall proclaim and teach right rules of living and help to correct remediable defects in accordance with modern medicine. When Voltaire described a physician as "a man who puts drugs of which he knows little into bodies of which he knows less," he doubtless delivered a reproach that was in part deserved. A prominent duty of the medical profession today should be to try to keep people well and to raise the general level of health. This brings us back to the original proposition: equal wages, additional legislation, and adequate medical supervision for the industrial workers.

SOME EFFECTS OF AIR, LIGHT AND MOISTURE ON FOODS

It is commonly recognized that physical agencies such as enter into the environment of man may have an effect on the stability of foods. Heat, air, light and moisture have been held responsible for various sorts of deterioration or spoiling. This is true, in particular, in the case of edible oils. That they should undergo such changes is not strange when the behavior of the so-called drying oils used in the industries is taken into consideration. The changes which the latter undergo are incident to the absorption of oxygen whereby some of the constituents are converted from liquid to semisolid or hard products. The details of the changes in the stability of an edible fat—olive oil—have been ascertained in the course of prolonged observations at the Massachusetts Agricultural Experiment Station.¹ They have served to differentiate, in part, the effects of the individual possible factors. Thus it was found that light causes an active destruction of color and a slow production of rancidity. Air and light together cause the most active and effective destruction of color, active destruction of unsaturated acids, a rapid production of rancidity, and a slow but marked production of free fatty acids. Moisture caused the production of a precipitate, a turbid oil, and free fatty acids. It is evident, therefore that in order to preserve olive oils in their natural state, air, light and moisture should be excluded as completely as possible, particularly the combined action of air and light, which has proved exceedingly destructive. Such are the slow and subtle effects of unsuspected forces about us. Little wonder, then, if our crude drugs also deteriorate under similar circumstances from time to time.

1. Goldmark, Josephine: Some Considerations Affecting the Replacement of Men by Women Workers, *Am. Jour. Pub. Health*, 1918, **8**, 270.
2. Webb, Beatrice: *Health of Working Girls*, London, 1917.

1. Holland, E. B.; Reed, J. C., and Buckley, J. P.: Stability of Olive Oil, *Jour. Agricultural Research*, 1918, **13**, 353.

Medical Mobilization and the War

Field Medical Supply Depot of Army Desires to Purchase Rotary Microtomes

The Field Medical Supply Depot of the Army is in great need of rotary microtomes for use in making pathologic examinations of lung tissue in differentiating bronchopneumonia from lobar pneumonia at the various camps. Great difficulty has been encountered in obtaining these instruments since a number of the firms which formerly supplied them are now employed in manufacturing Signal Corps and ordnance material. The Medical Department therefore requests any one having a microtome to dispose of to communicate with Lieut.-Col. M. A. Reasoner, M. C., N. A., Field Medical Supply Depot, U. S. Army, 21 M Street N.E., Washington, D. C. It is desired to purchase the microtomes since the safe return of any lent to the department could not be vouched for.

Personnel of the Medical Department

For the week ending June 28, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 877, including 1 major-general, 65 colonels, 110 lieutenant-colonels, 298 majors and 403 lieutenants.
MEDICAL RESERVE CORPS: 20,301, including 1,464 majors, 5,641 captains and 13,196 lieutenants. On active duty: 18,298, including 1,389 majors, 5,205 captains and 11,704 lieutenants.
MEDICAL CORPS, NATIONAL GUARD: 1,196, including 22 lieutenant-colonels, 265 majors, 254 captains and 655 lieutenants.
MEDICAL CORPS, NATIONAL ARMY: 297, including 6 brigadier-generals, 67 colonels, 215 lieutenant-colonels, 8 majors and 1 captain.
THE DISCHARGES to date are:

Causes	Number	
	M.R.C.	M.C.N.G.
Physical disability.....	702	54
Inaptitude	271	21
Other branches of service.....	573	72
Resignations	172	33
Domestic troubles.....	59	0
Needed by community	50	0
Deaths	88	6
Dismissals	12	4
Duty completed.....	1	0
No reasons given.....	14	0
	1942	190

MEDICAL FEATURES OF THE ARMY APPROPRIATION BILL

The Army Appropriation Bill passed the Senate, Saturday, June 29. It is now in the House with good prospects for its passage. The bill, although nominally for the purpose of providing the sum of over \$12,000,000,000 for the Army expenses for the fiscal year of 1918, carried with it numerous riders, some of which are of the greatest importance to medical officers. Two we quote:

INCREASED RANK FOR MEDICAL OFFICERS

The most important amendment, perhaps, is that providing increased rank for medical officers. Elsewhere appears a quotation of the statements made in the Senate by Senators McKellar, Owen and Penrose relative to this amendment. The amendment reads:

That the Medical Department of the Regular Army be, and is hereby, increased by one Assistant Surgeon-General, who shall have the rank of Major-General, and three Assistant Surgeons-General, who shall have the rank of Brigadier-General, all of whom shall be appointed from the Medical Corps of the Regular Army.

That the President may nominate and appoint in the Medical Department of the National Army, by and with the advice and consent of the Senate, from the Medical Reserve Corps of the Regular Army, not to exceed four Major-Generals and eight Brigadier-Generals for each 1,000,000 officers and enlisted men of the entire National Army.

That the commissioned officers of the Medical Corps of the Regular Army, none of whom shall have rank above that of Colonel, shall be proportionately distributed in the several grades as now provided by law.

That the commissioned officers of the Medical Reserve Corps of the Regular Army, none of whom shall have rank above that of Colonel, shall be proportionately distributed in the several grades as now provided by law for the Medical Corps of the Navy.

That the President may designate as "consultants" officers of either the Medical Corps or the Medical Reserve Corps and may relieve them as the interests of the service may require: Provided, That nothing in this act shall be held or construed so as to discharge any officer of the Regular Army or deprive him of a commission which he now holds therein.

CITIZENS BORN IN GERMANY OR AUSTRIA MAY BE COMMISSIONED

Another amendment provides "That American citizens of Austrian or German birth, or who were born in alien enemy territory who have passed the necessary examination and whose loyalty is unquestioned, may in the discretion of the Commander-in-Chief of the Army and Navy, be commissioned in the United States Army or Navy.

DISEASE CONDITIONS AMONG TROOPS

Week Ending June 21, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):			Last Week
All Troops.....	963.7		987.2
Divisional Camps	1,047.0		978.0
Cantonments	980.1		1044.4
Departmental and Other Troops.....	905.7		930.6
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:			
All Troops.....	39.8		38.3
Divisional Camps.....	40.0		35.4
Cantonments	49.9		44.6
Departmental and Other Troops.....	33.5		33.2
3. ANNUAL DEATH RATE PER 1,000 (disease only):			
All Troops.....	2.9		3.31
Divisional Camps.....	3.88		2.9
Cantonments	3.44		4.89
Departmental and Other Troops.....	1.86		1.86

NEW CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING JUNE 21, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal		Measles	Meningitis	Scarlet Fever	Deaths	Annual Admis- sion Rate per 1,000 (Dis- ease Only)	Noneffective per 1,000
				Total	New Infec- tions						
Beauregard.....	4	7	31	88	3	...	..	..	1	1,022.3	43.2
Bowie.....	6	..	3	47	36	4	..	..	2	962.7	26.9
Cody.....	42	..	..	10	2	20	..	1	2	466.4	25.0
Doniphan.....	..	..	..	8	..	..	..	1	0	1,352.0	42.0
Fremont.....	5	..	2	8	3	13	..	..	1	663.6	36.1
Hancock.....	1	..	5	23	..	2	1	..	2	999.2	39.9
Kearny.....	..	..	..	3	..	2	..	..	2	578.5	25.8
Logan.....	5	..	..	64	56	1	..	..	1	5,996.5	282.4
MacArthur.....	2	..	..	..	..	6	..	2	2	1,018.4	37.2
McClellan.....	..	..	3	25	14	..	..	..	0	744.3	40.5
Sevier.....	7	1	15	79	4	24	1	..	2	1,319.5	61.0
Shelby.....	4	..	15	29	4	2	..	..	0	1,037.4	40.1
Sheridan.....	..	..	3	113	..	5	..	..	0	1,679.3	63.4
Wadsworth.....	4	..	4	174	3	19	1	..	4	2,254.3	53.2
Wheeler.....	3	..	..	34	4	..	..	..	3	767.7	25.7
Custer.....	2	..	1	54	2	9	..	1	1	423.5	17.9
Devens.....	5	..	..	30	8	19	1	1	3	574.5	37.8
Dix.....	1	..	1	66	66	6	1	..	1	890.5	33.9
Dodge.....	9	..	10	87	..	8	..	..	5	1,351.5	62.3
Funston.....	1	..	..	14	1	2	..	1	1	621.8	53.2
Gordon.....	12	..	4	160	1	14	4	..	9	1,525.0	59.5
Grant.....	3	..	..	21	..	13	..	2	3	397.5	17.5
Jackson.....	3	..	..	430	..	84	2	..	3	1,471.8	57.6
J. E. Johnston....	3	..	1	39	22	11	..	1	0	1,228.3	33.4
Lee.....	3	..	..	65	..	37	..	..	1	600.0	67.5
Lewis.....	24	..	1	110	3	12	..	8	5	747.8	29.3
Meade.....	2	..	2	28	4	7	1	..	0	804.4	31.4
Pike.....	10	..	42	54	1	52	..	..	5	1,607.9	77.9
Sherman.....	2	..	4	145	..	3	..	..	1	1,320.5	66.0
Taylor.....	12	..	..	49	..	20	..	..	1	1,073.6	66.6
Travis.....	18	2	..	17	..	13	..	..	1	2,447.2	69.3
Upton.....	1	1	..	125	3	3	..	..	4	655.5	38.5
Northeastern Dept.	..	..	..	37	10	5	..	..	0	647.2	24.2
Eastern Dept.	11	..	9	181	81	25	..	..	3	803.7	20.7
Southeastern Dept.	..	..	..	54	32	8	..	..	1	1,011.9	37.6
Central Dept.	1	..	1	80	25	6	1	1	1	982.6	34.5
Southern Dept.	4	..	2	126	52	16	..	3	2	780.2	30.3
Western Dept.	4	1	..	72	29	8	1	9	4	932.2	29.6
Mili. Aeronautics...	9	10	3	226	..	4	..	..	14	979.4	30.8
Alcatraz, D. B. ....	..	..	..	..	..	..	..	..	0	309.5	8.9
Leavenworth, D. B.	..	..	..	..	..	..	..	..	0	1,199.5	34.4
Columbus Bks. ....	..	..	..	12	4	..	..	..	0	684.9	37.2
Jefferson Bks.	2	..	..	71	4	21	..	..	0	1,748.6	99.5
Fort Logan.....	..	..	..	3	..	..	..	..	0	1,366.8	70.5
Fort McDowell.....	..	..	..	8	5	2	..	..	1	1,413.4	86.6
Fort Slocum.....	..	..	..	8	..	8	..	..	1	656.7	58.8
Fort Thomas.....	..	..	1	8	..	8	..	..	0	1,009.4	38.8
Augusta Arsenal...	..	..	..	..	..	..	..	..	0	.....	.....
Edgewood Arsenal..	..	..	..	1	1	..	..	..	2	586.8	52.6
Watertown Ars. ....	..	..	..	2	..	..	..	..	0	818.2	10.5
Springfield Arm. ...	..	..	..	..	..	..	..	..	0	509.8	9.8
Watervliet.....	..	..	..	..	..	..	..	..	0	1,607.2	37.7
Hoboken.....	7	1	4	232	21	10	4	3	2	927.7	42.7
Newport News.....	15	18	9	55	36	3	..	..	3	1,046.5	58.1
West Point.....	..	..	..	1	..	..	..	..	0	584.3	10.7
Fort Keogh.....	..	..	..	..	..	..	..	..	0	1,006.4	12.9
Greenleaf.....	..	1	1	25	..	6	..	2	1	956.9	53.9
War Pr. Bks. No. 1	..	..	..	..	..	..	..	..	0	1,320.6	12.7
Total.....	247	42	177	3,433	540	533	18	36	101	963.7	39.8

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending June 21, 1918	Departmental and Other Troops, Week Ending June 21, 1918	Divisional Camps, Week Ending June 21, 1918	Cantonments, Week Ending June 21, 1918	Expeditionary Forces, Week Ending June 13, 1918
Pneumonia.....	9.6	5.2	16.1	10.9	10.0
Dysentery.....	1.6	3.0	1.5	0.3	0.0
Malaria.....	6.9	2.9	15.7	6.5	1.2
Venereal.....	134.4	117.9	138.8	149.8	47.8
Paratyphoid.....	0.2	0.0	0.97	0.0	0.0
Typhoid.....	0.3	0.3	0.4	0.2	0.22
Measles.....	20.8	11.9	19.0	30.8	6.0
Meningitis.....	0.7	0.6	0.6	0.9	2.1
Scarlet fever.....	1.4	1.8	0.78	1.4	3.9

INCREASED RANK FOR MEDICAL OFFICERS

Remarks of United States Senators Preliminary
to Passage of Amendment Granting
Increased Rank

The following quotation from the *Congressional Record* gives the remarks made in the Senate preliminary to the passage of the amendment, quoted in another item, which grants increased rank to medical officers:

MR. PENROSE: Mr. President, while the bill was in the committee I had frequent occasion to confer with the Senator from Wyoming (Mr. Warren), the ranking minority member of the Military Affairs Committee, regarding legislation concerning the Medical Corps. I have not had an opportunity to examine the bill, and I should like to inquire from him what has been done in that respect.

MR. WARREN: Mr. President, the proposal to adopt for the Medical Corps of the Army the system governing the Medical Corps of the Navy was made to the Senate committee along with other suggestions, the one patterned after the naval system being the one most strongly urged. After long-continued hearings and investigation the subcommittee became satisfied, as the full committee later became satisfied, that the Medical Corps of the different branches of the Army should be divided. So far as the Regular Army is concerned, the legislation proposed simply adds one major-general and three brigadier-generals to the commissioned personnel of the Regular Army, and the remaining officers from colonels down may be increased from time to time according to the provisions of the present law and as the necessities of the case may require.

As to the National Army, the legislation provides that there may be, if the President so directs, four major-generals and eight brigadier-generals for every 1,000,000 officers and enlisted men in the service in the National Army. It provides also that the junior officers, from lieutenants up to and including colonels, may be in the same ratio as the law at present provides for the Navy.

MR. PENROSE: Mr. President, I only want to take this opportunity in passing to express my gratification that provision has been made for the several Medical Corps of the Army. It is an act of justice to a body of men whose services in modern warfare are invaluable, as is conceded everywhere. I believe that the medical profession throughout the United States will appreciate the efforts of the Senator from Tennessee (Mr. McKellar), who was chairman of the subcommittee, the Senator from Wyoming (Mr. Warren), and the other members of the Military Affairs Committee who have recommended the insertion of this provision in the bill. I sincerely hope that when the bill goes to conference the Senate conferees will insist on retaining this provision in the appropriation bill.

MR. WARREN: Mr. President, I think I ought to say, further, that we have been very liberal indeed with the Medical Corps of the National Army. We have in that corps the most distinguished surgeons and physicians of this country or perhaps of the world; and it has seemed as if we might be liberal, since during the war they are giving to the government their time and their experience, of course, at the end of the war these officers will be discharged, as are the enlisted men, except those who may be discharged in the meantime.

Now, as to the Regular Army, we ought not to interfere, and we have not in this legislation interfered, with what ought to be the rational flow of promotion in the service not only during the war but afterwards. This legislation, it is believed, will leave us at the end of the war with not too large a Medical Corps in the Regular Army, and the flow of promotions, while perhaps somewhat slower than heretofore,

and of course very much slower than during the immediate past, will be normal, nevertheless.

MR. MCKELLAR: Mr. President, I wish to say in reference to this amendment rearranging the Medical Corps, and especially providing for the Medical Reserve Corps of the Army, that a good deal of labor has been devoted to this matter by the subcommittee and by the full committee. There are more than 20,000 doctors throughout this country who have volunteered to come into the service of the United States at this time. Doctors with large and remunerative practices have freely volunteered at, of course, very small pay in comparison with what they have heretofore made. No class of our citizens, I believe, have made greater sacrifices for the country than these gentlemen have voluntarily made. They have come forward with singular celerity, and have been most active in the performance of their duties and in preparing themselves for the duties that are before them. The best interests of our soldiers demand this legislation. It will give our Medical Corps such a position that it can enforce its reasonable rules to maintain the health of the Army and to restore the maimed and wounded. There was practically no legislation or very little legislation in regard to their service, and their commissions were limited for the most part to the rank of major and lesser grades.

There is no question that they are entitled to this legislation. So far as the general officers are concerned, they have even under this bill less representation than any other branch of the Army. I believe that, on the whole, this bill is satisfactory to them. I hope so, at any rate, because I believe, as I have said, that no class of our Army is more deserving of fair treatment than the officers of the Medical Reserve Corps who have come into the service of the United States. Some of the most noted physicians and surgeons of our land have not only come in recently, but have been in from the very beginning and are doing splendid work. It is a work that ought to be recognized by our country. This is the best that the committee could do; we believe that it is a proper provision and that it ought to be enacted into law.

We have taken much testimony and given much time and consideration to this measure. Senator Warren, Senator New, and myself feel that we have taken every precaution to subserve the best interests of our soldiers in framing the measure. Substantially we have followed the provisions of Senator Owen's bill, and we are informed that the provisions of this bill as amended and reported on this subject are entirely satisfactory to the entire medical profession. It is the first time in the history of our government when the medical fraternity has been recognized in a manner in keeping with the high purposes and the splendid efficiency of this noble profession.

MR. OWEN: Mr. President, I am gratified that the committee was able finally to agree upon such a provision as to give a substantial recognition both to the Medical Corps of the National Army and to the Medical Corps of the Regular Army. I have heretofore pointed out to the Senate the very great difference which prevailed between the American organization and the European organization. In Great Britain they have given very much more important recognition to the officers in the Medical Department, and the same thing is true with regard to France, Italy, Japan and Austria. The reason why they have given a greater dignity to these offices is because of the fact that the saving of human life is involved; that is the purpose of it and not merely to give dignity to worthy men.

While the amendment reported by the committee does not provide anything like as large a number relatively of higher ranking officers as the British, the French, the Italians, the Austrians, and the Germans have, still I believe it will be a very useful improvement, and I am glad to welcome it.

MR. PENROSE: Mr. President, I only want to say in conclusion and in passing that the provisions of this bill will at least lay the foundation for future legislation which may be required in the time to come. I agree with what the Senator from Tennessee (Mr. McKellar) has said. I do not think there is any element of our citizens who have made greater sacrifices than the members of the medical profession. A business man can come to Washington and devote all his time to the duties of some volunteer board and his business goes on, perhaps, under the management of those whom he leaves at home and his income is not curtailed, but the surgeon or physician who comes to Washington to serve on a volunteer board or to take a commission in very many cases sacrifices a very large professional income made by his own personal efforts, and when those efforts cease his income ceases. Therefore the sacrifice is all the greater.

I do not think, however, it is the money consideration which prompts this legislation; it is distinctly in the interest of greater efficiency in the several medical corps of the different branches of the Army. I know that in Pennsylvania—and the observation would apply, I take it, to any other state in the Union, but, of course, I am more familiar with my own state—the leading surgeons of Philadelphia and of Pittsburgh and throughout the state have contributed their services from a pure spirit of patriotism, and at almost a complete sacrifice of personal income and emolument. I know that this legislation will be commended throughout the country, and if it needs amplifying in the next appropriation bill I sincerely hope the Military Affairs Committee will see their way clear to build upon the foundation laid here today.

MR. McKELLAR: Mr. President, if anything that I said suggested to my distinguished friend that our first purpose was not to secure greater efficiency in the Medical Corps of the Army, then I did not express myself as carefully as I should, because, of course, that was the primary purpose of the committee in dealing with this matter.

I want also to add, Mr. President, that the Medical Corps of the Regular Army has done splendid work, as our committee has found out, and they are entitled to very great credit for the manner in which they have organized the entire medical forces of our Army. I do not think any branch of our service has shown greater efficiency in preparing for its part in this great conflict, and I want to congratulate this department on its splendid work up to date, and to express the belief that the Medical Corps of both Regular and Reserve Establishments will make historic records in this conflict.

MR. PENROSE: Mr. President, I hope the Senator from Tennessee will not misunderstand me. I did not in the remotest way mean to suggest that he had intimated any consideration, except that of the loftiest patriotism, and I want to say here that if it had not been for him and his colleagues on the subcommittee, supported by the Senator from Oklahoma, who introduced one of the original bills, this legislation might have failed for lack of attention in the multitude of other matters pressing upon the consideration of Congress and the committees of Congress at the present time.

ORDERS TO OFFICERS OF THE MEDICAL CORPS
AND OF THE MEDICAL CORPS OF
THE NATIONAL ARMY

- To Camp Beauregard, Alexandria, La., as assistant to camp surgeon, from Camp Logan, Major HENRY P. CARTER.
- To Camp Bowie, Fort Worth, Texas, as camp surgeon, from Southern Department, Major JOHN C. INGOLD.
- To Camp Dix, Wrightstown, N. J., Mineola and Camp Upton, L. I., Otisville, Fort Ontario, and Fort Porter, N. Y., and Camp Perry, Ohio, to make sanitary inspections and on completion to his proper station, Lieut.-Col. FRANK W. WEED.
- To Camp Gordon, Atlanta, Ga., as assistant to camp surgeon, from Walter Reed General Hospital, Major FREDERICK H. PETTERS.
- To Camp Grant, Rockford, Ill., as assistant to camp surgeon, from Vancouver Barracks, Major CHARLES R. CASTLEN.
- To Camp Lewis, American Lake, Washington, as camp surgeon, from Hawaii, Lieut.-Col. HERBERT C. GIBNER.
- To Camp Logan, Houston, Texas, as camp surgeon, from Camp Bowie, Major JOHN A. BURKET.
- To Cape May, N. J., for duty, and on completion to his proper station, Lieut.-Col. EDWIN C. ELLETT.
- To Edgewood Arsenal, Bound Brook, N. J., for duty, and on completion to his proper station, Col. WILLIAM J. L. LYSTER.
- To Gettysburg, Pa., for conference and on completion to their proper stations, Cols. PEARCE BAILEY, WARFIELD T. LONGCOPE, Lieut.-Col. NELSON M. BLACK.
- To Hoboken, N. J., for sanitary inspection and on completion to his proper station, Col. ALBERT E. TRUBY.
- To Mineola, L. I., N. Y., for duty, and on completion to his proper station, Col. THEODORE C. LYSTER.
- To report by wire to the commanding general, Central Department, for assignment to duty, Capt. JAMES H. BURNS.

ORDERS TO OFFICERS OF THE MEDICAL
RESERVE CORPS

- Alabama
 - To Camp Meade, Annapolis Junction, Md., for duty, from Camp McClellan, Lieut. W. THEO. LANGLEY, Camp Hill.
 - To Camp Wadsworth, Spartanburg, S. C., for duty, Capt. LOCHLIN M. WINN, Birmingham.
 - To Camp Beauregard, Alexandria, La., base hospital, Lieut. JOHN C. BRAGG, Birmingham.
 - To Camp Wheeler, Macon, Ga., base hospital, Lieuts. ALTO L. KELLY, STERLING C. WOOD, Birmingham.
 - To Cape May, N. J., base hospital, Lieut. HARVEY B. SEARCY, Tuscaloosa; from Camp Beauregard, Lieut. RUFUS JACKSON, Birmingham.
 - To Fort McPherson, Ga., for duty, Lieut. EMMITT C. SINIARD, Birmingham.

- To Fort Oglethorpe for instruction, Capt. JOHN McP. LOWREY, Birmingham.
- To report to the commanding officer, Southern Department, for duty, from Camp Travis, Major JAMES H. AGNEW, Mobile.

Arkansas

- To report to the commanding general, Philippine Department, for duty, from Camp Lewis, Lieut. HENRY W. A. LEE, North Helena.

California

- To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Lieut. DOLOS P. THURBER, San Francisco.
- To Camp Custer, Battle Creek, Mich., base hospital, Major PERCIVAL G. WHITE, Los Angeles.
- To Camp Dix, Wrightstown, N. J., for duty, from Hoboken, Lieut. CHARLES L. TRANTER, San Francisco.
- To Camp Dodge, Des Moines, Ia., base hospital, Capt. VARD H. HULEN, San Francisco.
- To Camp A. A. Humphreys, Accotink, Va., for temporary duty, from Fort Riley, Capt. JAMES R. REED, Pasadena.
- To Camp Fremont, Palo Alto, Calif., base hospital, Lieut. RICHARD R. RONAN, Los Angeles.
- To Camp Kearney, Linda Vista, Calif., as a member of the tuberculosis examining board, Capt. WILLIAM BARNHART, Los Angeles.
- To Camp Lewis, American Lake, Wash., base hospital, Lieut. WILLIAM T. ROTHWELL, Los Angeles. For duty, Capt. EDWARD VON ADELUNG, Oakland; Lieut. LAURENCE L. LINDSEY, Owensmouth; from Fort Riley, Lieut. BARTHOLOMEW GATTUCCIO, Davenport.
- To San Francisco, Calif., Letterman General Hospital, for instruction, Lieut. JOHN SWANSCOTT, Los Angeles.
- The following order has been revoked: To Camp Dix, Wrightstown, N. J., for duty, from Hoboken, Lieut. CHARLES L. TRANTER, San Francisco.

Canal Zone

- To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. HARRY D. EBERSOLE, Cristobal.
- To report to the Governor of the Panama Canal, C. Z., for duty, Capt. FRAZER F. MONROE, Ancon; Lieut. WILLIAM V. LEVY, Cristobal.

Colorado

- To Army Medical School for duty, Lieut. OMER H. GILLETT, Colorado Springs.
- To Camp Lewis, American Lake, Wash., base hospital, from Camp Kearney, Capt. ALBERT W. METCALF, Henderson. For duty, Capt. HARRY L. RICHARDSON, Durango; from Fort Riley, Lieut. EARL W. KEMBLE, Golden.
- To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. CHARLES WAXHAM, Sugar City.

Connecticut

- To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Capt. FRANKLIN L. LAWTON, Hartford; from Camp Upton, Lieut. ANDREW J. JACKSON, Waterbury; from Fort McPherson, Lieut. RAYMOND H. RYDER, Waterbury.
- To Fort Oglethorpe, base hospital, from Cape May, Capt. DOUGLAS J. ROBERTS, Bridgeport.
- To Fort Warren, Mass., for duty, Lieut. CHARLES K. DEMING, New Haven.
- To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. FRED F. ARMSTRONG, Ansonia.
- To Camp Devens, Aver, Mass., for duty, from Fort Oglethorpe, Lieut. JULIAN L. BIRDSON, Hartford.
- To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. JOHN G. ADAM, Canaan.
- To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Capt. ABRAHAM L. OSHANSKY, New Haven.
- Resignation of Lieut. GEORGE P. CHENEY, New London, accepted.

District of Columbia

- To Biltmore, N. C., for temporary duty, from Camp Lee, Major JAMES F. MITCHELL, Washington.
- To Fort Oglethorpe for instruction, Capt. JAMES L. BOOTH, Washington.
- To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School for duty, Lieut. LESTER NEUMAN, Washington.

Georgia

- To Camp Gordon, Atlanta, Ga., base hospital, Lieut. HERBERT L. REYNOLDS, Atlanta; from Army Medical School, Lieuts. HARVEY W. SNYDER, Atlanta; ERNEST B. SAYE, Milledgeville.
- To Camp Logan, Houston, Texas, base hospital, Lieut. HENRY M. McGEHEE, Talbotton.
- To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. RUPERT H. STOVALL, Macon.
- To Fort Myer, Va., for duty, from Fort Oglethorpe, Major ZACHARY S. COWAN, Atlanta.
- To Fort Oglethorpe for instruction, Capt. JOHN E. TRAIN, Savannah; Lieuts. JOHN D. BLACKBURN, CARRELL M. WEST, Atlanta; EUGENE F. GRIFFITH, Eatonton; FRANK P. NORMAN, Greenville; GEORGE Y. MASSENBURG, Macon.

Idaho

- To Camp Kearney, Linda Vista, Calif., base hospital, Lieut. EARL EAMES, Menan.

Illinois

- To Camp Sherman, Chillicothe, Ohio, for duty, Capt. JOHN A. HALE, Alto Pass. With the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. GORDON E. HEIN, Chicago.
- To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. JOHN R. POLLOCK, Nebo.
- To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. WILLIAM C. WILLIAMS, Chicago.
- To Fort Benjamin Harrison, Ind., base hospital, Lieuts. ROGER T. FARLEY, EDGAR T. FARLEY, Chicago. For duty, from West Lafayette, Lieut. FRANK H. DEANE, Humboldt. With the board examining the troops for tuberculosis, from New Haven, Lieut. ROBERT M. CARPENTER, St. Charles.

To *Biltmore, N. C.*, for temporary duty, from Camp Lee, Major EVARTS A. GRAHAM, Chicago.

To *Camp Devens, Ayer, Mass.*, for duty, from Army Medical School, Lieuts. CARL W. CLARK, THOMAS S. McCLANAHAN, WILLARD H. WATEROUS, RALPH G. WILLY, Chicago; from Fort Oglethorpe, Lieut. CLYDE D. GULICK, Urbana.

To *Camp Doniphan, Fort Sill, Okla.*, base hospital, Capt. HARRY A. WARE, Chicago.

To *Camp Gordon, Atlanta, Ga.*, base hospital, from Fort Oglethorpe, Capt. HENRY M. VANHOOK, Mt. Pulaski; LOGAN O. HAMILTON, Roadhouse.

To *Camp Jackson, Columbia, S. C.*, base hospital, Lieut. RAY E. LOGAN, Galena. For duty, Capt. HENRY P. LANGHORST, Elmhurst.

To *Camp Lee, Petersburg, Va.*, base hospital, from Fort Riley, Lieut. CARLETON A. HARKNESS, Chicago.

To *Camp Lewis, American Lake, Wash.*, for duty, from Fort Riley, Lieuts. GEORGE R. BLACKSTONE, Bushnell; ORRIS M. THOMPSON, LeRoy.

To *Camp Meade, Annapolis Junction, Md.*, with the board examining the command for nervous and mental diseases, Lieut. PAUL J. EWERHARDT, Kankakee.

To *Camp Pike, Little Rock, Ark.*, for duty, Lieuts. LEONARD B. GAPINSKI, EDWARD H. WARZEWSKI, Chicago.

To *Camp Shelby, Hattiesburg, Miss.*, for duty, from Army Medical School, Lieut. EARLE K. HALLOCK, Chicago.

To *Cape May, N. J.*, base hospital, from Camp Grant, Major NORVAL H. PIERCE, Chicago.

To *Fort Des Moines, Ia.*, base hospital, Lieut. FRANCIS L. FORAN, Chicago.

To *Fort Oglethorpe* for instruction, Lieut. HENRY S. EDSON, Chicago.

To *New Haven, Conn.*, for duty, Lieut. EMERY H. DUFOUR, Chicago.

To *Newport News, Va.*, for duty, from Army Medical School, Lieut. CARL FREUND, Chicago; from Fort Oglethorpe, Lieut. KARL L. HAYES, Farmersville.

To *New York City, Bellevue Hospital*, for instruction, and on completion to his proper station, from Camp Upton, Lieut. FRED W. FIEDLER, Batchtown.

To report to the commanding general, central department, for duty, Capt. CHARLES ADAMS, Chicago.

To report to the commanding general, Philippine Department, for duty, from Camp Dodge, Lieut. SAMUEL L. THORPE, Clinton.

Resignation of Lieut. HARVEY L. LANGLOIS, Kankakee, accepted.

The following order has been revoked: To *Plattsburg Barracks, N. Y.*, for duty, from Lakewood, Major DANIEL A. K. STEELE, Chicago.

Indiana

To *Camp Grant, Rockford, Ill.*, for duty, Lieut. HERBERT M. SENSENY, Fort Wayne.

To *Camp Greene, Charlotte, N. C.*, as a member of the board examining the command for tuberculosis, from Camp Sheridan, Capt. AMZI W. HON, Indianapolis.

To *Camp Jackson, Columbia, S. C.*, from Camp Sevier, Lieut. CHARLES F. VOIGT, New Albany.

To *Camp Devens, Ayer, Mass.*, for duty, from Fort Oglethorpe, Lieut. CARL HENNING, Hanover.

To *Camp Pike, Little Rock, Ark.*, for duty, Capt. ROBERT C. ROGERS, RODNEY D. SMITH, Bloomington; BEECHER J. TERRELL, Indianapolis; Lieut. FLOYD I. EICHER, Wakarusa.

To *Camp Wheeler, Macon, Ga.*, for duty, from Fort Oglethorpe, Lieut. FRED C. DILLEY, Brazil.

To *Camp Zachary Taylor, Louisville, Ky.*, for duty, from Montgomery, Lieut. JULES L. BIERACH, Salem.

To *Fort Benjamin Harrison*, base hospital, from Fort Oglethorpe, Lieut. LEE A. SALB, Jasper.

To *Fort Des Moines, Iowa*, base hospital, Capt. CARL W. McCAUGHEY, Greenfield.

To *Fort McPherson, Ga.*, for temporary duty, Lieut. WILLIAM J. JOHNSON, Indianapolis.

To *Fort Sam Houston, Texas*, for duty, from Camp Jackson, Lieut. CHARLES E. WOODCOCK, Whiteland.

Iowa

To report by wire to the commanding general, central department, for assignment to duty, Lieut. MORTON LYON, DeWitt.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Camp Zachary Taylor, Louisville, Ky.*, base hospital, Capt. WILLIAM J. EGLOFF, Mason City.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Sevier, Greenville, S. C.*, base hospital, Lieut. DEAN H. OSBORN, Monticello.

To *Camp Dodge, Des Moines, Iowa*, for duty, Capt. EDWARD D. MORRISON, Barnum; Lieut. WILLIAM E. ANSPACH, Colfax.

To *Camp Pike, Little Rock, Ark.*, for duty, Capt. JOHN R. WALKER, Fort Madison.

To *Camp Zachary Taylor, Louisville, Ky.*, for duty, from Army Medical School, Major HAROLD A. SPILMAN, Ottumwa.

To *Colonia, N. J.*, for duty, from New York City, Lieut. JACOB J. SYBENGA, Pella.

To *Fort Des Moines, Iowa*, base hospital, Lieut. FREDERICK C. NILSSON, Laurens.

To *Newport News, Va.*, for duty, from Army Medical School, Lieut. JOHN W. BILLINGSLEY, Monroe.

Kansas

To *Camp Dodge, Des Moines, Iowa*, base hospital, Lieut. WALTER P. STOLTENBERG, Kingsley.

To *Camp Gordon, Atlanta, Ga.*, base hospital, from Army Medical School, Lieut. ROY W. LAYTON, Kansas City.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GUY R. McCREERY, Whiting.

Kentucky

To *Camp Devens, Ayer, Mass.*, for duty, from Fort Oglethorpe, Lieut. WILLIAM T. LITTLE, Calvert.

To *Camp Jackson, Columbia, S. C.*, for duty, Capt. SAMUEL L. BEARD, Shelleyville; JOHN M. HACKLEY, Versailles.

To *Camp Meade, Annapolis Junction, Md.*, for duty, from Fort Oglethorpe, Capt. AMPHLIAS O. SISK, Earlington.

To *Camp Pike, Little Rock, Ark.*, for duty, Lieut. LELAND E. DASHIELL, Covington.

To *Camp Sherman, Chillicothe, Ohio*, base hospital, Lieut. DAVID H. COLEMAN, Harrodsburg.

To *Rockefeller Institute* for instruction in laboratory work, and on completion to *Army Medical School*, for duty, Lieut. STONEWALL J. SMOCK, Glasgow.

To *Walter Reed General Hospital, Takoma Park, D. C.*, for temporary duty, from Camp Sherman, Major JOSEPH G. SHERRILL, Louisville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JOHN T. PRICE, Harrodsburg.

Louisiana

To *Camp Beauregard, Alexandria, La.*, base hospital, Lieut. VALENTINE H. FUCHS, New Orleans; from Camp Kelly, Lieut. JOSEPH M. HOUNTHA, New Orleans; from Camp Lee, Lieut. LOUIS A. HERBERT, New Orleans; from Camp Wadsworth, Lieut. JOHN SIGNORELLI, New Orleans; from Fort Riley, Lieut. WILLIAM O. CALLAWAY, New Orleans.

To *Camp Devens, Ayer, Mass.*, for duty, from Watervliet, Lieut. WILLIAM McL. HAYES, New Orleans.

To *Camp Dodge, Des Moines, Iowa*, for duty, Lieut. JACOB M. BODENHEIMER, South Highlands.

To *Camp MacArthur, Waco, Texas*, for duty, from Fort Oglethorpe, Lieut. JOHN D. FRAZER, De Ridder.

To *New York City, Bellevue Hospital*, for instruction, and on completion to *Camp Custer, Battle Creek, Mich.*, base hospital, Major SAMUEL M. D. CLARK, New Orleans.

Maryland

To *Camp Meade, Annapolis Junction, Md.*, base hospital, Lieut. CHARLES A. REIFSCHNEIDER, Baltimore; from Army Medical School, Lieut. RALPH S. STAUFFER, Hagerstown.

To *Camp Shelby, Hattiesburg, Miss.*, as orthopedic surgeon, from Army Medical School, Lieut. DUMONT F. ELMENDORF, Baltimore.

To *Fort McHenry, Md.*, for temporary duty, Lieut. JONATHAN E. BURNS, Baltimore.

To *Camp Devens, Ayer, Mass.*, for duty, from Fort Oglethorpe, Lieut. FRANCIS X. KEARNEY, Baltimore.

To *Fort McPherson, Ga.*, for temporary duty, Lieut. WALTER H. WISHARD, Hagerstown.

To *Newport News, Va.*, for duty, from Army Medical School, Lieuts. ROBERT S. CUNNINGHAM, ROBERT G. FULLER, BOWERS H. GROWT, Baltimore.

To *Plattsburg Barracks, N. Y.*, for duty, Capt. HARRY L. WHITTLE, Baltimore.

To *New York City, Neurological Institute*, for inspection, and on completion to his proper station, Major CHARLES BAGLEY, JR., Baltimore.

Massachusetts

To *Camp A. A. Humphreys, Accotink, Va.*, base hospital, from Army Medical School, Lieut. RALPH H. SIMMONS, Fall River.

To *Camp Crane, Allentown, Pa.*, for duty, from Army Medical School, Lieut. HAROLD F. BUDINGTON, Springfield.

To *Camp Devens, Ayer, Mass.*, base hospital, Lieut. EDWARD A. ADAMS, Fitchburg. For duty, from Fort Oglethorpe, Lieut. CHARLES S. DOUCET, Lowell.

To *Camp Dix, Wrightstown, N. J.*, for duty, from Camp Upton, Lieut. HENRY E. ST. ANTONIO, Boston.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Camp Zachary Taylor, Louisville, Ky.*, base hospital, Lieut. CHARLES A. SALMON, Worcester.

To *Biltmore, N. C.*, for temporary duty, from Camp Lee, Lieut. FRANKLIN A. STEVENS, Boston.

To *Camp Doniphan, Fort Sill, Okla.*, base hospital, from Army Medical School, Lieut. WILLIAM F. COTTING, Boston.

To *Camp Jackson, Columbia, S. C.*, for duty, Capt. MORTIMER T. CAVANAUGH, Great Barrington; CHARLES A. HOLBROOK, Haverhill, BUTLER METZGER, Lynn.

To *Camp Wheeler, Macon, Ga.*, base hospital, Lieuts. LOUIS STRAHLMANN, Boston; ALPHONSE F. BURRESKI, Brighton.

To *Fort McPherson, Ga.*, for temporary duty, Lieut. JOSEPH M. LYNCH, Dorchester.

To *New York City, Bellevue Hospital*, for instruction, and on completion to his proper station, from Williamsbridge, Capt. HAROLD A. JOHNSON, Lynn. Cornell Medical College, as instructor in military roentgenology, from Hoboken, Major PERCY BROWN, Boston. Neurological Institute for intensive training, Lieut. GEORGE VAN M. DEARBORN, Cambridge.

To report to the commanding general, Philippine Department, for duty, from Camp Lewis, Lieut. JAMES M. MURPHY, Palmer.

The following order has been revoked: To *Fort McPherson, Ga.*, for duty, Lieut. FREDERICK PARKER, JR., Bedford.

Michigan

To *Eagle Pass, Texas*, for duty, and on completion to his proper station, from Leon Springs, Lieut. FREDERICK L. MORSE, Lake Odessa.

To *Fort Oglethorpe* for instruction, Lieuts. STANLEY A. STEALY, Charlotte; ALGERMON A. PALMER, Chelsea; JOHN W. GORDON, EDWARD D. KING, CLARENCE E. TRUESDELL, Detroit; ALBERT B. CLARK, Swartz Creek; from Camp Custer, Lieut. ARTHUR W. NEWITT, Detroit; from Fort Wayne, Mich., Major WILLIAM F. ENGLISH, Saginaw.

To *Camp A. A. Humphreys, Accotink, Va.*, with the board examining the command for nervous and mental diseases, from Fort Benjamin Harrison, Major FREDERICK H. NEWBERRY, Detroit.

To *Camp Doniphan, Fort Sill, Okla.*, base hospital, from Washington, Capt. MYRON S. GREGORY, Eureka.

To *Camp Lee, Petersburg, Va.*, base hospital, from Camp Shelby, Capt. KENNETH F. MAXEY, Detroit.

To *Camp Pike, Little Rock, Ark.*, for duty, Lieut. WILLIAM C. KOOLS, Holland.

To *Lakewood, N. J.*, for duty, Lieut. BERNARD A. O'HORA, Detroit.

To report to the commanding general, Philippine Department, for duty, from Fort Logan H. Roots, Major FRANK SUGGS, Detroit.

Minnesota

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Capt. JOHN C. HARDING, St. Paul; Lieut. HERMAN C. BUMPUS, Jr., Rochester.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. DANIEL F. McCANN, Bemidji.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. FREDERICK BARRETT, Gilbert.

To Camp Pike, Little Rock, Ark., for duty, Capt. WILLIAM L. PALMER, Albert Lea.

To Fort Des Moines, Iowa, for duty, from Camp Grant, Capt. RALPH E. MORRIS, Minneapolis.

To Fort Sam Houston, Texas, for duty, from Fort Oglethorpe, Major EMIL S. GEIST, Minneapolis.

The following order has been revoked: *To Fort Sheridan, Ill., as orthopedic surgeon, from Fort Oglethorpe, Capt. JAMES A. McLAUGHLIN, Minneapolis.*

Mississippi

To Fort McPherson, Ga., for duty, Lieut. MATTHEWS C. ARMSTRONG, Arm.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. GEORGE J. MANCILL, Indianola.

Missouri

To Camp Sevier, Greenville, S. C., as orthopedic surgeon from Chicago, Lieut. HARRY F. PARKER, Warrensburg.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Dodge, Lieut. EVAN S. CONNELL, Kansas City; from Camp Wadsworth, Lieut. QUITMAN U. NEWELL, St. Louis.

To Cape May, N. J., base hospital, from Camp Dodge, Capt. ELLIOTT K. DIXON, St. Louis; from Camp Lee, Lieut. JOHN W. STEWART, St. Louis.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. LURIN P. MACKLIN, St. Louis.

To Camp Dodge, Des Moines, Iowa, for duty, Capt. FRANK L. LOGG, Farmington; Lieut. HARRY S. UPSHAW, St. Louis.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. CHARLES A. BARNARD, Portage de Sioux.

To Camp Pike, Little Rock, Ark., for duty, Capt. CHARLES C. PRESNELL, Charleston; HERBERT C. POWERS, Joplin.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. CHARLES H. OZIAS, Kansas City.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. HOWARD C. BRASHEAR, ROBERT M. CULLISON, GUSTAVE DAHMS, St. Louis; from Fort Riley, Lieut. RICHARD B. PLATTE, Kansas City.

To Hoboken, N. J., for duty, from New York City, Lieut. DUDLEY F. MACKEY, Clayton.

Montana

To Camp Dix, Wrightstown, N. J., base hospital, from Hoboken, Lieut. THOMAS B. SCOTT, Butte.

To Camp Dodge, Des Moines, Iowa, for duty, from Jefferson Barracks, Lieut. HAROLD SCHWARTZ, Butte.

To San Francisco, Cal., for instruction, and on completion to Camp Kearney, Linda Vista, Calif., base hospital, Major RUDOLPH HORSKY, Helena.

Resignation of Major LEROY SOUTHMAYD, Great Falls, accepted.

The following order has been revoked: *To Camp Doniphan, Fort Sill, Okla., from Camp Egan, Lieut. JOHN J. TOBINSKI, Missoula.*

Nebraska

To Camp Custer, Battle Creek, Mich., base hospital, from Fort Porter, Lieut. OSCAR E. COLEMAN, Ainsworth.

To Camp Devens, Ayer, Mass., for duty, from Army Medical School, Lieut. MARTIN R. BROMAN, Lincoln.

To Camp Pike, Little Rock, Ark., for duty, Lieut. WILLIAM SHEPHERD, Rulo.

Missouri

To Camp Sevier, Greenville, S. C., as orthopedic surgeon, from Chicago, Lieut. HARRY F. PARKER, Warrensburg.

Lieut. EVAN S. CONNELL, Kansas City; from Camp Wadsworth, To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Dodge, Lieut. QUITMAN U. NEWELL, St. Louis.

To Cape May, N. J., base hospital, from Camp Dodge, Capt. ELLIOTT K. DIXON, St. Louis; from Camp Lee, Lieut. JOHN W. STEWART, St. Louis.

New Hampshire

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Major ROBERT J. GRAVES, Concord.

New Jersey

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from New York City, Lieut. ARTHUR J. GANLEY, Passaic.

To Camp Devens, Ayer, Mass., for duty, Lieut. RALPH N. ABELS, Jersey City; from Fort Oglethorpe, Lieut. JAMES F. TOMPKINS, Camden; HENRY H. TOMLIN, Wildwood.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Bowie, Capt. FRIEND B. GILPIN, Crawford.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. ALEXANDER REINGOLD, Hoboken.

To Camp Jackson, Columbia, S. C., base hospital, from Hoboken, Lieut. ARCHER C. BUSH, Verona.

To Camp Meade, Annapolis Junction, Md., base hospital, Lieut. MARTIN B. FINNERAN, Jersey City.

To Fort McPherson, Ga., for temporary duty, Lieut. WALTER A. RELTER, Summit.

To Fort Oglethorpe for instruction, Lieut. HARRY L. ROGERS, Burlington.

New York

To Biltmore, N. C., for temporary duty, from Camp Lee, Capt. ALEXIS V. MOSCHOWITZ, New York.

To Camp Beauregard, Alexandria, La., base hospital, from Camp Greene, Lieut. JOHN B. D'ALBORA, Brooklyn.

To Camp Crane, Allentown, Pa., for duty, from Camp Dix, Lieut. GEORGE B. RANDALL, Albany.

To Camp Devens, Ayer, Mass., Camp Gordon, Atlanta, Ga., and Camp Zachary Taylor, Louisville, Ky., for inspection, and on completion

to his proper station, from Camp Upton, Major RUSSELL LAF. CECIL, New York. Base hospital, Lieuts. HAROLD C. HAVILAND, Albany; MYRON A. THOMPSON, Buffalo; REUBEN STEINHOLZ, New York. For duty, from Army Medical School, Lieut. MICHAEL G. HEALY, New York; from Fort Oglethorpe, Lieut. ALBERT R. ELLISON, Buffalo.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. HOWARD C. JOHNSTON, Corinth; FRANK S. SCHOONOVER, New York.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capt. JOSEPH C. DEVRIES, Brooklyn. For duty, from Army Medical School, Lieut. FRANCIS E. WEATHERBY, New York.

To Camp Lee, Petersburg, Va., base hospital, Lieut. FREDERICK C. SCHREIBER, New York. For duty, from Army Medical School, Lieut. WALTER F. TOLSON, New York.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. HORACE E. AURINGER, New York.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. LEO M. SACHS, Buffalo.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. RAYMOND G. BLOOD, Blackwell's Island.

To Fort Bliss, Texas, base hospital, from Washington, Capt. WILLIAM R. WOODBURY, Rochester.

To Fort McPherson, Ga., for duty, Lieuts. SAMUEL E. APPEL, Dover Plains; WARREN W. BELL, MAX HARRISON, New York; RALPH B. POST, Ravena; LEOPOLD SZERLIP, Rockaway Beach; FREEMAN S. O'BRIEN, Wappingers Falls.

To Fort Niagara, N. Y., for duty, Lieut. ADOLPH S. KATZMAN, Floral Park, L. I., N. Y.

To Fort Oglethorpe for instruction, from duty as an enlisted man, Lieut. FREDERICK WEINSTRUB, Brooklyn.

To Fort Sam Houston, Texas, for duty, from Camp Joseph E. Johnston, Lieut. HAL McC. DAVISON, New York; from Camp Sherman, Lieut. ORVILLE H. RICHER, New York.

To Hoboken, N. J., base hospital, Lieut. HAROLD R. BROWN, New York; from Camp Upton, Lieut. ANTHONY W. M. MARINO, Brooklyn. For duty, from New York City, Capt. FREDERICK M. LAW, New York.

To Lakewood, N. J., for duty, Lieut. RANDOLPH WEST, New York.

To Mineola, L. I., N. Y., for duty, from Camp Lee, Major ARTHUR S. MOORE, Middletown. For duty, Capt. FRANK M. HALLOCK, New York.

To Newport News, Va., for duty, from Army Medical School, Lieut. PHILIP H. CLARKE, Brooklyn.

To New York City, Neurological Institute, for instruction, Lieut. JULIUS GOTTESMAN, New York.

To Plattsburg Barracks, N. Y., for duty, from Camp Lee, Capt. JAMES F. MUNSON, Sonyea; from New York, Lieut. HENRY, K. SCHNEIDER, New York; from the Surgeon-General's Office, Major RICHARD H. HUTCHINGS, Ogdensburg.

To Philadelphia, Pa., Medical Arts Building, for instruction, from New York, Capt. CHARLES E. E. PANNACI, Gloversville.

To report to the commanding general, Philippine Department, for duty, from Boston, Lieuts. ISIDOR GRAD, New York; JOHN F. HOLDEN, White Plains.

To report to the Governor, Panama Canal, C. Z., for duty, Capt. STANLEY D. GIFFEN, New York.

To Rockefeller Institute for instruction in bacteriology, and on completion to Cape May, N. J., for duty, from Camp Joseph E. Johnston, Capt. WALTER H. SANFORD, Kings Park. For instruction in laboratory work, and on completion to Army Medical School for duty, Lieut. HARRY BAKWIN, New York.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Capt. JOHN R. HERRICK, Hempstead; DUDLEY S. CONLEY, New York. On completion to Camp Custer, Battle Creek, Mich., base hospital, from Fort Oglethorpe, Lieut. WILLIAM C. HANNON, New York.

To San Antonio, Texas, as orthopedic surgeon, from Army Medical School, Lieut. RAEBURN J. WHARTON, Brooklyn.

To Washington, D. C., for duty in the Surgeon-General's Office, from Newport News, Capt. HARRY PLOTZ, Brooklyn.

The following orders have been revoked: *To Camp Doniphan, Fort Sill, Okla., from Fort Logan, Lieut. GEORGE W. BATT, Kennedy. To Camp Jackson, Columbia, S. C., base hospital, Lieuts. ABRAHAM KARDINGER, JEROME L. KOHN, New York. To Fort Oglethorpe for instruction, Lieut. ABRAHAM RAVICH, Brooklyn.*

Resignation of Lieut. JACOB E. HODES, Brooklyn, accepted.

North Carolina

To Camp Beauregard, Alexandria, La., base hospital, Capt. PAUL H. RINGER, Asheville; PORTER P. VINSON, Davidson.

To Fort McPherson, Ga., base hospital, Capt. JAMES B. BULLITT, Chapel Hill.

Ohio

To Camp Grant, Rockford, Ill., for duty, from Hoboken, Lieut. GEORGE S. NUTT, Youngstown.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. EARL E. BAKER, Cincinnati.

To Camp Lee, Petersburg, Va., base hospital, Lieut. HARRY S. SHAMANSKY, Cincinnati. For duty, from Camp MacArthur, Lieut. JAMES A. BELYEA, Toledo.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. GEORGE L. CRISTY, Painesville; from Fort Oglethorpe, Lieuts. ROBERT C. VAN BUREN, Carey; ROSWELL W. COMSTOCK, Maumee.

To Fort Sam Houston, Texas, for duty, from Camp Shelby, Lieut. HENRY A. SPRINGER, Dayton.

To Fort Warren, Mass., for duty, Lieut. JOHN L. WEBB, Carbon Hill.

To Lakewood, N. J., for duty, from Camp Sherman, Major ROGER S. MORRIS, Cincinnati.

To Markleton, Pa., for duty, Capt. HENRY K. DUNHAM, Cincinnati.

To Army Medical School for instruction, Major ALLEN FREEMAN, Columbus.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. FRED C. HUNT, Girard; JOHN D. SIDDALL, Kalida; WALTER J. WEISER, Marion.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieuts. WILLIAM E. MASTER, Scio; FOREST C. HANEY, Woodsfield; JONAS E. KING, Youngstown.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. CHARLES L. MAXWELL, Columbus.

To Fort McPherson, Ga., for duty, Lieuts. CHARLES McC. BRAY, NEVIN C. MAYER, DAVID V. ROSENBERG, Cleveland.

To Fort Oglethorpe for instruction, Lieut. ELBER R. BRUBAKER, Springfield. For instruction in orthopedic surgery, from Army Medical School, Capt. ELMER A. KLEIN, Norwood.

To Hoboken, N. J., base hospital, Lieuts. ERIC R. TWACHTMAN, Cincinnati; ARCHIE D. WOODMANSEE, Washington Court House. For duty, from Camp Dix, Lieut. LOUIS A. MITCHELL, Newark; from Camp Meade, Lieut. DANIEL W. JONES, Columbus; from Fort Oglethorpe, Lieuts. ARCHIBALD A. SOUTHWICK, Cleveland; HARRY M. RAMBO, Janesville.

To Plattsburg Barracks, N. Y., for duty from Camp Gordon, Capt. ALFRED P. COLE, Cincinnati.

To Watervliet, N. Y., for duty, from Fort Oglethorpe, Capt. GEORGE E. GARWOOD, Colton.

Resignation of Lieut. CHARLES H. BAILEY, East Liverpool, accepted.

Oklahoma

To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Sam Houston, Major ABRAHAM L. BLESCH, Oklahoma City.

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. HAROLD N. JUSTICE, Sapulpa.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieuts. CHARLES J. BRUNSON, Adamson; JOHN D. LEONARD, Strang.

To Camp Zachary Taylor, Louisville, Ky., as orthopedic surgeon, from Chicago, Lieut. EARL L. YEAKEL, Oklahoma City. For duty, from Colonia, N. J., Lieut. MARION M. ROLAND, Oklahoma City.

To Camp Doniphan, Fort Sill, Okla., base hospital, Lieut. VICTOR C. TISDAL, Elk City.

To Camp Pike, Little Rock, Ark., for duty, Lieuts. ONIS FRANKLIN, Broken Arrow; BENJAMIN F. NEWLON, Ponca City.

To Fort Des Moines, Iowa, base hospital, Lieut. ROY L. PENDERGRAFT, Hollis.

To Newport News, Va., for duty, from Army Medical School, Lieut. DAVID A. GREGORY, Ardmore.

The following order has been revoked: To San Francisco, Calif., for duty, from Chicago, Capt. FENTON M. SANGER, Oklahoma City.

Oregon

To Camp Lewis, American Lake, Wash., as division tuberculosis specialist, Major RAY W. MATSON, Portland. For duty, Lieut. ROBERT L. WOOD, Amity; from Fort Riley, Lieut. HENRY Z. THARP, Dallas.

To Fort Leavenworth, Kan., for duty, Lieut. FRANK R. MENNE, Portland.

Pennsylvania

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Jacksonville, Lieut. CLARENCE S. KURTZ, Malvern.

To Camp Kearney, Linda Vista, Calif., base hospital, from Camp Fremont, Lieut. FRANK E. SMITH, New Kensington.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ALBIN ROZP-LOCH, Philadelphia. For duty, Lieut. ALVA H. GAVEN, Youngwood. From Camp Dix, Lieut. SNOWDEN K. HALL, Sharpsburg; from Fort Oglethorpe, Lieut. BOYD E. WILKINSON, Trevorton; from Williamsbridge, Lieut. WARREN T. O'HARA, New Kensington.

To Camp Meade, Annapolis Junction, Md., as a member of the board examining the command for nervous and mental diseases, Lieut. FREDERICK FRALEY, Lieuts. CARL F. BIGONEY, Lansdale; ABRAHAM J. BARON, JAMES H. BARTLEY, Jr., Philadelphia. Base hospital, Capt. GEORGE H. CROSS, Chester; from Army Medical School, Capt. WILLIAM H. BAILEY, Philadelphia. For duty, from Fort Oglethorpe, Lieut. LEON J. COMCHE, Waterman.

To San Francisco, Calif., for instruction, and on completion to his proper station, from Camp Lewis, Capt. HENRY B. INGLE, Philadelphia.

To Takoma Park, D. C., Bliss Electrical School, to make physical examinations and give medical attention to the drafted men to be enrolled at this institution, and on completion to his proper station, from Army Medical School, Lieut. WILLIAM F. PETERS, Philadelphia.

To Washington Barracks, for duty, from Washington, Capt. BENJAMIN H. PATTERSON, Wilkinsburg.

To Waynesville, N. C., for duty, from Camp Sevier, Capt. NORMAN R. GRAHAM, Sharpsburg.

To Army Medical School for instruction, Major ARTHUR P. HITCHENS, Glenolden.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. NATHAN ASHINKEY, Pittsburgh.

To Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Capt. HARRY H. THOMPSON, Philipsburg. For duty, from Army Medical School, Lieut. LEO T. MULLAHEY, Shenandoah.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieuts. GERANON N. GINSBERG, Philadelphia; ROBERT M. COCHRANE, Pittsburgh.

To Camp Wheeler, Ga., base hospital, Lieuts. GEORGE H. BLOOM, Ogontz; ABRAHAM BERNSTEIN, Philadelphia.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. BART J. SMITH, Windber.

To Fort Leavenworth, Kan., for duty, Lieut. OMER R. ETTER, Philadelphia.

To Fort McPherson, Ga., for temporary duty, Lieuts. GUY P. ASPER, Chambersburg; WILLIAM J. BASLER, Harrisburg.

To Fort Oglethorpe base hospital, from Camp Devens, Capt. DANIEL M. HOYT, Philadelphia. For instruction, Major WILLIAM E. ASHTON, Philadelphia; Capt. ROY E. SLEPGY, Library; RICHARD P. SMITH, Philadelphia; Lieuts. BRUCE E. NEVIN, Mercersburg; from Philadelphia, Major EDWARD MARTIN, Philadelphia; Capt. WILLIAM H. FURNESS, Wallingford.

To Hoboken, N. J., for duty, from Camp Logan, Capt. WALTER L. HENDERSON, East McKeesport.

To Lakehurst, N. J., for duty, from southern department, Capt. EDWARD W. McCLOSKEY, Philadelphia.

To Lakewood, N. J., for duty, Lieut. JACOB W. MITCHELL, Pittsburgh.

To Newport News, Va., for duty, from Fort McPherson, Major EARL D. BOND, Philadelphia. To Newport News and Camp Lee, Petersburg, Va., to give orthopedic instruction, and on completion to his proper station, Major JAMES T. RUGH, Philadelphia.

To New York City, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp McClellan, Capt. ALBERT J. WINEBRAKE, Scranton.

To report to the commanding general, Philippine Department, for duty, from Fort Oglethorpe, Lieut. WM. C. MILLER, Warren.

Porto Rico

To Camp Las Casas, San Juan, P. R., for duty, from San Juan, Lieut. FRANCISCO J. M. HERNANDEZ, Juncas.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieuts. JUAN H. FONT, Barranquitas; AUGUSTINE R. LAUGIER, San Juan.

Rhode Island

To Camp Jackson, Columbia, S. C., for duty, Capt. FRANK M. ADAMS, Providence.

South Carolina

To Fort McPherson, Ga., for duty, Lieut. BENJAMIN O. WHITTEN, Columbia.

South Dakota

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Riley, Lieut. JOHN C. ROGERS, White Lake.

Tennessee

To Camp Beauregard, Alexandria, La., base hospital, from Fort Riley, Lieut. SALVADOR L. BOCELLATO, Memphis.

To Camp Shelby, Hattiesburg, Miss., for duty, from Army Medical School, Lieut. TATE B. COLLINS, Trezevant.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. JAMES H. HITE, Nashville.

To New Haven, Conn., for duty, Lieut. LEON T. STEM, Chattanooga.

To Newport News, Va., for duty, from Edgewood Arsenal, Lieut. FREDERICK W. LEE, Springfield.

Texas

To Camp Beauregard, Alexandria, La., base hospital, Capt. PETER SCARDINO, Houston.

To Camp Grant, Rockford, Ill., as assistant to camp surgeon, from Fort Oglethorpe, Major FREDERICK J. COMBE, San Antonio.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieuts. CLARENCE L. McCLELLAN, Farwell; MILES R. HASTINGS, Galveston.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. JOSEPH KOPECKY, El Campo.

To Fort Bliss, Texas, base hospital, Major FREDERICK O. WAAGE, El Paso.

To Fort McPherson, Ga., for duty, Lieut. EUGENE L. LAWRENCE, Thorndale.

To Newport News, Va., for duty, from Army Medical School, Lieuts. HUGH J. DAVIS, Austin; LEVY S. JOHNSON, Richmond.

To report to the commanding general, Philippine Department, for duty, from Camp Kearney, Capt. RICHARD E. NICHOLSON, Brenham; from Camp Lewis, Lieut. GREEN L. REA, Bryan.

Utah

To Fort Oglethorpe for instruction, Lieut. FRANCIS A. GOELTZ, Salt Lake City.

Virginia

To Camp Lee, Petersburg, Va., for duty, from Army Medical School, Lieut. ALEXANDER F. ROBERTSON, Jr., Staunton.

To Camp Logan, Houston, Texas, for duty, from Fort Oglethorpe, Lieut. ARTHUR H. DEEKENS, Lynchburg.

To Fort Oglethorpe for instruction, Lieut. PITT E. TUCKER, Buckingham.

To report to the commanding general, Philippine Department, for duty, from Fort Oglethorpe, Major SAMUEL B. MOORE, Alexandria.

West Virginia

To Camp Jackson, Columbia, S. C., for duty, Capt. WILLIAM F. CROW, Glen Easton.

To Camp MacArthur, Waco, Texas, as sanitary inspector, from Fort Oglethorpe, Lieut. WASHINGTON W. STONESTREET, Morgantown.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. WALTER E. VEST, Huntington.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. JOSEPH C. FORD, Oak Hill.

To Fort McPherson, Ga., for temporary duty, Lieut. JAMES E. HUBBARD, Hinton.

To New Haven, Conn., for duty, Lieut. JOHN W. GILMORE, Wheeling.

Honorably discharged, Capt. LEO HUTH, Fallonsbee. On account of physical disability existing prior to entrance into the service, Lieut. GEORGE W. SHRIVER, Glendenin.

Washington

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOHN F. MacDONALD, Hoquiam.

To Plattsburg Barracks, N. Y., for temporary duty, Capt. JULIUS G. NEWGORD, North Yakima.

Wisconsin

To Camp Custer, Battle Creek, Mich., with the board examining the command for cardiovascular diseases, from Cape May, Capt. J. GURNEY TAYLOR, Milwaukee.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CORNELIUS N. STUESSER, Oconomowoc.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. WILLIAM F. BAKER, Birnamwood; ADOLPH L. KYLLO, Grantsburg.

To Fort H. G. Wright, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. FRANK A. BOECKMAN, Greenwood.

To Fort McPherson, Ga., for duty, from Lakewood, Capt. OSCAR C. WILLHITE, Lake Geneva.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. NEAL S. SIMONS, Taylor.

Wyoming

To Camp Lewis, American Lake, Wash., for duty, Capt. CHARLES E. LANE, Lander.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Personal.—Dr. William C. Vandiver, Mena, is reported to be critically ill with nephritis.—The office of Dr. Roscoe T. Gephart, Cotton Plant, was destroyed, May 9, by a fire, which did \$75,000 worth of damage to the town.

State Society Meeting.—At the forty-second annual session of the Arkansas State Medical Society, held at Jonesboro, May 7 to 9, Little Rock was decided on as the place of meeting for 1919, and the following officers were elected: president, Dr. Edward F. Ellis, Fayetteville; vice presidents, Dr. C. N. Phillips, Mena; Henry H. Righter, Helena, and Reuben Y. Phillips, Malvern; secretary, Dr. Clinton P. Meriwether, Little Rock (reelected), and treasurer, Dr. William R. Bathurst, Little Rock.

Public Health Meeting.—The annual meeting of the Arkansas Public Health Association was held in Little Rock, May 30, and the following officers were elected: president, Dr. Augustus C. Shipp (reelected), Little Rock; vice presidents, Drs. Octavius L. Williamson, Marianna, and Mrs. W. A. Billingsley, and treasurer, T. S. Shannon. The following physicians were elected as directors: Drs. Joseph E. Sparks, Crossett; Stanley M. Gates, Monticello; Dr. Charles W. Garrison, Little Rock; John Stewart, Booneville; Thomas J. Woods, Evening Shade; James W. Walton, Benton, and H. N. Niehuss, Eldorado.

Upholding Compulsory Vaccination Regulation.—The supreme court of Arkansas in an opinion rendered, June 3, 1918, has upheld a regulation promulgated by the state board of health providing that no person shall be a teacher, employee or pupil in a public school or a private school without having first presented to the teacher in charge, or the proper authorities, a certificate of a successful vaccination or of immunity by reason of having had smallpox.

The court, by Justice Humphreys, quotes the act of the legislature creating the board of health, and says that while the board is not specifically authorized to supervise, control, suppress or prevent smallpox by isolation, quarantine or vaccination, yet the language is broad enough to include all infectious diseases, of which smallpox is one, and for whose suppression or prevention rules may be made. While the state board of health is not authorized to manage or control the schools, the prevention of the spread of contagious or infectious diseases, by preventing unvaccinated persons from associating with the schoolchildren and school teachers of the state, in no way infringes on the constitutional right to attend the schools or management and control thereof by school boards or directors.

The contention that compulsory education, under the rule of the board would mean compulsory vaccination, could not stand because, while there is no American authority for compulsory vaccination in the sense of compelling one to submit his person thereto there is authority for penalizing one who refuses to comply with an order or law requiring vaccination. Decisions are quoted on this point. Both the vaccination rule and the compulsory education act are enforceable under penalty of fines, so they are to be read together.

ILLINOIS

Personal.—Dr. William M. Hanna, Aurora, has been elected medical director of the G. A. R., department of Illinois.—Mr. Howard W. Fenton has been appointed manager of the central division of the American Red Cross, with headquarters at Chicago, succeeding Mr. Bruce D. Smith, resigned to take up work in France for the Red Cross.—Dr. John B. Nardi, Chicago, who was seriously injured, Nov. 26, 1917, by being struck by an automobile while crossing Midway Boulevard, has recovered and will soon resume practice.

KENTUCKY

Personal.—Dr. Meverell K. Allen, formerly health officer of Louisville and medical director of the Inter Southern Life Insurance Company, was stricken with cerebral hemorrhage, June 19, and is under treatment at St. Joseph's Infirmary.—

Dr. W. Ed. Grant has been appointed registrar of vital statistics for Louisville and for Jefferson County by the state board of health.

Louisville

Members of New Board of Health.—June 27, the governor announced the members of the state board of health, in accordance with the bill passed by the last legislature, reorganizing the state board of health and combining under one control the work of the tuberculosis commission, the pure food and drug division of the agricultural experiment station, the hotel inspection, and the work of the former state board of health. The members are as follows: Dr. Carlos A. Fish, Frankfort; Dr. George T. Fuller, Mayfield; Dr. Josiah G. Furnish, Covington, and Dr. H. H. Carter, Shelbyville, members of the old board; Dr. Argus D. Willmoth, Louisville, and Dr. Elijah H. Maggard, Wayland, from the tuberculosis commission; Dr. Oscar C. Dilly, Louisville, from a list submitted by the Kentucky Pharmaceutical Association and the board of pharmacy, and Dr. Carl Lewis Wheeler, Lexington, and Dr. John D. Williams, Ashland, from the state at large. The tenth member who was elected by the appointed members is Dr. W. Lucier Heizer, Bowling Green, former secretary of the tuberculosis commission, who by virtue of his office becomes the executive officer and secretary of the board. Dr. Willmoth was elected president and Dr. Wheeler vice president. Immediately on the announcement of the new board of health, Dr. Joseph N. McCormack, Bowling Green, secretary of the old board; Dr. William W. Richmond, Clinton, and Dr. Isaac A. Shirley, Winchester, of the old board, obtained a restraining order issued by Judge Robert L. Stout, of the Franklin Circuit Court, restraining the new board from exercising the functions of the state board of health, from organizing any of its bureaus, and from taking possession of the office, books and accounts, from claiming any of the rights or titles to the office as members of the board, and from interfering in any way with the old board's activities. The petition before Judge Stout names all the members of the new board, and denounces the section creating the new board as a violation of the constitutional requirement that the subject matter of all the sections of an act must be mentioned in the title of the act and must be related to it.

MARYLAND

Hopkins Hospital Raises Rates.—The Johns Hopkins Hospital has felt the effects of the war and consequently, in addition to raising the fee for all ward cases, has advanced the rates at the dispensary which patients applying for the first time will have to meet. Heretofore, patients applying at the dispensary for the first time were required to pay a fee of 10 cents for an admittance card, whereas they are now charged 25 cents for the first visit and 10 cents for each succeeding visit. Ward cases which were formerly \$2 are now \$2.50, and patients securing medicine will have to pay a sum as near the actual cost as their means will allow. The increase in rates at the Johns Hopkins Hospital should not cause serious hardships among the poor, as many men are now making triple the wages paid them a year ago. An effort is also being made to stamp out the practice of people who, though able to afford a physician, visit the dispensary and secure the benefits that others in dire straits should have.

MASSACHUSETTS

Hospital Cornerstone Laid.—The cornerstone of the reconstruction hospital to be erected in Boston by the Benevolent Protective Order of Elks, and presented by the organization to the government, was laid with impressive ceremonies, June 15.

State Medical Society Meeting.—The Massachusetts Medical Society held its one hundred and thirty-seventh annual meeting at the Boston Medical Library, The Fenway, June 18 and 19, and the following officers were elected: president, Dr. Samuel B. Woodward, Worcester (reelected); vice president, Dr. George P. Twitchell, Greenfield; secretary, Dr. Walter L. Burrage, Jamaica Plain, Boston (reelected); treasurer, Dr. Arthur K. Stone, Framingham Center, and orator, Dr. Samuel Crowell, Boston.

Beth Israel Hospital News.—The directors of the Beth Israel Hospital, Roxbury, Boston, have purchased a building, adjacent to the hospital grounds, in which they will establish an outpatient department. The medical staff has already been organized and the new department will be open by the middle of August. The directors of the hospital, at a special meeting, adopted resolutions offering the use of ten beds for the treatment of wounded soldiers and sailors returned to Boston, and furthermore offering enough space on the grounds

of the hospital to accommodate 100 patients, providing the government will furnish tentage.

Personal.—Dr. Robert B. Greenough, Boston, has been reappointed, by the Harvard commission, director of the cancer commisison of the university, and surgeon in charge of the Collis P. Huntington Memorial Hospital. Dr. Channing C. Simmons, Boston, was appointed secretary of the commission and surgeon to the hospital, and Dr. Edward H. Risley, Boston, surgeon.—Dr. Edward A. Supple, Boston, has resigned as visiting surgeon to St. Elizabeth's Hospital.—Dr. Eoline B. C. Dubois, Springfield, has gone to France where she will be associated with the medical department of Secretariat of the Bureau of Liberated French Villages.

MINNESOTA

Infantile Paralysis Clinic.—The state board of health will hold its third free clinic for infantile paralysis cases at Mankato, July 2, at Worthington, July 8 and 9, at Tracy, July 10 and 11, and at Granite Falls, July 12 and 13.

NEW YORK

New York City

Farewell Dinner for British Physicians.—Sixty New York physicians and surgeons gave a farewell dinner at the Metropolitan Club on the evening of June 26 to Sir William Arbuthnot Lane, Sir James Mackenzie, and Col. Herbert A. Bruce, who expect to leave this country soon. Brief addresses were made by the three guests of honor.

New Hospital for the Bronx.—The Bronx Hospital Association has purchased the Eichlen estate, at Fulton Avenue and One Hundred and Sixty-Ninth Street, the Bronx, for a little more than \$110,000. A campaign has been started to raise \$35,000 with which to remodel the Eichlen mansion to serve as a hospital. A children's ward and a dispensary are also to be established on the estate. Dr. Alexander Goldman is president of the association.

Catholics to Build War Hospital.—The National Catholic War Council has about completed plans for the erection of a \$300,000 hospital for soldiers and sailors in Manhattan. A site has been selected and arrangements are being made for the remodeling of one building and the construction of another. The hospital will have 500 beds and immediately on its completion, it will be turned over to the government for whatever purposes the War Department may desire.

Homes Offered as First Aid Hospitals.—At a committee meeting of the emergency unit of Harlem, composed of fifty physicians, it was announced that H. C. Frick, G. J. Gould, and S. Lewisohn have offered their homes to the police department in the event of an air raid or any other emergency. The unit has organized and its members are undergoing training for first aid work under Lieut. Abraham Lustgarten, U. S. M. C., in order that they may be ready to render assistance in case of emergency. Physicians and nurses in the hospitals in the Harlem district have been invited to avail themselves of the course of training offered. Among the members of the committee are Dr. Edward E. Myers, Dr. F. U. Rothstein, Dr. David E. Alexander, Dr. Morris Stark, Dr. Louis M. Pearlman, and Dr. Oscar E. Kupferman.

Fox Hills Base Hospital Completed.—The United States Base Hospital at Fox Hills, Staten Island, comprising eighty-six buildings, was completed, June 25, the entire plant having been constructed in 100 days. The hospital is now prepared to care for 3,000 patients. The staff consists of a personnel of 650, including physicians, nurses and attendants. There are three large wards containing 1,000 beds each. The hospital is one of the largest in the world. Col. William Rutherford, U. S. Army, M. C., will be in charge. In connection with the hospital, the American Red Cross has completed a theater for the patients which will seat 7,200 persons. Fifteen acres of land adjoining the hospital have been purchased by the government so that the capacity of the hospital may be doubled at any time.

Statistics of New York Milk Committee.—An infant mortality survey by the New York Milk Committee has just been made public, which shows that New York City has reached the lowest baby death rate in its history. The survey covers the year 1917, for which the infant death rate is 88.8 per thousand living births. In 1907 it was 135.8. For this decrease the various educational campaigns conducted by health authorities and others are given credit and the milk committee also claims a share of credit for these results.

The statistics show that the number of babies that perish annually is still very large. There were 12,568 deaths of infants under 1 year of age for 1917 as against 16,000 in 1907. The report also contains a survey for the entire country based on figures from 163 of the largest cities. These show, with one exception, decreases in the infant death rate. The lowest mortality for cities of 100,000 population or more is found at Omaha and Seattle, which have 59.2 and 59.4 per thousand, respectively. The lowest rate for the entire country is held by Alameda, Calif., where the rate is 40.7. Four other cities of less than 50,000 with records a fraction higher than this record are Brookline and Everett, Mass., and La Crosse, Wis., and Berkeley, Calif. The highest mortality of the country was at Nashville, Tenn., which has a rate of 182.2, with a population of 119,364. The mayor's committee of women on national defense reports that the physicians of New York are cooperating well in the work of children's year. On one day recently 400 babies were weighed and measured in the Grand Central Palace.

NORTH DAKOTA

Personal.—Dr. Albert M. Fisher has resigned as physician to the state penitentiary, Bismarck, and has been succeeded by Dr. Clyde E. Stackhouse.—Dr. Henry O'Keefe, city health officer, has been elected secretary of the Grand Forks Board of Health.

New State Officers.—The thirty-first annual meeting of the North Dakota State Medical Association was held in Fargo, June 19 and 20, under the presidency of Dr. George M. Williamson, Grand Forks. A service flag bearing 125 stars was dedicated, and the following officers were elected: president, Dr. Edgar A. Pray, Valley City; vice presidents, Drs. William P. Baldwin Casselton; Fred E. Ewing, Kenmare, and Harley E. French, Grand Forks; secretary, Dr. Hezekiah J. Rowe, Casselton (reelected); treasurer, Dr. William F. Sihler, Devils Lake; councilors, Drs. Edward M. Ranson, Minot; Frederick L. Wicks, Valley City; Le Roy G. Smith, Medina, and Charles MacLachlan, New Rockford; delegate to the American Medical Association, Dr. Charles MacLachlan, New Rockford, and alternate, Dr. Frank W. MacManus, Williston. The house of delegates made the following recommendations for members of the state board of medical examiners: Drs. Hugo O. Altnow, Mandan; Henry G. Woutat, Grand Forks, and Paul Sorkness, Fargo. Grand Forks was selected as the next place of meeting.

OHIO

New Hospital.—The dedicatory program of the Mercy Hospital, Toledo, continued from June 21 to 23, and on the last two days a public reception was held and an open-air address was delivered, June 22, by Dr. James J. Walsh, New York City, dean of Fordham University.

Hospital to Accept Early Tuberculosis Cases.—At a meeting of the representatives of county commissioners of Mahoning, Columbiana, Stark, Portage and Summit counties, June 14, it was decided that Springfield Lake Sanitarium is to be a hospital for curable rather than for incurable cases of tuberculosis.

Roentgen-Ray Association Organized.—As a result of the roentgen-ray clinic held in the Mansfield General Hospital during the first week in June, the Ohio Roentgen-Ray Association has been organized with Dr. Jacob Y. Salzman, Mansfield, as president, and Dr. Robert B. Cameron, Defiance, as secretary-treasurer.

Personal.—Dr. Frank Warner, Columbus, had conferred on him at the annual commencement exercises of the Denison University, Granville, June 12, the degree of D.Sc.—Dr. James A. Leonard, for sixteen years superintendent of the state reformatory, Ashland, has resigned on account of ill health.—Dr. William H. White, Cleveland, has been reinstated as chief medical examiner of the state industrial commission.—Dr. Amos C. Knestrick, Wooster, was operated on for appendicitis, June 12, and is reported to be doing well.

Cincinnati

Gift of Medical Library.—The Academy of Medicine recently presented to the Cincinnati General Hospital more than 3,000 volumes of medical books, the accumulation of nearly half a century.

Personal.—Prof. Lauder W. Jones, head of the department of chemistry at the University of Cincinnati, has resigned to accept the position of chief of the research division of gas

defense at the American Hospital, Washington.—Dr. E. Peter Joseph has been adjudged insane and committed to Long View Hospital.—Dr. H. H. Bunzell has been appointed an assistant professor of biochemistry in the Medical College of Ohio.—Dr. William B. Wherry, professor of bacteriology in the University of Cincinnati, has been placed in charge of the Detroit School of Medicine.

PENNSYLVANIA

Personal.—Dr. H. Melvin Allen, Reading, Berks County, has been commissioned major, and Dr. Samuel Brister, first lieutenant in the Medical Corps, Pennsylvania Reserve Militia, and both have been assigned to duty with the First Infantry.—Dr. Joseph S. Neff, Narberth, formerly director of health of Philadelphia, has been appointed a member of the advisory board of the state department of health, succeeding the late Senator Daniel Gerberich, Lebanon.

WISCONSIN

Hospital Transferred.—Mercy Hospital, Oshkosh, formerly the Lakeside Hospital, has been formally transferred to the Sisters of the Sorrowful Mother, and will be in charge of Sister Cornelia. It is proposed to maintain a training school for nurses in connection with the institution.

Oaks Sanatorium.—The name Oaks Sanatorium was selected, June 26, for the new sanatorium for the cure of tuberculosis which is now operated by Waukesha County. The sanatorium, which is located in the northern part of Pewaukee Township, is practically completed, but it is not yet furnished. It will be opened as soon as the equipment can be installed.

CANADA

Public Health.—Halifax, N. S., wants a medical officer of health at a salary of \$2,500 a year.

Personal.—Col. Harold C. Parsons, Toronto, who was with the University of Toronto Base Hospital overseas, has landed at New York and has gone on to Ottawa, where it is understood he is slated for an important military appointment.—Dr. Charles J. Copp, Toronto, has been attending a meeting of the St. John's Ambulance Brigade at Sidney, N. S.—Capt. Gordon A. Bates, Toronto, has gone to Nova Scotia to read papers before the Nova Scotia Medical Society and the Halifax Medical Society.

Hospital News.—By the will of the late Mr. John Ross Robertson, Toronto, proprietor of the *Evening Telegram*, the residue of his million-dollar estate is to revert to the Hospital for Sick Children, Toronto, on the death of his widow and only surviving son. Mr. Robertson was one of Canada's leading philanthropists and took a special care and interest in the Hospital for Sick Children. It is not to be amalgamated with the Toronto General Hospital under the terms of the will, otherwise it will lose the magnificent bequest. He also left several large amounts to other charitable institutions.—Dr. Charles K. Clarke, who has been superintendent of the Toronto General Hospital for a number of years, has definitely severed his connection with that institution and will hereafter devote his whole attention to the Mental Hygiene Association of Canada.—Dr. John N. E. Brown, formerly medical superintendent of the Toronto General Hospital and of the Ford Hospital, Detroit, has established in practice in Toronto, and is devoting special attention to consultation work in connection with the establishment of new hospitals.—The Winnipeg General Hospital is advertising for a medical superintendent.

Ontario Medical Council.—The Ontario Medical Council closed its annual session, June 28. The fact that a Toronto physician was before the court during the week for free-and-easy prescribing of liquor, precipitated what easily proved the most interesting of the proceedings of the council's deliberations for the whole session. In eleven days the physician in question had given 1,274 prescriptions for liquor under the Ontario Temperance Act. The result was a fine of \$300 on each of four counts, making a total of \$1,200. So far as action in disciplining the physician was concerned, the council simply referred the matter to the executive committee. But that action apparently does not meet with the approval of the Ontario License Board, who will hereafter require all vendors of liquor in the province, not later than the tenth of each month, to report the names of physicians and the total prescriptions issued by them each month. Dr. Edmund

E. King, Toronto, president of the council, threw a small-sized, or perhaps it may be considered a large-sized, bomb into the council and also into the profession. He had secured official figures for Toronto on the way physicians were prescribing liquor. His statistics covered a period of ten days—from June 1 to June 11. Five hundred and twenty-five physicians had issued about 4,000 prescriptions for "booze." Some had issued as many as 52, 53, 63, 67, 68, 73, 99 and 215 each. The number of practitioners who had given more than one prescription was 275, and nearly one third of that number had given ten. During the month of April, 5,369 prescriptions were issued in Toronto, as compared with 9,255 in May. Under the law a physician may prescribe a quart at a time, but the council will petition the legislature to change this to 8 ounces. As the law permits a physician to keep 10 gallons for his practice at any time, some may also have been dispensed from the office. Dr. A. T. Callum, Niagara Falls, Ont., reported that medical examination of the manhood of Canada had revealed the fact that the percentage of unfit varies from 40 to 70 per cent. In view of these statistics Dr. Callum moved a resolution that some form of supervision of health should be instituted by the state, and that the matter be referred to the proper departments of the federal and provincial governments. The council went on record as disapproving the recommendation of Mr. Justice Hodgins that a department of physiotherapy in Toronto, Western and Queen's universities be established under the department of physics. They state it should be under the department of therapeutics. The following officers were elected: president, Dr. Robert Ferguson, London; vice president, Dr. Arthur T. Emmerson, Goderich, and registrar-treasurer, Dr. H. Wilberforce Aikins, Toronto.

GENERAL

New York and New England Railway Surgeons Meet.—The twenty-eighth annual session of the New York and New England Association of Railway Surgeons, will be held at Hotel McAlpin, New York City, October 21, under the presidency of Dr. James S. Hill, Bellows Falls, Vt. The symposium will be on "Modern Treatment of Infected Wounds."

Gastro-Enterologists Elect New Officers.—At the twenty-first annual meeting of the American Gastro-Enterological Association, held in Atlantic City, May 6 and 7, the following officers were elected: president, Dr. Walter A. Bastedo, New York City; vice presidents, Drs. Thomas R. Brown, Baltimore, and Franklin W. White, Boston; secretary-treasurer, Dr. Frank Smithies, Chicago, and recorder, Dr. Horace W. Soper, St. Louis.

Fraternity Convention.—The national convention of the Phi Beta Pi Medical Fraternity at Kansas City closed, May 3, with a banquet at Hotel Muehlebach, at which the following officers were elected: supreme archon, Dr. David S. Long, Harrisonville, Mo.; supreme vice archon, Dr. Dale D. Turnacliiff, St. Paul; supreme secretary-treasurer, Dr. Lawson G. Lowrey, Boston, and supreme editor, Dr. Walter A. Fansler, Minneapolis.

Hospital Association Meets.—At the third annual meeting of the Catholic Hospital Association, held in Chicago, June 18 to 20, standardization was one of the principal subjects discussed and the following officers were elected: honorary president, the Rt. Rev. Sebastian G. Messmer, Milwaukee; president, Charles B. Moulinier, Milwaukee; vice presidents, Sisters Mary Joseph, Rochester, Minn., and Mary Esperance, Minneapolis, and secretary-treasurer, Dr. Bernard F. McGrath, Milwaukee.

Registry of Donors of Blood for Transfusion.—Professor Agote of Buenos Aires, the pioneer in transfusion of citrated blood, recently published an appeal in the lay papers for donors of blood for transfusion. In the *Anales*, published from his service, he gives a list of more than 200 names of persons who have registered as willing to give blood for transfusion, when called on. In addition to this list, a large number of others have registered but prefer not to have their names published. The list includes all the officers of one regiment.

Bequests and Donations.—The following bequests and donations have recently been announced:

Columbia University and Presbyterian Hospital, New York City, each \$610,345 by the will of Kate Collins Brown.

Loomis Sanitarium, Liberty, Ill., and St. Mary's Free Hospital for Children, New York City, each \$1,000 by the will of Mary M. Irwin.

Presbyterian Hospital, Chicago, about \$708,500 for the establishment of funds in memory of George B. and Mary R. Harris, by the will of George B. Harris. Only the income from this fund is to be used.

American Red Cross, a portion, not to exceed \$25,000, of his contribution to the second war fund for medical research, by Cleveland H. Dodge, New York City.

FOREIGN

Dr. M. Hata given Rank of Major-General.—Dr. M. Hata of Japan has recently been promoted to the position of "Yakuzaikwan" with the rank of Major-General. In this position, it is understood, he becomes head of the pharmaceutical corps in the Japanese army. The Japanese correspondent writes that the creation of a generalship for pharmacists in the army sanitary department had for some time been a pending question, and at a meeting of the cabinet, March 22, it was decided to change the army pharmaceutical ordinance to suit the purpose.

Escape from Germany of Author of "Biology of War."—THE JOURNAL mentioned, Jan. 26, 1918, p. 252, that Dr. G. F. Nicolai, professor of physiology at the University of Berlin, had stated in his recent book, "The Biology of War," that he had been asked by a highly respected and prominent German official as to the feasibility of making bombshells so they would scatter cholera and plague germs. Nicolai mentioned this as one instance, among others, of the warping of the conceptions of scientists, military men and large circles of the populace to the effect that war justifies everything. The news item quoted from the *Observer* of Berne and the *Progrès Médical* of Paris that Professor Nicolai had been condemned to five months' imprisonment. Now an Associated Press dispatch of June 24 states that Professor Nicolai was one of the men who escaped from Germany last week in airplanes, landing in Denmark.

Honors for British Physicians.—In the list of honors published in Great Britain, June 3, numerous physicians were recognized for civil and military distinction. Among them were the following, some of whom are well known in this country: Companion of Honour—Sir Frederick Treves, Bt., G.C.V.O., C.B., K.C.B. (Civil)—Temporary Surgeon-General Humphry Davy Rolleston, C.B., R.N., C.B. (Military)—Temporary Major-Generals: Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., and Cuthbert S. Wallace, C.M.G. Colonels: Stuart Macdonald, C.M.G.; Edgar M. Pilcher, D.S.O.; Alexander Primrose, C. A. M. C.; Gerald T. Rawnsley, C.M.G.; Arthur E. Ross, C.M.G., C. A. M. C.; G. St. Clair Thom, C.M.G.; K.C.M.G.—Temporary Major-General Sir Berkeley G. Moynihan, C.B. Colonels: William H. Horrocks, C.B. (ret. pay); Sir William B. Leishman, C.B., F.R.S., K.H.P. Temporary Colonel Sir Ronald Ross, K.C.B., F.R.S. (ret. pay I.M.S.). G.C.V.O.—Lieut.-Gen. Sir Alfred Keogh, G.C.B., C.H. Knighthood—A. W. Mayo-Robson, C.B., C.V.O., F.R.C.S.; Harry Baldwin, M.R.C.S., Dental Surgeon to the King.

Patriotic Medical League in Italy.—The founding of the *Unione dei Medici Italiani per la resistenza nazionale* has been already mentioned in these columns. A general meeting was held recently with results, it is said, "worthy of the noblest traditions of the profession." One of the resolutions adopted suggested to physicians throughout the country and imposed on the members of the league "austere economy in the matter of those foods which are scarce at present, grains, meat, milk and sugar, the physicians themselves and the members of their families setting an example to others in this respect. No prescriptions or permits for food are to be given unless strictly for therapeutic necessities for the sick or delicate, specifying quantity and quality, enforcing a serene and uniform discipline for all in order to aid the country at large and the sick." Another resolution denounced in scathing terms some (apparently pacifist) utterances by certain colleagues, members of parliament, "at such a time as this when government and country need concerted action, unity of purpose, resistance for the enemy trampling the soil of Italy, destroying our brothers, mutilating our monuments and martyring our people." The league was founded to combat the insidious pro-German propaganda and by aggressive patriotic efforts by physicians and their families to spread their influence in widening circles.

Sanatogen and the German Chancellor.—The *Nederlandsch Tijdschrift* relates that some time ago—as was mentioned in these columns—the manufacture of sanatogen had to be suspended as, owing to the scarcity, the authorities shut off the supply of materials for it. The Sanatogen company then appealed to physicians throughout Germany asking for testi-

monials to the effect that "Sanatogen is an indispensable strengthening article for the sick and convalescents." The company hoped by this means to bring pressure to bear on the authorities so that the materials for the making of sanatogen would be allowed to be used for this purpose. The Reichskanzler, the authority in question, has now announced that demands for materials for this purpose are coming in at every turn, accompanied by the statements of physicians to the effect that the product of this manufacturing firm is admirably adapted to its purpose or indispensable. These declarations the chancellor continues, seem to be coming as the result of requests for them, and thereby it sometimes happens that physicians are remunerated for such declarations although perhaps not with money, yet with free supplies of the preparations in question. Our exchange comments on this as follows: "This is impressive testimony from the 'all-highest authority,' and, perhaps more than any admonitions in the medical press, it may induce willing physicians to be more cautious in giving full scope to their generous spreading abroad of testimonials." The chancellor's announcement further states that sanatogen, "notwithstanding the extensive advertising it has received—perhaps more extensive than has ever been made for an article of the kind—and also on account of its high price, has been declared by the experts in the advisory board of the Kriegsernährungsamt and the central board for the supply of fat as a preparation of albumin which is not necessary for the sick, but which, on the contrary, may be dispensed with. The imperial public health service (Gesundheitsamt) has also expressed the same opinion." The concluding paragraph of the chancellor's announcement stigmatizes the delivering of these attestations by the physicians in response to the request of the Sanatogenwerke as "injuring the respect for the medical profession."

Substitute Foods in Germany.—Schwalbe, the editor of the *Deutsche medizinische Wochenschrift*, has been appealing to the authorities to protect the public against injury from the newly invented substitutes for the ordinary foodstuffs. He demands that they be tested and not be allowed to be sold without an official permit. The Kriegsernährungsamt gives out information concerning them to the wholesalers and to the chemists engaged in food inspection, but this is no protection to the public, as the information in question is strictly confidential. The few fines imposed for serious infractions of the regulations in this line are of no help in the matter as the profits for the producers far outweigh the small fines imposed. The *Nederlandsch Tijdschrift*, in citing his communication on the subject, remarks that the judges, besides, are able to rely on the assertion of an expert authority, Dr. I. Hoppe, to the effect that a substitute article does not have to possess the nutritional value of the article for which it is a substitute. He says, "The opposite principle, namely, that we can substitute everything, is juster, and has besides high moral value, as it improves the morale, renders it easier to hold out, and guarantees victory." The German Association of Food Experts endorses this absurd principle. The insignificant influence of threats of punishment is seen in the number of these substitutes on the market. In November the figure had reached 7,000. Some of the German states have already introduced certain restrictions along the lines advocated by Schwalbe and also by Neustätter. In Baden, none of the substitute articles may be offered for sale without a permit. A sample of the article has to be presented with a certificate from some official inspecting board in regard to the composition of the article, or a fee of 50 marks be paid in case the investigation has to be done anew. The decision, whether favorable or unfavorable, is then published in the *Karlsruher Zeitung* at the expense of the applicant. The latter may then appeal to the minister of the interior. Non-compliance with the regulations may entail a penalty of six months' imprisonment or a fine, with exclusion from further trading. Similar regulations are in force in Würtemberg, Saxony and other states. In Saxony the net weight and the price of the article have to be specified on the label. It is further decreed that no use for advertising purposes may be made of the permission to sell the article. The Bundesrath has further regulated the sale of bouillon cubes. They may be sold as *Fleischbrühe*, "meat soup" or "bouillon," without the addition of the term "substitute," only when they contain meat extract or evaporated bouillon, with salt, fat and extracts of vegetables, with at least 0.45 per cent. creatinin, and 3 per cent. nitrogen, and not more than 65 per cent. cooking salt, with no sugar or syrup. Even when labeled "substitute bouillon," they must contain at least 2 per cent. nitrogen and not more than 70 per cent. salt, without any sugar or syrup.

BUENOS AIRES LETTER

BUENOS AIRES, May 20, 1918.

Large Enrolment of Medical Students

The number of students enrolled in the medical department of the University of Buenos Aires is over 5,000. In 1917, there were 4,078 enrolled, distributed as follows: medicine 3,051, pharmacy 317, doctor in pharmacy 88, odontology 428, and obstetrics 194. Including the departments of law, engineering, philosophy and literature, agronomy and veterinary science, there are a total of 9,521 matriculated in the Universidad Nacional de Buenos Aires. There are only 984 inscribed in the medical department of the other university in the country, the University of Cordoba.

Reform in Management of the Cordoba University

The national government has modified the statutes of the University of Cordoba in accord with the general demand on the part of professors, students and graduates, giving them a more democratic orientation. The Academia will retain only its scientific functions, while the direction of the different departments of the university will be in the hands of a managing board for each. The members of these *consejos* are to be elected for a term of three years at a general assembly of all the professors.

Prophylaxis of Malaria

The newly appointed president of the Departamento Nacional de Higiene, Dr. G. A. Alfaro, has been visiting provinces affected with malaria, and has presided at *conferencias* held in the cities of Salta, Jujuy and Tucuman to determine the most practical ways and means for the combating of the malaria endemic.

The Cancer Institute

For lack of funds, work has had to be suspended on the Instituto del Cancer which is being constructed under the direction of the Academia de Medicina. Quite recently some donations have been received which allow the hope that the work can be resumed.

The Laryngologic Society

The Sociedad Argentina de Oto-rino-laryngologia held a special meeting, May 10, at which the subject of operations on the sinuses was discussed. Dr. Bracht presented a work on the endonasal operation for the maxillary sinus. Dr. Segura spoke on the treatment of disease of the sphenoidal sinus. His mode of access is by slitting the septum, by means of a submucosa resection, the same as for an operation on the pituitary body. This opens up the field amply and insures perfect drainage.

Personal

Dr. Pedro Benedit has been elected member of the Academia de Medicina to take the place left vacant by the death of Dr. P. Lagleyze. Dr. P. J. Hardoy, instructor in semeiology, and Dr. G. Valdes, instructor in surgery in the medical department of the University of Buenos Aires, have been elected regular professors after competitive tests.

LONDON LETTER

LONDON, June 4, 1918.

New Regulations for Military Medical Service

New regulations for military medical service have been issued, following the extension of age at which physicians are liable to 55 years. Special medical tribunals will be appointed for dealing with physicians. Certificates of exemption may be granted on the following grounds: (a) That it is expedient in the national interests that the physician should, instead of being employed in military service, be engaged in other work in which he is habitually engaged; or in which he wishes to be engaged; or, if he is being educated or trained for any work, that he should continue to be so educated or trained. (b) That serious hardship would ensue if the physician were called up for army service, owing to his exceptional financial or business obligations or domestic position. (c) Ill health or infirmity. (d) Conscientious objection to combatant service. A certificate of exemption may be absolute, conditional or temporary, as the medical tribunal thinks best suited to the case, provided that a certificate granted or renewed on personal grounds may be subject to the condition that the practitioner shall undertake such professional service and under such conditions as the director-general of national service may, after consul-

tation with the medical tribunal and in concert with any government department concerned, from time to time deem best in the national interests. This includes civil medical service. Thus if the director-general of national service decides that there is a shortage of physicians in one district and that a physician can be spared from another, he may direct the physician to practice in the former district, or he may order him to undertake the work of a younger man who is called up for military service. When the need of using the physician in this way arises he may, if he chooses, appear before the local or central professional body and give reasons for not being assigned to the new duties required of him.

The Prevention of Anthrax

In spite of the precautions taken, the incidence of anthrax both in the warehouses and ports and in the worsted and woolen trades is increasing. A government committee, appointed to inquire as to the precautions for preventing infection in the manipulation of wool, goat hair and camel hair has just issued its report. The conclusion is that anthrax can be prevented only by preventing the disease among animals or by the destruction of the organisms in wool and hair. The committee, after careful experiments, has evolved a process by which the organisms may be destroyed. The essential features are: (1) A preliminary process in which material is submitted to the action of a warm solution of soap in water containing a little alkali, followed by squeezing through rollers. The effect is to cause disintegration of blood clots and the removal of all protection from spores, and to bring the latter into a condition in which they are susceptible to the action of disinfectants. (2) The disinfecting process in which material treated by the preliminary process is submitted to the action of a warm solution of formaldehyd in water, and again squeezed through rollers. Most of the spores are destroyed at this stage. (3) Drying, by which all the surviving spores are killed except in special circumstances. (4) Standing for a short time in order to insure the destruction of any spores which may, when exceptionally well protected, survive Stage 3. It is shown that the last two stages are largely in the nature of a safety factor. The experiments were carried out on a commercial scale, and the process causes no damage to the materials. Estimates were obtained of the cost of the necessary building and plant for the work, the committee being of opinion that the government should undertake it. The capital cost and equipment of a central station capable of disinfecting 10,000,000 pounds of wool annually would be \$90,000, and the working cost, including depreciation and sinking fund, would vary from 1 to 1.5 cents per pound of untreated material. These figures were computed at prewar prices. About 75 per cent. would need to be added to meet present-day conditions, and manufacturers consider this reasonable.

The Food Situation

The decline of the submarine peril and the consequent arrival of supplies from abroad in greater quantity, especially the arrival of large quantities of American bacon, have considerably eased the food situation. The Sailors' Union and kindred bodies have agreed to a reduction in the statutory food scale to meet the present emergency in regard to meat. They have agreed that the meat ration shall be reduced by 50 per cent., subject to certain substitutes, principally bacon being provided. The following provision has been made for the supply of extra rations to expectant and nursing mothers: Expectant mothers may receive, on application in due form to the local food office, an extra ration during the last three months of pregnancy. This may consist either of two meat coupons per week or one butter coupon per week. In districts in which a milk priority scheme has been found necessary, they may also obtain a priority permit for 1 pint of milk daily during the same period. Nursing mothers will not themselves receive an additional ration, but are entitled to use the rations obtainable for the infant, namely, the ordinary child's weekly ration of meat, butter or margarin, and sugar, and in districts in which priority schemes are in force a priority certificate for 1½ pints of milk daily.

The Manufacture of Drugs Formerly Made in Germany

Before the war we were solely or almost solely dependent on Germany for a large number of drugs, and on the outbreak of hostilities a great shortage arose. Under the stimulus of the war, many British firms began experimenting with such success that first one drug and then another has been produced in satisfactory quantities. Among the first drugs to be

manufactured were salicylic acid and its compounds, which were begun in 1915, and by the middle of 1916 were produced in sufficient quantities. Atropin sulphate was the next drug. Other drugs, previously wholly or mainly German, now produced in this country are: absolute alcohol, butyl-chloral hydrate, paraldehyd, lactic acid, homatropin, phenacetin, saccharin, salol, tribromophenol bismuth (xeroform), potassium permanganate, procain and arsphenamin. The last two drugs are claimed to be chemically identical with those produced in Germany. It is true that, as in the case of American-made arsphenamin and neo-arsphenamin, some cases of poisoning have occurred, and some authorities have expressed doubt as to the safety of the new preparations. However, they do not appear to be less safe than their predecessors, for it has been repeatedly proved that their German introducers and advocates both overrated the therapeutic properties of these drugs and underrated their possible dangers.

PARIS LETTER

PARIS, May 30, 1918.

Favorable Action of Venesection With Chest Wounds

Dr. G. Blechman called attention to the fact (Société médicale des hôpitaux de Paris) that in certain cases of chest wounds the blood pressure is very high, affecting particularly the maximal tension, and coincident with grave asphyxia. These were patients who, in consequence of a perforating wound of the lung, presented the ordinary complications of chest wounds, hemothorax, pneumothorax or, in some cases, signs of pulmonary edema. It seems paradoxical to bleed patients who are already enfeebled by a previous external or internal hemorrhage, but, nevertheless, in every case in which it was instituted, phlebotomy rapidly produced a favorable result. In one such patient, the withdrawal of 125 gm. of blood gave immediate relief, and within forty-eight hours the maximal blood pressure fell from 21 to 15. These observations likewise confirmed the value of systematic blood pressure examinations in the surgical ambulances.

Sorghum Sugar

The sugar shortage has increased the demand in Europe for finding an exotic plant which will relieve this condition. Professor Guignard has called attention to the fact that sugar can be obtained from sorghum (*Sorghum saccharatum*), originally a native of equatorial Africa, transplanted to Egypt and from there to India and China. In France, the Société d'acclimatation has been actively interested since 1850, but the sugar mills and sugar refineries of the North then were enjoying wonderful prosperity, and wine culture was such a great source of income to the people of southern France that they would not interest themselves in this new sugar plant. Now that the sugar refineries of the North have been destroyed, it will be to the interest of the farmers of the Midi to plant sorghum. The regions of the Mediterranean basin are well suited for this purpose, especially the lower valleys of the Rhône and Garonne, all of south and southeastern France, Corsica, Tunis, Algeria and Morocco (in the cold countries the plant will not mature).

Sown in May, the plant reaches maturity in October. M. Daniel Berthelot of the agricultural chemical analysis station at Meudon has on numerous occasions analyzed sorghum with reference to its saccharin content. The ordinary sugar or saccharose content increases steadily until October, when it is 14 per cent., comparing favorably with the sugar beet. At that time the taste of the pith is agreeable and frankly sweetish. Unfortunately, sorghum sugar cannot be crystallized like beet or cane sugar; this accounts for the meager commercial success of the plant. However, it is easy to extract a sweet juice from the stem by chopping it up fine and passing it through a domestic fruit press, using it as a syrup.

Activities of an Association During the War

The Association générale des médecins de France has not had a meeting since the beginning of the war, until recently. The secretary-general explained the activities of the council of the association, giving assurances of the usual functioning of the services of the association at this time of need, doing all in its power to conserve the interests of the mobilized colleagues. It rendered an account of the operations of the Caisse d'assistance médicale de guerre since its foundation. The subscriptions have amounted to 990,000 francs, of which more than 150,000 francs have been given to the physicians of the invaded territory and their families.

Classifying the Officers of the Service de Santé by Age and Dependents

The classification of physicians of the commissioned personnel of the army according to class, age and dependents was mentioned in a previous letter. It has now been decided that the number of children will be taken into account in classifying the officers of this service. For each living child one year will be taken off the classification; for instance, a member of the class of 1898 (40 years of age) who has three children will be placed in the class of 1895. Widowers with children will be allowed an additional year; that is, a widower member of the class of 1898 having three children will be placed in the class of 1894.

Personal

The Académie de médecine, May 28, elected to membership in the section of physiology, Prof. Jean-Paul Langlois; section of medicine, Prof. Charles Walthcr, president of the Société de chirurgie de Paris. Professor Brachet of Brussels was elected a corresponding member of the section on anatomy, succeeding the late Dr. Francotte. Dr. Fernand Bezançon was elected to membership in the section on medical pathology. Professor Pozzi, vice president of the Académie, Prof. Pierre Marie and Dr. Thibierge have been appointed members of the Commission supérieure consultative du Service de Santé militaire. Dr. Follet has been appointed director of l'Ecole de plein exercice de médecine et de pharmacie de Rennes. At the meeting of April 30, the Académie de médecine elected Dr. A. A. Souques a titular member of the medicopathologic section in Fournier's vacant place. Dr. Souques, médecin des hôpitaux de Paris, received fifty-three of the fifty-six votes cast.

Institution of Three Meatless Days

The reduction in the supply of frozen meat and the difficulties that surround the requisition of cattle necessary for provisioning the army have forced the minister of agriculture and the food commissioner to renew the restrictions that instituted the three meatless days. On and after May 15, until a date to be fixed later, the sale or placing on sale of fresh, frozen, salted, prepared or conserved meats is forbidden on Wednesday, Thursday and Friday of each week. It is also forbidden to serve meats or meat dishes in any form or with any proportion of meat on these days in hotels, restaurants, buffets, cafés, *cercles*, etc. Meats are defined as butcher's meats (beef, veal, mutton, goat), pork, sausages and tripe in every form; poultry, rabbits and game. However, these restrictions do not apply to horse meat, which may be sold on these meatless days, but only by the butchers who sell such meat exclusively.

Nor do these restrictions apply to the meats destined for the troops even in the zone of the interior. Nor does it apply to the canteens and refectories of the factories and industrial establishments whose clientele consists exclusively of working people, to places of instruction, or to the sick treated at home or in hospitals and sanatoriums for whom a meat diet is ordered. The directors of these establishments will make known each week to the mayor the number of consumers for whose needs they must provide so that the proper quantity of meat can be delivered to them during the meatless days. This quantity must not exceed 300 gm. per person per day. The food commissioner hopes that he will be able to furnish during these meatless days, in some measure, substitutes, such as dried legumes and *pâtes alimentaires* (spaghetti, macaroni, etc.).

Honor for Gen. Leonard Wood

On the occasion of the return to America of Major-General Wood, who was the first American to be wounded on the French front, the medical students of the Faculté de médecine of Paris sent him the following resolution: "The medical students of the Faculty of Paris and the special students in the course of parasitology, filled with admiration and regard for Major-Gen. Leonard Wood, doctor of medicine, by reason of the fortunate initiative taken by him at Havana in the fight against yellow fever and of the salutary measure which he ordered taken, thanks to which this formidable scourge was completely suppressed, salute him as one of the most eminent promoters of modern hygiene and as a benefactor of humanity. They acclaim in his person the American army which has come to France to defend the right and civilization, and they hope for the speedy cure of the glorious wound which he received on the French front."

Deaths

Gwilym George Davis, Philadelphia; University of Pennsylvania, Philadelphia, 1879; aged 60; M. R. C. S. (Eng.), 1880; a Fellow of the American Medical Association; American Surgical Association, College of Physicians of Philadelphia, and American Academy of Medicine; a member of the American Orthopedic Association; associate professor of applied anatomy in his alma mater from 1900 to 1911, and professor of orthopedic surgery from 1911 to the time of his death; orthopedic surgeon to the Philadelphia General Hospital from 1902; surgeon to the Orthopedic, St. Joseph's, Episcopal and German hospitals; chief surgeon of the Widener School for Crippled Children; chairman of the executive committee of the North American Children's Sanitarium, Ventnor; died at his camp in Kineo, Me., June 16, from pneumonia.

Alexander François Liautard, Bois Jerome, France, formerly of New York City; New York University, New York City, 1865; aged 83; one of the pioneers of veterinary medicine in America; founder of the first veterinary college in the United States, and formerly dean of the New York College of Veterinary Surgery; one of the organizers and for many years president of the New York Veterinary Association; honorary fellow of the Royal College of Veterinary Surgeons, England, and corresponding member of the Central Veterinary Society of Paris; died at his home, April 20.

Joseph Cyrus Stedman, Jamaica Plain, Boston; New York University, New York City, 1890; aged 51; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; for several years surgeon to Faulkner Hospital, Jamaica Plain; formerly first lieutenant and assistant surgeon, First Regiment Heavy Artillery, Mass. V. M.; who had been in the South all winter on account of failing health; died in Johns Hopkins Hospital, Baltimore, June 14, from heart disease.

Frank Chase Richardson, Boston; Boston University, 1879; Hahnemann Medical College, Philadelphia, 1880; aged 58; registrar and professor of clinical neurology and electrotherapeutics in his alma mater; neurologist to the Massachusetts Homeopathic Hospital, and clinical director of the Evans Memorial Department of Clinical Research and Preventive Medicine; died at the summer home of Dr. Nathaniel Emerson, Duxbury, Mass., from neuritis, June 20.

M. Osborne Christian, Irvington, N. J.; Howard University, Washington, D. C., 1878; aged 69; for several years a member and more recently president of the board of trustees of Irvington, and for several terms a member of the board of freeholders; for many years an employee of the Geological Survey Bureau, Washington; died at the home of his daughter in South Orange, N. J., June 15, from cerebral hemorrhage.

Charles C. Allison, Omaha; Kentucky School of Medicine, Louisville, 1888; aged 52; a Fellow of the American Medical Association; professor of principles, and practice of surgery and clinical surgery in the John A. Creighton Medical College, Omaha; chief surgeon of St. Joseph's, Wise, Presbyterian and St. Catherine's hospitals; died at his home, June 19, from asthma.

Floyd Willis Lockwood, South Lyon, Mich.; Detroit College of Medicine and Surgery, 1909; aged 32; at one time a Fellow of the American Medical Association; a member of the Michigan State Medical Society; died at his home, June 15, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent.

Fayette Watt Birtch, San Francisco; Cooper Medical College, San Francisco, 1907; aged 41; a Fellow of the American Medical Association; professor of surgery in the University of California; resident physician in St. Luke's Hospital, San Francisco; died in San Jose, June 14, from disease of the throat.

Daniel Joseph Finegan, Gloucester, Mass.; Tufts College Medical School, Boston, 1902; aged 49; a Fellow of the American Medical Association; formerly medical examiner (coroner) of Essex County, and city physician of Gloucester; died in the City Hospital, Gloucester, June 15, from heart disease.

John T. Milnamow, Chicago; Northwestern University Medical School, 1882; aged 63; a Fellow of the American Medical Association; attending physician at St. Anne's Sanitarium and Hospital, Chicago, and president of the attending staff; died at his home, April 22, from anemia.

John W. Dean, Maryville, Wis.; Rush Medical College, 1863; Jefferson Medical College 1864; aged 76; a member of the State Medical Society of Wisconsin; a well known breeder of fine cattle; died at the home of his daughter in Plattsmouth, Neb., June 12, from heart disease.

Charles Conely Hendrick, New York City; Bellevue Hospital Medical College, 1894; aged 55; formerly medical health inspector of Hudson County, N. J., and acting assistant surgeon, U. S. Army; also an attorney; died suddenly in Dunellen, N. J., June 26, from heart disease.

John Moroney, Auburn, N. Y.; Long Island College Hospital, Brooklyn, 1874; aged 66; a Fellow of the American Medical Association, and a specialist in diseases of the eye, ear, nose and throat; died at his home, May 23, from carcinoma of the pancreas.

Lieut. William Edward Emery, M. R. C., U. S. Army, Bangor, Me.; Dartmouth Medical School, Hanover, N. H., 1914; aged 28; a Fellow of the American Medical Association; on duty at Fort Oglethorpe, Ga.; died at that post, June 11, from meningitis.

James L. Smith, Selmer, Tenn.; Memphis (Tenn.) Hospital Medical College, 1888; aged 68; at one time a member of the Tennessee State Medical Association; for more than forty years a practitioner of McNairy County; died at his home, June 12.

William T. Maffit, Chicago; Jenner Medical College, Chicago, 1903; aged 52; a member of the Illinois State Medical Society, and a member of the staff of St. Mary of Nazareth Hospital; died at his home, June 22, from pneumonia.

William Abbott Nason, Algonquin, Ill.; Northwestern University Medical School, 1866; aged 77; a Fellow of the American Medical Association and Fox River Valley Medical Association; died at his home, June 10, from senile debility.

Joseph Longworth Nichols, Saranac Lake, N. Y.; Johns Hopkins University, Baltimore, 1897; aged 42; who went to Saranac Lake on account of his health about twenty years ago; died at his home, June 18, from tuberculosis.

Amy C. Belot Monti, Hollis, Kan.; Kansas Medical College, Topeka, 1911; aged 38; at one time a member of the Kansas Medical Society; died in Phoenix, Ariz., April 27, from septicemia, following an infection of the finger.

Henry Abbott Winter, Saybrook, Ill.; Rush Medical College, 1873; aged 74; a Fellow of the American Medical Association; a veteran of the Civil War, and a practitioner for fifty-two years; died at his home, May 21.

George W. Stranahan, St. Joseph, Mo.; Northwestern Medical College, St. Joseph, Mo., 1892; Chicago Homeopathic Medical College, 1895; aged 62; died in a sanatorium in St. Joseph, June 12, from cerebral hemorrhage.

Julius Christian Voje, San Francisco; Cooper Medical College, San Francisco, 1894; aged 59; at one time a member of the Medical Society of the State of California; died at his home, June 18, from cerebral hemorrhage.

John W. Clark, Fristoe, Mo.; St. Louis College of Physicians and Surgeons, 1892; aged 55; a member of the Missouri State Medical Association; fell dead in his store in Fristoe, April 20, from cerebral hemorrhage.

William Lewis Schoales, St. Clair, Mich.; University of Michigan, Ann Arbor, 1878; aged 64; a Fellow of the American Medical Association; died at his home, May 28, from acute dilatation of the heart.

John Senn, Williamsport, Pa.; College of Physicians and Surgeons, Homeopathic, Buffalo, 1882; aged 71; a Fellow of the American Medical Association; since 1872 a clergyman; died at his home, June 17.

Granville Bell Harvey, Elkins, W. Va.; University of Maryland, Baltimore, 1877; aged 69; for several years a practitioner and druggist of Philippi; died in the Davis Memorial Hospital, Elkins, June 15.

James R. Holgate, Wyoming, Ill.; Rush Medical College, 1869; aged 77; at one time a member of the Illinois State Medical Society; died in a sanatorium in Kansas City, June 16, from pneumonia.

John Howard Bowser, Syracuse, Ind.; Medical College of Indiana, Indianapolis, 1885; aged 58; a member of the Indiana State Medical Association; died at his home, June 17, from angina pectoris.

John C. McCullough, McMechen, W. Va.; Medical College of Ohio, Cincinnati, 1881; aged 69; health officer of McMechen; died at his home, June 20, from pneumonia.

Robert Simpson, Philadelphia; University of Pennsylvania, Philadelphia, 1874; aged 75; a veteran of the Civil War, in which he served both in the Army and Navy; died at his home, June 18.

Albert Edson Stafford, Whitesboro, N. Y.; Syracuse (N. Y.) University, 1901; aged 41; a Fellow of the American Medical Association and health officer of Oneida County; died at his home, recently.

William T. McAvoy, Brooklyn; Bennett Medical College, Chicago, 1913; aged 37; formerly a member of the staff of the Swedish Hospital, Brooklyn; died at his home, June 21.

S. M. Matthews, Moultrie, Ga.; Hospital College of Medicine, Louisville, Ky., 1883; aged 84; died at the home of his daughter in Berlin, Ga., May 22, from senile debility.

Porter Harman Carpenter, Los Angeles and Monrovia, Calif.; State University of Iowa, Iowa City, 1910; aged 39; died in Los Angeles, May 25, from tuberculosis.

Jonathan R. Downing, Yorktown, Ind.; Medical College of Indiana, Indianapolis, 1878; aged 73; a veteran of the Civil War; died at his home, June 21, from dropsy.

James S. Owens, Los Angeles, and Ocean Park, Calif.; Hahnemann Medical College, Chicago, 1870; aged 62; formerly of Chicago; died at his home, June 16.

Peter Conroy, Charlottetown, P. E. I.; Laval University, Montreal and Quebec, 1878; aged 63; died at his home in March from pneumonia.

Joseph Brown Wheatley, Greensburg, Ind.; aged 84; who retired from practice many years ago; died at his home, May 17, from senile debility.

George C. Gilmer, Big Stone Gap, Va.; Medical College of Virginia, Richmond, 1873; aged 72; died at his home, June 13.

Albert E. Gesler, Saranac, Mich.; Pulte Medical College, Cincinnati, 1877; aged 68; died at his home, June 15.

Marriages

MAJOR JOHN BURR PIGGOTT, M. R. C., U. S. Army, Washington, D. C., on duty at Fort Oglethorpe, Ga., to Miss Alice Francis Bell of New York City, at Fort Oglethorpe, June 18.

LIEUT. LOUIS JAY GOLDBLATT, M. R. C., U. S. Army, McKeesport, Pa., on duty at Hospital, Port Newark Terminal, Newark, N. J., to Miss Charlotte Roslyn Fagin of Philadelphia, June 16.

LIEUT. STUART HOWARD BOWMAN, M. R. C., U. S. Army, Maquoketa, Iowa, on duty at Camp Meade, Md., to Miss Bess C. Moses of Albany, N. Y., at Washington, D. C., recently.

LIEUT. LOUIS DWIGHT BARNES, M. R. C., U. S. Army, Lanesboro, Mass., on duty at Camp Wadsworth, Spartanburg, S. C., to Miss Mildred Wilberta Pruden, at Lanesboro, June 19.

JOSEPH HANNOLD McELHINNEY, Palm City, Calif., to Mrs. Ellen M. Healy of Greenwich, Ohio, at San Bernardino, Calif., June 11.

LIEUT. ARTHUR MERRILL SHAEFFER, M. R. C., U. S. Army, Lancaster, Ohio, to Miss Anna Lou Hyde of Columbus, Ohio, June 27.

CAPT. WYNAND VAN KORLAAR PYLE, M. R. C., U. S. Army, Detroit, to Miss Helene Aldworth of Grand Rapids, Mich., June 22.

LIEUT. REED ALBERT SHANK, M. R. C., U. S. Army, Cincinnati, to Miss Melda Hatfield of Welch, W. Va., September 4.

LIEUT. JOHN HESS FOSTER, M. R. C., U. S. Army, Boston, to Miss Helen Odiorne Thomas of Farmington, Me., June 21.

P. A. SURG. CHARLES JOSEPH HOLMAN, U. S. Navy, to Mrs. Priscilla Maddox Meyer, at Roland Park, Baltimore, June 19.

CLAUDE LORRAINE LARUE, Boulder, Colo., to Miss Ursie Bollinger of Shreveport, La., at Denver, June 11.

WILLIAM TODD FERNEYHOUGH, Carlin, N. J., to Miss Rena Crumm of Arlington, Md., at Baltimore, June 19.

SURG. BENJAMIN W. BROWN, U. S. P. H. S., to Mrs. Lizzie Faison Lanbeth, at Charlotte, N. C., May 15.

LIEUT. JOHN B. FARRION, U. S. N. R. F., Portland, Ore., to Miss Marie Boylston of Chicago, recently.

CLYDE HITESHUE CABLE to Miss Bernice Rowe, both of Cleveland, at Canton, Ohio, recently.

CLAYTON GRUBE STADFIELD to Miss Anna Meda Sprotte, both of Los Angeles, June 12.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

HENRY SMITH WILLIAMS AND "PROTEAL THERAPY"

To the Editor:—Will you please advise as to the success and safety in using the Proteal treatment for tuberculosis by Henry Smith Williams, M.D., LL.D., 104 East 40th Street, New York?

C. P. BURCHARD, Alamogordo, N. M.

To the Editor:—Kindly send me any available information on "The Proteal Treatment for Cancer." An article by Dr. Henry Smith Williams, 120 West 32 Street, New York City, in April *Hearst's* has caused relatives to request its use in a case of carcinoma of the liver under my care.

M. M. REPPARD, Middlebourne, W. Va.

To the Editor:—I am enclosing a leaflet, mailed to me on request, by Dr. Henry Smith Williams of New York City, who published a series of articles during the last year in *Hearst's Magazine* on "Proteal Therapy." If you have investigated this man and his proteal treatment, I should like to know the result of your findings. I am a consumptive and am, therefore, particularly interested in its alleged benefactions for the treatment of tuberculosis.

MICHAEL A. LONG, Glen Lake Sanitarium, Hopkins, Minn.

To the Editor:—What information can you give me regarding Henry Smith Williams, M.D., LL.D., 104 East Fortieth street, New York, and the therapeutic value of the "Proteal Therapy" that he has originated?

M. D. BAKER, M.D., San Jose, Calif.

The above letters are selected from many received on the subject. Henry Smith Williams is better known in the journalistic world than in the field of scientific medicine. He was graduated by the Chicago Medical College in 1884. In the thirteen issues of medical directories of the United States that have been published during the past thirty years Dr. Williams' name does not appear—except for the issues of 1890 and 1893—until the 1914 edition. So far as we have been able to find, Dr. Williams had not until 1915 contributed any articles to medical journals. The catalog of the Surgeon-General's Library contains no reference to any articles of Dr. Williams except those that have appeared in popular magazines. The volumes of the *Index Medicus* from 1907 until 1914, inclusive, also contain no references to any articles by him in medical journals. THE JOURNAL's author-index to current medical literature from 1900 until 1914, inclusive, fails to record any articles by Dr. Williams in medical journals. Dr. Williams' articles, however, in popular magazines have been voluminous and numerous. Sometimes his articles have been under his own name and sometimes under the *nom de plume*, "Stoddard Goodhue, M.D." Under the latter name the *Cosmopolitan* published articles on "Adding Years to Your Life," "Battle of the Microbes," "Do You Choose Your Children?" and "What is the Matter With Your Brain?" Under his own name articles have appeared in popular magazines on such subjects as "Burbank's Way With Flowers," "Every Woman Her Own Burbank," "Why Not Live Forever?" "Science of Breeding Kings," "New Cancer Treatment," "New Hope for Rheumatism Sufferers," etc. In addition, Dr. Williams has published books on such subjects as "History of the Art of Writing," "Historians' History of the World," "Story of Nineteenth Century Science," "Luther Burbank," "Twilight Sleep" and others. The Goodhue Company of New York City, which publishes some of Dr. Williams' books has, we understand, for its president, Dr. Henry Smith Williams, for its vice president, Dr. William's wife and for its secretary-treasurer, Dr. Williams' daughter.

Readers of THE JOURNAL will remember the publicity given in 1915 and 1916 to an alleged treatment for cancer, sometimes called the "Horowitz-Beebe Autolysin Treatment." The method was heralded widely both in a certain portion of the medical press and in popular magazines and newspapers. A popular article by Henry Smith Williams on "The New Cancer Treatment" appeared in the *Illustrated World* for October, 1915, with pictures of Dr. Horowitz, Dr. Beebe, etc. A month or two later physicians received, gratis, from the

Goodhue Company a neatly bound little book on "Alcohol Hygiene and Legislation," by E. H. Williams, M.D. (brother of Henry Smith Williams). Enclosed with it was a letter from the Goodhue Company asking physicians to accept the book. The body of the letter was devoted to calling the attention of physicians to an "important work" by Dr. Henry Smith Williams on "The Autolysin Treatment of Cancer" that the Goodhue Company was publishing. With the letter, there was a small advertising pamphlet "Issued by the Autolysin Laboratory" and advertising that product. In addition, the last thirteen pages of the book on "Alcohol Hygiene" contained advertisements of the Goodhue Company's publications with particular emphasis (four pages of it) on the "Autolysin Treatment of Cancer," by Henry Smith Williams.

In May, 1917, physicians in the West received a letter from the "Ellison-White Chautauqua System" informing them that Dr. Henry Smith Williams was to lecture at "your Chautauqua" and reminding them that "he has recently issued two volumes, 'The Autolysin Treatment of Cancer' which he believes will be his greatest contribution to medical science." The present "Proteal" treatment appears to be a modification of the "Autolysin" treatment. Dr Williams, in attempting to justify the use of his "Proteal" in tuberculosis, cancer, rheumatism, etc., takes advantage of certain investigations bearing on the nonspecific reactions resulting from the parenteral injection of foreign proteins. So far as we can discover, there is no scientific evidence to indicate that the "Proteal" treatment expounded by Williams is of value in the treatment of cancer, tuberculosis or the other numerous diseases for which the "Proteals" are recommended.

It is a question whether such articles as those on "The Proteal Treatment of Cancer," "New Hope for Rheumatism Sufferers," etc., published in popular magazines or newspapers serve any useful public purpose. May they not, on the contrary, by raising false hopes, cause much mental suffering and do scientific medicine great harm?

OPHTHALMOL-LINDEMANN

Report of the Council on Pharmacy and Chemistry

Ophthalmol-Lindemann was taken up for consideration by the Council because of inquiries received. The following report, declaring Ophthalmol inadmissible to New and Non-official Remedies, was adopted by the Council and its publication authorized.

W. A. PUCKNER, Secretary.

Ophthalmol-Lindemann (Innis, Speiden and Co., New York) is advertised as a treatment for eye diseases by "hyperemia." The circular advertising the product is written somewhat in the style of "patent medicine" advertisements. It contains testimonials of dubious value. The principle underlying the use of Ophthalmol is that employed to a considerable extent by ophthalmologists, through the use of ethylmorphin ("dionin"), etc., viz., the production of conjunctival irritation in inflammatory eye diseases. Ophthalmol is, therefore, merely a special agent for the production of such ophthalmic irritation.

The advertising circular contains no evidence that Ophthalmol is in any respect superior to the established agents for producing conjunctival hyperemia. On the other hand, there are obvious objections to the use in the eye of a substance of unknown and apparently indefinite composition and uncertain activity. Ophthalmol is said to be an oily solution of "glandular extract of the fish *Cobitis Fossilis*." *Cobitis fossilis* is a small fish said to be common in Germany. According to Kochs, who analyzed Ophthalmol (*Arb. a. d. Pharm. Inst. d. Univ. Berl.*, 1907, 4, 140), this fish is popularly believed to predict weather, but medical virtues are not ascribed to it. This "fishy" extract is indefinite, to say the least.

The activity of the preparation is described by the manufacturer thus: "It seems probable that the typical action of Ophthalmol is due to certain organic acids which may have formed during manufacture through the decomposition of protein bodies contained in the crude material." The profession is not told whether this important decomposition is,

or, in fact, can be controlled so as to produce a material of uniform activity.

Kochs concluded from his analysis that Ophthalmol had the properties of rancid olive oil containing about 6 to 7 per cent. mineral oil. The oil contained no nitrogen, left no ash on ignition and though traces of iodine were claimed to be present, no iodine could be found.

It is recommended that Ophthalmol be rejected first, because the use in the eye of an irritant of secret composition and uncertain activity is unscientific and against the interest of public health; second, because Ophthalmol is of secret composition (the composition claimed being practically meaningless), and, third, because no evidence has been submitted to substantiate its claimed superiority over established methods of treatment. The Council declared Ophthalmol inadmissible to New and Nonofficial Remedies.

Correspondence

PARAFFIN PAPER FOR SURGICAL DRESSINGS

To the Editor:—Comment on the article on paraffin paper for surgical dressings by Dr. Charles M. Harpster, Toledo, Ohio, in THE JOURNAL for June 8: I tried this method of dressing wounds in 1908 and discarded it because of the imperforate character and allowing poor drainage. I found, however, that if this wax paper was perforated every quarter of an inch with a No. 4 eyelet punch (which can be bought very cheap in any hardware store and some twenty thicknesses of paper can be perforated at one punch) it served the purpose admirably. I reported my experience at the meeting of the American Association of Railway Surgeons in October, 1910. This perforated paper has been used very extensively in the Youngstown Hospital and is a cheap and durable dressing. It allows ample drainage and ample protection to granulation and is not removed from the wound until the wound is healed, unless it becomes loosened.

I began using it only for burns, but during all of these years we have used it on all kinds of granulated wounds.

I trust that this may add a little more to our war methods.

C. C. BOOTH, M.D., Youngstown, Ohio.

A PLEA FOR THE GENERAL ADOPTION OF A PLAN OF HOSPITAL ORGANIZATION THAT WILL RELEASE COMPETENT PHYSICIANS FOR ARMY SERVICE

To the Editor:—The United States is now in the war. The nation is getting its stride. The changes and readjustments that are required for the effective conduct of the war are difficult, and are becoming more difficult every day, but they are never impossible. Of necessity, the business of the country has been reorganized; the same imperious necessity calls for the reorganization of the civil hospitals.

Up to the present time, the enrolment of medical men has kept pace with the Army's growth. But a million Americans have now taken their place in the fighting line; ships are available for the rapid transportation of a second million; a third million is streaming into the training camps, and more doctors are needed. The hospitals of the country must help to furnish them—they can if they will.

By undertaking to retain in its service only the actual number of men required to care for its patients, the hospitals can at once release a large number of physicians for Army service. *Every hospital that has not already done so should at once place its staff on a war footing by abolishing the rotating service.*

What is the rotating service? It is a plan of organization which requires or permits two, three, four, or even six men, each serving six, four, three, or perhaps only two months, annually, to hold down one man's job. There may be reasons of educational policy which justify a rotating service in ordinary times; today any such plan is contrary to the national

interest and is self-condemned. In this crisis no plan of organization is admissible which does not release every competent physician who can be spared for military duty. No man should be permitted to excuse himself from entering the Medical Reserve Corps on the plea that a hospital needs him, unless his presence in that hospital is indispensable—not two, three, or four months in the year, but all year.

For the period of the war the rotating service must go. The continuous service plan is the only patriotic plan of hospital organization at this time. *One job, one man!* It is the duty of hospital authorities to adopt this plan now, and to make it plain to the men who are thus released from hospital service for the period of the war, that the purpose of their release is to make it easier for them to decide where the path of duty lies.

S. S. GOLDWATER, M.D., New York.

Chairman, War Service Committee, American Hospital Association.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MILITARY ELIGIBILITY OF THOSE BLIND IN ONE EYE

To the Editor:—1. If a physician has an artificial eye, is he in your opinion eligible for the Medical Reserve Corps?

2. Could one so afflicted be used in any branch of the service?

R. W. CHAPMAN, M.D., Newark, N. J.

ANSWER.—1. A physician with only one eye is not eligible for a commission in the Medical Reserve Corps of the Army.

2. According to the new standards of physical examination governing the entrance to all branches of the Army: Those with blindness in one eye, with normal vision in the other eye without glasses, may be accepted for special or limited military service. As to just what this service would involve, we cannot state.

YOHIMBIN—ELECTRARGOL

To the Editor:—Please tell me the present opinion concerning: (1) yohimbin as an aphrodisiac, and (2) electrargol in infections, rheumatism in particular, both acute and chronic. Please omit my name.

X. Y. Z.

ANSWER.—1. During recent years very little has been written regarding the use of yohimbin as an aphrodisiac. We believe that the use of the drug has been generally abandoned.

2. Electrargol is a colloidal suspension (commonly called colloidal solution) of silver (see New and Nonofficial Remedies, 1918, p. 367). Little or nothing has been published recently concerning the use of colloidal silver preparations in the treatment of rheumatism. We believe that in general its use has been abandoned, despite the occasional favorable reports which were published some years ago. We give below a list of references to literature on these subjects:

Gardner, H. T.: Notes on Yohimbine, *Pharm. Jour.*, 1909, 28, 184.

Williamson, J. R.: Yohimbine as an Aphrodisiac, *New York Med. Jour.*, 1901, 74, 709.

Denman, R.: Electrargol in Smallpox and Plague, *Brit. Med. Jour.*, June 6, 1914.

Denman, R.: Electrargol in Smallpox, *Brit. Med. Jour.*, Oct. 11, 1913.

ABSORPTION OF NICOTIN BY COTTON

To the Editor:—In your opinion, does absorbent cotton placed in a cigar holder prevent the passing of nicotine to the smoker?

ALFRED LABINE, M.D., Houghton, Mich.

ANSWER.—Yes.

MARIHUANA, SYNONYM FOR CANNABIS INDICA

To the Editor:—Please publish information as to what maruhwana (or marajuana) is, and its effects. What relation does it bear to cannabis indica?

H. W. YEMANS, Major, M. R. C.

ANSWER.—We can find no reference to "maruhwana" or "marajuana" in available works dealing with drugs. According to Squire's "Companion to the British Pharmacopeia" (Edition 19, 1916) marihuana is a synonym in the Mexican Pharmacopeia for cannabis indica. The same name is also mentioned as a synonym for cannabis indica in "Plant Names," by A. B. Lyons (Edition 2, 1907).

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALABAMA: Montgomery, July 9. Chairman, Dr. S. W. Welch, State Capitol, Montgomery.

CONNECTICUT: New Haven, July 9-10. Sec. Regular Bd., Dr. Chas. A. Tuttle, 196 York St., New Haven; Sec. Eclectic Bd., Dr. J. E. Hair, 728 State St., Bridgeport; Sec. Homeo. Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, July 9-11. Sec., Dr. E. P. Copeland, The Rockingham, Washington.

MASSACHUSETTS: Boston, July 9-11. Sec., Dr. W. P. Bowers, Rm. 501-1 Beacon St., Boston.

OKLAHOMA: Oklahoma City, July 9-10. Sec., Dr. J. J. Williams, Weatherford, Okla.

PENNSYLVANIA: Philadelphia and Pittsburgh, July 9-13. Sec., Mr. N. C. Schaeffer, State Capitol, Harrisburg.

RHODE ISLAND: Providence, July 11. Sec., Dr. B. U. Richards, State House, Providence.

SOUTH DAKOTA: Deadwood, July 9. Sec., Dr. P. B. Jenkins, Waubay.

WEST VIRGINIA: Wheeling, July 9. Health Com., Dr. S. L. Jepson, Masonic Bldg., Charleston.

Colorado April Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, April 2, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 12 candidates examined, 8, including 3 osteopaths, passed, and 4, including 2 osteopaths, failed. One candidate, an osteopath, was caught cheating. One candidate was refused a license, 1 candidate refused to appear before the board, 1 candidate failed to appear before the board and 1 candidate withdrew his application. Ten candidates were licensed on credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado	(1916)	85.4
Tulane University	(1908)	*
Kansas City College of Medicine and Surgery	(1917)	77.2
Washington University	(1906)	*
University of Cincinnati	(1912)	75.3
FAILED			
Baltimore University	(1897)	68.2
Eclectic Medical Institute	(1908)	38.6
* No grade given.			
College	LICENSED ON CREDENTIALS	Year Grad.	Total No. Licensed
University of Arkansas	(1901)	1
Columbian University	(1897)	1
Northwestern University	(1902)	1
Rush Medical College	(1916)	1
Tufts College Medical School	(1912)	1
Michigan College of Med. and Surg.	(1904)	1
Washington University	(1906)	1
University of Nebraska	(1916)	1
University of Oklahoma	(1913)	1
Vanderbilt University	(1886)	1

Idaho April Examination

Dr. Ray H. Fisher, secretary of the Idaho State Board of Medical Examiners, reports the written examination held at Pocatello, April 2-3, 1918. The examination covered 11 subjects and included 110 questions. An average of 75 per cent. was required to pass. Five candidates were examined, all of whom passed. Eight candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado	(1911)	85
Rush Medical College	(1897)	75
College of Physicians and Surgeons, Keokuk	(1893)	75
Lincoln Medical College	(1904)	75
Columbia University	(1918)	83
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Denver College of Medicine	(1894)	Colorado
Rush Medical College	(1891)	Oregon
University of Kansas	(1912)	Oregon
Kentucky School of Medicine of Louisville	(1906)	Washington
St. Louis University	(1905)	Washington
Willamette University	(1907)	Oregon
Hahnemann Med. Col. and Hosp. of Philadelphia	(1903)	Washington
Jefferson Medical College	(1908)	Utah

Book Notices

THE PSYCHOLOGY OF CONVICTION. A Study of Beliefs and Attitudes. By Joseph Jastrow, Professor of Psychology in the University of Wisconsin. Cloth. Price, \$2.50 net. Pp. 387. Boston: Houghton, Mifflin Company, 1918.

This book contains essays contributed by the author to various publications during the past year, as well as others especially prepared for this volume, the whole forming a coherent series. The psychology is pragmatic; the problems discussed are those of the everyday life of the moment. It is a demonstration of clear thought applied to the beliefs of the public. The author displays an intensive knowledge of medical science, and information such as is demonstrated by few of the collegians who specialize in the related sciences.

The present volume is an analysis of the credulity and opinion of the public. It is important as defining the growth of that public opinion, which it analyzes as "outgrown beliefs which still linger in strange persistence, popular beliefs in conflict with expert conclusion and the varied range of controversy in which protagonists contend for opposite verdicts upon much the same though differently selected evidence." Relative to the motives for the war the author says:

The world war has shaken convictions and made necessary an examination of foundations, and a fundamental inquiry into the basis of those values that keep endeavor keen and civilization alive. In such times we learn to cherish with an increasing fervor the convictions that sustain our national and our individual being. The shock to men's minds has been as serious as to their senses. That German minds could think as they do seems even more amazing than that German hands should be so infamously polluted with crime. The assault upon reason has been as savage and as deadly as the violation of law, of morality, of decency, of honor, of humanity. The intellectual violation is the more responsible, since by its nature it emanates from the trained leaders, those by calling competent and vowed to the defense of the value of right thinking.

In considering the line of thought to be followed by the public mind during the war, Professor Jastrow makes this comment relative to the attitude of the antivivisectionists toward the Red Cross:

War time demands that minor differences of opinion be set aside in favor of an indispensable unity of action; and by the same token it demands that no portion of the community be estranged from the common cause by a hostile attitude toward tenets and principles which in time of peace have contributed to the moral capitalization of the nation. Still more bindingly the same obligation rests upon advocates of views (in whatever field of opinion) which the majority regard as false and dangerous, but which under ordinary conditions are accorded a tolerant hearing, though equally a vigorous protest under approved principles of controversy. A flagrant violation of this tolerance appears in the suit instigated by the antivivisectionists against the Red Cross organization to prevent the use of funds in the interests of medical research; and by that means, to mitigate the sufferings and save the lives of the victims of war. To push a private prejudice against a public interest at this time and in this manner is an ignorant, obstinate, and malicious attack, inhumane and unpatriotic even though sincere; it is a tragic demonstration of the menace that lies in unreason. Though exceptional, the instance should be used to strengthen the forces of reason and loyalty.

The first chapter is on the subject of the work, the psychology of conviction, introducing the method of study and the basic principles underlying the human belief and credulity which are most closely considered in the second chapter. In this chapter the author analyzes the developments of various medical beliefs, as, for example, homeopathy. His study pends largely on the essay of Dr. Oliver Wendell Holmes, "Homeopathy and Its Kindred Delusions." Numerous cases are cited as to the enormous credulity of the too easily convinced public. It is here that the author first considers the inconsistency of Christian Science:

To complete the collection of types of credulity, we should have an instance in which a system of interpretation of facts—not a mere narrative—in itself startling and contradictory to ordinary experience, gains widespread credence, and that in spite of pronounced inconsistency with verifiable observation and common sense. These conditions are remarkably well satisfied by the recent promulgation of the doctrines of Christian Science. Even in this field of intellectual effort, the land of the free and the home of the brave has contributed an article worthy to compete with the foreign product. Eagle-like, this system spreads its wings and soars free from the bonds of sense or earth-bound realities, free from human logic and the errors of mortal mind, free from the material impediments which nature has inconsiderately set in our paths, free to make things so by thinking them so, free to set method and learning and experience at naught. And surely it calls for courage of

no common order to resist the seductive appeals of eye and ear, to sail steadily on heedless of the calls of sirens of rationality, convinced at the outset that things cannot be as they are, and refusing the nod of recognition to the plebeian idols of the ills of flesh. It is not necessary in this connection to recount the beliefs of this system; it is sufficient to point out that when thousands of intelligent persons give practical adherence to, and enroll themselves under the banner of one who teaches that a union would be an adequate cause of insanity, if only we held the same belief about the union as we do about congestion of the brain; that smallpox is contagious by reason of the same agencies as make weeping or yawning contagious; that fear may be reflected in the body as fractured bones, just as shame is seen rising to the cheek; that anatomy and physiology and hygiene are the husbandmen of sickness and disease, while the reading of a textbook of Christian Science is equally effective in producing health; that when a healthy horse takes cold without his blanket, it is on account of the poor creature's knowledge of physiology—then such persons can hardly complain if they are cited as instances of modern credulity.

The supernatural is the chief subject of the third chapter, and in the fourth the author discusses especially the well known case of Eusapia Palladino. In the fifth chapter he considers the antecedents of the study of character and temperament, bringing in here the development of the humoral theory and growth of phrenology and of so-called physiognomonic science. The sixth chapter concerns fact and fable in animal psychology and the training of alleged educated animals, discussing particularly the famous Berlin horse "Kluge Hans" and "Jim Key," another equine sage. The seventh chapter, one of the most important for physicians, concerns "malicious animal magnetism," M. A. M., the antithesis, if one might hazard a wheeze, to A. M. A. This is a complete study of the growth of Christian Science, from the theories of Mesmer, through Dr. Quimby, to Mary Eddy and her disciples. One of the particular statements in this instance is:

The loyal Christian Scientist may tolerate or cherish large reserved areas of belief in which an alien logic rules; he is, however, careful to draw the boundaries between these areas and the practical field of operation of his business affairs. He is hardly likely to treat in the same manner a Christian Science statement and a bank statement; nor will he assemble a company and ask their aid toward increasing his balance in the bank by throwing forth intense mental vibrations, or have a fear that his balance will be endangered by the malicious mental concentration of his rivals; he is not likely to believe that fluctuations of stocks can be brought about by "absent treatment" on the part of "metaphysical" bulls and bears.

The eighth chapter concerns the democratic suspicion of education, the title itself being explanatory. The ninth chapter discusses the psychology of indulgence, referring particularly to the use of alcohol and tobacco, and incidentally taking up antivaccination and antivivisection. A few quotations give an insight into the value of such pragmatic psychology:

A comprehensive antipathy to alcohol and tobacco is expressed in the verdict that places them in the index expurgatorium of drugs, and speaks of the indulgence in their use, however moderate or occasional, as a drug habit. It allies them with cocaine, morphin, opium, and similar psychic poisons, and once reaching the term "poison" has seemingly proved its case. This is certainly a striking example of the danger inherent in assuming an intolerant attitude toward a practice admittedly open to serious danger in its abuse; it also illustrates that such danger is not theoretical but woefully real in the American situation and temperament. In this aspect it is akin to the similarly expressed extreme antagonism to the use of drugs in any form, for any purpose. The exponents of drugless healing illustrate the menace of conviction when it is indiscriminating in its premises and uncompromising in its conclusions. It is wrong—the argument goes—to administer drugs; for drugs are unnatural, and many of them are poisons. Cults, such as Christian Science and Dowie's Zionism, are inspired by such argument; and the appeal is ever to the obvious examples of excess, the victims of drug habits that obsess and possess them to their undoing. Let children die through neglect of available treatment; let the pangs of disease and the tortures of injured tissues bring suffering to the full; let pestilence spread; but let us adjure drugs at whatever cost!

It is, indeed, pertinent to observe that vivisection, vaccination, and the use of stimulants are essentially medical questions. This does not mean that physicians alone have the right to an opinion on the matter; it does mean that the same methods of scientific study must be applied to them as to all other problems in which the popular judgment must defer to the expert. Of the three, the vaccination question is clearly the most technical, the one in which a positive lay conviction in opposition to an established medical conclusion is most impertinent. Yet in this issue the method of prejudice loses none of its violence, is no more considerate of fact, than in more legitimately controversial matters, in which the nice adjustment of individual liberty and social welfare require a fair hearing of all interests.

All such issues revolve about the claims of sentiment as against reason. The proper appraisal of sentiment must be tactfully as well

as charitably reached. The opposition to vivisection is more intelligible than that which inspires the antivaccinationists. It rests upon a sentiment that is cordially approved, but not as a principle to be followed at any price. In the view of humane men of science, vivisection is amply justified by the benefits which it confers upon the human race; to abandon it or even unduly restrict it would be a costly sacrifice to sentiment.

The following footnote is timely and worth quoting:

Since these words were written, the occasion for recalling them has arisen. The Red Cross has been sued by the antivivisectionists to prevent the use of one hundred thousand dollars appropriated by the War Council for medical research to relieve suffering and diminish the death rate among war casualties of our own soldiers. A more amazing instance of the menace of intentional ignorance and obstinate prejudice is hardly imaginable. To insist upon a sentimental objection against experiments upon animals at such a critical time in the history of the nation, in brutal disregard of the facts and in impertinent opposition to the expert conviction of medical proof, is as preposterous as it is inhumane. To state that vivisection has brought no benefit to mankind, in face of the overpowering evidence to the contrary, shows the utter blindness to evidence of a convinced sentimental prejudice; to urge that prejudice at this time and thus to cripple the humanitarian efforts that redeem the awful calamities of war shows the complete disregard of humane considerations to which unreason may lead. In the face of this instance of bigoted opinion, the strictures above applied to it seem criminally lenient. Like the delusions of the insane—to which such fanaticism is allied—the distinction between innocent and dangerous beliefs is most treacherous. Society cannot afford an attitude of tolerance; the menace of extreme conviction is too serious.

The tenth chapter concerns the feminine mind. The final chapter discusses militarism and pacifism, and is a strong argument for a conservative opinion.

The reviewer has taken considerable space for elaborate quotations because it is the easiest, and perhaps the best way, to let the reader know the character of this book. Professor Jastrow's essays may be regarded as one of the most practical contributions to everyday psychology that has appeared for a long time. His book is one that will be appreciated by every physician who is interested—what physician is not?—in the broad subject of the influence of thought on the body and on human actions.

THE PSYCHOLOGY OF BEHAVIOUR. A Practical Study of Human Personality and Conduct with Special Reference to Methods of Development. By Elizabeth Severn. Cloth. Price, \$1.50 net. Pp. 349. New York: Dodd, Mead & Co., 1917.

The author says that extensive or careful analysis of "human nature" has in the past been left to the great philosophers and moralizers, and that psychology has long been taught after a fashion in the universities; but as the habit of academicians is to stick tightly to what is called "positive science," it has been left to the general public to voice its want of something more vital and applicable in this field. She therefore has become one of the self-appointed leaders in the "movement of applied psychology." By this she means the psychology of behavior not only as the result of the training and control of the intellect, the memory, the will, the imagination, the emotions, etc., in the building of character and a forceful, efficient personality, but also as applied to the improvement of the physical functioning of the body and consequently the health, and even for the cure of disease, for she is a practicing psychotherapist and has written a book on the subject. She is a believer in cure by taking thought, and defends the rise of the numerous cults that have this as their purpose, including, perhaps, "Christian Science," though she does not use the term. The subconscious mind, she believes, is a wonderful power which can to a great extent be utilized and its processes controlled for the undoubted benefit of the individual, including the cure of his bodily infirmities. Enough said!!

THE TECHNIQUE OF PSYCHOANALYSIS. By Smith Ely Jelliffe, M.D. Nervous and Mental Disease Monograph Series No. 26. Paper. Price \$2. Pp. 163. New York: Nervous and Mental Disease Publishing Company, 1918.

This publication is the twenty-sixth nervous and mental disease monograph that has been edited by Drs. Jelliffe and White. It is probably unlikely that any one could learn a satisfactory technic of psychoanalysis from any amount of reading; only practical clinical experience can enable one to undertake work of this character. Dr. Jelliffe's book points the way for the beginner to the literature of the subject, its history, the basic methods and the possibilities.

Medicolegal

Judgment for Defendant Reversed in Action for Compensation

(*Rosenthal v. Greenberg* (N. Y.), 168 N. Y. Supp. 488)

The Supreme Court of New York, Appellate Term, First Department, in reversing a judgment that was rendered in favor of the defendant, says that the plaintiff sued to recover for medical services rendered to two of the defendant's employees, named Quinn and Berkowitz, injured while in the defendant's employ. The plaintiff testified that prior to rendering any services for Quinn he called the defendant on the telephone and asked him about treating Quinn, and the defendant said: "I should go right ahead and treat the patient; when I get through, I should send him the bill." As to the treatment of Berkowitz, the plaintiff testified: "He was sent to my office. After I treated the patient, . . . I rang up Harry Greenberg (the defendant), and he said he was insured, and to treat the patient right along, and send him the bill when he got through. (Question) And he said he would pay for it? (Answer) Yes, sir. (Question) How much? (Answer) There was \$25 for that bill, one visit and five surgical dressings." The defendant did not dispute these conversations; he admitted being called up, but contented himself with saying that he did not remember what he did say to the plaintiff on these occasions. It therefore stood undisputed that the defendant promised to pay for the plaintiff's services, and there was no dispute as to the rendition or value of them. It was also clear that in the case of Berkowitz there were at least five surgical dressings given him after the promise to pay was made by the defendant. There should be a new trial, and one is ordered, with \$30 costs to the plaintiff to abide the event.

Liability for Malpractice Aggravated by Negligence of Patient

(*Schultz v. Tasche et al.* (Wis.), 165 N. W. R. 292)

The Supreme Court of Wisconsin affirms a judgment in favor of the plaintiff for \$2,000 damages for alleged malpractice by the defendants in the treatment of a fracture of the femur of the plaintiff's right leg, although the jury found that there was a failure on her part to use ordinary care which contributed to produce the deformity and shortening of her leg. The court says that its later decisions are to the effect that negligence on the part of a plaintiff in the care of his injury which follows and aggravates negligent treatment by a physician, or aggravation from other causes not due to the physician's treatment, does not bar recovery. In such cases the plaintiff may recover for the injury resulting from the negligent treatment of the physician, but not for that resulting from his own negligence or from other aggravating conditions.

In this case the plaintiff's want of care consisted chiefly, if not entirely, in conduct by her after she left the hospital, and perhaps in her leaving prematurely. At any rate all these acts of hers took place after the defendant's negligent treatment was administered. It is not strictly correct to call such later negligence on the part of a patient contributory negligence, though it has been so styled in the books. It is rather subsequent or supervening negligence that aggravates the improper condition due to the physician's prior negligence. The two do not synchronize in producing the injury as they usually do in the ordinary negligence case. The cause of action for the physician's negligence may be complete and accrue before the negligence of the patient comes in to aggravate the result. When it does occur its consequences go in mitigation of damages, not in bar of the action. On the question of damages the trial court instructed the jury that they must distinguish between the defendant's negligence, if any, and the plaintiff's negligence, if any, or a result due to any other cause than the defendant's negligence, and assess damages for the improper result due to

the defendant's negligence. This correctly expressed the law on the subject. The contention that the jury could not distinguish the results between the negligence of the two parties was not without merit. But this court apprehends that it is no more difficult to separate the results of the two negligences than it often is to determine the results of the defendant's negligence alone, or how much money will compensate for a given result in a particular case. Such difficulties are inherent in the subject-matter dealt with, and courts and juries must wrestle with and solve them as best they can. In most cases there can be no mathematical or demonstrable certainty arrived at. Reasonable certainty is all the law requires, and is all that can usually be attained. The fact that the jury gave the plaintiff, a girl, 19 years of age, whose right leg was shortened an inch and a half, bowed out, caused her pain and lameness, and, so far as the evidence disclosed, would permanently remain in that condition, only \$2,000, convinces the court that they made adequate allowance for her contributory negligence in mitigation of damages. If the judge inadvertently omitted to enumerate some of her negligent acts in his instructions, as was claimed, the jury evidently remembered them.

A nonsuit was properly denied as to the defendant Reich. From the evidence the jury might find that the greater part of the malpractice was complete before the plaintiff requested to leave the hospital; that it consisted in a failure to put the ends of the bone in apposition, and so retain them till a firm enough union was obtained to prevent them from overriding. There was evidence from which the jury might find the splints were prematurely removed, causing damage. Dr. Reich took part in those treatments. The fact that he did not know the plaintiff left the hospital was not very significant on the question of his liability in view of the other evidence in the case.

Construction of School Health Law

(*Beard v. Webb* (Calif.), 169 Pac. R. 927)

The District Court of Appeal of California, Third District, undertakes the construction of something of the scope of Chapter 598 of the Statutes of 1909, an act to provide for health and development supervision in the public schools of California, considered in connection with Subdivision 21 of Section 1617 of the Political Code approved subsequent to the approval of Chapter 598. The court says that Section 1 of Chapter 598 provides.

Boards of school trustees and city boards of education are hereby authorized to establish health and development supervision in the public schools of this state, and to employ an examining staff and other employees necessary to carry on said work and to fix the compensation for the same. Whenever practicable the examining staff for health and development supervision in the public schools of the state shall consist of both educators and physicians.

Section 2 enumerates the purposes of supervision, one of them being:

To secure the correction of developmental and acquired defects of both pupils and teachers which interfere with health, growth and efficiency, by complete physical examination. Said examinations shall occur annually or as often as may be determined by the board of school trustees or city board of education.

Section 3 provides for the qualifications of the examining staff.

The subdivision of the political code referred to authorizes the boards of education "to give diligent care to the health and physical education of pupils and where sufficient funds are provided by district taxation, to employ properly certified persons for such work."

The contention of the respondent, county superintendent of schools of Sacramento County, seemed to be: (1) That under the act of 1909 the board of education is empowered to employ only an examining staff consisting of educators and physicians and employees thereof, and that the board has no authority to employ any one else, independently of an educator or physician, to contribute to the health and development of the pupils and teachers of the public schools, although the special work for which such person is employed may be foreign to the services usually and properly performed by an

educator or physician; and (2) that a board of education must carry out and execute all the purposes of health work as defined in said act or be precluded from doing any such work at the expense of the district. But the court thinks it may be epitomized that while the law provides for the employment of an examining board and defines the qualifications of its members, it also authorizes the board of education to employ suitable persons licensed by the state to do special work for the purpose of promoting the health and efficiency of the pupils, that discretion is vested in the board of education to adopt the entire scheme provided in said law or only a portion of it, keeping in view the necessities of the situation and the financial ability of the district and the commendable and useful purpose of the law, and that nothing was shown in this case to indicate a violation by the board of education of the city of Sacramento of any provision of the statute, in employing the petitioner, a licensed optometrist, to examine pupils of the public schools of said city to discover any visual defects of said pupils in order that such defects, if existing, might be corrected. Wherefore the court holds that the respondent refused to perform a plain ministerial duty in refusing to draw her requisition on the county auditor in favor of the petitioner for the payment of salary due the latter for the month of July, 1917, and that a writ of mandate must be issued requiring such requisition to be drawn. A rehearing was denied by the Supreme Court of California.

Insufficient Evidence of Malpractice Causing Death of Child

(*Henline et ux. v. Southward* (Wash.), 169 Pac. R. 315)

The Supreme Court of Washington, in affirming a judgment in favor of the defendant, says that the plaintiffs Henline sued him for damages, charging that the death of their newborn child was due to his negligent acts and omissions when employed to attend Mrs. Henline in childbirth. The court says that at the close of the plaintiffs' evidence the defendant challenged its legal sufficiency and moved for a directed verdict, which motion was granted by the trial court, and judgment rendered dismissing the action. The first error assigned by the plaintiffs was the rejection by the court of their offer to prove by expert testimony that the symptoms displayed by the dying baby would indicate that it was suffering from water taken into its lungs while lying face downward on the bed of its delivery, following shortly after the bursting of the water sac in the mother, and that immediate steps should have been taken by the attending physician to remove the water from its lungs; but there was no satisfactory evidence establishing that cause of death as a basis for predicated such a hypothesis for the admission of expert testimony.

The main contention of the plaintiffs was that the trial court erred in withdrawing the case from the jury on the defendant's challenge to the sufficiency of the evidence. The evidence on behalf of the plaintiffs tended to show that Mrs. Henline, being about seven months advanced in pregnancy, was suffering pains, and the defendant was summoned to attend her. He arrived about half an hour after the summons and found a nurse already in attendance. After making an examination of the patient, he stated that the water would break in half or three quarters of an hour and that a rubber sheet should be placed on the bed. The patient was made to lie down on the bed and told to remain very still, and the nurse was instructed not to help her. After spending fifteen or twenty minutes with the patient, the defendant departed, saying that he would return in half an hour. He did not return until after the lapse of nearly an hour. The water broke within half an hour after his departure, and the baby was born four or five minutes later. It was apparently normal and fully developed for its period of pregnancy, of about 6 pounds weight, and uttered a natural cry shortly after delivery, but soon began to choke and froth at the mouth, at the same time becoming black in the face. It died in about five hours. The defendant returned to the house about half an hour after the birth of the child, noticed that the baby in the hands of the nurse was frothing at the mouth, told

her to wipe the froth from its mouth quickly, stated that he thought the child would not live, and then passed to the bedside of the mother. Whether he took any measures for the relief of the child after assuring himself of the satisfactory condition of the mother did not appear from the evidence. The only evidence as to its death being due to strangulation was the testimony of Mrs. Henline that she supposed "it sucked its lungs full of water."

The evidence showed that there was no rubber sheeting to catch the water from the breaking sac; that the water was discharged on the ordinary bedding of sheets, quilts and mattress. There was no proof of water thereon in sufficient quantity to be drawn into the lungs, other than arose from the inference to be drawn from its having been discharged thereon, which was met by an equally justifiable inference that it had soaked into the bedding. The showing of death as having resulted from drawing water into the lungs did not rise above the merest surmise. On the other hand, an expert witness introduced by the plaintiffs testified that the death of the child, according to the symptoms in evidence, might have been due to any one of four other causes. The court is satisfied that there was not sufficient evidence to warrant the submission of the case to the jury.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Denver, Aug. 6-8.
American Ophthalmological Society, New London, Conn., July 9-10.
Idaho State Medical Association, Seattle, July 17-19.
Montana Medical Association, Butte, July 10-11.
Washington State Medical Association, July 10.
Wyoming State Medical Society, Casper, Aug. 7.

THE AMERICAN ASSOCIATION OF ANESTHETISTS

Sixth Annual Meeting, held in Chicago, June 10-11, 1918

Acting President, DR. ALBERT H. MILLER, Providence, R. I.,
in the Chair

The 'Operative Risk in Cardiac Disease

DR. F. A. WILLIUS, Rochester, Minn.: Patients whose hearts allow them to go about in comfort, or those in whom this can be effected by medical treatment, are generally considered safe for operation. In heart disease due to focal infection, such gratifying results follow the removal of the focus that the risk of operation seems justified. Another group of cases often shows marked cardiac improvement, sufficient fully to justify operation, namely goiter, uterine fibroids and prostatic hypertrophy. Malignancy complicated by heart disease is generally considered operable if a fair chance of recovery is offered.

In every case the decision is based on several factors: (1) the immediate operative risk; (2) the probable improvement of the heart following operation; (3) the patient's relative chance for length of life or health with or without operation, and (4) in less serious conditions whether or not the operative relief will justify the added risk. Experience, in general, has justified the taking of risks in cases demanding surgical intervention.

It is impossible to classify cases on a basis of valvular disease alone because the true index of cardiac efficiency is myocardial quality, and this varies greatly in similar disease conditions. A classification based on cardiac reserve alone is also impossible because we have no accurate means of determining this factor, and clinical impressions are variable.

Six groups of cases have been studied: (1) auricular fibrillation; (2) auricular flutter; (3) impaired auriculo-ventricular conduction; (4) impaired intraventricular conduction (arborization block); (5) mitral stenosis, and (6) aortic lesions, including valvular disease, aortitis and dila-

tation (not aneurysmal). These are generally recognized as bad risks or the worst risks, if angina pectoris and aneurysm are excepted.

The best measure of operative risk is a good clinical impression of the patient's ability to withstand physical strain, supplemented by a careful history and a very thorough examination. Preoperative medical therapy and rest combined with surgical and medical correlation after operation is of paramount importance. The tendency is to require too great a margin of cardiac safety in surgical work. So far as the anesthesia is concerned, we have found the open drop method of ether safe, efficient and satisfactory. Skilfully given it does not seem to add any measurable hazard to the risk of life involved even in the handling of thyrotoxic cardiopaths.

DISCUSSION

DR. W. HAMILTON LONG, Louisville, Ky.: Is any variety of agents or different methods of anesthesia employed in the several classes of cardiac risks?

DR. F. A. WILLIUS: In our clinic, ether by the open drop method is the routine anesthetic in all cases of major surgery. Our results seem to show that ether does not exert a detrimental effect on cardiac risks who have had proper care in preparation. Provided the trauma of the operation is not increased by etherization to the point of depression, the anesthetic, if it has any appreciable effect, is beneficial.

Instruction in the Pharmacology of Anesthetics

DR. TORALD SOLLMANN, Cleveland: Students should analyze the action of anesthetics, their modification by asphyxia, hemorrhage and sensory reflexes, the phenomena of fatalities, and the possibilities of treatment. These subjects, therefore, can be studied to the best advantage in the course of experimental pharmacology or pharmacodynamics. The instruction in pharmacology should be planned with a view to its future practical application, and should at least outline the problem of clinical anesthesia.

Postoperative Pneumonitis

DR. A. C. WHIPPLE, New York: This report is based on a study of ninety-seven cases of postoperative pneumonitis occurring among 3,719 postoperative patients with a mortality of 2.3 per cent. Many pneumonias are discoverable by the roentgen ray long before frank signs of consolidation appear. These patients show a rise of temperature within forty-eight hours after operation, unaccompanied by a chill. There is usually a moderate cough. The temperature continues high for a day or two and then drops by lysis. During the first few hours of the initial high temperature the roentgenogram shows a shadow in the lungs, usually in one of the lower lobes. At this time the only physical signs are dullness with diminished breath sounds. Bronchial breathing does not appear until twenty-four hours after the appearance of the shadow and after the drop in temperature.

These pneumonias are due to the Type IV pneumococcus, the variety that has been found to be fatal only rarely. This type usually occurs in the mouth of otherwise healthy persons, who have recently had or are suffering from an ordinary cold. Patients who have recently had a cold, unless in extreme urgency, should not be operated on until every evidence of such a cold is past.

It is equally as important to guard the patient from catching cold after the operation, as many postoperative pneumonias are due to careless exposure of patients after their removal from the operating room. In view of the irritant effect of ether on the respiratory mucous membrane, ether should not be used whenever there is the slightest evidence of infection of any portion of the respiratory tract.

DISCUSSION

DR. JOHN SEYBOLD, Denver: Dr. Whipple did not emphasize sufficiently the danger of postoperative pneumonia precipitated by unqualified anesthetists. If the incidence of postoperative pneumonitis is so great in a hospital supplied with skilled anesthetists, what must it be in hospitals that have not

the courage to publish their records? Surgeons should secure the most competent anesthetic service available and see to it that the anesthetists have had the medical education and training that will fit them for this work.

DR. ISABELLA C. HERB, Chicago: The incidence of post-operative lung complications seems to be greater after certain operative procedures rather than certain methods of anesthesia. Thus septic cases are most prone to develop post-operative pneumonias. Next in order follow operations on the stomach and gallbladder. We are very careful to maintain body heat during operations and prevent exposure of the patient. Our method of drop-ether does not produce mucus secretion.

DR. E. I. MCKESSON, Toledo, Ohio: Conservation of body heat before, during and after operation is essential in the prophylaxis of postoperative lung complications. An operating room temperature lower than 80 F. invites trouble. The most difficult period in the year is between seasons when adequate heat is not always obtainable. The patient should be protected from methods of anesthesia which produce profuse sweating, as in his condition exposure induces cutaneous shock and results in pneumonia.

DR. W. H. LONG, Louisville, Ky.: All anesthetic apparatus should be cleaned thoroughly before being used on another patient, especially when in the previous case mucus secretion has been profuse. Patients can best be protected from exposure by being wrapped in warm blankets before leaving the operating room and being placed in a warm bed.

DR. W. B. HOWELL, Montreal, Canada: Dr. Long's point is important, but difficult to put into effect in casualty clearing stations. Surgeons and anesthetists often have to work in sweaters, and no heating facilities are at hand to raise the temperature of the operating theater. Add to these inconveniences the effects of rain and mud, and it is obvious that postoperative pneumonia should be prevalent in casualty clearing station surgery. Postoperative pneumonia, however, in reality is extremely rare, although mucus hypersecretion is the rule.

DR. E. M. SANDERS, Nashville, Tenn.: Oral prophylaxis is absolutely necessary in the preparation of patients for safe anesthesia and successful surgery.

DR. RILEY, Havana, Cuba: While we have many cases of lobar pneumonia in Cuba, we do not have postoperative pneumonia. We use chloroform, but our patients are not chilled, nor is there hypersecretion of mucus.

Blood Pressure as a Guide During Major Operations

DR. HAROLD G. GIDDINGS, Boston: Frequent blood pressure readings during anesthesia will do much to indicate the exact condition of the patient during an operation. Blood pressure readings were made in fifty cases. The systolic pressure and pulse rate were noted on admission, before anesthesia and at five minute intervals during operation, or at lesser intervals, to study the effect of changes of posture, trauma to certain structures, ligation of important vessels, and other steps of the operative procedure. Individual blood pressures show slight increase due to excitement, and from 10 to 30 mm. increase during induction of etherization, after which the pressure falls to near the individual's level. The individual level after being reached is maintained rather closely throughout anesthesia, barring changes due to oncoming shock, asphyxia, sudden cerebral anemia, or changes in the patient's position on the table. Certain other factors, such as struggling, depth of anesthesia and manipulation of organs, also influence the pressure to a less degree.

In shock the pressure falls, usually gradually, while the pulse rate rises. In asphyxia, at the outset the respiratory center is stimulated, the breathing is deepened, and the vasomotor center of the medulla is thrown into action and there is a marked rise in blood pressure. This also applies to slighter degrees of deficient oxygenation. In cerebral anemia the pressure phenomena are exactly reversed and the fall is abrupt, very alarming and is accompanied by marked slowing of the pulse rate. This phenomenon occurs most frequently in head operations in the semiupright posture. Change of position to the horizontal or slight Trendelenburg

usually restores pressure and pulse rate almost immediately. In our experience the Trendelenburg posture is followed by an almost immediate drop in pressure, though not an alarming curve, and a rather prompt return to the individual level. Keeping patients in this position over considerable lengths of time apparently produces no untoward results.

DISCUSSION

DR. E. I. MCKESSON, Toledo, Ohio: Blood pressure ratings should be taken as a routine during all major operations, as they give the most reliable information of the patient's condition and the myocardial reserve. The diastolic as well as the systolic pressure must be taken in order to secure the actual heart load. Pressures, if taken at the proper moment, will show a fall before there is a rise in the pulse rate. If the heart is compensating, the pressures must also rise; otherwise collapse must result. Except in spinal anesthesia, the Trendelenburg posture should never be used to the extreme degree. I seldom allow its use beyond from 10 to 15 degrees. It may lower blood pressures to the shock point. I am convinced that there is no anesthetic now in use that will raise and maintain blood pressure.

DR. R. M. WATERS, Sioux City, Iowa: I have noted peculiar falls in pressure associated with changes in posture. One such marked instance was a change from the extreme lithotomy to the horizontal posture. It was very striking.

DR. W. B. HOWELL, Montreal, Canada: Is there any drug or method of stimulation that can be used as a routine and depended on to restore and maintain blood pressure and counteract shock?

DR. E. I. MCKESSON: No drug or method is uniformly successful or dependable. Patients coming out from under the influence of an anesthetic may faint, thereby stimulating collapse or shock.

Experiences of an Anesthetist at the Front

DR. W. B. HOWELL, Montreal, Canada: There are in the Canadian Army Medical Corps in England and France an inadequate number of specialists in anesthesia. Private enterprises should supply modern anesthetic equipment. The McGill University Unit received \$1,000 for this purpose. Specialists in anesthesia should be detailed to teach the most approved methods and to make suggestions as to the organization of proper anesthetic services. Young medical officers should be kept on anesthetic duty continuously for three months and have their work properly supervised. Every expert anesthetist sent overseas means the saving of a certain number of lives and the prevention of an immense amount of suffering and discomfort. Our gas-oxygen apparatus was especially useful in anesthetizing patients who were in bad condition from gas gangrene, sepsis or shock. It was also very useful in the wards for painful dressings, especially cases of compound fracture of the femur and gunshot wounds of the knee.

Soldiers, as a rule, take large amounts of ether with the open method, and the excitement stage is very unpleasant for the nursing sisters. Closed etherization with nitrous oxid or ethyl chlorid as a preliminary was found much more satisfactory for war surgery. The only drawback is the necessity of cleansing the inhaler. Intratracheal etherization proved entirely satisfactory for certain operations and also when there was a shortage of assistants. The Chevalier Jackson instrument for introducing the tube is ideal for the purpose. The dosimetric method of administering chloroform was the most satisfactory form of anesthesia. It proved very economical, pleasant, safe and free from untoward results, such as vomiting or pulmonary complications. The only drawbacks were the expense of apparatus, slowness of induction and deterioration of the rubber face piece. I have knowledge of three deaths, apparently due to the anesthetic, one under chloroform, one under ether and another under gas-oxygen. While not quite as satisfactory, on the whole, as gas-oxygen, ethyl chlorid serves a useful purpose for short operations and is very convenient and transportable. I saw but little spinal anesthesia used. At the Duchess of Westminster's Hospital at Le Touquet the anesthetist used intravenous ether with good results.

Nitrous Oxid-Oxygen Analgesia in Normal Labor and Operative Obstetrics

DR. W. C. DANFORTH, Evanston, Ill.: My observations are based on 663 cases. It is important to administer the gas before the uterine contraction becomes apparent to the patient as pain. The patient breathes in the nitrous oxid for a number of breaths, usually from three to four, occasionally from six to ten, depending on the measure of relief secured. Once in a while it is necessary to give gas throughout the entire extent of the pain. During the second stage it is frequently important for the obstetrician to announce the onset of uterine contraction by palpation in order to begin the analgesia soon enough. Gas alone is desirable only when a few breaths suffice for analgesia; otherwise from 5 to 15 per cent. oxygen should be added. Rebreathing is not utilized while the child remains in the uterus. Cyanosis must be avoided, and the patient should not be permitted to lapse into anesthesia, thereby obviating her cooperation or inviting an excitement stage. Analgesia is deepened toward the end of the second stage and at the time of delivery, and ether may be added advantageously during the final pains of delivery, without any of the usual unpleasant effects of etherization. Relaxation is promoted, and certain operative obstetric procedures are facilitated and rendered painless. Analgesia has been satisfactory in about 93 per cent. of the recorded cases. After three years' use and observation of gas analgesia, I feel that this method of pain relief has given the best results we have been able to attain in our maternity division. For perineal repair, episiotomy or other operative obstetric procedures, gas-oxygen, with or without ether, is the anesthetic of choice, if given by a skilled anesthetist. While we have used analgesia for periods exceeding three hours without untoward results, we try to limit it to that period to avoid any deleterious effect on the unborn child.

Combined Anesthesia for Cesarean Section

DR. J. CLARENCE WEBSTER, Chicago: I have used local or combined anesthesia in certain cardiac, pulmonary or nephritic cases with complete satisfaction. In my series of more than forty cases, all mothers have survived. One baby died, but this death was due to a defective heart. I am firmly convinced that ether anesthesia is rarely necessary in the performance of either abdominal or vaginal cesarean section.

DISCUSSION OF PAPERS OF DRs. DANFORTH AND WEBSTER

DR. BEN MORGAN, Chicago: I agree with Dr. Danforth. Aided by an expert anesthetist, the obstetrician can be saved several useless hours of attendance. The essential principle of success is anticipating the uterine contraction with the administration of the analgesic. Rebreathing is not as dangerous as supposed, if properly handled. It should never be used to the point of anoxemia. I have found concomitant etherization of value or ether-air a good substitute for the operative phases after gas-oxygen has supplied all requirements for the analgesic period of labor.

DR. E. I. MCKESSON, Toledo, Ohio: Patients can be trained to accept and manipulate analgesia. They will adapt their breathing to the requirements of the analgesia. There is no cause for cyanosis even with some rebreathing. In some cases cyanosis will persist, irrespective of rebreathing or oxygenation, and in such cases cardiac incompetence is usually present. I have found gas-oxygen anesthesia entirely satisfactory for cesarean sections, but profound anesthesia must not be used as it is harmful to mother and child. The mother may be rendered anoxic, the child cyanotic, and the uterus may be paralyzed. Section should be done under light anesthesia, and immediately after incision of the abdomen pure oxygen should be given for two or three breaths. This assures enough oxygen to the child. When the child is born, the anesthesia is resumed for whatever remains to be done. I have not found it necessary to use concomitant etherization with gas-oxygen for forceps deliveries.

DR. ORVAL J. CUNNINGHAM, Kansas City, Kan.: I have found the self-administration method of obstetric analgesia very satisfactory with gas-oxygen. The method can be continued until the patients want to pull down, at which time the anesthetist takes over the administration.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Medical History, New York

October, 1917, 1, No. 3

- 1 Figurations of Skeletal and Visceral Anatomy in Books of Hours. W. M. de Voynich and F. H. Garrison.—p. 225.
- 2 Babylonian—Assyrian Medicine. M. Jastrow, Jr., Philadelphia.—p. 231.
- 3 Greek Charm Used in England in Twelfth Century. C. Singer, Oxford, England.—p. 258.
- 4 Legislative and Administrative History of Medical Department of U. S. Army During Revolutionary Period (1776-1786). W. O. Owen.—p. 261.
- 5 Military Sanitation in Sixteenth, Seventeenth and Eighteenth Centuries. C. L. Heizmann, San Francisco.—p. 281.

Archives of Pediatrics, New York

May, 1918, 35, No. 5

- 6 Consideration of Complications of Poliomyelitis and of General Treatment of Acute Stage. J. G. Regan, Brooklyn.—p. 257.
- 7 Laboratory Aid in Diagnosis of Diseases of Children. A. G. Mitchell and F. C. Narr, Philadelphia.—p. 273.
- 8 *Direct Laryngoscopy in One Hundred and Eighty-Nine Cases of Croup. R. W. Gover, New York.—p. 281.
- 9 Congenital Unilocular Cyst of Liver (Hemangioma). Report of Case and Review of Literature. H. Lowenburg, Philadelphia.—p. 285.

8. **Direct Laryngoscopy in Croup.**—In Gover's opinion, there is no other method nearly as accurate in the diagnosis of laryngeal diphtheria as the direct laryngoscopic examination. Of the 189 cases examined by him by direct laryngoscopy 112 had membrane visible in the larynx while in 77 there was none. While the degree of croup was more frequently severe in the membrane than in the nonmembrane cases, yet in more than one fourth of the cases showing membrane the croup symptoms were mild, while in one sixth of the group not showing membrane, the symptoms were severe. The duration of croup was slightly longer in the membrane than in the nonmembrane cases. Of the 112 membrane cases 36 were subsequently intubated, while of the 77 not showing membrane 1 was subsequently intubated, and this one showed slight ulceration, as if there had been membrane present. Twenty-six of these cases had membrane above the cords only, 20 membrane below only, while 66 had membrane above and below. Membrane was noted on the epiglottis only five times. Membrane in the larynx seems to be much thinner and less firmly attached than that in the nose or fauces. In 29 cases membrane was removed from the larynx with forceps, and in 23 of these there was marked relief, although in only 14 was the relief permanent, while in 6 there was no appreciable effect.

After the removal of loose membrane there was no bleeding in most cases and very little in any. Only slight ulceration was apparent at the site. There did, however, seem to be a tendency toward edema in the cricoid region after the membrane had been removed. Sixty-three of the 112 membrane cases had appreciable stenosis, while it was present in only 11 of the 77 nonmembrane series. This latter was due to subglottic swelling. Of the 77 cases with no membrane in the larynx, 20 had membrane in the fauces. This would not influence the treatment in regard to antitoxin, but would in regard to intubation. In 51 cases cultures were taken from the larynx. Of those with membrane 26 were positive and 8 negative, while of those without membrane 13 were negative and 6 positive. Of the 6 positive culture cases, 5 showed membrane in the fauces. The mortality from all causes of the 112 membrane cases was 22, while that of the 77 nonmembrane was 5. The mortality of the 36 intubated cases was 11. The 1 intubated case of the nonmembrane group died. The cause of death in the 5 nonmembrane cases was faucial diphtheria and bronchopneumonia in 2; bronchopneumonia in 2; measles and bronchopneumonia in 1. The mortality was about twice as high for the cases with membrane in the larynx and fauces as it was for those with membrane in the larynx alone.

Boston Medical and Surgical JournalJune 13, 1918, **178**, No. 24

- 10 Army Tuberculosis Examinations. H. Gray, Boston.—p. 799.
- 11 *Study of Physical Condition of One Thousand Delinquents Seen in Court. V. V. Anderson and C. M. Leonard, Boston.—p. 803.
- 12 Identification of Soldiers after Death by Head Measurements. A. MacDonald, Washington, D. C.—p. 807.
- 13 Pathologic Classifications of Pulmonary Tuberculosis. H. F. Gammons, Carlsbad, Texas.—p. 809.
- 14 Idiopathic Epilepsy. E. A. Tracy.—p. 810. To be continued.

11. **Study of Physical Condition of Delinquents.**—The purpose of the study made by Anderson and Leonard was to determine what part—if any—routine physical examinations might play in the disposition of a delinquent's case in court, and later in the institution of reconstructive measures while on probation. The vital importance of the physical condition in this connection, particularly in relation to his economic efficiency, his ability to support himself, cannot be overestimated. Exhausting physical diseases can so impair one's economic efficiency, so hamper one's ability to earn a living, as to render him a social misfit, causing him to drift from place to place, lowering his resistance to alcohol, drugs and such. It is clearly the duty of those having to do with delinquents to see to it that these conditions are sought out and treated, if such persons are to be returned to the community.

With the aim in view of showing the practical relationship of such facts as those above mentioned, to the routine work of the court, records of the last 1,000 cases examined were taken from the files, and the physical condition of each person noted, also the relationship which his physical condition bore—if any—to his economic efficiency. Six hundred and sixty-eight persons, or 66.8 per cent., of the persons were in good or fair health. Three hundred and forty-two persons, or 34.2 per cent., were in poor or bad health, and in such physical condition as to warrant urgent medical treatment. A study of immoral women, made by the authors, showed that 44 per cent. of the women were in poor or bad physical condition from diseases other than venereal (tuberculosis, asthma, Bright's disease, heart disease, etc.).

Of the 1,000 delinquents, about 626, or 62.6 per cent., were considered self-supporting while 374, or 37.4 per cent., were not self-supporting. Some correlation between the two sets of figures seems evident. Thirty-five per cent. of those found to be in good or fair physical condition had been steadily employed, while only 2 per cent. of those found to be in poor or bad physical condition had been steadily employed. Eighty-five per cent. of those found to be in good or fair physical condition had been and still were self-supporting, while only 18 per cent. of those found to be in poor or bad physical condition had been and were still self-supporting. Ninety-six per cent. of those regularly employed were found in good or fair physical condition, while only 3 per cent. were found to be in poor or bad physical condition. Eighty-six and three-tenths per cent. of those who were rated as "never worked" were found to be in poor or bad physical condition, while only 13.7 per cent. were found to be in good or fair physical condition.

Six hundred consecutive cases were examined for venereal infection. Forty-seven per cent. of these persons were suffering from one or both of these diseases. An additional 4.5 per cent. had doubtful blood and smears. Practically every other person in this group had syphilis or gonorrhea, or both conditions. Without a routine medical examination there is no safe and sane method of determining in court whether a person is free from venereal infection. These conditions are not, as is generally supposed, limited to purely chastity offenders, they are widely scattered among all classes of offenders. Three hundred and three cases were so-called offenders against chastity; of these 57.4 per cent. were suffering from syphilis or gonorrhea, or both. An additional 4.9 per cent. had doubtful bloods and smears. There were 134 cases of drunkenness; 38.8 per cent. of these persons had venereal disease, while an additional 6.5 per cent. were doubtful cases. There were 112 cases of larceny; of these persons 37.9 per cent., or one out of every three cases, had syphilis or gonorrhea, or both. There were seventeen persons arrested

for possession of drugs, and 53 per cent. had venereal disease. There were three arrested for violating the liquor law, two of whom had syphilis. Three were arrested for assault and battery; all three had venereal disease. The conclusion reached from this study is that venereal disease is not limited to any one type of offender in court, but is found common among all classes of delinquents, and that a policy calling for a more routine investigation of the physical condition and the possibilities of each offender, prior to his disposition, would seem justifiable.

Colorado Medicine, DenverJune, 1918, **15**, No. 6

- 15 Cases of Congenital Dislocation of Hip. G. B. Packard, Denver.—p. 138.
- 16 Experience with Newer Treatment of Burns. O. M. Shere, Denver.—p. 141.
- 17 Internal Jugular Resection; Operation for Lateral Sinus Thrombosis Following Radical Mastoid Operation. T. J. Gallaher, Denver.—p. 145.
- 18 Relapsing Fever Endemic in Colorado. J. J. Waring, Denver.—p. 148.

Georgia Medical Association Journal, AugustaJune, 1918, **8**, No. 2

- 19 Ectopic Pregnancy Specimen — Unruptured. G. W. Quillian, Atlanta.—p. 29.
- 20 Cesarean Section—Midget. R. C. Woodard, Adel.—p. 34.
- 21 Chronic Appendicitis in Young Children. B. Moore, Atlanta.—p. 35.

Journal of Experimental Medicine, BaltimoreJune, 1918, **27**, No. 6

- 22 Effect of Painting Pancreas with Epinephrin on Hyperglycemia and Glycosuria. I. S. Kleiner and S. J. Meltzer, New York.—p. 647.
- 23 Spirochetal Flora of Normal Male Genitalia. H. Noguchi, New York.—p. 667.
- 24 *Physiologic Stimulation of Choroid Plexus and Experimental Poliomyelitis. S. Flexner, H. L. Amoss and F. Ebersson, New York.—p. 679.
- 25 Autodigestion of Normal Serum Through Action of Certain Chemical Agents. S. Yamakawa, New York.—p. 689.
- 26 Id. S. Yamakawa, New York.—p. 711.
- 27 *Antibody Production After Partial Suprarenalectomy in Guinea-Pigs. F. L. Gates, New York.—p. 725.
- 28 *Estivo-Autumnal Malaria. Extracellular Relation of Crescentic Bodies to Red Corpuscle and Their Method of Securing Attachment. M. R. Lawson, New London.—p. 739.
- 29 *Id. Multiple Infection of Red Corpuscles and Various Hypotheses Concerning It. M. R. Lawson, New London.—p. 749.

24. **Stimulation of Choroid Plexus and Experimental Poliomyelitis.**—The experiments recorded in this paper serve, in the first place, to confirm the experiments of Dixon and Halliburton on the stimulating effect of intravenous injections of extracts of choroid plexus in the secretion of the cerebrospinal fluid, and extend their observations to monkeys. They bring out also the variable effects of the virus of poliomyelitis, variations affected by the quality of the virus and also by the individual powers of resistance to infection possessed by individual monkeys. The chief outcome of the experiments has been to determine the fact that when the intravenous inoculation of the virus does not in itself suffice to induce infection and paralysis, the intravenous injection of extracts of the choroid plexus, which in themselves excite the secretory functions which preside over the formation of the cerebrospinal fluid, is powerless to modify this result. This fact would seem to be of interest and importance, since it has already been shown that very slight structural changes in the meningeal-choroidal complex suffice to make possible or certain infection under these circumstance. Apparently mere augmentation, from time to time, of the secretory functions of the choroid plexus, through intravenous injection of an extract of the choroid plexus and while the virus is still circulating, is insufficient to insure passage of the virus from the blood into the nervous tissues, on which infection depends. Neither does the augmentation exercise a restraining influence on the development of infection otherwise capable of taking place.

27. **Antibody Production After Partial Suprarenalectomy.**—By careful aseptic operation Gates found it possible to remove approximately three quarters to seven eighths of the suprarenal tissue of guinea-pigs without causing symptoms of

suprarenal insufficiency. Guinea-pigs were immunized to *Bacillus typhosus* or to h en corpuscles at varying intervals before or after the operation, and the curves of antibody formation traced for two to three months after immunization. Comparisons with the antibody curves of control animals similarly immunized fail to show that the suprarenalectomy had any influence on the rise or persistence of antibodies in the blood. For the purposes of the study it was not deemed necessary to produce an acute suprarenal insufficiency. If the suprarenal glands were the site of antibody formation or played an essential part in immunity processes, it does not seem probable that the small remainder of suprarenal tissue left in situ to sustain life would affect quantitatively the antibody response to a given antigen injection as do the entire normal glands. Gates, therefore, interprets the experiments to indicate that not only are the suprarenal glands not one of the important sources of typhoid agglutinins, or of hemagglutinins or hemolysins, but they play no essential part in the mechanism by which these antibodies are produced and maintained in the body.

28. Crescentic Bodies in Estivo-Autumnal Malaria.—According to Lawson estivo-autumnal parasites, including the crescentic bodies, are always extracellular; that is, they are attached to the external surface of the red corpuscles. Crescentic bodies attach themselves to the red corpuscles just as the younger parasites do, by encircling, with their cytoplasm, mounds of hemoglobin substance. These hemoglobin mounds may be seen protruding through various portions of the crescentic bodies, as well as at the periphery of parasites. The base of the mounds is occasionally outlined by the chromatin or pigment granules. The hemoglobin mounds protruding through the body proper of the crescentic bodies do not seem to alter the general outline of the parasites. The outline of the parasites may be traced through the transparent mounds. Whenever attaching pseudopodia are observed they are seen to arise from the cytoplasm of the parasites and may be in the form of loops or strings. When the crescents are attached they proceed to dissolve the hemoglobin to make it available for utilization, as simulating what is required for nutrition, the waste product being in the form of pigment granules. After the hemoglobin mounds, to which the crescents are attached, have been decolorized by parasitic action, an appearance is obtained which has been described by most observers as vacuolization of the crescentic body. These observers believe the picture to be one of degeneration. The decolorized mounds of vacuoles ("achromatic areas") seen in connection with malarial parasites correspond to the nutrition vacuoles of the common ameba, and possibly the malarial parasite may, like these amebae, secrete reserve food.

29. Multiple Infection of Red Corpuscles.—This study by Lawson shows that multiple infection of red corpuscles with young parasites is seen in all malarial infections, but it is found most frequently in the estivo-autumnal infections. The occurrence is accidental and has no significance other than that if the instances are numerous it suggests a heavy infection. In instances of multiple infection the young parasites may be seen to be attached: (a) each encircling its own corpuscular mound, giving the typical ring form picture, or (b) two or more encircling one corpuscular mound, giving the appearance of a single ring with two or more masses of chromatin. Certain hypotheses as to the conjugation of malarial parasites have been formulated by observers to explain various instances of multiple infection. Lawson does not believe that conjugation ever occurs. She believes that these hypotheses resulted from observation of certain appearances presented by the attached parasites, as when they are attached so closely together that they may appear to be adherent, or when two or more are attached to one corpuscular mound, giving the appearance of a single parasite with more than one mass of chromatin.

Certain appearances have also been described as a precocious division of the chromatin masses of young parasites. In these instances the chromatin granules were usually described as varying in size. Such an appearance may be explained as follows: (a) two young parasites in varying

stages of development may encircle one corpuscular mound, the cytoplasm of one parasite being superimposed over that of the other parasite, giving a picture of a single ring with two unequal masses of chromatin; or (b) the variation in the size and number of the chromatin masses may be the result of traumatism, as the nuclei of young parasites are rather easily broken up. Multiple infection of red corpuscles with crescentic bodies is considered rather a rare occurrence. It is always accidental, and if the instances are numerous it means a severe infection. When one accepts the fact that all malarial parasites are attached to the external surface of the red corpuscles, the biologic and morphologic characteristics of the parasites cease to be obscure.

Journal of Immunology, Baltimore

March, 1918, 3, No. 2

- 30 Studies on Antitrypsin of Serum. B. Fujimoto, Tokyo, Japan.—p. 51.
- 31 Constancy of Protein Quotient During Intensive Digestion and Prolonged Starvation. S. Hanson, San Francisco.—p. 67.
- 32 *Immunologic Properties of Uveal Pigment. A. C. Woods, Philadelphia.—p. 75.
- 33 Examination of Blood Preliminary to Operation of Blood Transfusion. A. F. Coca, New York.—p. 93.
- 34 *Experiments on Passive Transfer of Antibodies from Blood to Cerebrospinal Fluid. J. A. Kolmer and S. Sekiguchi, Philadelphia.—p. 101.
- 35 Isolation, Purification and Concentration of Immune Bodies; Study of Immune Hemolysin. M. Kosakai, Tokyo, Japan.—p. 109.
- 36 *New Method of Estimating Antitryptic Index of Blood Serum. T. B. Robertson and S. Hanson, San Francisco.—p. 131.
- 37 Noninfluence of Injections of Trypsin on Protein Quotient in Blood Serum. S. Hanson, San Francisco.—p. 139.
- 38 Effects of Intravenous Injections of Colloid (Gelatin), on Rabbit Serums. G. W. Clark, San Francisco.—p. 147.

32. Immunologic Properties of Uveal Pigment.—Woods claims that the pigment of the uveal tract of the eye possesses the properties of acting as antigen in homologous animals, and in its immunologic reactions is organ specific and not species specific. These findings can be demonstrated by the complement-fixation reaction with the serums of properly immunized animals, and by perfusion experiments on the eyes of sensitized animals. In the case of the perfusion experiments, the anaphylactic reaction is manifested by a marked contraction of the pupil, and the occurrence of small hemorrhages in the fundus. This reaction was used to study the antigenic properties of uveal pigment, and the results shown by complement fixation confirmed

34. Passive Transfer of Antibodies from Blood to Cerebrospinal Fluid.—The removal of blood from normal dogs followed by the intravenous injection of human syphilitic serum in amounts varying from 30 to 50 c.c. per kilogram of body weight was followed by the presence of small amounts of syphilis reagin (the antibody concerned in the Wassermann reaction) in the cerebrospinal fluid. The reagin was found in the cerebrospinal fluid as early as three hours after transfusion with syphilitic serum. After irritation of the spinal meninges by the preliminary injection of sterile horse serum the amount of reagin gaining access to the cerebrospinal fluid after transfusion of syphilitic serum appeared to be somewhat greater. All traces of syphilis reagin in the cerebrospinal fluid of dogs following transfusion of human syphilitic serum apparently disappeared after twenty-two to forty-eight hours as determined by completely negative Wassermann reactions.

The intravenous injection of dog typhoid immune serum into a normal dog in amount of about 30 c.c. per kilogram of body weight, was followed by the appearance of traces of agglutinin in the cerebrospinal fluid within three hours after transfusion; fluid removed forty-eight hours later was free of agglutinin. These experiments demonstrate the possibility of the passage of antibody from the blood into the cerebrospinal fluid without primary involvement of the central nervous organs or injury to the mechanism concerned in the production of cerebrospinal fluid, when the amount of antibody in the blood has reached a point of high concentration. While it is possible that in human syphilis the presence of traces of reagin in the cerebrospinal fluid may be due to the passive transfer of this substance from the blood, as shown

by Wile and Stokes, the presence of the reagin with or without other changes in the fluid, as an increase of protein and cells usually indicates the presence and activity of *T. pallida* in the tissues of the central nervous organs.

36. Antitryptic Index of Blood Serum.—A simple and accurate method of measuring the antitryptic indexes of blood serums is described by Robertson and Hanson. It is shown that for varying proportions of antitrypsin (=A) added to a specified amount of trypsin (regarded as unity) the

relation, $\frac{T}{A(1-T)} = C$, holds good for any given serum, T

being the proportion of the trypsin neutralized by the serum and C a constant which is a direct measure of the number of molecules of antitrypsin contained in a specified volume of the serum. The molecular concentration of antitrypsin in blood serum is in great excess of the molecular concentration of proteolytically active material in a 1 per cent. solution of Gruebler's trypsin.

Journal of Nervous and Mental Disease, Lancaster, Pa.

May, 1918, 47, No. 5

- 39 *Economic Efficiency of Epileptic Patients. M. Ryther and M. Ordway, Boston.—p. 321.
40 Rhizotomy for Relief of Pain. C. H. Frazier.—p. 343.

39. Economic Efficiency of Epileptic Patients.—The conclusion reached by Ryther and Ordway from a study of 100 epileptics chosen at random is that their study justifies an experiment in the treatment of epileptics such as has been developed for other handicapped patients, the blind, etc. They suggest small shops for selected groups of patients, where they can be given employment in spite of their attacks; that the patients be chosen from those who are much discouraged about their inability to earn because of attacks and who yet have ability; and that the experiment be a therapeutic rather than an economic one, at present. There seems to be no sufficient reason why shops of this sort should not be undertaken experimentally in connection with the work already established in institutions dedicated to the work of caring for epileptic patients, or even by general hospitals. The authors call attention to the relative success which has attended the efforts of the Massachusetts General Hospital to establish a shop for the physically handicapped, and urge the claims of epileptic patients to similar opportunities. The experience of epileptic institutions seems to have proved that these patients soon get used to witnessing seizures among their fellow sufferers, and that their eagerness to learn to work and to learn is so great that they will endure much to gain these ends. The success of patients with little businesses of their own suggests that some of them might be trained for small home industries either in such a shop or by a visiting teacher.

Journal of Medical Research, Boston

March, 1918, 38, No. 1

- 41 Bacteriologic Examination for Meningococcus Carriers. L. D. Bushnell, Manhattan, Kan.—p. 1.
42 *Autotransplantation and Homotransplantation of Uterus in Guinea-Pig. C. Hesselberg, W. Kerwin and L. Loeb, St. Louis.—p. 11.
43 Successive Transplantation of Thyroid Tissue into Same Host. C. Hesselberg and L. Loeb, St. Louis.—p. 33.
44 *Bactericidal Action of Arsenical Compounds on Experimentally Produced Streptococcic Septicemias. C. S. Allison.—p. 55.
45 *Influence of Parathyroidectomy on Gastro-Intestinal Mucosa of Dogs and Rabbits. G. A. Friedman, University, N. Y.—p. 69.
46 Paratyphoid Enteritidis Group: Correlation of Cultural and Agglutination Results; Special Reference to *B. Paratyphosus* "B" and *B. Cholerae* Suis. C. Krumwiede, Jr., L. A. Kohn and E. Valentine, New York.—p. 89.

42. Autotransplantation and Homotransplantation of Uterus.—The authors selected uterine tissue as representative of a mucous membrane. The results were as follows: Soon after transplantation only small parts of peripheral tissue are preserved. Gradually a recovery of shrunken tissue occurs in addition to new formation of tissue through cell proliferation. There are indications that different tissues show a different degree of resistance to the injury caused by transplantation. Unstriated muscle was seen to recover later

than epithelial structures and peritoneal endothelium. While after homotransplantation of uterus, as well as of thyroid and kidney, substances (homotoxins) are produced which attract lymphocytes, the lymphocytic reaction is quantitatively stronger after homotransplantation of thyroid and kidney. After homotransplantation of the uterus the homotoxins exert a primary injurious influence on muscle and connective tissue, which suffer directly. The epithelium suffers secondarily, probably as a result of the changes in the stroma, and to a minor extent through the activity of lymphocytes. On the other hand, after homotransplantation of kidney and thyroid, the main injury is inflicted on the transplanted tissue through lymphocytes and (to a less extent) connective tissue cells of the host. In both cases epithelial structures are more resistant and are least injured through the direct influence of the homotoxins. They are injured or destroyed as a result of the attack by the cellular elements of the host. The connective tissue and muscle of the uterus are injured directly through the homotoxins and are only secondarily injured by cells of the host. The differences in the cell proliferation which exist between the normal uterine epithelium, on the one hand, and kidney and thyroid on the other, persist after autotransplantation. It is probable that these differences are due to primary differences in the constitution of these types of cells.

44. Bactericidal Action of Arsenical Compounds on Streptococcemias.—Allison's report of his experimental work shows that the salvarsan, diarsenol and arsenobenzol brands of arsphenamin have a marked bactericidal action on different strains of streptococci in vitro, and that these arsenical compounds are of value in the treatment of experimental septicemias due to these organisms. Fifteen different strains of streptococci, representing both the hemolytic and the viridans groups, were used. The ordinary 1:500 dilutions of the drugs were used. It was evident that these agents possess a distinct bactericidal power against virulent strains of streptococci in vitro, in dilutions up to 1:3,000, and an inhibiting power over these organisms for at least twenty-four hours in weaker dilutions. They possess a bactericidal action against streptococci in the blood stream of experimental animals. The success of the treatment depends largely on the virulence of the organisms and on reaching them before they become localized in some remote parts of the animal body. They produced no untoward effects on the animals where the maximum doses were frequently repeated. They possess a possible advantage over antistreptococcic serums in that they do not destroy the bacterial cell and are, therefore, probably less liable to cause the sudden liberation of intracellular toxins. They possess hopeful possibilities for the treatment of streptococcic septicemia in the human subject, as has been shown in a limited clinical experience. The success of the treatment depends on the removal of the source of infection and the administration of the treatment before secondary localization of the infections.

45. Influence of Parathyroidectomy on Gastric Mucosa.—Hemithyroidectomy, or removal of one lobe of the thyroid, was performed on ten dogs and ten rabbits. Eight other animals were used for the complete extirpation of the thyroid apparatus. Although it was frequently impossible to spare the parathyroids in the dogs, and almost always impossible in the rabbits, one or more of the parathyroids were left in situ in the majority of the animals. Friedman found that thyroid insufficiency causes in dogs and in rabbits acute ulcers in the stomach, duodenum, and occasionally appendicular lesions. These ulcers do not show a tendency to heal, since permanent constitution anomalies are probably created by thyroidectomy. In man minor degrees of thyroid insufficiency may cause the appearance of the initial lesion of peptic ulcer or appendicitis. Since thyroid insufficiency is probably slighter in man than the animals whose condition is produced experimentally, nature, assisted or unassisted by treatment, may overcome the anomalous constitutions created by lack of thyroid secretion. The chronicity of ulcer is caused by other factors, among which may be mentioned the constant irritation of food on the ulcerated region as the chief factor and the excessive secretion of hydrochloric acid. The primary

lesion of appendicitis is not due to infection in all probability, but to thyroid insufficiency. After the initial lesion has been formed the invasion of bacteria and stagnation of feces will help to develop the various forms of appendicitis. The diminished thyroid secretion in man may be responsible for the association of peptic ulcer and appendicitis. The cooperation of the suprarenals or parathyroids in the causation of the initial lesion is probable. The probable existing relation between them must be a functional one. Friedman is of the opinion that the assumption of a disturbance in the endocrinous glands explains possibly the subtonic and hypertonic type of stomach of peptic ulcer.

Medical Record, New York

June 15, 1918, 93, No. 24

- 47 Peptic Ulcer. J. B. Deaver, Philadelphia.—p. 1015.
- 48 Some Functions of Consciousness. G. V. N. Dearborn, Cambridge.—p. 1018.
- 49 Routine Method of Examination and Study of Gastro-Intestinal Tract by Roentgen Ray. I. S. Hirsch and I. J. Landsman, New York.—p. 1021.
- 50 Some Educational Problems of Race Hygiene. E. S. Brodsky, Westport, Conn.—p. 1028.
- 51 Visceral Lesions of Purpura Hemorrhagica and Acute Articular Rheumatism. A. H. Harrigan, New York.—p. 1033.

Michigan State Medical Society Journal, Grand Rapids

June, 1918, 17, No. 6

- 52 Duty of Hour Is Service. A. P. Biddle, Detroit.—p. 249.
- 53 Medical Work in Camp Custer. C. J. Bartlett, Camp Custer.—p. 252.
- 54 Differential Diagnosis of Streptococcus, Staphylococcus and Pneumococcus Infections from Clinical Standpoint. J. E. Davis, Detroit.—p. 255.
- 55 Technic of Taking Blood Pressure. W. R. Vis, Detroit.—p. 260.

Minnesota Medicine, St. Paul

June, 1918, 1, No. 6

- 56 Fractures about Joints. B. F. Lounsbury, Chicago.—p. 201.
- 57 Plea for Cooperation in Venereal Disease Control. H. G. Irvine, Minneapolis.—p. 205.
- 58 Fractures of Tibia. A. W. Ide, Brainerd.—p. 220.
- 59 Differential Diagnosis between Anterior Poliomyelitis, Epidemic Cerebrospinal Meningitis and Tuberculous Meningitis. C. C. Pratt, Mankato.—p. 224.

New Jersey Medical Society Journal, Orange

June, 1918, 15, No. 6

- 60 Facts Showing Correlation between Tuberculosis and Industry. F. S. Crum, Newark.—p. 181.
- 61 Tuberculosis. H. I. Goldstein, Camden.—p. 183.
- 62 Detecting Tubercle Bacilli in Sputum by Use of Antiformin Sputum Cup. M. J. Fine, Newark.—p. 189.
- 63 Tuberculosis Problem in County of Middlesex. C. I. Silk, Perth Amboy.—p. 191.
- 64 Laboratory; Its Sphere of Usefulness and Community. R. N. Connolly, Newark.—p. 194.

Ohio State Medical Journal, Columbus

June, 1918, 14, No. 6

- 65 Early Diagnosis of Gastric Cancer. W. C. Stoner, Cleveland.—p. 344.
- 66 Campaign Against Venereal Diseases in State of Ohio. H. N. Cole, Cleveland.—p. 345.
- 67 Present Status of Diagnosis and Treatment of Acute Anterior Poliomyelitis. A. G. Helmick, Columbus.—p. 347.
- 68 Is Compulsory Health Insurance Justifiable Measure? C. H. Wells, Columbus.—p. 352.

Oklahoma State Medical Association Journal, Muskogee

June, 1918, 11, No. 6

- 69 Early Care of Eye Injuries and Diseases. L. A. Newton, Oklahoma City.—p. 177.
- 70 Syphilis of Bladder; Report of Cases. W. J. Wallace, Oklahoma City.—p. 186.

New York Medical Journal

June 15, 1918, 107, No. 24

- 71 Surgery of Laryngeal Malignancy. H. Arrowsmith, Brooklyn.—p. 1105.
- 72 Suggestions for Improving Operation for Cataract. M. Talmey, New York.—p. 1108.
- 73 Clinical Significance of Intestinal Hemorrhage. F. C. Yeomans, New York.—p. 1115.
- 74 Pyorrhea Alveolaris from Medical Standpoint. A. L. Benedict, Buffalo.—p. 1119.
- 75 Treatment of Leg Ulcers. P. G. Skillern, Jr., Philadelphia.—p. 1121.
- 76 Preparation of Solutions of Salvarsan Arsenobenzol for Intravenous Use. H. Goodman, New York.—p. 1122.

- 77 Excessive Venereal Rate in U. S. Army. W. T. Belfield, Chicago.—p. 1124.
- 78 Malarial Fever. F. R. Newman, Wheeling, W. Va.—p. 1126.

Pennsylvania Medical Journal, Athens

May, 1918, 21, No. 8

- 79 Function and Apparatus of Equilibration. B. A. Randall, Philadelphia.—p. 491.
- 80 Clinical Studies in Vertigo. L. Fisher, Philadelphia.—p. 492.
- 81 Place of Opium in Therapeutics of Infancy and Childhood. J. P. C. Griffith, Philadelphia.—p. 497.
- 82 Influence of Prenatal Care on Infant Morality. C. H. Miner, Wilkes-Barre.—p. 502.
- 83 Management of Difficult Cases of Breast Feeding. H. C. Carpenter, Philadelphia.—p. 506.
- 84 *Constitutional Disturbance of Toxic Goiter as Influenced by Surgical Therapy. C. H. Frazier, Philadelphia.—p. 510.
- 85 Pus Infections of Anorectal Region. C. C. Mechling, Pittsburgh.—p. 514.
- 86 Interrelation of Appendicitis, Cholecystitis and Pancreatitis. E. Laplace, Philadelphia.—p. 518.
- 87 Review of Certain Postulates in Pelvic Surgery. W. R. Davies, Scranton.—p. 521.
- 88 Hoarseness; Its Relation to Local and General Diseases. J. H. McCready, Pittsburgh.—p. 523.

84. **Toxic Goiter.**—Frazier reiterates that toxic goiter belongs essentially to the domain of surgery, recognizing, of course, certain exceptions. The "nonsurgical" treatment of the toxic goiter is attended with a higher rate of mortality, and, among those supposedly cured, on the patients' return to their normal habits relapses are indeed frequent. Add to this the inevitable complications which follow delay—disturbances of nutrition, permanent organic damage to the structures of the heart, the kidney, the suprarenal, the exhaustion of the nervous system, the exophthalmos and possible loss of vision, the inevitable incapacitation in, if not actual abandonment of, occupation or everyday life work, and we have an array of facts which justifies a positive stand in favor of surgical, as compared with nonsurgical, management of the disease.

Rhode Island Medical Journal, Providence

June, 1918, 2, No. 6

- 89 Some Cardiovascular Considerations in Connection with Advisory Draft Board Examinations. G. S. Mathews.—p. 85.
- 90 Epidemic Meningitis. C. D. Sawyer, Providence.—p. 88.
- 91 Case of Simultaneous Fracture of Six Long Bones. R. Hammond, Providence.—p. 91.
- 92 Report of First Case of Pellagra in 1918. H. A. Jones, Howard.—p. 92.

Southwestern Medicine, El Paso, Texas

June, 1918, 2, No. 6

- 93 U. S. Government Free Venereal Clinic. V. V. Wood.—p. 6.
- 94 Medicolegal Aspect of Abortion. W. Wylie, Phoenix, Ariz.—p. 15.
- 95 Chemical, Thermal and Mechanical Effects of Various Electrical Modalities and Their Therapeutic Value. W. W. Wilkinson, Phoenix.—p. 18.
- 96 Some Statistics Gathered from Physical Examination of Employees. R. Stroud, Gleason, Ariz.—p. 23.

Vermont Medicine, Rutland

May, 1918, 3, No. 5

- 97 Manual Dilatation, Version and Delivery. J. M. Hackett, Champlain, N. Y.—p. 107.

West Virginia Medical Journal, Huntington

May, 1918, 12, No. 11

- 98 Red Cross Is Mobilized Heart and Spirit of People. H. A. Giltner, Parkersburg.—p. 401.
- 99 Madness of Men and Nations. W. W. Brown, Shenandoah Junction.—p. 405.
- 100 Treatment of Coughs. A. H. Hoge, Bluefield.—p. 408.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

May, 1918, 21, No. 4

- 1 *Treatment of Simple Tertian Malaria. Oral Administration of Quinin Sulphate Daily Over Prolonged Periods. J. W. W. Stephens and others.—p. 309.
- 2 *Id. Oral Administration of Quinin Sulphate for Two Consecutive Days Weekly Over Prolonged Periods. J. W. W. Stephens and others.—p. 331.

- 3 *Id. Comparison of Results of Interrupted and Continuous Quinin Administration. J. W. W. Stephens and others.—p. 359.
- 4 *Id. Oral Administration of Quinin Sulphate Grains 120 on Two Consecutive Days Only. J. W. W. Stephens and others.—p. 417.
- 5 *Id. Oral Administration of Quinin Sulphate Grains 90 on Two Consecutive Days Weekly for Three Weeks. J. W. W. Stephens and others.—p. 421.
- 6 *Id. At What Time After Cessation of Quinin Treatment Do Relapses Occur? J. W. W. Stephens and others.—p. 425.
- 7 Detection and Estimation of Quinin in Blood and Urine. W. Ramsden and I. J. Lipkin.—p. 443.
- 8 Comparative Study of Habits of *Glossina Brevipalpis*, Newst., G. Fusca, West, and G. Pallidipes, Aust. in Belgian Congo. J. Schwetz.—p. 365.
- 9 Strongylidac in Horses. W. Yorke and J. W. S. Macfie.—p. 399.
- 10 Id. *Cylicostomum Minutum* sp. n. W. Yorke and J. W. S. Macfie.—p. 405.
- 11 Id. *Cylicostomum Nassatum* Looss. var. *Parvum*. W. Yorke and J. W. S. Macfie.—p. 411.

1. **Quinin Sulphate Daily in Simple Tertian Malaria.**—The authors found that practically all patients were able to take a daily dose of 20 to 30 grains of quinin for eight weeks or more. When, however, the daily dose reached 45 grains it was found that only seven of nineteen patients were able to complete the full eight weeks' treatment. In the remaining twelve the treatment had to be stopped prematurely owing to tremors and vomiting. Of the various forms of continuous treatments used 45 grains per day in 3 doses of 15 grains each was the best.

2. **Quinin Sulphate for Two Consecutive Days.**—Quinin was given on two consecutive days each week, that is, Saturday and Sunday, over a period of eight weeks or more. All the patients were able to take without difficulty the largest dose of quinin employed, namely, 45 grains (three doses of 15 grains) on two consecutive days weekly. Forty-five grains each day gave the best results.

3. **Comparison of Interrupted and Continuous Quinin Treatment.**—Careful clinical observation and experimental studies have convinced the authors that the interrupted treatment with quinin, 30 or 45 grains twice weekly, is preferable to continuous treatment, 30 or 45 grains seven times weekly. Forty-five grains twice weekly is better than 30 grains twice weekly or than 30 grains daily, both as a palliative and as a curative treatment.

4. **One Hundred and Twenty Grains of Quinin on Two Consecutive Days.**—Quinin sulphate, orally, in doses of 120 grains on each of two consecutive days, represents the maximum amount of the drug which can be tolerated by the average patients. The treatment had to be abandoned by the authors owing to severe symptoms in five out of fifteen cases. Relapses occurred in 60 per cent. of the patients who completed the treatment. The results compare unfavorably with those obtained in the 90 grains series, where only 38 per cent. relapsed.

5. **Ninety Grains of Quinin on Two Consecutive Days.**—Ninety grains of quinin sulphate on two consecutive days weekly over a period of three weeks produces a cure in 50 to 54 per cent. of the patients. These figures are therefore not quite so good as those obtained in the series treated with 90 grains on two consecutive days only, but the slight difference in the result may well be due to the smaller number of patients treated.

6. **At What Time After Cessation of Quinin Treatment Do Relapses Occur?**—The general conclusion drawn by Stephens and his associates from these observations appears to be that if a case of simple tertian malaria has not relapsed parasitically within four weeks of cessation of treatment, the patient can be discharged from the hospital with a risk of relapse of only about 13 per cent., while if he has not relapsed within six weeks of cessation of treatment his risk of subsequent relapse is reduced to less than 5 per cent.

Archives of Radiology and Electrotherapy, London

May, 1918, 22, No. 12

- 12 Various Methods Available for Heating Filament of Coolidge Tube. F. H. Johnson.—p. 365.
- 13 Use of Opaque Ureteral Catheter to Localize Missiles in Region of Kidney and Ureter. A. Fullerton.—p. 371.

- 14 Electrical Department, Military Hospital, Tidworth. F. G. Bergin.—p. 376.
- 15 Fracture of Sesamoid Bones. J. H. Edwards.—p. 381.

Bristol Medico-Chiurgical Journal

1918, 36, No. 135

- 16 Some Developments in Abdominal Surgery. F. Lace.—p. 1.

British Medical Journal, London

May 25, 1918, 1, No. 2995

- 17 *Bacterial Flora of War Wounds. K. Goadby.—p. 581.
- 18 Vibriosis Septicæ. M. Robertson.—p. 583.
- 19 Treatment and Prophylaxis of Malaria. C. A. Johnston.—p. 586.
- 20 Epidemic Polioencephalitis. C. H. Melland.—p. 587.
- 21 *"Thick Drop" Method for Detection of Scanty Spirochetes in Blood. H. M. Woodcock.—p. 589.
- 22 Internal Derangements of Knee Joint. H. Bramwell.—p. 589.

17. **Bacterial Flora of War Wounds.**—One hundred excised wounds were examined carefully to determine if any influence could be traced to the antiseptic used. Fifty of the wounds had been treated with hypochlorite, with or without Carrel tubes; forty had been treated by bipp. The remaining ten had various forms of antiseptics, including flavine and brilliant green. The two chief antiseptics in use were hypochlorite and bipp. On examining the percentage of the flora in each case there was no difference whatever attributable to either antiseptic. In each class—hypochlorite and bipp—the incidence of sporing bacteria and *Bacillus welchii* was 30 per cent.; for the proteolytic type 29 and 31 per cent., respectively, Goadby says, that certain practical disadvantages are associated with both these antiseptics. 1. Hypochlorite: Cases treated with Carrel tubes rarely arrive in home hospitals with the tubes in the position in which they were originally placed, and on the rare occasions on which they are still in the wound the tubes are generally so blocked as to render them entirely useless. On the other hand, as the Carrel tubes are passed through the bandages and fresh hypochlorite is passed down the tube, some of it finding its way into the wound or into the dressing, the chief advantage appears to be that the bandages are not removed in the ambulance train and the case submitted to the chance of fresh infection. 2. Bipp: A certain number of wounds arrive with so much bismuth inserted that it partially obscures the finer structure in fractured bones. A certain number of cases—10 per cent. of 100 cases treated with bipp—have shown symptoms of poisoning due to bismuth—blue line of the gums, blue tongue, and blue patches on the buccal surface of the cheeks, gastritis, diarrhea and vomiting. Three instances have been seen of iodine poisoning with mental symptoms. In cases of poisoning attributable to the bipp very large quantities had been made use of. In the immediate treatment of wounds, immediate excision of the lacerated tissues is apparently the only one that has produced a marked diminution in the anaerobic flora of the wounds.

21. **Thick Drop Method for Detection of Spirochetes in Blood.**—To prepare a thick drop for examination, a small drop of blood is placed on a clean slide. The drop should be about as large as is required for making a good sized smear and should be spread out a little (with the needle) so as to cover an area about three-eighths inch in diameter. Too thick a drop is not an advantage, as it is difficult to lake (dehemoglobinize) completely, and more fibrin is present. The drop must be allowed to dry thoroughly, and before proceeding to lake it, may be gently heated by passing it over a flame two or three times. There are several well known methods of laking the thick drop. Woodcock has made use of two: (a) distilled water, or (b) acidulated methyl alcohol. Dehemoglobinization is more complete and rapid by the former method, and there is less formation of fibrin. But unless the greatest care is exercised, the drop, or portions of it, are apt to be removed from the slide, in spite of complete drying (as there has been no proper fixation previously). If distilled water is used, and the preparation is to be stained by gentian-violet, it is advisable, after carefully draining off the water when the laking is complete, to pour on a few drops of

methyl alcohol, for a minute or two, to fix the preparation to the slide.

The thick drop may be stained by the Giemsa or Leishman method, or with anilin gentian-violet; the last gives excellent results with spirochetes, the intensely blue stained parasites standing out well from the surrounding elements. Anilin gentian-violet is used in the proportion of 9 parts of anilin water to 1 part of alcoholic gentian-violet, the stain being left on for twenty seconds or so. The preparation is then well washed with distilled water, by which means the requisite degree of extraction and differentiation can be obtained, and finally dried. Where examination is desired for suspected malaria or relapsing fever, it is a useful plan to have the slide sent in with both a fair sized film and a thick drop on it. For staining, the smear can be separated from the drop by drawing a line with a grease pencil across the slide, between the two. The smear is stained by the Giemsa or Leishman method, and if no malarial parasites are found, nor spirochetes quickly seen, the thick drop is used. If it is desired to examine the drop also for scarce malarial parasites (for example, crescents) as well as spirochetes, the second method of laking is to be preferred, as distilled water is very liable to disintegrate malarial parasites; and in this case the Giemsa or Leishman method must be used for staining.

Journal of Tropical Medicine and Hygiene, London

May 15, 1918, 21, No. 10

- 23 Sudanese Examples of Two Common Hyperkeratoses. A. J. Chalmers and A. Innes.—p. 105.

Lancet, London

May 18, 1918, 1, No. 4942

- 24 *Teaching and Training in Hygiene: II. Training of Medical Public Health Worker. H. R. Kenwood.—p. 695.
25 *Botulism and Heine-Medin Disease. F. G. Crookshank.—p. 699.
26 Physiology of Functional Paralysis of Voluntary Movement. T. G. Brown and R. M. Stewart.—p. 702.
27 Mastoid Disease in Balkans. J. A. Jones.—p. 704.
28 Graphic Records of Muscle Reaction. G. M. Levick.—p. 705.
29 Meningococcus Agglutinating Serum: Method of Increasing Yield from Rabbit. A. S. G. Bell and I. M. Harmer.—p. 705.
30 *Twenty-Eight Cases of Ruptured Gastric Ulcer Among Soldiers with Two Deaths. C. E. Murphy.—p. 706.
31 *Plastic Operation for Apparently Lengthening Amputation Stump. S. A. Smith.—p. 706.

24. **Teaching and Training in Hygiene.**—Kenwood proposes founding in London a central institute of hygiene: At this institute there would be social study courses provided, both for undergraduates and postgraduates. These courses would be conducted by a university teacher, and would include addresses by experienced social workers and much observation work by visits. In connection with the center a summer course would be arranged for those who are already engaged in various kinds of public health work. A round of visits would be arranged to special public health provisions outside London. The center would also provide what we must all agree in believing is a legitimate function of a university center, namely, occasional opportunities for popular instruction. University evening lectures on subjects bearing on hygiene would attract good audiences, and in addition to effecting much good by disseminating useful knowledge would advertise the university and by exciting interest and appreciation assist in obtaining public donations for study and research. There would be seven or eight lecturers (two of whom should be professors and two assistant professors), eight demonstrators (four full-time) and eight full-time unqualified assistants; and, for the purposes of organization, one of the professors would be appointed to act as the director of the institute. Arrangements would be made whereby, throughout the whole of each working day, either a professor or an assistant professor would be in charge.

25. **Botulism and Heine-Medin Disease.**—There is at present in London (and elsewhere) an outbreak of cases clinically indistinguishable from examples of Heine-Medin disease. The outbreak is, epidemiologically and clinically, identical with the great epidemic in New York of 1916. All ages are affected, and the cases are of every grade of severity and of every clinical variety. The disease has three clinical stages:

(a) That of initial illness, with, perhaps, sore throat; respiratory or gastro-intestinal disorder; headache and fever. (b) A latent period that may be very short (twenty-four hours or less), or prolonged to perhaps a fortnight or even more. (c) The stage of definite nervous symptoms. This stage may be: (1) absent or (2) "abortive," (3) rapid or (4) sudden in onset, (5) "paralytic" or (6) nonparalytic, (7) so consecutive to (a) as to appear clinically a part of it, or (8) so removed from (a) by (b) that connection is not at first considered by the medical man. The disease is communicable, especially in the stage called "a."

In respect of individual treatment the following suggestions are made by Crookshank: 1. Rest and good nursing are essential. 2. Careful cleansing of the mouth and pharynx; and attention to the state of the stomach, bowels, kidneys and bladder are imperative. 3. There is experimental and clinical evidence in favor of early, and at first intensive, administration of hexamethylenamin which, it is believed, may be combined usefully with salicylate of soda and benzoate of ammonia in free doses. 4. The employment of strychnin is of use in cases attended by bulbar exhaustion, or by paralysis of the muscles concerned in respiration. 5. The application by an atomizer of liquid paraffin to the mouth, nose and pharynx alleviates dryness of the passages and by lessening foulness diminishes the risk of secondary pulmonary affections. To this end, a drop or two of oil of peppermint, may be shaken up with each ounce of liquid paraffin used. 6. Confinement to bed should be prolonged rather than curtailed; and patients discharged should be watched, for at least three months, in order that record be obtained of any sequelae or permanent disability.

30. **Ruptured Gastric Ulcer Among Soldiers.**—Murphy's series of cases occurred in soldiers, aged from 28 to 43; none had ever served in the army before the present war. In every case (with one exception) the teeth were carious; in twenty cases there was marked pyorrhea. In twenty cases there had been a definite history of dyspepsia; in no case any hematemesis. Twenty-three cases were diagnosed as acute abdomens, presenting all the cardinal symptoms. Four cases were diagnosed as acute appendicitis, the appendix incision being used for drainage. In twenty-four cases period between rupture and operation was five to thirteen hours; all recovered. The two fatal cases had been ruptured sixteen and twenty-three hours, respectively; both died of general peritonitis. One patient ruptured twenty-one hours recovered. In all cases a purse-string suture of silk was put in round the ulcer; this was drawn together and the ulcer invaginated and a few Lembert's sutures over this to guard against leakage. In three cases the ulcer was so large that a piece of omentum was sewn down over it as a precaution. The site of rupture: In eighteen cases on anterior wall near lesser curvature; in six cases on anterior wall near greater curvature; in three cases posterior wall. In twenty-five cases the peritoneal cavity was well irrigated with saline infusion. In two cases the soiling was slight, and it was deemed wiser not to irrigate. In all cases (except four opened as appendicitis) a stab drain was made over pubis and a large tube put in, and in every case a large tube was placed down to site of rupture.

31. **Plastic Operation for Lengthening Amputation Stump.**—In a case of high humeral amputation Smith made use of this method. An inverted horse-shoe incision was made into the axilla, the stems of the incision being made well within the confines of the axillary space, to obviate the resulting scars being pressed on by the artificial arm later. The stump was abducted by an assistant, and the insertions of the pectoralis major in front and the latissimus dorsi behind were divided distally for about one half of their extent. The divided portions of the insertions of these muscles were tucked inward and upward and stitched into position by means of chromic catgut. The stump was now well abducted, and on account of the shortening of the axillary cavity the skin came together easily, the U being replaced by Y. The available stump was increased to 2 inches, and the patient wears an ordinary Blatchford A. E. arm, and has full control over the elbow movement.

Sei-I-Kwai Medical Journal, Tokyo

May, 1918, 37, No. 435

32 Pathology of Beriberi. K. Honda.—p. 17.

Bulletin de l'Académie de Médecine, Paris

May 7, 1918, 79, No. 18

33 *Epidemic Lethargic Encephalitis. A. Netter.—p. 337.

34 *The Survival of the Heart of Vertebrates. O. Laurent.—p. 347.

35 *Prognosis of War Fractures of Femur. Couteaud.—p. 352.

36 Rupture of Trachea from Shell Concussion. P. Coudray.—p. 354.

37 *Hysterectomy for Pelvic Suppuration. Rochard.—p. 356.

33. **Epidemic Lethargic Encephalitis.**—A previous communication by Netter was summarized in the Paris Letter, June 22, p. 1964. In the fifty-four cases compiled by Netter only thirteen of the patients were under the age of 13. The mortality was over 50 per cent., but the recovery seemed to be complete in those that survived. The disease may last only a few days or it may persist for weeks, or two or three months or more, the patients finally recovering when a fatal termination seemed inevitable, the sacrum, buttocks, spine and heels covered with eschars. Necropsy shows a diffuse interstitial encephalitis; the microscopic lesions resemble those of the trypanosoma sleeping sickness of Africa. Two previous epidemics are on record, one following the pandemic of influenza in 1890, and another in 1895, with cases reported from eight European countries and the United States. Netter insists that the disease cannot be a form of poliomyelitis, and its coincidence with influenza seems merely casual. There is nothing to sustain the assumption of botulism. He gave hexamethylenamin, finding it in the spinal fluid soon after. Intraspinal injection of convalescents' serum seems to offer the best promise in treatment, but he had no chance to apply it, although he has reported the successful application of this principle in treatment of poliomyelitis (1914).

34. **Survival of Heart.**—Laurent urges further research, in specially equipped laboratories, along the lines he has been working, studying the behavior of the heart after the abdomen and thorax have been opened or the animal killed in other ways. In one snake the heart was beating eleven times a minute three hours after death from chloroform. In twenty-seven animals he joined the heart of one animal to the abdominal aorta of an otherwise normal living animal, or to both the aorta and vena cava. He does not attempt to say whether the reviviscence of the heart thus "branched" is a recovery of vital energy, but the phenomena observed suggest this. They promise good results from utilization in this way of the vital energy of another organism. In four groups comprising eight wounded men he sutured the skin and muscles together, these Siamese wounds healing as rapidly and completely as the healing of the lips of an ordinary wound. The tolerance for these Siamese operations is the expression of a vital resistance, a potential of energy far surpassing anything previously imagined. He has sutured the shoulders of two ruminants together, and has thus united fowls of different species.

35. **Prognosis of War Fractures of Femur.**—Couteaud comments on the remarkable change for the better in the prognosis of war fractures of the femur. Among 213 men with compound fractures, 38 have entirely recovered; 92 have resumed full or light duty; 21 have been discharged with a more or less useful limb, and there are only 31 *mutilés* in the group; 31 died, mostly from phlebitis of small vessels. This entailed sudden death at some slight exertion; it is like a poisonous snake, ready to inoculate its venom at any moment. The prognosis depends on the individual resistance, and this is hard to foretell.

37. **Hysterectomy.**—Rochard pleads that total abdominal hysterectomy is far superior to the subtotal, which is having a vogue at present. He has encountered cases of cancer developing in the retained portion of the uterus, and the total removal of the uterus is the only practicable means for thorough drainage with severe suppuration in the pelvis. He obtains the advantages of both technics by doing first the abdominal subtotal operation and then immediately removing the cervix from below. The vagina is thus left open as after

vaginal hysterectomy, with none of the defects of the latter technic. Some minor points in the technic of this "totalized subtotal hysterectomy" as he calls it, are described. The complete technic was written up in J. Dedet's Paris thesis, August, 1917.

Bulletins de la Société Médicale des Hôpitaux, Paris

March 22, 1918, 42, No. 11

38 *Infectious Sore Throat. A. Courcoux and R. Debré.—p. 297.

39 *Tuberculous Peritonitis. C. Achard and A. Leblanc.—p. 301.

40 *Lethargic Encephalitis at Paris. A. Netter.—p. 307.

41 *Oculomotor Paralysis from Shell Concussion. Lortat-Jacob and G. L. Hallez.—p. 311.

42 Arsphenamin in Chronic Lamblia Enteritis. A. Cade and A. C. Hollande.—p. 314.

43 *Adjuvants to Serotherapy in Meningitis. L. Boidin.—p. 317.

44 Oscillometer Test of Factitious Edema. D'Oelsnitz, Boisseau and Leroux.—p. 321.

45 Leukocytosis in Typhus. G. Stefanopoulo.—p. 323.

38. **Recurring Vincent's Angina.**—Courcoux and Debré state that fusospirillar sore throat is of more frequent occurrence of late than they have ever known it. In 1916 the proportion in the troops was about 2.26 per cent., the same figure that Vincent reported in 1905. In the last year, moreover, they have encountered a number of recurring cases. In one, the intervals of apparent health were one month and two and three months, the man having attacks between August and March, all equally severe. In a second case there were three attacks between May and November, but the general reaction was mild. Another man had an attack early in 1915, another two years later, and a third, ten months afterward, proved particularly tenacious. The spirilla and fusiform bacilli were found numerous during the free interval in the one man examined, who was thus a healthy carrier at the time.

39. **Tuberculous Peritonitis.**—Marfan has described in children a form of suppurative peritonitis localized at the umbilicus, and Achard here reports a typical case of this rare form of peritoneal tuberculosis. His patient is a man of 62 and the fistula just above the umbilicus has kept open for five months, but there are no other signs of tuberculosis and the general health has not suffered. There is no fever and the man has gained 22 pounds in weight. The first symptoms had been ascites and tympanism, as in children. Heliotherapy is scarcely available in this case on account of the thick and stiff walls of the pus pocket; some operative measure seems indicated.

40. See Abstract 33 above.

41. **Isolated Oculosympathetic Paralysis from Shell Concussion.**—The man of 31 was left with the Claude Bernard-Horner syndrome after subsidence of the usual nervous disturbances from severe shell concussion.

43. **Adjuvants to Serotherapy in Meningitis.**—Boidin has an autogenous vaccine made as a routine measure from the fluid obtained by spinal puncture in the meningitis cases. He injects it in very severe cases with or without a supplementary fixation abscess. The turn for the better under these adjuvants to serotherapy confirms their efficacy. In a typical case described, the first fixation abscess was followed by marked improvement. Then came a relapse, and permanent defervescence the second day after the second injection of turpentine to induce a fixation abscess. He advises these adjuvants in severe cases, especially when serotherapy for any reason was not applied early.

Journal de Médecine de Bordeaux

April, 1918, 89, No. 4

46 *Simplified Suspension. J. Vitrac and L. Mongie.—p. 87.

47 The Sanatorium at Ilbarritz for Soldiers with Bone and Joint Tuberculosis. Peyret and Fournier.—p. 89.

48 *Rat-Bite Disease. P. Mauriac.—p. 93.

49 Physical Culture for Mind Workers. P. Nadal.—p. 97. To be continued.

46. **Suspension for Fractures.**—Vitrac and Mongie have materially simplified the apparatus for suspension, using interchangeable parts. The principle of cradle and hammock suspension is applied according to Alquier's technic, but the apparatus is much modified, as is described with illustrations.

48. **Rat-Bite Fever.**—The case reported differed from those on record in that there was little fever and no muscular pain, but intense pains in the joints and modification of the blood picture, with extreme anemia and weakness and high leukocytosis. The Wassermann reaction was positive although there was nothing to suggest syphilis otherwise.

Presse Médicale, Paris

May 13, 1918, 26, No. 27

50 The Thomas Splint. P. Desfosses and C. Robert.—p. 241.

51 Macedonian Malaria. J. Bouygues.—p. 244.

52 *Acidosis from Surgeons' Standpoint. F. Jeunet.—p. 246.

53 *Topical Reaction in Treatment of Syphilis. Lacapère.—p. 247.

54 *Alveolar Pyorrhea. B. Kritchevsky and P. Séguin.—p. 248.

52. **Acidosis and Surgery.**—Jeunet remarks that the surgical patient has a special pathology, and it permits the practitioner to determine the indications for operation, to keep track of the immediate and remote consequences of the operation, and to ward off impending ills. Acidosis in particular can be detected, and measures taken to bring it under control or ward it off. Acidosis is probably responsible for certain cases of sudden coma after an operation, collapse suggesting embolism, and sudden death. The lesions accompanying acidosis involve the liver, brain cells, suprarenals and thyroid, but they are generally temporary disturbances. They subside during natural sleep, but not during repose without sleep. He cites Crile extensively, and declares that the ammonia content of the urine is an index of the resisting powers. With 2 gm. in the urine the acidosis must be regarded as grave, but not irremediable; with 3 gm. the prognosis is bad. In normal conditions, 10 gm. of sodium bicarbonate renders the urine alkaline, but in case of acidosis, 20, 40 or 50 gm. are necessary. The main point, however, is to ward off the acidosis by diet, copious supply of fluids, stimulants, and keeping the patient quiet, tranquil and cheerful.

53. **Topical Congestion in Syphilis.**—Lacapère declares that as long as the spirochetes are in evidence there will be a local congestion as the reaction to each injection of arsphenamin or its substitutes. The reaction grows less and less, as the spirochetes die off. This topical congestion reaction occurs in every syphilitic lesion, and so regularly and constantly that it may be utilized in differentiation of the syphilitic nature of a lesion. The congestion develops suddenly and reaches its height by the next day. The clinician should aim to keep these reactions slight, as they may prove serious when the lesions are in the brain, heart or kidneys. Once developed, they can be attenuated by subcutaneous injection of epinephrin, and it may be advisable to give a preliminary injection of epinephrin before repeating the dose of arsphenamin. In a case reported there was loss of consciousness after the third dose of arsphenamin in a syphilitic with headaches, vertigo and deafness for some months. The doses had been, respectively, 0.10, 0.15 and 0.30 gm. at five day intervals. If it had not been for the immediate injection of epinephrin, the cerebral congestion might have had serious consequences.

54. **Alveolar Pyorrhea and Arsphenamin.**—Kritchevsky and Séguin have been examining the teeth of 244 persons taking a course of arsphenamin (neosalvarsan) treatment. They found that 43 had pronounced pyorrhea and 62 incipient pyorrhea. Among 143 persons who had completed the course, they found spirochetes only in 3. In the 24 untreated cases of pyorrhea the spirochetes were found numerous in all but 2. In fully 50 per cent. of 110, before treatment, the secretions taken from the gums swarmed with spirochetes. After a course of treatment with neosalvarsan, no spirochetes could be found on the gums in 29, but in 13 others they were still numerous. No local measures had been applied, not even the removal of tartar. In other cases they applied the arsphenamin locally and the results were remarkable in every instance. Treatment of pyorrhea, therefore, they declare, should be by intravenous injections of neosalvarsan plus local treatment by curetting and thorough polishing of the root. They have found fluorin salts useful in removing tartar as they render it more friable. Besides this mechanical treatment, they instil neosalvarsan directly into the pocket, in

solution or as a powder. The illustration of the spirochetes found shows great diversity in shape and size. The stain used was the Fontana-Tribondeau ammoniacal silver nitrate stain. Kolle published in January, 1917, the complete cure in 90 cases of pyorrhea under intravenous injections of neosalvarsan without local treatment. By the third injection, all were cured.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 11, 1918, 48, No. 19

55 *Local Anesthesia for Operations on Eyes. O. Haab.—p. 593.

56 *The Spirocarbometer. A. Rapin and M. Turin.—p. 600.

57 Cretinism in Nollen Region. Finkbeiner.—p. 607. Continued.

55. **Local Anesthesia for Operations on Eyes.**—Haab refers in particular to iridectomy for glaucoma, and advocates injection of 2 drops of a 10 per cent solution of cocain, under the conjunctiva, at the point where the iridectomy is to be done. In from seven to ten minutes the iridectomy can then be done tranquilly and correctly, as this strong cocain solution actually banishes all pain. The same procedure is useful also for removal of a foreign body. In a case described a girl hoeing in stony ground felt a foreign body in her eye, but the physician consulted did not advise the use of the giant magnet which would easily at that stage have removed the scrap of iron responsible for the disturbances. Recurring mild inflammation finally compelled its removal, fifteen years later, but it was then rusty and embedded so firmly the magnet could not dislodge it. Under the subconjunctival injection of the 10 per cent. cocain, the scrap was easily removed through an incision in the cornea. The iris was seized with pincers; this loosened the scrap of steel, but iridectomy was not done. The iris was reduced and the patient was dismissed the tenth day with round pupil and normal vision. The steel splinter was 1.5 mm. long by 1 mm. wide and 0.5 mm. thick. Such cases are usually very difficult as, the iris being inflamed, it is exceptionally sensitive. The smooth course was evidently due to the complete anesthesia, as also in forty-six iridectomy operations done in the same way. It materially simplifies iridectomy which he regards as the main operation for glaucoma in adults; in children, he prefers sclerotomy.

56. **Carbon Dioxid Tension as Index of Acidosis.**—Rapin and Turin describe a simple little apparatus, the spirocarbometer, which permits at the bedside the determination of the carbon dioxid tension of the alveolar air, as an aid in estimating the degree of acidosis in a diabetic or other patient at a given moment.

Schweizer Archiv für Neurologie und Psychiatrie, Zurich

1917, 1, No. 2

58 *Behavior of Leukocytes in Epilepsy. A. Bossard.—p. 269.

59 *Familial Amaurotic Idiocy: Pathologic Anatomy. F. Naville.—p. 286; Clinic.—p. 314.

60 Myopathy of Peripheral Origin. F. Naville.—p. 338.

61 *Connecting Tracts between the Cerebellum and the Stem of the Brain. H. Uemura.—p. 342. Commenced in No. 1, p. 151.

62 *Physiology of Convolutions. M. Minkowski.—p. 389.

58. **The Leukocytosis with Epilepsy.**—Bossard found leukocytosis a regular accompaniment of the epileptic seizure. It is distinguished not so much by the numbers of the leukocytes as by the early appearance of lymphocytosis and of mononucleosis. Sometimes a polynuclear leukocytosis precedes the seizure by several hours. The same pathologic conditions causing the seizure are probably responsible also for this preliminary leukocytosis.

59. **Familial Amaurotic Idiocy.**—The microscopic findings in the typical case described show aplasia of the tracts in addition to the usual lesions of this form of idiocy. The infant was the fourth to be thus affected in a family with six children. The aspect of the neuraxis was like that in a six months fetus. In a second article Naville discusses the clinical picture, emphasizing that besides the infantile form there is a juvenile form and atypical forms, but all proceeding from the same pathognomonic degeneration of the cells. The eye findings may vary widely in these various types, but otherwise they are superposable with the exception that the infantile form has been found exclusively in Jewish families.

Among over 100 cases that have been published in various scattered parts of the world, all were in Jewish families except two. He adds that the families affected are even exclusively Polish Jews. In Magnus and Pooley's two cases, histologic examination was not made, so that an error in diagnosis is possible, and some admixture of Jewish blood is also possible. This racial feature of a disease found in the most diverse countries, he remarks, is a fact unique in pathology. The mendelian features seem to indicate a dominant character, as it affects 50 per cent. of the children and 100 per cent. of those of the same sex in certain families. Consanguineous unions are rare. It may possibly be a type of parental heredity which aborts because the subjects have no posterity. The connection between this disease and familial diseases of evolution is well shown by Higier's Jewish family in which there was one case of essential atrophy of the optic nerve, one case of Marie's cerebellar ataxia, and one of the amaurotic idiocy. The parents were not consanguineous and there was no history of syphilis. In some of the families on record three males, four males, were affected, but in Hume's case and in the family here described by Naville the boys escaped, and three girls were the victims. The articles are in French.

61. Connecting Tracts Between Cerebellum and Stem of Brain.—Uemura's extensive work is in German and has forty-one illustrations showing the different connecting links, and the different parts thus connected with each other.

62. Physiology of the Rolandic and Parietal Convolutions.—Minkowski's experimental research on the motor and sensory cortex confirms the clinical data and conclusions published recently by Monakow. The deficit phenomena were studied on macacus monkeys striving to make the conditions analogous to those in the clinic. This article is in French; with the bibliography, it fills seventy-one pages.

Clinica Chirurgica, Milan

June, 1917, **25**, No. 6

- 63 *War Wounds of the Bladder. C. Oliva.—p. 561.
64 *Pseudarthrosis from War Fracture. R. Alessandri.—p. 582.
65 *Improved Gastrectomy. A. L. Soresi.—p. 585.
66 Abdominal War Wounds. R. Alessandri.—p. 614.

63. Wounds of the Bladder.—Oliva reports that in his six cases of extraperitoneal wounds of the bladder a retention catheter tided the men along to recovery, with only 20 per cent. mortality. Healing was complete in less than ten days in all but one case with a fistula. That spontaneous healing is possible is evidenced by the numerous cases that have been published in which the projectile was extracted later. The slightest indication, however, that urine continues to seep into the tissues around calls for suprapubic cystotomy. Oliva advocates immediate intervention through the abdomen or the perineum if the man is brought in within the first few hours after the wound. This is the sure and safe plan when the wound is seen early.

64. Pseudarthrosis of Ulna.—Alessandri gives an illustrated description of the way in which he corrected the pseudarthrosis by a graft from the fibula.

65. Improved Gastrectomy.—Soresi's eighteen illustrations show the various steps of his technic and the results in a dog two years after the intervention. The clinical course in two patients is also reported. The advantages claimed for his technic are that the natural anatomic and physiologic conditions are restored better than with any other method, and that each step is facilitated by the one just before. There is no danger of hemorrhage or of infecting the field of operation, or of injuring important structures. The distal stump of the jejunum is sutured to the lowest point of the vertical raw edges of the stomach after the edges above have been sutured. Then the proximal stump of the jejunum is implanted low down in the distal part of the jejunum with an end-to-side suture. The stump of the duodenum is inverted with a sero-serosa suture. The edges of the jejunum where it is sutured to the stomach are cut rounding in such a way as to form a kind of ampulla.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 14, 1918, **39**, No. 30

- 67 *Common Mucous Enterocolitis. P. Finizia.—p. 293.
April 18, 1918, **39**, No. 31
68 *Mustard Gas on Italian Front. I. Andreoli.—p. 307.

67. Mucous Enterocolitis.—Finizia applies this term to a dysenteriform set of symptoms common among the troops on active service, but it never lasts very long and does not impair the general health. He warns that treatment should be restricted to resting the bowels; any attempt to give a purge is liable to aggravate and prolong the symptoms. Sudden pain is usually the first symptom, and the recurring colic and desires for frequent defecation are not accompanied by diarrhea. The act of empty defecation is painful and difficult; often nothing is voided but mucus and blood. He found the most effectual treatment to be with oil to reduce the inflammatory condition in the bowel, giving a little opium in the oil to reduce the reflex irritability, with food that makes little demand on the intestines.

68. Poisoning from Mustard Gas.—The case reported shows that yprite or "mustard gas" is being used now on the Italian front. The symptoms were those of a traumatic neurosis with cardiovascular and respiratory phenomena in addition to the burns on the exposed parts and external genitals, and extreme irritation of the conjunctival and nasal mucosa.

Policlinico, Rome

May 12, 1918, **25**, No. 19

- 69 *Diagnosis of Typhus. A. Ceconi.—p. 437.
70 *War Wounds of Thorax. V. Saviozzi.—p. 441.

69. Diagnosis of Typhus.—Ceconi applies an elastic band, or compresses with the fingers, to obstruct the circulation in the arm. If typhus is present, this brings out the spots in large numbers and intensifies the tint of those already prominent. As the constriction is released, some of the spots change at once to petechiae. The same procedure shows a marked change in tint in patches of the skin of those who have recently passed through typhus, permitting a retrospective diagnosis, even four or eight weeks after deferescence. Histologic examination of a scrap of skin from one of the spots, even eight weeks afterward, still showed the vascular features of the petechial roseola. Ceconi warns that this constriction test may induce similar phenomena in simple and in hemolytic jaundice, and in rheumatic purpura, but the symptoms otherwise prevent confusion. The region over the scapula on which the sick man lies most of the time usually shows the same accentuation of the spots as below the constricting band. Dermographism is also pronounced in typhus, and desquamation follows the stroke of a pencil or finger on the skin. The skin throws off a powder like the dust raised on paper with a rubber eraser. Another feature of typhus is the torpid circulation, so that intramuscular and subcutaneous injections, etc., almost inevitably entail topical gangrenous manifestations even a month after recovery. The agglutinating reaction grows less pronounced parallel to the subsidence of the stasis phenomena.

70. War Wounds of the Chest.—Saviozzi has had 137 cases of war wounds of the chest with sixty-nine recoveries. Thoracentesis in the first week is liable to bring on hemorrhage. The necropsy findings impress the necessity for ligating the intercostal artery, if the hemorrhage is from the chest wall. This can be done through a small incision made for the purpose. Morelli has recently reported excellent results from induced pneumothorax with filtered air to check hemorrhage after aspiration of the blood in the pleural cavity.

Riforma Medica, Naples

April 20, 1918, **34**, No. 16

- 71 Technic for Cesarean Section. S. Delle Chiaje.—p. 302.
72 *Italian Contributions to Endocrinology. A. Ferrannini.—p. 306.
73 The Thyroid with Exophthalmic Goiter. R. de Nunno.—p. 309.

72. Italian Contributions to Endocrinology.—Ferrannini remarks that G. Müller, in 1830, was the first to call attention to the existence of glands with an internal secretion, but the Italian, Rastelli, in 1845, inaugurated the system of studying function by deficit, removing the spleen for the purpose.

This was eleven years before Brown-Séquard's research in this line. Pellacani and Foa in 1879 and 1883 published reports of injection into animals of suprarenal extract. Brown-Séquard's famous experiments with organ extracts date only from 1889. The suprarenals were first described by the Italians, Eustachio in 1563, Bartolini in 1641 and Malpighi in 1687. The histology of the endocrine glands was intensively studied early by numerous Italians, and even the Germans cite Diamare as the first to establish the influence of the islands of Langerhans on carbohydrate metabolism. In 1889, experimental diabetes after removal of the pancreas was reported by De Dominicis in Italy and simultaneously by Minkowski and Mering in Germany, but the Italian, Martinotti, the year before had proved the feasibility of pancreatectomy in dogs. It was Vassale in 1896 who first established the physiologic rôle of the parathyroids, and Lo Monaco in 1894 the rôle of the pituitary body, as determined by the effects of removal.

Flajani's pioneer description of exophthalmic goiter dates from 1802; it was amplified by Graves in England in 1835 and by Basedow in Germany in 1841, but Castellino was the first to ascribe the disease to excessive functioning of the thyroid. The ovarian factor in chlorosis was first emphasized by Fedeli, Arcangeli and other Italians. In 1897, Rummo and Ferrannini described what they called geroderma genitodistrofico, which they ascribed to abnormal functioning of several ductless glands. This was years before the French in 1905 advanced the new conception of pluriglandular insufficiency. Ferrannini in 1903 called attention to a constitutional hypotony of the vessels, from congenital functional deficiency in the suprarenal-sympathetic system; Addison's disease is the most striking example of this. A year later Vaquez described a syndrome due to excessive functioning—the exact opposite. In 1913 Ferrannini described research showing the importance of the suprarenals in the vascular compensation of aortic insufficiency, and a year later Josué published an account of a variety of myocardium insufficiency in which, while the heart was found hypertrophied, the suprarenals showed various injuries. In 1890 Vassale suggested thyroid treatment for hypothyroidism, and Ferrannini proposed an extract of stomach tissues in treatment of stomach disease. Not until five years later was similar treatment suggested and carried out in France. The Italians were pioneers also in other fields of endocrinology, such as the internal secretion of the spleen, of the tonsils and salivary glands, and association of xerosis with asthenia and cachexia.

Rivista Critica di Clinica Medica, Florence

Jan. 5, 1918, **19**, No. 1

74 Behavior of Urine after Salvarsan. S. Pisani.—p. 5.

Jan. 12, 1918, **19**, No. 2

75 *Peripheral Facial and Acoustic Paralysis with Hemiplegia. F. Schupfer.—p. 13. Commenced in No. 1.—p. 1.

76 Technic for Quinin in Malaria. G. Memmi.—p. 22.

75. **Syphilitic Peripheral Paralysis.**—The Wassermann reaction is positive in the man of 46 but the facial and left acoustic paralysis and homolateral hemiplegia was of four months' standing before the syphilitic origin was suspected and specific treatment applied. The parts had evidently been injured beyond repair during these four months. The first symptoms of trouble were disturbances in hearing and peripheral paralysis—all on the left side and ascribed to rheumatism for over three months.

Anales del Inst. Mod. de Clinica Medica, Buenos Aires

July-December, 1917, **2**, No. 2

77 The General Pathology of the Liver. L. Agote.—p. 167.

78 Ileocecal Tuberculoma. J. Arce.—p. 171.

79 Relative Leukocyte Count in Normal Adults. E. Lorentz.—p. 181.

80 Double Iodid of Emetin and Bismuth in Treatment of Amebiasis. R. F. Vaccarezza.—p. 204.

81 *Experimental Degeneration and Regeneration of Peripheral Nerves. P. Rojas.—p. 218.

82 Horseshoe Kidney. A. Galindez.—p. 285.

83 *Brain Tumor. L. Merzbacher and R. Novaro.—p. 290.

84 *Knot Constrictor. A. Galindez.—p. 309.

85 Roentgen Findings with Stone in Pelvic Ureter or Gallbladder. J. F. M. Gomez.—p. 314.

81. **Regeneration of Peripheral Nerves.**—Rojas' long article is accompanied with forty-six photomicrographs showing the course of the degeneration and the regeneration of the sciatic nerve of various young animals, mostly dogs, rabbits and guinea-pigs, after the nerve had been severed, crushed or otherwise injured.

83. **Tumor in Ventricle Simulating Pituitary Tumor.**—In the two cases described, with photomicrographs, the symptoms pointed apparently unmistakably to a tumor in the pituitary body. But when this region was opened up by slitting the nasal septum, the pituitary body was found normal. One of the young women died two days later; the other survived for several weeks. In both cases a sarcoma in the third ventricle had induced hydrocephalus and direct compression of the infundibulum.

84. **Knot Clincher.**—Finocchietto's apparatus, called the *constrictor cierra-nudos*, applies a clip bent to form a square, and clamps it tight and firm. The compression is done between the four rigid walls which the instrument presents to the part of the bowel or pylorus to be clamped.

Brazil-Medico, Rio de Janeiro

March 30, 1918, **32**, No. 13

86 Eugregarina Parasites of Arthropods. V. C. F. Pinto.—p. 97.

87 Local Disinfectants in Otorhinolaryngology. J. Marinho.—p. 98.

Cronica Medica, Lima, Peru

April, 1918, **35**, No. 658

88 Syphilitic Aortitis and Nephritis. E. Odriozola.—p. 97.

89 *Echinococcus Cyst in Liver. C. A. Bambaren.—p. 102.

90 *Pregnancy in the Tuberculous. R. A. Menendez.—p. 113.

91 *Leishmaniasis. E. Escomel.—p. 116. Continuation.

92 History of Chemistry in Peru. H. Valdez.—p. 120.

89. **Perforation of Echinococcus Cyst.**—Three years after an operation for echinococcus cyst of the liver, the young woman returned with the same set of symptoms, and a second operation revealed a large echinococcus cyst. Each time the cyst had been treated with formaldehyd before its removal. The cyst the second time contained 2,500 c.c. of fluid. The second day after the last operation the dressings over the wound were found soiled with substances from the stomach, showing a postoperative perforation into the stomach. The cyst was tamponed firmly and nothing was allowed by the mouth for three or four days, after which smooth recovery followed. There had evidently been adhesions enough to prevent injury from the perforation into the stomach. The first cyst may have been multilocular, and the second one was probably a recurrence. Quemin has compiled 66 cases of recurrence, in 29 in the liver and in 11 in the muscles. Cranwell and Vegas have reported recurrence in 22 of 414 cases, including 18 in the liver. The intervals ranged from one to eighteen years, but all but 10 were in the first three years.

90. **Pregnancy in the Tuberculous.**—From his own experience and the data on record, Menendez concludes that induced abortion gives good results only when there is a simple tuberculous process at the apex, not extensive and not complicated with other lesions, and the pregnancy has not reached the fourth month. When abortion is not practicable, excision of the site of the placenta or hysterectomy after delivery does away with the dangerous secondary focus in the placenta region.

91. **Leishmaniasis.**—In this instalment of his authoritative serial on leishmaniasis, Escomel discusses the disease as it involves mucous membranes and the skin, the ulcerative form, the papulotuberculous, the atrophic and the lymphangitic forms. His experience confirms that of others who have never been able to find giant cells in the ulcerations in the skin.

Cronica Medico-Quirurgica, Havana

March, 1918, **44**, No. 3

93 Congenital and Traumatic Cataract and Cataract in the Young. J. Santos Fernandez.—p. 128.

94 *Reflex Amyotrophy of Joint Origin. J. O. Cano.—p. 132.

95 Perirenal Abscess after Anthrax. A. P. Miro.—p. 138.

96 *Hospitalization of Typhoid. M. G. Lebrede.—p. 141.

97 Organization of the Medical Press. V. Sotolongo.—p. 147.

- 93 Reese's Operation for Squint. F. M. Fernandez.—p. 158.
94 *Right of Pharmacist to Refuse to Dispense Prescription. G. F. Abreu.—p. 161.

94. Summarized when it appeared elsewhere, Abstract 105, April 6, 1918, p. 1045.

96. Summarized when it appeared elsewhere, Abstract 92, April 27, 1918, p. 1269.

99. **The Pharmacist's Right to Refuse to Dispense a Prescription.**—Abreu urges modification of the present laws to permit a pharmacist to decline to dispense a medicine—even if the prescription has been ratified by the physician—when he believes there is incompatibility between the ingredients or the amounts specified are excessive. He suggests that the regulations should provide that unless the physician can satisfy him by citing some textbook or other authority or work based on personal experience and presented at some medical society and approved by it, the pharmacist is at liberty to refuse to dispense the medicine in question. Abreu also pleads to have every prescription state explicitly the single dose and also the number of doses per day; when this is not done, the pharmacist is degraded to the rank of a mere mechanical factor, with no means of judging the prescription's suitability. It is safer for the patient, also, to have the limit for the day specified. For certain drugs, the maximal single dose and the toxic dose are very close together. The Codex gives the single maximal dose for atropin as 0.0005 gm. and the maximal dose for twenty-four hours as 0.001 gm. which is only twice the single dose. A prescription calling for 0.005 gm. might be ratified by the prescriber but if more than two doses were taken during the day, there would be severe toxic action. Another point to which he calls attention is the necessity for legislation to insist that all chemical and pharmaceutical products introduced into the country for the first time must specify on the label the therapeutic and the toxic doses, in addition to the data now required.

Gaceta Medica de Caracas, Venezuela

March 15, 1918, 25, No. 5

- 100 The Academies of Medicine. J. Santos Fernandez.—p. 48.
March 31, 1918, 25, No. 6
101 Efficacy of Tartar Emetic in Leishmaniasis of the Horse. J. Iturbe.—p. 62.
102 Relapsing Fever in Venezuela. C. J. Bello and H. Sanchez.—p. 63.
103 Syphilis. C. E. Salom.—p. 64.

Prensa Medica Argentina, Buenos Aires

March 20, 1918, 4, No. 29

- 104 *Tardy Inherited Syphilis. M. R. Castex.—p. 407.
105 *Ocular Paralysis after Intraspinal Anesthesia. E. Dameno.—p. 417.

104. **Tardy Manifestations of Inherited Syphilis.**—Castex is convinced that gastric and duodenal ulcers are as closely linked to inherited or acquired syphilis as tabes and general paralysis. The next step, he remarks, is to question the connection between syphilis and cancer, as a certain proportion of gastric ulcers become transformed into cancer. Cerebral and rectosigmoid syphilitic lesions are common in Argentina, and also cancers in these regions. The question of syphilis in the antecedents of cancer cases and of dementia praecox is not a new one, but has not been thoroughly investigated. On the other hand, the anatomic findings and the benefit from treatment have confirmed the inherited syphilis basis in his experience with perivisceritis, polyserositis, pseudotumors in the brain, myopathies and juvenile asthma. The spirochete is found in many cases of tardy inherited syphilis. The tardy manifestations first appear between the eighth and fourteenth years, and do not differ in any respect from the tertiary manifestations of acquired syphilis. He ascribes great diagnostic importance to the minute "achromic and anectodermic scars" scattered on the trunk or legs. Fournier classed them as relics of some specific eruption early in life, but Castex insists that they are the scars left by small tertiary gummas in the skin which had subsided spontaneously or under the influence of specific treatment. He has found them, in both inherited and acquired tertiary syphilis, in over 90 per cent. of his cases. With untreated tertiary syphilis, if the skin is burned or contused, the scars

that result take this typical nonpigmented anectodermic form. But if vigorous treatment is applied, they do not take this form.

He reports cases which confirm the possible virulence and contagiousness of tardy inherited syphilis and its possible transmission to the children, and advocates vigorous and repeated mercurial treatment in all cases of inherited syphilis, although he does not assert that it is possible to cure inherited syphilis.

105. **Oculomotor Paralysis After Intraspinal Anesthesia.**—Dameno reports four cases in which the external rectus muscles of the eyes became temporarily paralyzed after an operation under novocain spinal anesthesia. The paralysis did not develop until a few days afterward, and it subsided completely by the end of three weeks. The sixth pair seems to be particularly susceptible to toxic action from intraspinal anesthetization, but in all the eighty similar cases on record the disturbances retrogressed spontaneously.

Revista Medica del Uruguay, Montevideo

March, 1918, 21, No. 3

- 106 Cow's Milk for Children. L. Morquio.—p. 97.
107 *Primary Echinococcus Uterine Cyst. A. Turenne.—p. 119.
108 Febrile Chlorosis. P. E. Duprat.—p. 126.

107. **Primary Echinococcus Cyst of the Uterus.**—Turenne started to excise a supposed myoma in the uterus of a woman of 47. As the tumor was seized with forceps, it tore and a flood of fluid startled the surgeon as he feared he had blundered into overlooking a pregnancy. There was nothing to be done then but remove the uterus by subtotal amputation. In Argentina where echinococcus disease is so common, he has been unable to learn of but one other case of a primary echinococcus affection of the uterus. In the literature he has found records of eight others, published in England, Germany, Italy or Russia. His case brings the total to ten. In his case the cyst had probably been present during the woman's last pregnancy.

Semana Medica, Buenos Aires

April 18, 1918, 25, No. 16

- 109 Sanatoriums and Farm Colonies for the Tuberculous. E. R. Coni.—p. 444.
April 25, 1918, 25, No. 17
110 *Gastro-Intestinal Disease in Children. R. Cabrera and T. Scannavino.—p. 465.
111 The Prognosis in Tuberculosis. S. de Madrid.—p. 489.
112 *The Campaign against Tuberculosis. E. R. Coni.—p. 493.

110. **Digestive Disturbances in Children.**—This long article emphasizes the importance of classifying each case of dyspepsia according to the cause. Perhaps the most important difference between the disturbances from actual gastro-enteritis and dyspepsia from overfeeding is that the immediate symptoms with the latter are less intense and less grave. The course with gastro-enteritis is acute or subacute, never chronic. Other causes must be sought when this acute and cyclic affection drags over a long period. On removal of the secondary factors the gastro-enteritis subsides.

112. **Tuberculosis.**—Coni discusses the organization of a campaign against tuberculosis in the rural districts, and gives a historical sketch of the change in the general attitude toward the tuberculous in the last forty-five years. He states that there is no adequate notification in Buenos Aires of cases of tuberculosis. In the last four years, the numbers of cases reported to the authorities by physicians have been, respectively, 70, 74, 57 and 48. The anonymous notifications numbered 206, 223, 67 and 60—all showing a decline, while the number of deaths from tuberculosis increased last year.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 3

- 113 *Cholera Vibriones in Tropical Soil. P. C. Flu.—p. 1.
114 *Cholera in Batavia. P. C. Flu.—p. 39.
115 *Test for Fecal Contamination of Water. P. C. Flu.—p. 104.

113. **Survival of Cholera Vibriones in Soil.**—Flu refers to the soil in the coolie quarters at Batavia which become hotbeds of cholera whenever the disease is epidemic. The normal flora in the soil and other factors soon destroy the cholera

germs on the soil, so that none survive longer than two days when the ground is damp; during dry weather the vibriones are found alive in the soil up to four or six days. But even under the most favorable conditions, the vibriones do not proliferate in the soil.

114. Endemic Cholera.—Batavia still has endemic cholera although two other large towns in Java have ceased to be foci of endemic cholera since a good water supply has been installed. After having been free from cholera for some time an epidemic occurred at Batavia in 1909 and has continued to date with only a few months' intermission each year. Healthy carriers from Sumatra are evidently responsible for much of this morbidity, but the utter lack of hygiene among the natives, and the use of river water for drinking and bathing perpetuate the epidemic. Rainy weather facilitating drainage checks the epidemics, but sporadic cases continue even through the rainy season. Immediately after a heavy rain, flushing the latrines and contaminating the rivers, cholera flares up anew. As the rains continue, however, the vibriones get washed away and the fly nuisance abates, so that the epidemic dies out.

The link between the different epidemics is afforded by the sporadic mild cases occurring during the apparently cholera-free periods. Search for these mild sporadic cases and search for carriers is the only means to eradicate cholera. The vibriones do not lead a saprophytic existence in soil, in water or in flies. Their only permanent habitat seems to be in the human intestine, and especially in persons who have been left chronic sowers of vibriones after recovery from cholera. There is probably some specific inflammation of the bile ducts in which the vibriones lurk, analogous to conditions in typhoid carriers.

115. Fermentation Test for Contamination of Water.—Flu reviews the contradictory reports that have been published on Eijkman's fermentation test. It is based on the assumption that only true colon bacilli, from the bowels of mammals, are able to ferment glucose at 46 C. This is the maximal limit of the fermentation property. The Eijkman test, positive at first, may give negative findings when the contamination is no longer recent—a self-purification process having occurred. By applying the test in parallel sets of tubes at 37 C. and 46 C. the smaller or larger difference between the findings in each set will determine whether the contamination is recent or old. The glucose-peptone solution must be slightly alkaline. These reports are all published in parallel columns in Dutch and English.

Hospitalstidende, Copenhagen

April 17, 1918, 61, No. 16

- 116 *Liver Substance in Treatment of Night Blindness. v. Stenitzer and G. E. Schrøder.—p. 481.
117 *Artificial Ankylosis of Wrist. H. Fovelin.—p. 493.

116. Liver Treatment of Night Blindness.—Schrøder was unable to detect any special influence on the hemeralopia when the men were given 200 gm. of cooked liver in their soup daily. Others have reported benefit from this.

117. Artificial Ankylosis of the Wrist.—Fovelin has seen large numbers of cases of war fracture of the humerus with lesion of the radial nerve causing "drop hand." To avoid condemning the man to wear a prosthesis for life, he induced artificial ankylosis of the wrist. This enabled the man to dispense with a prosthesis and use his hand comparatively normally.

Norsk Magazin for Lægevidenskaben, Christiania

May, 1918, 79, No. 5

- 118 *Myasthenia Gravis. G. H. Monrad-Krohn.—p. 489.
119 *Yellow Tint of Cerebrospinal Fluid. F. Leegaard.—p. 512.
120 *Friedländer's Bacillus. E. Julsrud.—p. 533.
121 *Meningococcus—Gonococcus. E. Aaser and J. Holst.—p. 543.

118. Myasthenia Gravis.—Krohn warns against mistaking myasthenia for progressive bulbar paralysis or progressive ophthalmoplegia which it deceptively resembles. The paralysis with myasthenia gravis is not true paralysis; it is merely weakness of the muscles, and the aim in treatment is

to rest the muscles. They must be given the chance and time to recuperate, and be protected against the slightest strain. All the muscles may be affected, but some more than others, and there is great variability, sudden changes from slight to extreme weakness and vice versa. No causal treatment is known but symptomatic measures may tide the patients past the danger point to final partial or complete recovery. In the first of two cases reported in detail, artificial respiration had to be applied several times and kept up sometimes for two hours. Subcutaneous injections of camphor seemed to help in this case. In the two cases published by Krogh, both patients died from suffocation. Most of the cases on record have been in women between 20 and 30. The central nervous system has been found apparently normal at necropsies. Electric tests demonstrate that the abnormal fatigue of the muscles is of peripheral nature, and in repose the muscle regains strength. The muscle is given a chance to rest and recuperate, and this is of vital moment, particularly for the muscles of swallowing. Krohn insists that lack of care in this respect may have fatal results. The patient's meals should be under the close supervision of a nurse who should see to it that, at the very least, two minutes must elapse between one swallowing movement and the next. The nurse should control this, watch in hand. The food can be fluid or chopped fine, but the muscles of swallowing must be given an interval of at least two minutes before they are used again. To let the patient drink from a cup—thus inducing a rapid series of deglutition movements—he regards as equivalent to murdering a person by drowning. The patient should always be spoon fed. Rectal feeding may usefully supplement the other food at need. He warns in particular against the stomach tube. It either induces reflex movements and thus unnecessarily exhausts the patient, or, if there are no local reflexes, the tube is liable to slide into the trachea. Oppenheim has reported a fatal result from the use of the stomach tube in myasthenia. The dyspnea requiring artificial respiration may come on suddenly, especially after a bad night. The movements for artificial respiration do not seem to fatigue the patient unduly. Electric tests should not be applied to the muscles of the head or trunk, but the myasthenic reaction in the extremities is a guide to the treatment, especially in regard to the necessity for care in feeding. He adds that strychnin is contraindicated. Absolute rest is the keynote to treatment.

119. Xanthochromia.—In Leegaard's three cases the yellow tint of the cerebrospinal fluid was due to tuberculous meningitis or hemorrhage from trauma or a tumor in the temporal lobe. These cases are compared with cases of xanthochromia on record.

120. The Friedländer Bacillus.—Julsrud reports two cases to illustrate some of the various clinical pictures for which Friedländer's *Bacillus pneumoniae* may be incriminated. In the first case there was fatal sepsis in a woman of 52. The other patient was a man of 40 in the hospital for three months with the diagnosis of pulmonary tuberculosis. There was no necropsy but the sputum contained only the Friedländer and inoculation of guinea-pigs and mice proved negative. He had had pneumonia six times since childhood, the next to the last time accompanied with empyema.

121. Meningococcus-Gonococcus.—Aaser and Holst refer to Eisenmann's work in 1830 on gonococcus meningitis and others since, citing cases of conjunctivitis, rhinitis and stomatitis of gonococcus origin, even in children, from extragenital infection. A case of primary gonococcus sepsis was reported in 1908. Gonococcus general infection may occur without urethritis, and meningococcus general infection without meningitis. In certain other respects the gonococcus and the meningococcus resemble each other, and among the diplococci found in certain sporadic cases of meningitis, some seem to stand closer to the gonococcus than to the meningococcus. They tabulate the findings in twenty-two sporadic cases of meningitis in which they applied different tests for gonococci to the cerebrospinal fluid, also to the secretions from the nasopharynx of patients with gonorrheal urethritis. Deviation of complement, agglutination and inoculation of animals all gave concordantly negative results.

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SURGERY OF THE GALLBLADDER AND THE BILIARY DUCTS*

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Infection and malignancy are conditions which enter into the etiology of surgical lesions of the biliary tract. The contention that infection enters this region much more often by way of the general circulation than was formerly believed is supported by the results of experimental work on animals and also by the fact that infections in this tract are, in many instances, only a part of a more general infection, as is frequently shown by the presence of lesions existing in the appendix, duodenum or stomach at the same time. Whether the infection is primary in any one of these foci and from it distributed to the other regions, or whether infection begins at the same time at several different points, owing to organisms circulating in the blood stream, cannot be definitely decided. It is, however, of practical importance that surgical procedure for lesions of the biliary tract will usually involve exploration of these several areas, which adds little to the operation.

Undoubtedly, the entrance of the infection is sometimes through the portal circulation and the liver. In such cases, infection exists within the liver as well, though apparently this is eventually relieved by the proper surgical treatment. Infection persisting in the liver may in some instances be the cause of a recurrence of symptoms at a future time. The formation of calculi, which is usually the result of invasion by some type of bacteria, apparently takes place in the gallbladder or ducts or even in the intrahepatic ducts, though as stagnation is probably an important factor in stone formation, the stones more commonly have their origin within the gallbladder.

Surgery in malignant diseases of this region is usually palliative, and consists in devising some method by which the bile may be diverted into another part of the intestinal tract. Carcinoma of the gallbladder is rare and is seldom discovered in time to allow a radical removal. Primary carcinoma of the common duct is at times found when it can be excised and the tissues reconstructed with some hope of a complete cure. An obstructing malignant growth at the ampulla or in the head of the pancreas is more often seen. This necessitates joining the gallbladder to the stomach or intestine.

CLINICAL CLASSIFICATION OF CASES

For the purpose of reviewing the clinical features in diseases of the gallbladder and its ducts they have been considered in four groups.

Group 1: In this group are those cases of a more or less chronic cholecystitis producing dyspepsia and at times acting as a focus for a more or less general infection. Such cases were mentioned by Moynihan as presenting the inaugural symptoms of gallbladder disease, and were those which formerly were slow in coming to surgeons. At the present time such conditions are much better understood. The clinical history in this group is not definite, and most intensive study is necessary before treatment can be recommended. All other possible lesions, of which there are many, must be excluded. The pain is usually not at all typical and is apt to be almost constant. A slight jaundice is frequently present and is sometimes persistent; attacks with a rise of temperature may be a part of the syndrome suggesting that the infection extends beyond the gallbladder. Often the condition has symptoms of general toxemia associated with it. The clinical evidence in many instances suggests that the neuritis or general rheumatic features are produced by an infected gallbladder which is acting as a focus for the general infection. Neuritis especially seems to be a part of the syndrome in some of these cases. Many of the patients with general toxemia complain of innumerable points of tenderness and pain, and great caution should be observed in assuming that these difficulties arise from the gallbladder. On the other hand, there can be no question that the infected gallbladder sometimes is a focus for general infection, and that this infection will subside when attention has been given to the gallbladder.

In many instances, cholecystitis is undoubtedly a forerunner of the formation of calculi, although, in a certain definite percentage of cases, cholecystitis remains a separate entity without showing any evidence of stone formation. Just what difference there is, in the pathology and bacteriology, between cholecystitis with stones and cholecystitis without stones, has not been definitely determined, although inflammation of the strawberry type may reach a very extreme degree without the formation of stone. It exists more often without stones than with them, so that apparently stones not only are the result of infection but also are the result of certain definite types of infection, and possibly occur under specific conditions. Gangrene and perforation of the gallbladder may occur without any evidence of calculi. At the time of exploration, it may be difficult to make out the pathologic conditions in the gallbladder even when the clinical features are very definite, as the gallbladder may appear quite normal. It must be granted that there is a certain percentage of such cases in which an exploration is made on good clinical evidence and in which no definite pathologic condition can be demonstrated. While at times it may seem advisable to remove a gallbladder which appears and feels quite

* Chairman's address, read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

normal, at the same time it must be borne in mind that in order to obtain satisfactory results in any surgical procedure we must determine the basis for that procedure on the pathologic as well as on the clinical evidence, and that if an opinion is formed from the clinical picture alone, we may be led astray. It would be well to recall the very unsatisfactory results obtained in certain gastric cases some years ago when gastro-enterostomies were performed without its first being made certain that an ulcer was present. In those cases in which ulcer did exist, the results were good; but if the symptoms were being produced by some other pathologic condition, the patient was worse than before operation.

The results of certain operations on the colon make it seem that the absolute basis of most surgical operations must lie in the pathologic lesion itself. If there is cholecystitis, the gallbladder wall is usually thickened, white, and is either not compressible or empties very slowly on pressure. The fact that the gallbladder cannot be compressed is not in itself sufficient evidence to warrant operation. At times the small white spots in the mucosa of the gallbladder may be seen through the gallbladder wall in the strawberry type of infection. A considerable enlargement of the regional lymphatics will sometimes help in making a diagnosis. These lymphatics are always greatly enlarged and softened in the presence of marked cholecystitis. In this condition, which approximately constitutes 10 per cent. of all cases of cholecystitis in which the pathology is not evident on exploration, I believe that in most instances the trouble is in the gallbladder or pancreas or both, and that in a certain few the difficulty comes from a mistaken diagnosis. If all other possible lesions have been excluded and the clinical syndrome is positive, it may be necessary, occasionally, to remove what seems to be a fairly good gallbladder. On several occasions I have made the mistake of saving a gallbladder because of a lack of pathologic evidence for removing it, only to have the patient return with the same complaint, and to find at a second operation a very definite cholecystitis. For a time in these doubtful cases it was our custom to open the gallbladder and remove a small piece of the wall for pathologic examination before doing anything more radical. This was not of enough assistance to warrant its continuation because, possibly, at the time of the exploration no histologic changes actually existed, or else the section removed was not taken from the affected quadrant of the gallbladder. Drainage of the gallbladder in such cases is not sufficient. In most instances the symptoms are relieved for a time after drainage, but there is a recurrence of symptoms in too large a number of cases, as might be expected from the nature of the trouble, so that removal of the gallbladder is indicated in all cases of cholecystitis.

Group 2: In the second group of cases are included those patients having typical gallstone colic. The symptoms are very definite in every respect. The attacks are short, sharp and colicky, with characteristic radiation and residual soreness. There is usually no chill, fever or jaundice. Morphine and external heat are required to relieve the pain. Patients often have these attacks for a number of years without seeking treatment, probably because they feel perfectly well as soon as the pain subsides. On exploration, a gallbladder apparently normal in size, color and thickness, and containing one or many stones, may be found; or, in addition to the stones, any degree of

inflammation may be present in the gallbladder at the same time. It is surprising in some instances to see what a good condition will be maintained in the gallbladder in spite of a large number of irregular stones. If the cystic duct is completely blocked, hydrops is found, the old colicky pains have probably disappeared, and the evidence of a mild persistent infection remains. In this group the clinical features and pathologic conditions are definite, and removal of the gallbladder is indicated.

Recently, in reviewing a large series of all types of gallbladder cases in which recurrence of symptoms had taken place some time after operation, we found that the largest percentage of recurrences occurred in this group. The first operation in most of the cases of recurrence had been drainage of the gallbladder, and the recurring symptoms were almost always due to stones in the gallbladder which had either been overlooked or had reformed after drainage. There was a great deal of evidence to show that stones often do reform in the gallbladder. In many of the cases of recurrence, the patients had been entirely free from trouble for from three to six years after drainage, when there was a sudden return of the former attacks, and exploration showed the gallbladder again filled with stones. In most instances, such gallbladders are probably functionless after the first operation. Furthermore, there is sufficient evidence at the present time to show that the patients are quite as comfortable without their gallbladders as they were with them.

Group 3: In this group are placed those cases of typical cholangitis with stones in the common duct which at the time of the attack produce an obstruction to the flow of bile and a resulting jaundice. Each attack is associated with chills and fever as well as jaundice. In many such cases there are also stones in the gallbladder, which is most often contracted. There may also be stones in the cystic and hepatic ducts, and frequently there are swelling and hardening of the pancreas. In the performance of all gallbladder operations it is essential that the ducts shall be explored as carefully as possible, because stones are found in them when least expected. Such exploration should be confined to palpation unless there is clinical evidence that warrants opening the duct for examination. In cases of typical cholangitis, the common duct should always be opened and, if possible, the exploration should be done with the finger in the duct, to make sure that all the stones have been removed from the hepatic ducts and from the ampulla. It is usually best in these cases to remove the gallbladder after the common duct has been cleared and the drainage placed. Stricture apparently does not follow ordinary uncomplicated operations of the common duct. It has been our custom to drain the common duct with a rubber tube, stitching the opening in the duct accurately about the tube. The gallbladder in these cases is frequently destroyed or nearly so, and a more complete recovery will follow its removal. If there are complications or if there is any question about the patency of the common duct, the gallbladder should be saved.

Group 4: In Group 4 are the atypical cholangitis cases with painless or almost painless jaundice. I think it is quite impossible to make a definite diagnosis before exploration in a large percentage of these cases, and, in view of the fact that there is so much uncertainty about the diagnosis, in all cases of painless jaundice in which a positive clinical diagnosis cannot

be made, the patient should be subjected to an exploration. The symptoms may be produced by biliary cirrhosis or by malignant disease at the ampulla or at the head of the pancreas, and sometimes this form of jaundice may be produced by an inflammation in the head of the pancreas, although this occurrence is probably quite rare. Any variation in the jaundice or suggestion of fever or chills should be an indication for exploration. We have seen a considerable number of persons with jaundice in whom the symptoms were being produced by stone in the common duct and who insisted that they had had no pain at any time. Cases in this group are not ones in which it is especially attractive to operate, as the operation may be very difficult and the patient in none too good a condition. However, the greatest difficulty usually arises from oozing and hemorrhage, which may come from the wound or possibly from the mucous membrane of the nose, throat or intestinal tract, and may begin at any time up to eight or ten days after the operation. This oozing results from the condition of the blood, a careful study of which before operation is often very helpful. As a general rule, if the coagulation time is more than from twelve to fifteen minutes, the risk from any operative procedure will be very great. However, it has been noted in some cases in which there was a very long coagulation time that there was no tendency to ooze, while in others in which the coagulation time was well within normal limits there was considerable difficulty from oozing. In operating on these patients, jaundice should always be considered an indication of added risk, and if it is subsiding, the operation should be postponed. The use of calcium salts before or after operation has not been of distinct advantage in our experience with these cases. Too much emphasis cannot be laid on the advisability of transfusing all patients with jaundice before operation. To accomplish the most good, transfusions must be made before any oozing begins.

If, in spite of this procedure, oozing does start from the wound and from the mucous membranes, as it may at about the end of the first week after the operation, aspiration of the congested liver with a large trocar or even opening well into the liver substance is of great benefit. I have found this to be true in the few cases in which I have tried it. The bleeding from the wound in the liver is very profuse, and this is probably the way in which the benefit is derived. If the bile flowing from the tube in the common duct stops or is greatly reduced, it is almost certain to mean that oozing will take place, while, on the other hand, if bile drainage continues, there is not this danger of oozing, so that oozing depends directly on the capacity of the liver cells to functionate. In these cases, naturally, the liver cells are greatly congested and swollen so that they cannot secrete unless this pressure and swelling are relieved, which we have accomplished in these few cases by means of draining through incisions into the liver. Frequently the bile has started to flow very soon after this procedure. The common duct drainage tube should be left in place a long time. Frequent irrigations of physiologic sodium chlorid solution seem to bring away considerable clotted blood and, to a certain extent, relieve congestion. The most desperate cases are those in which the obstruction of the common duct is due to a stricture or in which the duct had formerly been ligated or divided during an operation. Such cases are becoming very common since the more frequent performance of cholecystectomy. The

jaundice is generally complete, and no bile passes into the intestinal tract. The liver has usually been entirely closed off for from several months to a year or more, and the difficulty lies in establishing liver function after the duct has been reconstructed. The jaundice often persists in spite of bile drainage, and almost any type of toxemia may appear. Transfusion and aspiration of the large congested liver may be very useful.

EXPERIMENTAL STUDY OF THE REMOVAL OF THE GALLBLADDER

A few years ago, Dr. F. C. Mann and I¹ removed the gallbladders from various species of animals and studied the effect of such procedure on the remaining portion of the biliary tract. Certain definite facts were ascertained by this study, the most important of which were that usually all the extrahepatic ducts dilate shortly after the gallbladder is removed, and that this dilatation is apparently due to fluctuations in pressure which are maintained by a small bundle of muscle fibers at the entrance of the ampulla into the duodenum known as the sphincter of Oddi. The study also showed that in many of the animals this sphincter apparently lost its resisting power shortly after the gallbladder had been removed. The bile, instead of flowing into the duodenum under the influence of this sphincter, flowed continuously, and the bile pressure within the common duct, which is normally at least 100 mm. of water, dropped so as not to exceed 30 mm. In many instances the bile pressure within the duct was practically nil a few weeks after the gallbladder had been removed.

Mann's further studies on these points are very interesting. In comparing the bile pressure in a species of animals which had a gallbladder with that in a species of animals without a gallbladder, he has shown that the animals which do not possess this organ have bile flowing through the common duct which is practically under no pressure, in spite of the fact that the sphincter of Oddi in this species is apparently the same anatomically as in the species having the gallbladder. The changes produced in the remaining parts of the excretory apparatus of the liver after the gallbladder had been removed were the most conclusive proofs obtained that the gallbladder has a definite function. Mann has grouped the theories that have been offered to explain the functional significance of the gallbladder under three headings: First, the gallbladder may functionate as a reservoir for the storing of bile. While this may be true to a slight degree, it is well known that the capacity is too small, as compared with the amount of bile secreted, to act very capably as a storage reservoir. Second, he classifies the gallbladder as a secretory organ which elaborates and adds something that is of importance either to the general body economy or to the mechanism of bile expulsion or chemical action. It is certain that the gallbladder adds mucus to the bile, and it is also certain that this mucus mixed with the bile changes it considerably. It has been shown repeatedly that mucus from the gallbladder mixed with bile renders it much less irritating to the pancreas in case it comes in contact with that organ. Third, he names the gallbladder the regulator of the flow of bile. This function of the gallbladder has been suggested by a number of investigators. From the

1. Judd, E. S., and Mann, F. C.: The Effect of Removal of the Gallbladder: An Experimental Study, *Surg., Gynec. and Obst.*, 1917, **24**, 437-442. Judd, E. S.: Cholecystitis: Changes Produced by the Removal of the Gallbladder, *Boston Med. and Surg. Jour.*, 1916, **174**, 815-825. Mann, F. C.: The Function of the Gallbladder: An Experimental Study, *New Orleans Med. and Surg. Jour.*, to be published.

changes produced in the flow of bile by cholecystectomy, it would seem well established that the gallbladder certainly has something to do with the bile flow, and that its action as a tension bulb must be one of its most important duties.

Our investigations and also those of others would seem to show beyond any question that the bile flow is regulated, at least to a degree, by the gallbladder. Mann's comparative studies of animals having a gallbladder with those not having a gallbladder are also interesting. He has shown that the length, diameter and point of entrance of the common duct into the duodenum, while varying considerably in different species, bears no relationship to either the normal presence or absence of the gallbladder. These studies show, however, that the species of animals without a gallbladder maintain practically no pressure in the common duct. In no instance was the pressure withstood by the sphincter of Oddi more than 30 mm. of water in animals without a gallbladder as compared with 100 mm. as the minimum pressure which the sphincter would withstand in animals possessing a gallbladder. While the sphincter of Oddi is histologically and anatomically the same in animals of the two species, it is not physiologically active in animals without a gallbladder or is certainly not so active as in those possessing one.

TECHNIC OF THE REMOVAL OF THE GALLBLADDER

The technic of operations on the gallbladder and ducts is definitely established, though there is much variation in the operation according to the judgment and method of proceeding of the individual operator. There can be no question that cholecystectomy is as safe a procedure as cholecystostomy, if the operator has had ordinary experience. The immediate convalescence is more satisfactory and the ultimate results certainly are better following cholecystectomy. Whether the removal of the gallbladder be done by starting at the fundus and dissecting downward or by starting at the cystic duct and freeing it first, there are two main factors which must be emphasized: 1. The cystic artery must be securely tied. I do not believe it is material whether this is tied in conjunction with the cystic duct or separately. If the artery can be isolated with the duct and tied at the same time, it will be sufficient. 2. In order to prevent any disturbance of the common duct, it is absolutely essential that a complete isolation of the cystic duct be made before any clamps or ligatures are applied. The most serious consequence of a cholecystectomy is trauma to the common duct. The duct has undoubtedly been caught in clamps and completely divided a great many times. This cannot possibly happen if the cystic duct is isolated beforehand. In an endeavor to remove all of the cystic duct, the common duct has often been injured or even ligated. Judging from our review of recurring cases it does not appear necessary to remove all of the cystic duct to obtain satisfactory results. In a very small percentage of cases, if at all, will the stump of the cystic duct or the entire cystic duct cause trouble after cholecystectomy.

While removal of the gallbladder should be the operation of choice, in cases of cholecystitis with or without stones, still, in a certain small percentage of cases, it is much better to do a cholecystostomy primarily and then to remove the gallbladder in a second operation if it becomes necessary. This would seem to me to be the best plan in case of much infection

outside of and about the gallbladder or in cases in which there is a great amount of induration and edema about the ducts. If the infection is confined to the gallbladder, it is best to remove it if possible. Enlargement and hardening of the head of the pancreas is an indication for removal of the gallbladder in preference to drainage, and this would still hold good in the presence of a slight degree of jaundice if the jaundice is due to pancreatitis. Cholecystectomy, seemingly, accomplishes more in cases of pancreatitis associated with gallbladder conditions than does any other form of treatment. This is probably due to the changes produced in the excretory apparatus by the removal of the gallbladder. It does not seem to me to be advisable to open the common duct for exploration unless stones can be palpated or unless clinical features suggest that stones or infection are present in the duct. Dilatation of the common duct is not an indication for draining it, as this change would have taken place if the gallbladder had been out of commission for any length of time. If jaundice exists at the time of the operation, the duct, as a rule, should be opened even if no stones are palpated, as the convalescence will be more satisfactory if the infected ducts are drained. If the stones in the ampulla can be removed through an opening in the duct, it is much safer and is preferable to the transduodenal operation. Exploration of the gallbladder and ducts should be performed in almost all cases of chronic jaundice in which the diagnosis is uncertain. Some of these will prove to be due to infection which can be promptly relieved; and if a malignant obstruction does exist, a palliative operation can often be done which will be very satisfactory.

INDURATIVE OR RHEUMATIC HEADACHE *

HUGH T. PATRICK, M.D.

CHICAGO

HISTORICAL

Thirty-odd years ago, Scandinavian masseurs discovered that in certain cases of headache there was considerable tenderness in the occipital and suboccipital regions, and sometimes in others, and that many of the patients were relieved by persistent massage.¹ Led by the sense of touch, these therapists concluded that the trouble lay in multiform thickenings in the forms of nodes, nodules, strands and more diffuse infiltrations. From the statements of their patients they decided that the lesions were produced by exposure, by "catching cold," by the rheumatic diathesis and by other agents still more vague. Gradually recognition of this variety of headache percolated into Germany, France and the United States, but full scientific investigation is still lacking. Our knowledge of the trouble remains nearly where it was thirty years ago, but in the meantime concerning it a lot of nonsense has been perpetrated and perpetuated. Now and again it has been artificially expanded to take in migraine, neurasthenic headache, neuralgia, in fact, practically all pain in the head except that of grave intracranial disease. In spite of

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Telling (Lancet, London, 1911, 1, 154) says that in 1816 Balfour described "nodular myositis," and that in 1876 Uno Helleday, a Swede, published an important paper on the subject.

vague ideas and nonsense, the fact that this rheumatic or indurative headache exists will become apparent to any careful observer. Though not very common, it is far from rare. To know about it is worth while, because if not recognized it may easily be mistaken for serious intracranial disease or for an unimportant functional headache, and because if not correctly treated, it may continue for months and years, while proper treatment practically always cures it. Since it has been made too inclusive by some authors, one must be cautious in taking clinical descriptions from the literature. Hence the following is based principally on my own experience.

SYMPTOMS

Rheumatic or indurative headache may be acute, but most cases are subacute or chronic—a matter of many weeks or months, not rarely of years. With Auerbach² I agree that the majority of the patients are women, but the preponderance is not great—about four to three. The disease seems to be rare in persons under 20 years of age, is not unusual in those under 30, but more than half of the patients are over 40.

It is a real pain; it hurts. This is emphasized because the subacute or chronic headache of neurasthenia or psychasthenia and of many of the mild psychoses, though bitterly complained of, is not a real pain but a distressing discomfort. The real pain may be intense, especially in the acute cases, or only nagging, and it may keep the patient awake at night. Whether intense or rather severe, or merely an aching soreness, it may be described as a steady pain with remissions, or intermissions, and exacerbations. It has neither the instantaneous shoots nor the brief excruciating paroxysms lasting a few seconds, with perfect calm between, so typical of trifacial neuralgia. Nor does it come in definite, severe attacks, continuous for from six to forty-eight hours with free intervals of weeks, as does migraine. Nausea and vomiting do not enter the symptomatology. In the acute cases, the pain never ceases but always fluctuates. In the subacute cases complete intermissions are few and short; remissions are longer but rarely for more than a few days. In this respect the chronic ones may be likened to chronic arthritis which has bad days, better days and good days, but in which more or less soreness is always there and the patient is ever with the feeling that bad pain is impending. Like the pain of sinus disease, rheumatic headache may be worse during one part of the twenty-four hours, and it may be almost limited to this period. Consequently, like sinus headache, I think it has sometimes been thought to be due to malaria. On the whole, it is apt to be worse in the afternoons or evenings.

The location of the pain is of some importance. Never is it frontal or vertical alone, rarely temporal; especially is it occipital or suboccipital, though from this region it may radiate to the vertex, the frontal or the temporal areas or to all of them. I have known it to be limited to the parietal region, but this is unusual. It is more often bilateral than unilateral. Notable is the somewhat exceptional fact that while the patient speaks of his pain as headache, it is almost confined to the back of the neck with a little radiation upward. This circumstance is sometimes so striking that I have labeled the cases "arthritic headache." That is to say,

there is apparently no trouble above the occipito-atloid joint, while obviously there is trouble in or (and) below this point. The pain felt above is either referred pain or due to irritation of the occipital nerves.³ At times it may be produced by pressure in the upper neck. Not rarely the pains radiate toward the shoulders or down the back, and subscapular pain may be present.

Of great significance is the presence of tenderness to pressure. There is none of the surface sensitiveness to touch sometimes present after an attack of migraine, nor is the head sensitive to heavy percussion (with the fist) as it sometimes is in sinus disease, but rather deep pressure or firm stroking in some place or places hurts. These places are especially the lower occiput and upper neck, but they vary a good deal. Particularly to be examined are the muscular insertions on the occiput, the upper neck at the rear and sides, and the occipital aponeurosis of the occipito-frontalis. Quite frequently the trapezius and even the sternomastoid are tender, and not rarely the parietal or temporal muscles.

As already noted, the discoverers of this headache always found exudative lumps or nodules, emphasized by most subsequent writers. I am sure the average practitioner will not often find them. As a clinical feature, they may be ignored. The tenderness suffices. But of this, more in connection with the pathology.

If indurative headache really is a rheumatic affection, one would expect frequently to find other evidences of so-called rheumatism. And such is the case. Probably this is most frequently evidenced by pain on movement of the neck. This may be constant or only off and on, and may be caused by only one or by several movements. Especially to be tried are extreme rotation and lateral flexion, passive, active and against resistance. In other words, in rheumatic headache there is often involvement of the joints or muscles and ligaments of the neck. Although this is the most frequent concomitant, spinal joint lower down, shoulder, subscapular region, hip or even smaller joints may be implicated. Because the headache is the crying complaint, the patient may say nothing of the other troubles. They have to be looked for. Maybe they have preceded the headache and for the time being have disappeared.

Like other rheumatic troubles, indurative headache is apt to be worse after exposure to cold, after "catching cold," and during changeable weather. Cold applications generally aggravate, while heat alleviates it. It is increased by stooping, straining and coughing, generally by physical exertion, and rather rarely by jolting or jarring. Frequently it is increased by mental application and consequently interferes with intellectual concentration.

What I believe to be two important findings, fever and leukocytosis, perhaps would better be considered in connection with the pathology.

PATHOLOGY

As noted before, the disease has always been considered to lie in the nodes or strands: the *Knötchen* or *Schwielen* of the Germans. Of all the authors consulted, no one seems to doubt their presence and specificity unless it be Telling.⁴ Assuredly I am in no

3. The same sort of pain may be due to other causes. Gordon Holmes (Headaches of Organic Origin, Practitioner, London, 1913, 90, 968) relates an interesting case of headache due to tuberculous caries of the "highest cervical vertebrae."

4. Telling, W. H. M.: Nodular Fibromyositis, Lancet, London, 1911, 7, 154-158.

2. Auerbach, S.: Der Kopfschmerz, Berlin, 1912.

position to assert what a skilled palpator assisted by liberal lubrication (often urgently recommended) may or may not be able to feel. But I frankly avow my skepticism. I think the nodules as generally described have no analogy in disease elsewhere in the body, and not often have I been able to feel them. My experience with masseurs is that they nearly always feel something—abnormal. Norström,⁵ one of the first and best known writers on this subject, naively advises one to examine for the nodules during the attack of pain, as otherwise they may not be found. Obviously this means that the observer does not feel them but the patient does. Another voluminous and authoritative writer⁶ says that the nodules are sometimes the size of a grain of sand (*Sandkorn*), and still others claim to palpate the ganglions of the cervical sympathetic. In the presence of these statements, a doubt seems to be not unreasonable. Furthermore, with the aid of a lubricant, it is surprising what a lot of little irregularities, kernels, strands and the like may be felt in the normal person, not to speak of lymphatic glands, which very often are palpable in persons with indurative headache—for a very good reason, as we presently shall see. There is no doubt whatsoever about the tenderness, and I have no doubt that often there are infiltrations more or less localized or diffuse; but the universality of the nodes I believe to be apocryphal. Their only real demonstration, so far as I know, is that of Auerbach.² From an old woman he cut out a node (*Knötchen*) the size of a hazelnut kernel. It showed increase of connective tissue, and the nerve endings apparently encircled by connective tissue. But in the muscles of a woman of the same age with no signs of indurative headache who died of pneumonia he found an exactly similar thing. In short, these localized lumps and thickenings sorely need investigation by real pathologists. Müller⁶ complains that in muscular rheumatism masseurs always find something palpable, while internists assert that there are no ascertainable organic changes. Probably both have something to learn.

But nodules or no nodules, what is the cause of rheumatic headache and what is its pathology? For me, the obviously reasonable answer has come to be that the cause is an infection and the pathology probably microbic invasion of the tissues involved with the consequent reaction. And yet this idea seems to have occurred to no one very clearly, though two writers closely approach it. So good a man as Edinger,⁷ who, indeed, first directed my attention to this affection some sixteen years ago, in relating a case casually mentions that the patient had frequent "colds" due to exposure to drafts where she worked. Seemingly never thinking of infection but only of the cold draft he says, "The pain is caused by getting chilled." Hartenberg⁸ comes much closer. Evidently, he had a very good conception of the nature of the trouble. He says it is only part of a "pathologic process much more extended." Also he noted the concomitant arthritis of the cervical spine and swelling of lymphatic glands. Furthermore, he states that infectious diseases rarely fail to make the headache worse, and

it is worthy of remark that the infections he instances are not typhoid, pneumonia and measles, but grip, coryza, pharyngitis and tonsillitis. Finally, he concludes that indurative headache, of which he speaks as "cellulitic" headache, is a "toxi-infection" from the nose or throat; that is, due to the local action of toxins arising from an infection elsewhere in the body. Telling⁴ is the other author I have found who seems to have had a proper conception of the pathology. He says it is "an inflammatory exudation into fibrous tissues . . . the result either of direct microbic action or more probably of toxins."

Evidently what we need is competent histologic and bacteriologic study of the disease, with observations on the blood and on the tissues. Along this line I have nothing to offer, but some clinical observations are suggestive. In no article that I have consulted is there one word about temperature or leukocytosis. Nevertheless, more than five years ago I began to examine for these indications or results of infection. The findings are in harmony with other signs indicating an infectious process. In the acute cases, fever and leukocytosis are never absent. In the chronic cases frequently they are; but repeated examinations, especially during exacerbations of the pain, will nearly always at one time or another show a temperature of from 99 to 100 F. and a white count of from 8,600 to 9,000 or 10,000.⁹ The subacute cases range between the acute and the chronic.

But even in fairly acute cases with obvious infection, both temperature and white count may be surprisingly low. In a perfectly typical case in the person of a lad of 15 years who had had a streptococcal throat, large glands in the neck, an abscess which had kept him in bed for six weeks, and a perfectly obvious arthritis of the knee, the temperature ranged from 99 to 100 F., and the leukocyte count was only 7,250. Within forty-eight hours after removal of the tonsils, the headache which had been "nearly driving him crazy" had disappeared for good, as had also the fever. Naturally, the next question is, Can this supposititious source of infection be found? I have not always succeeded in finding it, especially in the chronic cases; in the acute ones, I think I have. The source is practically always in the head—the throat, teeth, sinus, ear or suppurative rhinitis with poor drainage. Also bearing on the pathology is the experience that in acute and sometimes in subacute cases removal of this supposititious focus promptly cures the headache, with disappearance of the fever and of the leukocytosis. For instance, a young woman who had been suffering severely for two years promptly recovered when the tonsils were removed.

But I hasten to add that it is not always easy to decide where the focus is. One woman, aged 60, who gave a history of tonsillitis, had an old discharging ear and infected teeth. She got well after removal of the teeth. A woman, aged 53, who had had indurative headache for two and a half years, had suspicious teeth, and pus in the tonsils. She preferred to have the teeth out first. There was no improvement. Some months later the tonsils were taken out and soon she was greatly improved. Another woman, aged 45, had had an operation on the frontal and ethmoid sinuses ten years before. Not long afterward she had a crop

5. Norström, Gustav: *Der chronische Kopfschmerz und seine Behandlung durch Massage*, Leipzig, 1910.

6. Müller, A.: *Der Untersuchungsbefund am rheumatisch erkrankten Muskel*, Ztschr. f. klin. Med., 1911, 74, 34-73.

7. Edinger, L.: *Von den Kopfschmerzen und der Migraine*, Deutsch. Klin., 1901, 6 (translation, *Modern Clinical Medicine*, 1908, volume on Nervous Diseases).

8. Hartenberg, M.: *Les céphalées musculaires ou cellulitiques*, Jour. de méd. de Paris, 1914, 26, 187-190.

9. Just what constitutes pathologic leukocytosis in a given patient at a given time is difficult, sometimes impossible, to determine. Drawing conclusions from white counts of 8,600 to 10,000 is hazardous. But repeated accurate examinations compared with temperature and other symptoms will help to eliminate error.

of boils, later a carbuncle and then a rectal abscess. Later still, an abscess of the breast appeared. There was no history of tonsillitis, and yet her headache of nine months' duration disappeared after tonsillectomy. One patient, aged 50, who had had her headache for years, had poor nasal drainage and probably sinusitis. The sinuses could not be properly explored without operation on the septum, and as we found many infected teeth, they were extracted as the first move. The result was great relief but not complete cure, so I suppose the nose and sinuses will have to come next.

As might be expected, many times instead of an embarrassment of riches in the way of infectious foci, no focus is apparent. A woman, aged 36, seemed to have an indurative headache radiating into the mastoid region, but no focus could be found. Especially may it be noted that a well known aurist found nothing in throat or ears. Some weeks later, the patient developed double otitis media. Paracentesis of both drums was made, and with subsidence of the otitis, the headache disappeared. I cannot resist a feeling that the infection was there all the time but that it was not locally apparent.

DIAGNOSIS

Regarding diagnosis, only a few suggestions seem to be indicated. As noted, the severity and persistence of the pain are strongly suggestive of grave organic disease. Indeed, I have known indurative headache to be mistaken for meningitis and for brain tumor, with the proposal of an operation for the latter. The distinctive features of indurative headache with normal spinal fluid, absence of Kernig's sign and of cranial nerve involvement will exclude the former. Absence of optic neuritis, of vomiting and of evidence of invasion of the cerebrum, cerebellum or cranial nerves, will exclude the latter. Severe headache, especially if worse at night, with localized tenderness, is always suggestive of syphilis. But if one has in mind the symptoms of the two diseases, differentiation ordinarily is easy. Serologic examination of blood and spinal fluid, however, may be needed for a definite conclusion.

In my experience, indurative headache is often found in connection with some other headache, especially migraine, the former being added to the latter. Then the rheumatic headache may not be recognized for what it is, but is thought to be an aggravation or variation of the migraine. Only care is needed for the differentiation. Again, a chronic neurasthenic or psychasthenic, who for years has had more or less discomfort, acquires an infection from which he gets a rheumatic headache. His complaints become more insistent and bitter, but it is thought to be the old thing, and consequently he receives no appropriate treatment. The disease is all the more misleading in this sort of patient because, as before noted, the pain may be made worse by mental or physical exertion and hence is believed to be simply a form of nervous exhaustion. Naturally, too, such a patient often has numerous phobias based on his pain. He fears that he is going to lose his mind or have a stroke, or that he is developing a brain tumor, etc., all of which leads to the conclusion that he is "hipped." Then comes a rest cure or neglect. It is in such cases especially that careful examinations are needed and that the discovery of a slight rise in temperature and in leukocyte count are of value.

Remembering that sinusitis may be the infectious focus giving rise to rheumatic headache, one naturally recognizes that the pain of both may be coexistent, but that they may have to be clinically separated. Acute or chronic middle ear disease and mastoid inflammation may be complicated by a rheumatic headache which it is important to recognize as a separate factor, the headache having been caused by the infection which started the otitis, or by the latter, as a secondary focus. I have known the mastoid to be opened for an indurative headache in which the pain and tenderness extended unusually far forward.

I might add that at least once and probably several times, I have seen face pain analogous to indurative headache.

TREATMENT

Treatment may be divided into rational and empiric. If, as I believe, the trouble always arises from infection, the rational move is to find the origin and remove it. In the acute cases this alone will suffice. At times the relief is strikingly prompt and complete, being felt within forty-eight hours. In the subacute cases, one generally needs to add what has been found to be good: rest, heat and massage. Acetylsalicylic acid and like remedies are not often of much use, though sometimes they seem to afford temporary relief. In the chronic cases one cannot always find a causative focus or, if it has presumably been found and extirpated, the pain continues. These are the cases in which repeated and prolonged applications of heat and persistent massage, the latter preferably immediately after application of heat for an hour or more, are indicated. The massage must be rather firm and deep, must be repeated about three times a week, and must be persisted in sometimes for many weeks. Good manual massage is infinitely preferable to mechanical vibration. Occasionally I have used the thermocautery with benefit. The point should be white hot and touched lightly and rapidly over the back of the neck as high up as the hair line will permit, the points of contact being from about one-eighth to one-fourth inch apart. If properly done, the burns need no dressing and the application can be repeated in from five to ten days. It is well to do a limited area one day and an adjoining one the next.

The prognosis is good — very much better than in chronic arthritis.¹⁰

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10. In addition to the references already given, the following will be found of interest:

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ABSTRACT OF DISCUSSION

DR. GEORGE E. SHAMBAUGH, Chicago: Rhinologists are very alert when they hear a patient complain of headaches and at once examine the patient's nose and accessory sinuses. It would be very strange if he did not run across an anatomic variation of the septum. You will find it nine times out of ten, although the variation may not be conspicuous in all cases. I am becoming more and more skeptical, however, as to whether that anatomic variation can ever cause headaches. The type of anatomic variation which I believe may cause headache is the deflection which projects against the outer wall of the nose. I have never seen a case with that kind of anatomic variation corrected that the headaches did not disappear. It is very doubtful whether any anatomic variation of the septum has anything to do with headaches, except as it may be a factor in the cause of sinus trouble.

The question of the etiologic relationship of infection of the nasal sinuses to headache is very interesting. Infection in the sinuses except the frontal causes headaches almost without exception. The location of the headache is often assumed to be a good method of locating the involved sinus. But, as a matter of fact, any form of accessory sinus trouble may cause frontal headaches. Recently I had a case of one-sided headache, frontal in character, of long duration; pus was seen coming from middle meatus, but it was a case of maxillary sinus trouble. The frontal sinus was not affected at all. The headache disappeared when the maxillary sinus trouble was removed. But the most interesting question in regard to headache and sinus troubles is this: Can we have closure of a sinus which we cannot diagnose and yet have it as a cause of headache? Many rhinologists forget that this condition may be present, although it occurs rarely.

Headaches due to the focal infections that Dr. Patrick speaks of are not at all unusual. I have had the experience he relates, where the removal of an infected tonsil cleared up the patient's long-standing headaches. It is difficult to exclude entirely the possibility of the tonsils being the seat of a chronic focus of infection when there is no history of tonsillitis. Where the tonsils are large, that is easy enough, but we often find small tonsils where there is distinct evidence of pus. We also find tonsils, with no history of tonsillitis and where physical examinations fail to disclose any evidence of this trouble, yet when we remove these tonsils, we open large abscesses.

DR. H. W. LOEB, St. Louis: In discussing this question we should consider headaches from two standpoints: those which are of local origin and those which are of focal origin. Given an abnormal condition of one of the sinuses, and we expect the typical sinus headache. Headache may be due to absorption of toxins from that focus, but it may not be a local headache. Local headaches are usually limited to one side; they come on generally in the morning, and after a certain period disappear. This type of common localized headache can practically always be relieved by operation. In addition to the group of headaches which the essayist described under the name of indurated headaches, are the headaches of focal origin, the foci being either in the nose, tonsils or teeth.

DR. OLIVER TYDINGS, Chicago: My conception of what causes headache and what shall be done to relieve it may differ from yours. Headache may be due to nose trouble, but other pathologic conditions should be eliminated. The wife of a physician was subject to headaches for years. She consulted a gynecologist. She was curetted; her headaches continued. Then she consulted a neurologist, an ophthalmologist and a nose and throat man. The rest cure and glasses were prescribed. After three months in a hospital she returned in the same condition. She then consulted another neurologist, and a diagnosis of meningitis was made. She returned home feeling that the end was near. When proper glasses were prescribed, the nose corrected and the ethmoid opened up, the headaches were relieved. Therefore, do not operate on a nose for the relief of headaches until you have eliminated other causes.

DR. ARTHUR M. CORWIN, Chicago: We have had to deal with headaches for many years. We have cured some but not all of them. As Dr. Loeb stated, headaches are sometimes

of focal origin. I wonder whether infective or infectious headaches would not more particularly cover, not only the sinus headache, but headaches due to all the infectious foci? We know that taking out a pair of tonsils or establishing a drain for the sinus or some other focus of infection will cure some headaches in a few hours. Why, if they are indurative, is that cure so prompt? I do not believe that "induration" explains the cause of these headaches.

I think Dr. Shambaugh has gone too far when he says that there is no anatomic deviation from the normal within the nose that will cause headache. I am sure you have all cured what is known as pressure headaches. Many of these headaches seem to be infectious when they are not; they are mechanical pressure headaches. These cases must be eliminated in discussing this question of headaches.

DR. CHARLES D. THOMAS, Peoria, Ill.: I am a living example of indurative headaches, and I am ready to verify many of the affirmations made by Dr. Patrick in his article. One symptom that he did not speak of, that I have constantly, is the crepitation at the occipital region. I formerly had very decided crepitation in my knee when I went up or down stairs, but after I had my infected tonsils removed, this crepitation disappeared entirely; but when I move my head, especially to the right, I still have crepitation, which is so very noisy that it seems to me every one can hear it. I do not know if that has any particular significance except that it seems to me that it is an infective condition. The state of the weather has a great deal to do with it. For instance, Monday I got my feet wet, and as it was very chilly and I had no overcoat, I spent Tuesday in bed with a headache. A chill or catching cold invariably brings on this headache. The question of infection in my own case is somewhat doubtful. Dr. Shambaugh has examined me thoroughly as regards infection of any of the sinuses, I had my tonsils taken out, I have been roentgenographed and no infected sinus has ever been demonstrated. I believe I have subacute infection of my maxillary sinuses, because some years ago I had a very sharp attack of sinusitis.

As to the question of its being bilateral, my trouble is entirely unilateral. It always comes on the right side; the pressure on the nerve is excruciating; the pain is continuous, and I have the enlarged lymph nodes Dr. Patrick mentioned. My trouble comes on almost invariably in the afternoon or early in the morning. I have a warning of it fairly early, about 11:30 or 12, and sometimes by taking medicine, especially alkalis—I take 100 grains of sodium bicarbonate, sometimes with magnesium—I can ward it off.

DR. HUGH T. PATRICK, Chicago: Why indurative? I do not know. I did not coin the term at all. It is a very poor name for this headache, but it has been used for it. I added rheumatic because it has sometimes been called rheumatic. In the absence of any better term I would prefer to call them rheumatic headaches, because rheumatism comes from an infectious process, and this is a headache due to infection, in my opinion. To call it an infected headache would not do, because there are so many headaches due to infection which are not this headache. It has been claimed that this is a sort of vague, indefinite kind of thing. I am sorry I did not make myself understood. It is exceedingly definite. We seldom have any difficulty in deciding that our patients have an indurative rheumatic headache. It is nearly always in the back of the head. There is practically always evidence of infection, and the patient gets well when the infection is removed. It is not to be confused with a sinus headache nor with a pressure headache, nor with a headache due to generalized infection, with fever, etc., which may occur in any infection, such as typhoid, gallbladder disease, measles or tonsillitis. This is a localized process and I do not know how one of these headaches can disappear in forty-eight hours. It does not seem reasonable. I am glad Dr. Thomas used the word "lymph nodes." Frequently that term is applied to the lymphatic nodes in the neck, but these are not the nodules that I have been describing as being peculiar and specific. They are not of particular importance in either the diagnosis or pathology of this condition. I tried to emphasize that I do not know a whole lot about it, but my paper is largely suggestive; if these headaches do occur, they are a distinct entity, and the patients get well when treated properly.

INTERPRETATION OF NEGATIVE
LABORATORY FINDINGS
IN SYPHILIS

WITH SPECIAL REFERENCE TO TREATMENT *

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We begin the consideration of this subject with several postulates:

1. A positive Wassermann reaction in the temperate zone spells syphilis, and only syphilis.

2. A negative or mild degree Wassermann reaction does not, by any means, indicate the absence of syphilis.

3. Syphilis of the central nervous system is only part of general constitutional syphilis; it never occurs as a real entity and, furthermore, the nervous system is invaded early and not late, as is generally supposed.

4. It is absolutely necessary, especially in doubtful cases, to correlate laboratory and clinical data. The Wassermann and other serologic tests are merely symptoms, which, like other physical signs, may or may not be present. They are extremely valuable, but not as determining as the objective clinical syndrome, notably when not definitely manifest. The laboratory is not a short cut to diagnosis.

5. Many laboratorians, while they may be excellent technicians, are incapable of determining the exact interpretation of the serologic reaction in debatable or doubtful cases. This decision rests with the clinician.

6. Even with a positive Wassermann reaction a given syndrome in a known syphilitic patient is not always due to syphilis.

Each of these postulates requires some elucidation and comment.

POSTULATE 1.—*A positive Wassermann reaction in the temperate zone denotes syphilis only.*

Admitting that certain exceptions to the above given rule exist, and that a positive Wassermann reaction of moderate, or even high degree, occurs in the temperate zone, in conditions other than syphilis, such as pronounced malaria and other plasmodial affections, and in conditions of tropical disease migrate into the temperate zone, and again admitting that minor degrees of a positive Wassermann reaction may occur in certain other debatable conditions, nevertheless, as a routine dictum, we may safely assert that a positive Wassermann reaction spells syphilis and syphilis only. The exceptional conditions differ so markedly clinically, that there should be no difficulty in ruling between them.

Recently it has been asserted that a positive blood-serum Wassermann reaction occurs in tuberculosis. It were well to bear in mind that there is no antagonism between syphilis and tuberculosis. The two may occur coincidentally in the same subject; they often do, in fact. Spinal fluid research in tuberculosis has, I believe, not been sufficiently carried on to decide whether the alleged blood serum claim can be upheld.

POSTULATE 2.—*A negative Wassermann reaction does not indicate absence of syphilis.*

The negative phase requires careful analysis, and there are several different aspects involved in the negative side which require consideration. Before entering on their discussion, it will be well to establish clearly in our minds, certain facts in respect to syphilis of the nervous system, some of which, at least, are not generally recognized. This involves, in a general way, a discussion of Postulates 3, 4 and 5.

POSTULATES 3, 4 and 5.—The central nervous system is never, alone, involved in this disease; the other body tissues and organs are affected by it, inasmuch as syphilis is always a constitutional affection. Clinically, the symptomatology from the side of the nervous system may preponderate, and so far dominate, as to force the evidence of participation of other, even important, organs, into the background. However, the reverse is more likely to prove true, and we are much more likely to fail to realize the intrinsic participation of the central nervous system in the ordinary case of syphilis, because no signs of organic involvement of the brain or cord are manifested.

As a matter of fact, the central nervous system is involved, intrinsically, in every case of syphilis and, furthermore, it is involved early in the course of the disease and not late, as is commonly supposed. It is true that lesions, deep within the tissue of the neural system, are apt to be late manifestations, though not infrequently severe organic lesions of brain and cord occur within a few weeks of the initial infection. The syphilotoxins of the so-called secondary stage, however, affect the nervous system along with all the rest of the body organs, and it is at this period, especially, that a recognition of this fact by the physician may prove of the utmost service to the patient. Examination of the spinal fluid along with the examination of the blood, in the early stages of the disease, is far more important than in the later stages, but such examination is not ordinarily made.

In the syphilotoxic or so-called secondary stage, we are prone to encounter the characteristic evidence of toxemia in the mucoid and skin eruptions (which are in every sense analogous to the mucoid and skin eruptions of the infectious exanthems) associated with headache and often vertigo; the latter symptoms are strict indications of involvement of the nervous system and their occurrence calls for investigation of the spinal fluid, as well as the blood. If there is any virtue or value in intraspinal medication, and I am not yet fully convinced that intramedullary injections possess unquestionable advantage, it should be applied at this stage, instead of, as now, waiting for the development of organic involvement of brain and cord, usually several years after the primary effect, when even intensive treatment is apt to fail. The most favorable side of our modern intensive specific therapy lies in the prevention of the disastrous late lesions of the nervous system, rather than in any attempt to arrest or to cure them after they have once become established. However, when, late or early, lesions of the brain and cord become manifest, whether of focal or diffuse type, we must again remember that the pathology affects the entire system. Tabes and other tract affections of the cord, transverse and diffuse myelitis, paresis and tabo-paresis are all clinical types of neural syphilis, but are merely part of general constitutional syphilis.

Years ago, prior to our present laboratory methods, good clinicians and, sometimes, mediocre ones, were perfectly capable of diagnosing syphilis in all of its

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

aspects and relied entirely on their knowledge and clinical experience to arrive at definite conclusions. Today, they continue to rely on their keen diagnostic sense, but wisely substantiate their clinical conclusions by every laboratory test of value, though they are not absolutely controlled, or guided, by the laboratory data, which they recognize only as a part of thorough physical examination and not as a short cut to diagnosis. Unfortunately the reverse is apt to be true among busy general practitioners or so-called specialists, who either have not the ability, or the sense of deep personal responsibility in diagnosis, and they are inclined blindly to accept the verdict of the laboratory and be guided by it, without taking into consideration the clinical evidence, either in the affirmative or negative. The general run of the profession has not yet grasped the fact that all laboratory tests are relative and not absolute in value.

This is an age of strict scientific research, as it should be, particularly in medicine and surgery, and it becomes all the more necessary, on that account, to scrutinize carefully the reliability of the source of information on which good clinicians await only corroborative evidence and poor or careless clinicians place their boundless faith. As a general thing, the relationship between laboratorian and clinician is apt to be entirely too loose; this is particularly true as respects the common run of the profession and the large commercial laboratories, often far distant from the physician who sends in his material for analysis.

The careful diagnostician assures himself, to the largest degree, of the capability of the man to whom he entrusts his laboratory work, and after convincing himself of the thoroughness, technical ability and absolute interpretative reliability of the laboratorian, works with the latter in complete harmony and team-play, consults with him in every sense, debating pro and con the clinical and laboratory evidence in any doubtful case. There is here the much-to-be-desired and necessary cooperation, essential to completeness of diagnosis and safety of the patient, and this is manifestly impossible of attainment in the strictly commercial laboratories, very few of which are reliable.

The first important essential, therefore, is to assure oneself of the absolute technical and interpretative reliability of the serologist or of the laboratory to whom our serums are submitted.

Now how shall we analyze his report? What does a positive Wassermann reaction denote? Does it signify that the disease itself is active or that the physical system is conducting an active fight against the malady? Does a negative Wassermann reaction indicate no syphilis or that the spirochetes are dormant and the body resistance supreme for the moment? Does a positive $+++$, for instance, signify a major disease activity and minor $+$ resistance or practically the reverse? Furthermore, who shall decide that a $+$ or even a $++$ represents a positive Wassermann?

At present, we construe a positive ($++$ or greater) report merely into necessity for specific treatment; and that is, after all, the most important, outstanding factor from the patient's point of view.

What then, shall we, as physicians do, in the face of a negative laboratory dictum, especially in a case of debatable type, either with or without ascertainable history of previous infection.

May we rest secure and say to the patient, "No syphilis, no treatment"?

It is an extremely important matter, both to patient and medical adviser, to determine this question. On the one hand, we might subject a nonsyphilitic subject to time-taking, very expensive treatment, such as would be indicated were a positive Wassermann reaction present. On the other, we would seriously err in counseling no specific treatment, when the patient in reality was suffering with syphilis and required intensive therapy.

In my experience, it has been far more frequent to mistake a negative or mild degree Wassermann reaction as an indication for no treatment.

Repeatedly, I have seen patients who had been advised, to their great, sometimes irreparable, damage, that antisiphilitic treatment was unnecessary, by physicians of presumed excellent standing, purely on the strength of a negative serum Wassermann reaction—most frequently when no spinal fluid examination had been made. When, sometimes months, sometimes years, later, these same patients came into my care, there was manifestly distinct, clinically recognizable, syphilis of the nervous system, which might have been prevented had proper treatment been instituted in the face of a negative Wassermann reaction years before.

It is claimed by many laboratories and syphilographers that a serum Wassermann reaction may be provoked in a suspicious case by a small intravenous dose of arsphenamin twenty-four hours previously given, or by moderate doses of iodids for a period of from two to three weeks. This provocative possibility is denied by many, but, at present, it would appear safest in the interests of the patient, and of diagnosis, to subject the suspect to such measures as might insure a more definite laboratory finding. Here a note of warning may well be sounded. Undoubtedly, at times, indiscreet or tactless words by the physician affect the psychology of certain persons deleteriously, so that a word of caution may not be out of place. Unless the doctor is reasonably certain that syphilis is really in play, he should refrain from alarming any patient. The physician should study the individual mental attitude of every person consulting him and be certain that his advice to the patient be not misconstrued. We talk too glibly about the Wassermann test.

The only safe guide in doubtful cases is to remember that all laboratory tests, whether of blood or spinal fluid, are merely symptoms, which like any other symptom or group of symptoms, may at times be absent. Like most cardinal signs in any disease, the positive Wassermann reaction will usually be found present in the vast majority of patients with active syphilis, but is frequently absent or only faintly indicated, even when the disease is manifestly in play.

That this is true is clearly substantiated by the reaction of the blood serum—less frequently the cerebrospinal fluid—in concrete instances, as shown by the Wassermann reaction before, during and after treatment, intravenously, alone, or in combination with intramedullary injections.

It is a common experience to find the Wassermann reaction varying in degree in any given case or group of cases. Often it is reduced to nil under the influence of arsphenamin, to again become active while yet the patient is under intense therapy. It is this very fact which renders it difficult to determine just when the case has been sufficiently treated. The mere reduction in strength of a one-time positive Wassermann reaction should not alone constitute a criterion of cure.

The clinical syndrome, otherwise, must improve *pari passu* with the serologic findings. If this be not the case, then little or no headway against the spirochetes can be counted on.

If the clinical syndrome in specific cases be favorably affected, there is good reason to believe that the patient is deriving benefit from treatment, even though the laboratory findings fail to vary proportionately. Up to date, however, the laboratory data form our best corroborative index as to the apparent security of the patient from probable reactivation.

It should be borne in mind that serum reactions are much more liable to vary than do the spinal fluid tests. The latter appear the more trustworthy, not only because of their greater stability, but also by reason of their multiplicity and, therefore, the possibility of checking up and correlating the other tests—leukocyte count, globulin increase and colloidal gold test—with the Wassermann.

The blood serum Wassermann test is of great diagnostic value, but of questionable prognostic worth. The spinal fluid tests are not alone diagnostic in character, but assume both differential and prognostic virtue. This is notably true of the Lange (colloidal gold) color curve. By it, when accurately done, we are enabled to determine with some assurance of certainty, the character of the pathologic process transpiring in brain and cord, differentiating between inflammatory encephalitic-meningeal affections and probable degenerative tissue changes. True, this is not absolutely certain, but it forms a fairly reliable working index differentially and as to effects of treatment, and up to a certain point, as to whether treatment would be effective enough to warrant trial.

Where clear-cut degeneration of brain-cells, as in true paresis, or cord tract and transverse lesions, tabo-syphilis and myelitis syphilitica, is manifest, the effect of treatment is so questionable that one should gravely consider matters of time and expense among those who can ill afford to make financial sacrifices. Unfortunately, no matter how expert the clinician, we cannot with positiveness assert how much, in a given neurologic syphilitic syndrome, depends on inflammation and how much on degeneration. The experience in the past few years of intensive therapy, both with and without conjoined intraspinal treatment, should influence us always to give the patient the benefit of at least a trial, unless the case is so far advanced as to be apparently hopeless, by all standards of large experience, so that monetary sacrifice would be unjustified.

POSTULATE 6.—*Even with a positive Wassermann reaction, a given syndrome in a known syphilitic may not be due to syphilis.*

Not infrequently we find syphilitics suffering from nonsyphilitic affections, and it often becomes a difficult problem to solve therapeutically. Quite naturally the physician would be prone to conclude that such patients require intensive specific measures, and very likely many of them do, but the complex against which efforts are directed fails to yield. If this transpire, the doctor should not persist in the opinion that syphilis is responsible, but should direct his research otherwise. He is, however, always erring on the side of safety to bar out syphilis by adequate therapeutic attempt.

Another point to remember is that extraneous, often accidental, factors, not infrequently start a hitherto

latent syphilis into activity. This, in my experience, has been particularly true in traumatism to the head and back, to sun and heat stroke and to acute infections, such as grip, which are peculiarly liable to affect the nervous system. At the present time, too, we should not lose sight of the activating influence of war injuries and of war strain.

A final and extremely important phase of this entire subject is presented by the researches of Warthin,¹ who has demonstrated spirochetes, postmortem, in practically every body-organ and tissue in many persons, who, *intra vitam*, had repeatedly given negative serologic returns. Are we to infer from Warthin's work that all our laboratory tests, and even our intensive antisyphilitic treatment, are worthless?

Unless I quite misunderstand Warthin's attitude, he has concluded that neither the Wassermann test nor any other laboratory test, as yet devised, has proved in any way trustworthy, believing that demonstrable spirochetosis exists too often to escape detection by a really valid test.

I, in common with most clinicians here and abroad, have faith in the Wassermann reaction, and other associated blood and spinal fluid reactions, always, however, weighed thoroughly in the clinical balance, but wish to emphasize the great value of Warthin's revelations in not too rashly coming to the verdict of negative serum reaction, negative syphilis.

Spirochetes in organs and tissues after death, of course, spell syphilis at some period of life, but it remains yet to be proved that these organisms, morphologically intact, may not rest indefinitely in the tissues, fixed and latent, without clinically active complexes in sequence. Warthin's work again serves well to emphasize the necessity for a test more reliable even than the Wassermann.

SUMMARY

1. A positive Wassermann reaction of blood, and especially of spinal fluid, spells syphilis and syphilis only.

2. A negative serum Wassermann reaction and even a negative spinal fluid Wassermann reaction does not strictly indicate the absence of syphilis.

3. Laboratory tests are merely clinical signs, which at times may be present or absent, like other symptoms; spinal fluid tests should always be made together with blood serum tests.

4. Correct interpretation can be made only by weighing carefully the clinical evidence, with the serologic reports, especially when the latter are negative. This cannot be too emphatically emphasized.

5. Laboratorian and clinician should hold far closer scientific relationship than is now usual. They should be mutually helpful.

6. The laboratory findings should fit into the clinical syndrome and not vice versa.

7. And unless there be wise, deliberative interpretation of laboratory data, especially negative data, in neurologic and other cases, serious errors in diagnosis and treatment will continue.

NOTE.—Since the foregoing was written, a paper by Drs. Larkin, Levy and Fordyce (*THE JOURNAL*, June 1, 1918, p. 1589) refers to this subject in most timely way. The reader is advised to study this article. Its careful perusal will serve to emphasize what has herein been stated.

1. Warthin, A. S.: The Persistence of Active Lesions and Spirochetes in the Tissues of Clinically Inactive or "Cured" Syphilis, *Am. Jour. Med. Sc.*, 1916, **152**, 508.

ABSTRACT OF DISCUSSION

DR. C. R. BALL, St. Paul: This is a subject that I have been interested in for a long time. I presented before this section the first paper on the four reactions. Since that time, in my own laboratory and clinical work, I have very carefully followed these reactions almost daily. As illustrative of one point I will relate the case of a patient, a man of 30, who had a fairly good history of having had a chancre some six years ago. When I first saw him he had not one single hair on his head; his eyebrows were gone, and his finger and toe nails had a marked degree of onychia. He stated that he had a negative serum Wassermann. I made spinal fluid tests and found the reaction serobiologically to be absolutely negative, yet the clinical symptoms would have caused one to conclude that this was a case of syphilis. He responded well to specific treatment, and in six months he had enough hair on the back of his head to require a hair-cut. So far as a cure is concerned, the reactions may be of value in determining whether or not recovery has taken place, but when we consider the patient just described we must conclude that it is not a reliable criterion.

On the other hand, we are familiar with that type of patients who come to us with positive reactions, but who look the picture of health and present no clinical symptoms. Three years ago a man came to me just after attending the funeral of his brother who had died of paresis. He had another brother suffering from locomotor ataxia, and, remembering that he had contracted syphilis some fifteen to twenty years before, he began to worry over himself. Physically and clinically he was well. He had a negative serum Wassermann, but his blood reacted typically to what we term the characteristic paretic reactions, the colloidal gold, the globulin, the cell count and the Wassermann, there being a +++ or ++++ Wassermann with the minimum amount of spinal fluid. A week or two ago I saw this man again and he was free from any symptoms and apparently in perfect condition. The longer I deal with these reactions the more I feel that their usefulness at present lies in what we get out of them in the way of diagnosis. I have been much interested in the treatment of these conditions. It seems to me that we must compare syphilis with tuberculosis. Dr. Riggs and Dr. Sterne have pointed out that syphilis is not an isolated disease of the nervous system, but that it is a constitutional disease, and that the nervous system is involved at the same time that the rest of the body is involved. Years ago we believed that to give the tuberculous patient large doses of creosote would kill the tubercle bacillus, and we have been passing through much that same phase with reference to methods of intensive treatment of syphilis.

DR. JULIUS GRINKER, Chicago: Most of Dr. Sterne's statements can be subscribed to because every one of us has had similar experience with the Wassermann tests. One point on which Dr. Sterne did not lay stress, and which I wish to emphasize, is that we occasionally get a negative Wassermann in a very advanced case of syphilitic infection. Not alone does this occur occasionally in paresis, but most frequently in advanced cases of tabes. Some years ago, for the first time in Chicago, I injected five patients intraspinally, following the Swift-Ellis treatment. One case was diagnosed as tabes from the symptoms present, but it was not an advanced case. I presented the patient before the medical society as one who had improved under Swift-Ellis treatment—that this treatment had done a great deal of good, as the Wassermann was made negative after being strongly positive. This man left the hospital, and returned a year later with a most advanced type of tabes, was extremely ataxic, had Argyll Robertson pupil, intense pain, sphincter incontinence, etc. But because of the negative Wassermann test and other signs that were negative we waited for corroborative evidence. We took specimens of spinal fluid and blood, and the tests made were absolutely negative, yet the man was advanced to a very bad case of tabes and could not be cured by any treatment.

I have tried the Swift-Ellis treatment in paresis, and in one case I was extremely proud of the results. The patient was very violent, and for this reason had been thrown out of

three different rest cures and one hospital. We finally succeeded in quieting his mental symptoms, he became rational and is today going about and is able to enter my office without difficulty. That patient, though he has improved mentally, has developed the physical signs more markedly after intensive treatment than before, showing that the disease relentlessly progresses just the same, causing its physical signs. Whereas he had no Argyll Robertson, although on both sides he had a sluggish pupillary light reaction, he now has a complete Argyll Robertson. How long he will live I do not know, but mentally he was benefited by the Swift-Ellis treatment, and some other patients who I am now treating, both tabetics and paretics, have shown remarkable improvement. I am still looking for the cures in paresis and tabes.

DR. WALTER TIMME, New York: In this connection I wish to mention a point brought out by Dr. Sterne, namely: That in the temperate zones a positive Wassermann practically means syphilis. In the last two or three years I have had an opportunity to examine many cases of lead intoxication, largely those without peripheral lesions, affecting the central nervous system and giving the symptoms of lead encephalitis; and these cases invariably give a positive Wassermann. Sir Thomas Oliver reports the same condition as being present in the lead workers in English mines, and similar reports have come from Paris. In New York, besides our own findings, Cyrus Field has reported several such cases. Other cases have been reported from South America, with the statement that clinical syphilis could be excluded. One particular case that I have in mind may throw some light on the subject: A boy, 14 years of age, came to me suffering with what looked like juvenile paresis, and his condition had followed more or less quickly his occupation in a painter's shop, his work consisting of sand-papering off of the paint preparatory to repainting. Within a few weeks after entering on that occupation he began to show the signs of loss of memory, intense headaches, and speech disturbances, such as occur in paresis. The other members of the family were examined, and all gave a negative history and negative findings as to syphilis, yet this boy showed a positive Wassermann reaction in the blood and cerebrospinal fluid. He improved very markedly under treatment for lead intoxication. He was given no anti-syphilitic treatment whatsoever, and left, not cured, but very much improved. That is a case in which syphilis had almost to be excluded, and yet it is a case corroborative of the findings of other clinicians throughout the world.

DR. ELMER E. SOUTHARD, Boston: In respect to what Dr. Grinker said, I would ask the names of the distinguished psychiatrists and alienists who have cured paresis. I am not aware of any such cures, by men distinguished or otherwise. They may paint the topic in a rosy hue and try to encourage one, but it looks to me as if it was going far to speak of a cure.

I would like to ask Dr. Sterne what his medicolegal answer would be in a case such as that afforded by his title. I want to cite a supposititious case. A man who has been awarded money and then fallen into a paretic state, as he thought, with amnesia, with stupor, with symptoms that were undoubtedly paretic, clinically speaking, was then treated rather successfully so that all his laboratory signs, which had been positive, became negative; no mental symptoms are present and he has nothing left but the Argyll Robertson pupil. He now is earning \$25 a week, but if he could get into a certain trade he would be able to make much more money. He came to our hospital for a letter of approval. What is the answer to this question?

DR. ANDREW L. SKOOG, Kansas City: Dr. Sterne has called attention to several valuable points. Regarding the opinions of general practitioners concerning the value of laboratory findings in these cases, it has been my observation that their views are quite variable. You will find one group of practitioners who throw aside the laboratory findings entirely; another group of men, as indicated here, rely on the laboratory findings alone. As Dr. Sterne has pointed out, that is absurd, in that not infrequently we get negative findings in both blood and spinal fluid, whereas there are undoubtedly

positive evidences of syphilitic disease. There is no doubt but that the spinal fluid analysis is of more importance than the blood analysis for syphilis of the central nervous system. When we analyze the seat of the disease we must bear in mind that syphilis is a disease that is attracted to the blood vessels and neighboring tissues. The pia mater is intimately associated with the spaces which furnish the spinal fluid; therefore it is quite readily conceded that in syphilis bodies are thrown out in the spinal fluid which will give us our findings and that there will be consequent leukocytosis and other evidences of the disease.

DR. FRANK P. NORBURY, Springfield, Ill.: I would like to report a case. A woman, married, had been using the lead acetate solution with the result of lead poisoning and development of symptoms of syphilopsychosis type. The laboratory findings were those of a positive Wassermann. I supposed we had to deal with syphilis in connection with lead poisoning, but the clinical history of lead poisoning was definite so far as the findings were concerned. Recovery was effected under antilead treatment. So far as other findings are concerned, I do not know anything about that, as the patient has disappeared from observation.

In regard to what Dr. Ball has said as to the diagnostic value of the Wassermann, my associate and I have taken the Wassermann in all cases, and in several cases, especially in women whose social status was undoubted, we have noted what might be called a neurasthenic condition, and yet it is not a definite neurasthenic condition either; it is more of a restless irritability, with inability to get along at home in respect to the social environment and disturbed in many ways. In several of those cases we have found the positive Wassermann, leading us to believe that that may have and does have to do with the condition present. Under appropriate treatment these patients improve and many have returned home. I do not know what the findings will be later. One case under observation has developed paresis, so this was the preparetic irritation which we saw.

DR. FRANCIS X. DERCUM, Philadelphia: I am very glad to see the emphasis laid on the clinical findings. When the Wassermann reaction was first brought before the profession there was a stampede to the laboratory, but we are now coming back to a deeper consideration of the clinical symptoms. I want to call attention to a point connected with tension, and that is the great value of spinal drainage. I do not think this point is fully appreciated. It is not sufficient to withdraw five or six cubic centimeters; you must withdraw sixty or seventy cubic centimeters. In carrying out this procedure we have not had a single mishap, and we have made many spinal drainages. It seems to me the benefit that accrues may be explained as follows: In the first place, in tabes and paresis both the spinal fluid and the cord are under great pressure, and under these circumstances the amount of fluid entering the cord must be diminished. If the pressure is reduced the cord must become hyperemic, and perhaps some of the astounding results we sometimes get in tabes from repeated drainage, every ten days or two weeks, even in the absence of other treatment, is explained by this. Drainage, absolute and complete, is a point of great value.

DR. G. A. MOLEEN, Denver: I am not willing to take the Wassermann reaction from the sphere of contributory evidence. I think it is going to remain there for some time to come, and we must be guided chiefly by the clinical symptoms. I also want to bear testimony to the extreme value of drainage of the spinal cord. However, I must say that even though I had discussed the matter with Dr. Dercum, I felt some hesitation and fear, which I think we would all feel, on the first thought of draining every bit of fluid from the spinal canal. After Dr. Dercum had placed the matter on record I drained in quite a number of cases, and when I drained completely, every one of them would drop a cell count anywhere from 150 to 300 cells, after eight, ten or fifteen drainages, to something under ten. The principal point I wished to make, however, is with reference to the general evidences of infection of the nervous system and the treatment to be applied in accordance with that view. I do

not think we are willing to take the position that every case of specific infection should be intraspinally treated because of fear of infection of the nervous system. We know that most of the cases of syphilis do not become neurosyphilitic. I do think the infection of the nervous system itself is nearly always indicated by the laboratory findings in the spinal fluid, and I think we have a great many cases which show positive blood reactions and no evidence in the spinal fluid. I do not think we are ready to accept the views that have been expressed, especially by McIntosh, that the nervous system is sensitized in the secondary stage of syphilis and that we have the so-called psychic symptoms of an anaphylactic reaction. In other words, I am opposed to the view that the general infection of syphilis is necessarily an infection of the nervous system, although I am quite willing to accept the view that no syphilis, no paresis and no tabes.

DR. OTTO G. FREYERMUTH, San Francisco: Dr. Ball brought out the very important fact that one could have a latent syphilis without any laboratory findings, and he showed how he continued treatment with very marked continuous absence of laboratory findings. I would like to ask Dr. Ball if, after he had instituted the antisiphilitic treatment in the case he referred to, he took the laboratory findings then to determine whether or not there was any evidence of positive syphilis. I do not feel that we are justified in excluding our laboratory findings entirely, yet we should not place too much stress on them. But, if in the laboratory tests of the spinal fluid we should find a +++ positive Wassermann, a high cell count, a positive globulin and a positive colloidal gold, I think there can be no question of syphilis in that particular case. But in the presence of a positive Wassermann alone, and only one or two plus, I would certainly hesitate before giving a positive diagnosis of syphilis. The statement has been made that under the antisiphilitic treatment and the Swift-Ellis drainage, certain mental manifestations had cleared, but that later on the tabetic manifestations were intensified. My experience in that respect is that the mental condition cleared up due to the releasing of the spinal fluid pressure, and, perhaps, the Swift-Ellis treatment had nothing whatever to do therapeutically with the mental conditions. My experience has been that drainage is a great necessity. The work done by Dr. Mehrtens of the Stanford Clinic would show how we can improve a great deal on the drainage by the modified Swift-Ellis treatment.

DR. TOM B. THROCKMORTON, Des Moines: The statement made by Dr. Dercum concerning the use of drainage of the lumbar sac in these cases is of sufficient importance to attest to the value of this method as an adjuvant in treatment. About three years ago Dr. Dercum told me about this work, and since then I have used this method quite extensively in cases in which I could have patients confined either at home or in hospital service. In the vast majority of instances in which there were prodromes of threatened crises in tabes, I have prevented or entirely alleviated those symptoms which are so annoying in cases of tabes with spinal root irritation, by using the drainage method.

DR. WALTER F. SCHALLER, San Francisco: The work of Dr. Henry G. Mehrtens in the Stanford Clinic is based on the attempt to increase the permeability of the meninges or the choroid plexus to the passage of drugs administered intravenously. In order to accomplish this, an intraspinal injection of the patient's blood serum or horse serum is made, and after a sufficient interval of time for the meningeal reaction to take place the drug is given by the ordinary intravenous route. By this method sodium iodid is found to pass into the cerebrospinal fluid. We are now using arsphenamin by the method which is in effect a reversal of the usual procedure by the Swift-Ellis treatment.

DR. JOSEPH BYRNE, New York: It seems to me that we have struck the little snag that is so common in the diagnostics of medicine when we lose sight of the logical evaluation of things. Some people are keener in perception and logical evaluation of evidence than others. And it impresses me as very strange how much importance we attach sometimes to a negative finding. A negative finding must always be taken as just a negative finding. If we want to attach any impor-

tance to it we must follow the corroborative method as in all reasoning by induction. We must not attach too much importance to negative conclusions based on one or two examinations. We may have a positive spinal fluid with no clinical signs; then, again, we may have a negative spinal fluid with positive clinical signs. We must always take what is primary and fundamental as far as diagnostics go, namely, the positive thing. Give that its valuation and then search for corroboration. Negative laboratory findings can never nullify positive clinical evidence. Then, again, we have the problems that are raised by Dr. Timme's case. I do not believe, however, that Dr. Timme has been able to exclude syphilis. Dr. Dercum spoke of positive clinical findings. We have of late been too prone to overlook the value of accurate, well-recorded clinical studies. Certainly the men of fifty or sixty years ago were infinitely our superiors in the study and evaluation of clinical evidence. It is to be hoped that we will finally come back to the true evaluation of positive and negative findings, whether these come from the laboratory or from clinical observation.

DR. JOSEPH M. AIKIN, Omaha: The clinical findings are growing in importance. The laboratory findings are of great value as contributory evidence in diagnosis. But I believe that many men in general practice have given them a place of paramount importance. A case by way of illustration: A lady under 30 sent one of the surgeons in our city a telegram to be ready to operate on her at a certain hour in the forenoon in one of the hospitals. The surgeon met the patient, refused to operate, and asked me to see the case. It was a frank case, clinically speaking, of syphilis. It was said to be a case of gallstone trouble. Under antisyphilitic treatment we had splendid results. Examination of the blood and spinal fluid was made by a very good laboratory man, and he said that it was not a case of syphilis. I presented the case to my students and they voted unanimously that the case was one of syphilis irrespective of what the laboratory findings showed.

DR. ALBERT E. STERNE, Indianapolis: Relative to Dr. Timme's case, while it is true that the laboratory findings in cases of encephalopathy of the lead type simulate those of syphilis, there is one distinctive feature and that is the basophilia which occurs in lead cases and not in syphilis, and that should bar out syphilis in these cases. I cannot answer Dr. Southard's question without seeing the man. I was glad to hear the emphasis accorded to what I tried to bring out. Papers read here are published in a general medical journal; we are not now just talking among ourselves, but what we say goes out to the profession as a whole. And there is no questioning the assertion that the general profession does not fully realize the fact that the laboratory is being used as a short cut, not alone in the diagnosis and treatment of syphilis, but in many other diseases, pulmonary tuberculosis, for instance. It is a question for the clinician to decide whether he has a case of tuberculosis to deal with, not because there are tubercle bacilli in the sputum, but because the physical signs definitely point to such an affection. In respect to the Wassermann test, I call attention to this fact: Since this paper was written a reply has been made by Fordyce and his co-workers to Symonds' suggestions as to the value of the Wassermann reaction. Fordyce emphasizes the positive value of the Wassermann reaction, and his paper is extremely valuable. Symonds' article would seem to indicate that the Wassermann test is valueless. Warthin, again, absolutely stands on the proposition that there is no valid test for syphilis. He simply asserts that he arrives at this conclusion, because spirochetes can be demonstrated after death in individuals giving negative laboratory tests during life. And this is true, but the presence of the spirochetes after death simply indicates that during the life of the individual he had acquired syphilis, and that is all. Spirochetes may remain dormant and fixed in the tissues for years and give no laboratory reaction, such as we know. I do not think a wise clinician would wholly rely on laboratory findings, neither would he take the point of view that there is no value to these tests. There is a swing of the pendulum in the opposite direction now. Many men have

come to the view that there may be nothing in the Wassermann, and I think that is wrong. The Wassermann is without doubt an extremely valuable reaction and we should hold to it, but the Wassermann, as generally made, may be valueless. In the first place, a lot of people who cannot make them think they can make Wassermans, and, in the second place, there is no standardization of technic for a Wassermann reaction, either of the blood or spinal fluid. We should have standardized methods, and until we have these, a statement of the method employed should accompany the laboratory report to guide the clinician as to its comparative value. As to sending serums to a large commercial laboratory, we must know what condition the serums are in when they reach the laboratory. The men in charge want the \$5 or \$10, as the case may be, therefore they are not going to write back that the serum arrived in such condition they could not use it. There is nothing of reliability to be attached to a test made under such circumstances. With reference to Dr. Moleen's point of view, I said very emphatically that I was not convinced that intraspinal treatment had the value which is ascribed to it by some. After many years of use, I feel that I can subscribe to the intensive intravenous treatment associated with spinal drainage. Intravenous injection is the method which has given me by far the best results. I am getting away from intraspinal injections, but doing more and more spinal drainage together with intravenous intensive medication.

VISCERAL SYMPTOMATOLOGY IN NERVOUS DISEASES

GRAVE *DANGERS OF MISINTERPRETATION AND OF
UNNECESSARY SURGICAL INTERVENTION *

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PHILADELPHIA

At the present day, owing to the development of the various specialties, a development which has gradually become more and more intensive, the proper values are not always assigned to the symptoms presented by a given case. A physician accustomed daily to observe his patients from a single point of view is naturally in danger of acquiring a narrowed horizon. This danger can only be avoided if he keep in touch in greater or less degree with the other departments of medicine, especially with the great field of neurology. The specialist naturally has his attention attracted to some one organ or group of organs; perhaps it is the stomach, the heart, the genito-urinary apparatus, or perhaps a special sense organ. It may be that the symptoms presented owe their origin exclusively to the local conditions, or it may be that the latter form but a part of a much larger symptom-group. To assign to a special symptom its proper value at once becomes a matter of great importance. On the correct solution of this problem depends not only the diagnosis, but the subsequent treatment and very frequently the question of a surgical interference. I may add that in the field here presented crass differences of opinion have from time to time obtained, and that it is today a territory in which a veritable struggle is taking place; at times between the internist and the neurologist, but much more frequently between the internist or neurologist on the one hand and the surgeon on the other. In no department of medicine does this become more apparent than in neurology. Here, both in functional and organic nervous diseases, the affections may express themselves by visceral symp-

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toms or by symptoms that simulate visceral disease. That great liability to error arises here at once becomes evident; error at times shared by the internist but more frequently by the surgeon. This error has its origin in an indifference to the subject of nervous diseases, an indifference which leads to an inadequate and at times to a hopelessly perverted conception of the disease from which a given patient is suffering.

Perhaps this condition of affairs is not altogether the fault of the internist or of the surgeon. Neurologists have too frequently given themselves up to vague speculations and, at times, even to metaphysical explanations. Of late years, too, a theory has found its way into medical literature, according to which every phenomenon presented by patients suffering from nervous or mental affections is of psychogenic origin. Not only are nervous symptoms thus deprived of any material basis or connection, but the theory is further peculiar in that it ascribes the origin of the symptoms solely to the repression of the memory of sexual occurrences. All of the symptoms have to do solely with the sexual life of the patient, his sexual misdemeanors, vagaries, peccadillos and the like. That practical men, such as internists and surgeons, should have come to regard this theory with the contempt that it deserves and should have gone to the extreme of disregarding neurologic interpretations of symptoms altogether, is perhaps not surprising. It is an unfortunate situation, but one which even those neurologists who reject so-called psychoanalysis are in part responsible for, since they have not sufficiently combated the doctrines of the latter. It is a never ending duty to point out that these doctrines are intrinsically illogical, and that they ignore the simplest facts of physiology, of metabolism and of pathology; and further that they are as misleading and harmful as they are filthy and vile. The modern world is not quite sane, and that new sects should arise in medicine presenting this or that mystic cult, no matter how absurd, is only in keeping with the times.

Let us, however, make amends to the internist and the surgeon by meeting them on a common ground; that is, the common ground of rational and scientific medicine. To begin, it is an established fact that nervous diseases, both functional and organic, are very commonly attended by visceral symptoms; secondly, because of this fact there is frequently great danger of error in diagnosis and consequently of treatment. Sometimes it is a diagnosis of functional disease of the heart or of the stomach or perhaps of actual organic disease of this or that organ; for example, of the gall-bladder or of the kidney. Not infrequently, especially when the symptoms are referred to the abdomen, they lead to grave, unnecessary and wholly gratuitous operations.

The subject of the visceral symptomatology of nervous diseases is a very extensive one, and, in the short time at our disposal, it is impossible to consider it adequately. Enough, however, can be said to indicate the general principles and in some instances the specific facts that must guide us if error is to be avoided.

FUNCTIONAL NERVOUS DISEASES

Let us turn our attention first to the functional nervous affections. The neuroses, as I have elsewhere pointed out, separate themselves rationally into, first, neurasthenia, the neurosis of chronic or persistent fatigue; second, psychasthenia, an affection made up of a preexisting neuropathy plus nervous exhaustion;

third, hysteria, the disease of suggestion; and last, hypochondria, an affection in which, while neither organic nor functional disturbances have real existence, the patient notwithstanding suffers from a fixed conviction of illness.

Let us begin with the subject of neurasthenia. Here at once we open up a disputed territory. Physicians are not wanting who deny to neurasthenia a separate clinical entity, who maintain that in so-called neurasthenia there is always some—often obscure and often undiscovered—organic disease, and that to say that a patient suffers from neurasthenia is equivalent to an imperfect or incomplete diagnosis. This view has its origin first in the neglect so common among physicians and even among neurologists to make a serious study of neurasthenia, deeming the subject both uninteresting and unimportant; and, secondly, because of the failure to make the distinction between neurosis, neurasthenia, and the general weakness which is sooner or later the accompaniment of visceral disease. This weakness differs radically in its symptomatology from that of neurasthenia, as I myself long ago pointed out; and in speaking of it I have used the general term neurasthenia symptomata.

Confusion is still further added to the subject by the failure of certain neurologists—more especially those of the freudian school—to differentiate between the various neuroses, neurasthenia, hysteria and psychasthenia. If all nervous phenomena are due to repressed sexual complexes, it follows logically that a differentiation of the neuroses is both impossible and unnecessary.

I have endeavored in my own writings to give clearness to this subject by defining neurasthenia as the fatigue neurosis. If we limit the application of the term neurasthenia to the symptoms arising in persistent or chronic fatigue, the clinical picture at once assumes definiteness and clearness. The cardinal symptom is that of a ready exhaustion. There is a failure of the sustained expenditure of energy. This becomes evident whether the expenditure of energy is muscular or mental. In the demands of modern civilization, an undue expenditure of energy resulting in over-fatigue is of frequent occurrence. Under such circumstances, if the overexpenditure of energy be long continued, a condition results in which the normal amount of rest and food no longer suffices to restore the organism to the normal equilibrium. Gradually a well defined symptom-group becomes established. Thus, in addition to the fact that the patient becomes readily exhausted, we note an undue irritability, an exaggerated response to stimuli from without. In other words, along with the lessened power of the sustained expenditure of energy, there is also a lessened inhibition.

The symptoms of neurasthenia consist of motor, sensory, psychic and somatic phenomena. Time will not permit us to consider the motor phenomena other than to point out that the exhaustion is evidenced by ready fatigue; the irritability, by increased reflexes and associated changes. The sensory symptoms consist largely of fatigue sensations, aches and pains; ready exhaustion and irritability are revealed typically by special sense organs such as the eye. The psychic phenomena again reveal the symptoms of ready exhaustion, an incapacity for sustained mental effort, a diminution in the concentration of attention and a lessening in the spontaneity of thought; and of these phenomena, emotional irritability, diminished self-

control and a lessened inhibition are the natural accompaniments.

However, in the present discussion, it is the somatic phenomena of neurasthenia that mainly concern us. Here we meet with symptoms everywhere indicating a deficient innervation and a deficient inhibition. Let us turn our attention first to the circulatory apparatus. Here we meet with lividity and coldness of the extremities, lessening of the force and modifications of the rhythm of the heart and changes in the character and frequency of the pulse. Deficiency of innervation is shown by the general reduction of vascular tone; diminished inhibition, by the increased pulse rate and by attacks of tachycardia brought on by exertion or by other disturbing causes. Pallor, flushings and other vasomotor disturbances are also noted. Not infrequently attacks of tachycardia are associated with disturbances of digestion, though not dependent on the latter; in such case, they commonly occur when digestion has been delayed or arrested and when marked gaseous distention of the stomach has taken place.

Occasionally the attacks of tachycardia are very severe, are accompanied by pain and may resemble attacks of angina pectoris. Such an attack may be preceded by a sense of distress about the heart, of fullness and oppression, which may become so severe as to spread over the left half of the chest or body, and may even be accompanied by sensations of choking and difficulty in swallowing. Suddenly the patient feels an intense griping in the precordial region. This pain may, as in true angina, radiate to the axilla and down the arm. Nausea and great fright are also present. The face is pale, the pulse rapid, small and feeble. In a few minutes, three to six, the face becomes flushed, the pulse gains in force, though it is still very rapid—from 130 to 140—and it may be slightly intermittent. Soon the pulse rate falls; the oppression diminishes; the manifestations of fright, though still present, grow less.

When we turn our attention to the digestive tract, the first symptom that we meet with is again that of weakness. The patient having taken food feels at first no distress, but after the lapse of an interval of time, sensations of weight, of oppression, of distention and of general discomfort about the epigastrium make their appearance. Usually eructations of gas occur, and it is noted that this gas is tasteless. These symptoms are those of a delayed, a somewhat enfeebled digestion, and they are usually accompanied in a degree by constipation. They are those of a mild atonic indigestion, of a somewhat diminished gastro-intestinal innervation.

Not infrequently the symptoms are more pronounced. In addition to the mere sense of weight and oppression, pain may make its appearance. This pain is referred to the epigastrium and at times to the back between the shoulder blades. If we examine the epigastrium, we find that it is somewhat sensitive to pressure; it is not, however, acutely painful as in inflammation, ulcer or other organic trouble. Distention is also noted, but this never suggests a dilatation. If a gastric analysis be now made, no changes of moment may be noted. More frequently, however, there is a diminution—which may be very marked—in the amount of hydrochloric acid. Digestion is much delayed and often the stomach is not emptied before it is time to take the next meal. Nausea is infrequent, vomiting quite rare. It is still an atonic indigestion.

Quite usually the defective innervation involves the intestine; abdominal distention, meteorism and constipation are naturally present.

A little later the digestive disturbances may become still more pronounced. Sensations of distress, weight and tenderness may increase; fermentation with the formation of butyric, lactic and perhaps other acids may make its appearance; acid eructations, a coated tongue and other evidences of a gastric catarrh characterize the picture. The associated intestinal phenomena of constipation, meteorism, abdominal distress or pains are also pronounced.

When we turn our attention to the various secretory disturbances, the picture is again that of a deficient innervation; as witness, the dampness of the hands and feet and the ready sweating on exertion. The sexual disturbances, too, are those of weakness and irritability, and important as they are cannot detain us here.

The point of importance for us to bear in mind from the foregoing considerations is not to give to the local symptoms a value which they do not possess, nor to forget the general condition with which they are associated. The diagnosis of an angina pectoris when the symptoms are merely those of a severe neurasthenic cardiac attack, a pseudo-angina, is most unfortunate. Similarly is it with a diagnosis of functional or organic disease of the stomach when the symptoms of the latter are but part and parcel of the larger symptom-group of neurasthenia.

A still more interesting and important picture presents itself when we turn our attention to hysteria. I need not dwell on the origin of the name hysteria; that it is derived from the Greek word for uterus, *hystera*, that the early Greeks believed that the symptoms were due to the uterus wandering about the body seeking sexual satisfaction, and that the belief in the sexual origin of hysteria in some form or other has persisted to our own day; as witness, the theory of the repressed memories of sexual traumas in childhood advocated by the freudian sect. I need not trace the evolution of our knowledge of hysteria through the writings of Lepois, Sydenham, Briquet and Charcot. We are all familiar with the elaborate clinical descriptions and the elaborate chartings of the symptoms, the result of the labors of Charcot, of Paul Richer and of Gilles de la Tourette. For a time it was believed that the symptomatology of hysteria had been definitely established. Much, however, remained to be discovered. Charcot had recognized the similarity of the symptoms observed in hysteria to the symptoms observed in hypnosis, but it remained for Moebius to point out definitely that all of the symptoms were of mental origin. The next step was the recognition of the fact that the symptoms owe their origin to suggestion; this had been long suspected and was finally and definitely demonstrated by Babinski. The latter showed, for instance, that hemianesthesia is never present, provided that the examination is so conducted as to avoid all possibility of suggestion, and provided also that the patient has not already been previously examined. What is true of anesthesia is equally true of the other symptoms. They are all the result of suggestion in some form or other.

A most important fact, and one that has a bearing on the essential neuropathy of hysteria, must here be pointed out. If a normal person be tested for anesthesia and the physician while making the test actively

employ suggestion, both direct and indirect, he fails to develop the symptom. In this fact lies the cardinal truth as to the nature of hysteria. Hysteria is a neuropathy characterized by a pathologic susceptibility to suggestion. The person suffers from a feebleness of resistance to suggestion and to impressions generally. These suggestions usually arise from without; they may, however, have their origin in impressions received from his own organism. It follows almost as a corollary that the neuropathy of hysteria is innate, is part and parcel of the make-up of the individual at his birth. Charcot and his pupils looked on hysteria as always inherited. All other causes are merely incidental to the development of the surface symptoms.

The incident which has acted as a suggestion for the development of a given symptom is sometimes quite apparent. Notably is this the case in the hysteria following accidents. Quite frequently again, on the other hand, the incident is obscure or difficult to trace. This is not infrequently the case in the symptoms referred to the viscera. It must, however, be unhesitatingly conceded that the visceral symptoms equally have their origin in suggestion, no matter how arising.

Among the visceral symptoms of hysteria are disturbances of the digestive tract, of the cardiovascular apparatus, of the respiratory tract and other symptoms which may more or less closely simulate organic disease. Among the disturbances of the digestive tract, we note especially loss of appetite, rejection and disgust of food and vomiting. It is noteworthy that in spite of the apparent seriousness of the symptoms, the patient reveals little change or impairment of her nutrition. It is only when fraudulent or secret access to food is made impossible that loss of weight and even emaciation may be noted. Pain may be complained of and the vomited matter may contain blood, and the picture of an actual lesion, for example, a gastric ulcer may be simulated. We should bear in mind that the mucous membrane of the stomach may bleed just as may the mucous membrane of the nose, that is, without gross lesion, the bleeding being in all probability from the capillaries. That such bleeding should occasionally result from the retching to which the patients subject themselves is not surprising. Very frequently the bleeding is traced to the gums and has been voluntarily induced by the patient. Among the circulatory disturbances of hysteria are disturbances of the rhythm of the heart, local flushing, pallor or other vasomotor phenomena. Among the respiratory phenomena are sneezing, cough, curious and apparently automatic cries and sounds, aphonia and other often associated symptoms, such as mutism and spurious aphasia. Among the disturbances of secretion are polyuria and spurious anuria. Added to these are various abnormalities of the genital functions. Though the latter are significant, time forbids their consideration.

Far more important are the various local pains of hysteria which time and again more or less closely simulate organic disease. I refer to the so-called painful stigmata. They are, as is well known, among the most frequent of all the phenomena of hysteria. In spite of the fact that their nature and significance has long been recognized, they still lead with great frequency to surgical interference. So much so is this the fact that I can truthfully say that I rarely have a case of hysteria admitted to my wards in which on exposing the abdomen, I do not find the latter reveal-

ing the scars of one and often of many and repeated operations. Hysterical painful areas are very commonly found above the groins, over the iliac fossa and over various portions of the abdomen. It is a constantly recurring experience in my service to find the scars of operations for appendicitis, for all kinds of pelvic conditions, the scars of drainage of the gall-bladder, of operations for visceral ptosis, and especially of operations purely exploratory in their character. Repeatedly it has been my experience to receive patients on whom a first operation for appendicitis had been performed with perhaps removal of the right ovary, then a second operation for removal of the left ovary, then a hysterectomy and finally other procedures such as removal of the coccyx; or, it may be, nephropexy or perhaps some operation on the gall-bladder.

The pains of hysteria are distinguished from the pains of visceral disease by the fact that they are purely superficial; as a rule, the painful area can be included in the fold of skin taken between the thumb and forefinger of the examiner; and they commonly disappear under deep pressure, especially when this is made gradually. Besides, in a given case, the tender area is not confined to one spot, for example, over an ovary, but is also found over other portions of the abdomen and trunk, over the spine, over the scapulae, over the coccyx and elsewhere. In addition other crass evidences of hysteria are usually present, referable it may be to the special sense organs or other structures, or more particularly revealed by the mental condition of the patient. It is, indeed, the latter that is responsible for the special symptoms presented. Hysterical patients like to occupy the center of the stage; they like to be objects of interest and sympathy, and this fact coupled with their vulnerability to suggestion, a vulnerability which expresses itself at times in a veritable desire to present the symptoms sought for, may lead both physician and surgeon astray.

Obviously the investigation of a given case should be such as at first and definitely to exclude hysteria. If hysteria be suspected, it becomes evident at once that the investigation of the symptoms must be made with special care, suggestion being absolutely avoided, or in a doubtful case the examination being made with the negative suggestion. If organic disease be really present, as, for example, in the case of a true appendicitis, the negative suggestion will not dispel the symptoms.

When we turn our attention to psychasthenia—a neurosis which is made up of two factors, namely, a preexisting neuropathy plus a superimposed nervous exhaustion—the picture presented may be very complicated. On the whole, however, symptoms referable to the viscera of such severity as to dominate the clinical picture are distinctly the exception. When present, they are of the same general character as those observed in neurasthenia and need not especially detain us. If we turn our attention to hypochondria—the neurosis characterized by a fixed conviction of illness when such illness has no existence—the complaints of the patients may again lead to the erroneous diagnosis of visceral disease. Quite commonly, it is the stomach, liver, or intestinal tract on which the attention of the patient is centered; at other times, the genital apparatus or the pelvic organs, are the objects of the nosophobia. That such patients frequently become the willing subjects of an unnecessary and a misdirected treatment need hardly be pointed out.

ORGANIC NERVOUS DISEASES

When we turn our attention to organic nervous diseases, a still more remarkable picture unfolds itself. Here in recognized cases pain, vomiting and other symptoms referred to the viscera lead time and again to exploratory operations. It is a not infrequent experience in my clinic to meet with cases of paresis and of tabes in which such operations have been performed, the patients having merely suffered from visceral crises, the result of sensory root involvement. I have known a paretic patient to have been the subject of as many as four laparotomies. Time and again, I have known tabetics to have been subjected to similar procedures. In one notable instance, a kidney was exposed and explored—fruitlessly, of course. In another instance, that of an unrecognized brain tumor, vomiting led to an exploratory operation on the upper abdomen. In another instance of unrecognized brain tumor, the diagnosis of cyclic vomiting was made. Time and again, also, the pains of tumor of the cord have led to mistaken diagnoses and not infrequently to unnecessary abdominal operations. To this fact Elsberg has also called attention. Time will not permit of an extended discussion of this subject. The general truth, however, becomes evident that every case, especially of obscure pain or obscure visceral symptomatology, should be submitted to a careful neurologic examination. It is certainly unpardonable to open up an abdomen or to explore a kidney when a neurologic examination would have revealed the existence of a tabes. It is equally regrettable when unnecessary and positively harmful operations are performed in the functional neuroses. As regards the latter, we should bear in mind that in the neuropathies as a group there is a generally lessened cerebral domination or inhibition, a relative degree of psychic adynamia, as I have elsewhere expressed it. As a consequence, the lower centers, the lower neural mechanisms, react unduly, and, as a consequence, neural visceral reactions become unduly prominent. Normal responses are grossly exaggerated, or anomalies, irregularities or vagaries are presented.

The detailed explanation of the symptoms is to be sought for in the intimate relations existing between the cerebrospinal, the autonomic and the sympathetic nervous systems. A discussion of this aspect of the subject, no matter how interesting, would transgress too far the limits of this paper. Let it suffice to recall the duplex innervation of the heart; first, the autonomic innervation through the vagus and, second, the sympathetic innervation through the accelerator nerves; the first representing a higher mechanism of domination and control; the second, a lower mechanism which manifests increased or unrestrained activity when the higher mechanism is weakened. In the case of the gastro-intestinal tract, we have, again, on the one hand, the vagus, and on the other, the splanchnic nerves, and between these a similar interaction takes place. When we reflect that duplex innervations exist for the glands of the mucous membranes of the trachea and bronchi, for the muscles of the trachea and bronchi, for the glands and muscles of the intestinal tract from the esophagus to the anus, for the urinary bladder, for the genital organs and for other viscera, and for the blood vessels of all these structures as well, we can readily understand that in the derangements of action which result from overfatigue or which result from the lessened

cerebral domination present in the neuroses as a whole, very many symptoms make their appearance; symptoms which, as I have endeavored to show, may be grossly misleading, if not properly interpreted. The first step, I should say in conclusion, is always the prompt recognition of the underlying neurosis or of the underlying organic nervous disease as the case may be.

ABSTRACT OF DISCUSSION

DR. THEODORE DILLER, Pittsburgh: Twenty years ago I made many diagnoses of neurasthenia. Proportionate to the number of cases seen, I now make not more than half, possibly only one third as many such diagnoses. The cases which I would have termed neurasthenia twenty to twenty-five years ago are now very largely termed psychasthenia. Even in the older days we heard much about the mental symptoms of neurasthenia. Another diagnosis which I made twenty-five years ago and do not make now is myasthenia. I see many people who lack the vital spark, they are generally weak. I see people that I classified as having a fixed idea and whom probably we now classify under the hysteric group. And these are, I believe, the particular ones Dr. Dercum has in mind—persons who have their idea on a certain pain, a certain part of the body to which their mind reverts and on which their attention is fixed. I recall a man who had undergone seven or eight operations—an exploratory operation first for one kidney and then for the other; an operation for appendicitis on the right side and then one on the left side in the belief that the appendix was misplaced; an operation for gallstones, etc. The man was 28 or 29 years old, and after going over him carefully I felt sure that the trouble was merely a fixed idea; that the thing was entirely psychic. I proposed observation and rest treatment, which the patient refused. He was bent on having another operation.

DR. WALTER TIMME, New York: Fortunately, in New York, surgeons are recognizing the neurologic aspects of these vague abdominal pains, and refer such patients to neurologists. A few years ago one of the assistant attending surgeons at a hospital in New York City became at the same time a consulting physician of a neurologic institute where he was to examine cases and differentiate the neurologic symptoms before operation. Since that time many cases have been referred for neurologic examination before operation, with good result. The first case of that type sent to us was a girl, 20 to 22 years of age, who had been complaining of abdominal pain and weakness, and who for months had been vomiting after each meal. They removed the appendix, but the vomiting and the pain continued. Then, because the pain was greatly enhanced at the time of menstruation, they took out both ovaries, but the pain continued. They performed a third operation for adhesions that had formed following the former operation, but she still vomited and had pain; they removed the uterus, and operated for gallstones, but the vomiting continued and the weakness persisted. Then the doctor wrote a letter saying: "This young girl has had all removable organs in the abdomen removed and has nothing left. Won't you kindly do something for her?" Vagotomy was done, and she improved. Within three weeks she was cured, and has never had a recurrence. That happened two years ago.

These cases of pain and abdominal distress are not cases of hysteria and neurasthenia. The pain exists. It is not an imaginary condition. It is produced largely by the non-functioning of the smooth muscle fibers of the intestinal and stomach walls. The tension of those organs is increased or reduced by an irritable vagus, and when this is corrected the patient is cured.

DR. WILLIAM A. JONES, Minneapolis: I am in sympathy with Dr. Dercum's paper and agree with his view as to the somatic phenomena of psychasthenia. Some years ago Dr. W. J. Mayo referred a patient with dilated stomach to me. She was told that if she was not better in a month she could have her stomach repaired. She remained in the hospital

about four weeks, and after seeing her vomit for ten days and unable to retain food, I gave her 10 grains of calomel. I do not know why, but it brought out what was there. She had an acute exacerbation of chronic nephritis. Her vomiting ceased, and she has not vomited in four years.

DR. JOSEPH BYRNE, New York: I was rather surprised that Dr. Dercum did not make any allusion to the psychologic factor, except the rôle of suggestion, as pointed out by Babinski. We have to see these things from the patient's viewpoint. I strongly object to the term "imaginative" as applied to disorders when the patient presents herself. Anything present to the patient's mind is very real. That is a sharp distinction that must be made. When a patient complains and suffers we must not tell her she has an imaginative disturbance. She will be insulted and go away and rate us accordingly. We have to take into consideration the psychic and somatic factors in every particular. The nervous system is made up of neurons and these neurons may be exhausted, this being the underlying condition which brings about somatic and psychic disturbances. This is the a-b-c of psychology. Pain and fear have sent patients to doctors since the days of Adam and there is nothing less understood by the physician than these two things—pain and fear. The patient comes to us complaining of pain and if keen in history taking we make our notes and getting him off his guard let him talk freely when we will find that what he suffers from is not the same thing that we mean by pain at all. Then we get our estimate of what is really the underlying condition. In essaying the value of pain as a symptom, we must get at the somatic as well as the psychic value, and we may state it in percentages, as 80 per cent. of psychic and 20 per cent. of somatic origin, and so on. But, if we are on our guard and try to reach what is fundamental in the case, then we are on the way to proper diagnosis and treatment. I can only corroborate the statement as to the futile operations and needless sufferings many of these patients are subjected to by surgeons. These patients should more frequently be referred to the neurologist.

DR. C. R. BALL, St. Paul: I think surgeons have a wholesome fear of these vague, indefinite visceral pains, and for years my experience has been that surgeons and internists are much more apt to make diagnoses of hysteria and neurosis than are the neurologists and psychologists. It is in the organic conditions that the surgeons are still making mistakes. It is in such conditions as cord lesions, either from syphilis or other sources, that they are apt to think there may be a stone in the kidney, or stones in the gallbladder or common duct. It is surprising how often they operate for pain and never find out that they have made a mistake, because, I think, in many patients operated on for gallstones the surgeon will find gallstones, and, of course, when the surgeon finds gallstones, he removes them, puts them in a bottle and shows them to the patient afterward. In the last two years I have had a number of patients who have had lightning pains after having been operated on for gallstones and the stones found, and neither the surgeon nor the patient ever thought that the gastric crisis was causing the painful attacks. Some time ago a young nurse was referred to me by a surgeon. She had had four abdominal operations. The surgeon operated on the gallbladder and found stones; he had done a gastro-enterostomy; he had done some work on the ovaries and on the uterus, and still his patient was getting worse. It was a very intense case of psychasthenia, almost a border-line mentally. Her mind was concentrated on herself. Because of this morbid self-analysis, I found it very difficult to accomplish anything with her. I felt that the only thing to do was to give her a new impulse and bring about a different mental attitude. Therefore, I put her on a case, a rather difficult mental case, and under that environment this nurse braced up, finished her case successfully, took other cases, and since then has been fairly well, at least able to follow her profession.

DR. ALBERT E. STERNE, Indianapolis: We have all had experiences like those of Dr. Dercum. What has impressed me most has been this: First, that the quality most lacking, not only in the medical profession but in our patients, as a

rule, is just good plain common sense; second, that in the medical profession there are men (who by courtesy are called neurologists but should be classed as internists), who really take case histories, who really inquire of the patient the reasons and the various factors which bring the patient to the doctor. Not only once, but many times, I have had patients who have gone the rounds of physicians, who have gone from one surgeon to another and had this, that and the other operation done. And they say, "Doctor, I have never had an examination before." That is a common experience. What does the surgeon do, what does the general practitioner do, when he sees these patients first? They all see them before we do. We are the last resort. We have to undo largely what has been done before. They ask a few questions relative to the thing the patient complains of, they jot that down, place the patient on the table—"Yes, you have a fibroid; you have a cystic ovary; you have prolapse of the stomach, intestinal stasis"—and what not, but seldom conduct a far-reaching general examination. They rarely get at the fundamental attitude which the patient presents. The first thing of importance, it seems to me, is to get the subjective point of view of the patient. Let the patient talk himself or herself out at the first sitting; then make your examination and get your own objective point of view. With your objective conclusions superposed on the patient's subjective point of view, you acquire your own subjective analysis of that particular patient. Very rarely, if the physician is an able man, who takes careful case histories and makes thorough physical examinations, will he stray far from the actual condition that any individual presents.

DR. OTTO G. FREYERMUTH, San Francisco: In the analysis of a case we should take into consideration as a prime factor the psychoneuronic structure of that patient, and then we will have something definite on which to work. I am heartily in sympathy with what Dr. Byrne says, that when a patient says he has pain, he has pain. There is no such thing as imaginative pain. There is a stimulation some place in the tract from the periphery to the cerebral cortex, and we must locate that irritation. As to hysteria, I must admit that when I make a diagnosis of hysteria I confess by that diagnosis that I do not know what is the matter with my patient.

DR. B. LEMCHEN, Dunning, Ill.: I am especially pleased that Dr. Dercum recognizes "nerve fatigue." Certain investigators have been trying to make us believe that there is no such thing as "nerve fatigue." The mistake they have made all this time has been that they do not recognize the fact that they were trying to stimulate a nerve to which they have applied electricity, they added force. The nerve cells themselves must add this force by doing work, and when the nerve cells work they must become fatigued, as do any other cells. The nerve cells do become fatigued when overstimulated, and in reality pain is only the cry of the nerve for help, including rest. We can go even farther and say that hysteria is also due to nerve fatigue. It requires more force to work with peripheral stimulation than with psychic intrastimulation, because with peripheral stimulation the stimulus has to travel more neurons and, of course, requires more work.

DR. FRANCIS X. DERCUM, Philadelphia: The terms hysteria and neurasthenia are used simply for the purpose of defining these groups. We should recognize that we have visceral symptoms, pronounced or indefinite. These special localized symptoms may bear relation to the nervous symptom groups which we characterize as functional nervous disorders. I have seen duplicated beyond belief the mutilation of patients. In one case, after a series of fruitless operations, all the coccyx was removed and finally a portion of the sacrum was removed. Such a procedure is not only ludicrous, it is criminal in a sense; it is wicked beyond words. The importance of neurasthenia is not recognized, and there is no adjective that will fit these surgical mistakes. When the kidney is laid open and split, it is a more dangerous procedure than looking at the pupils and making the appropriate tests for tabes. Neurology today is playing the most important rôle in medicine. The neurologist is doing more in the war than the internist and the surgeon combined. The importance of neurology cannot be overestimated.

NASMYTH'S MEMBRANE, EPITHELIAL DÉBRIS, AND THE GRANULAR LAYER OF TOMES*

EUGENE S. TALBOT, M.D., D.D.S.

CHICAGO

For more than a hundred years scientists have speculated on the etiology and function of Nasmyth's membrane. Within the last twenty-five years, epithelial cells in the peridental membrane have caused considerable discussion in our modern textbooks, while the granular layer of Tomes has not received the attention that its pathologic conditions demand.

On account of the interest lately manifested in focal infections and the imperfect operations on devitalized teeth, I have spent a number of years doing research work on teeth of animals and human beings. The amount of material at my disposal has been unlimited. The Cook County morgue has furnished me with human material, while the kennels and laboratories at Rush Medical College have provided more than the required number of dogs. Instead, therefore, of basing my conclusions on one tube or one slide, hundreds of sections were cut and mounted for microscopic study.

While this work was going on, questions regarding histology frequently arose and required investigation. For this purpose human embryos and very young children were required. This material was more difficult to obtain. "Where there is a will there is a way," and so the machinery was put in motion and abundant material was obtained. The result of all this work will be published in book form. A part of this work, however, is so unique, important and original that I feel it should be given to the profession at the earliest opportunity. Hence, my reason for appearing before you at this time.

While Nasmyth's membrane, epithelial débris and the granular layer of Tomes have much to do with the pathology of the teeth and the alveolar process, our textbooks seem unable to cope with the etiology or pathology of the apical dental tissues. In my researches on these tissues in both animal and human subjects, I accidentally hit on the source of these pathologic conditions, and now present them through this society to the profession.

Figure 1 shows the development of the crown of a human cuspid tooth at birth. The different tissues

are readily seen. The dental papilla has taken its place and the outline of the tooth to be formed. The enamel organ is forming itself about the papilla. It seems, however, to have pulled away from its normal position on both sides at the neck in the preparation of the material for the microscope. The two dark lines representing the inner and outer layer of epithelial cells are nicely outlined, and between these two layers may be seen the stellate reticulum. Note that the epithelial cord is being absorbed away regardless of the fact that the fibrous sac has not come in contact with it. It would seem, therefore, and this picture actually demonstrates, that it is not the fibrous tissue of the dental sac that causes absorption of the epithelial cord, as we have always been taught to believe.

At the base of the papilla where the fibrous sac will eventually develop may be seen a nidus of arteries which furnish blood for the nourishment of the dental tissue until it is fully formed. This nest of arteries always marks the location from which the dental papilla forms, including the root of the tooth. In other words, the nidus of arteries is always the base, no matter how long the tooth and the root may be.

Details are lost to a great extent in this picture for the purpose of obtaining a large area of structures to show their relationship one to the other. This picture, then, is the characteristic picture of the development of a tooth as shown in our various textbooks. It will be seen that this picture has simply to do with the crown of the tooth and not with the development of the root, which is so necessary in the study of diseases associated with it. It is, therefore, from this

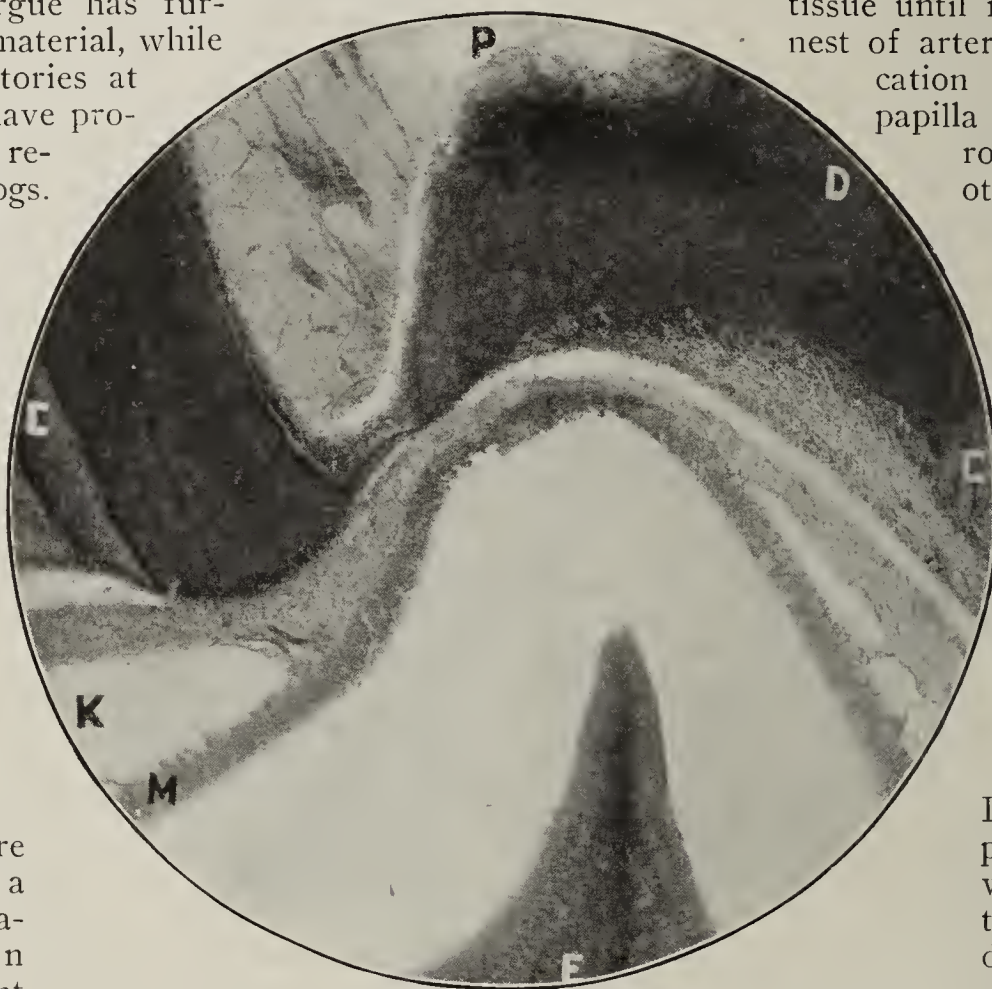


Fig. 3.—An area between the crown of a permanent tooth and the root of a temporary tooth of a dog: C, cementum; D, dentin; E, enamel of the permanent tooth; K, fibrous sac; M, external epithelium; $\times 40$.

period to the full development of the root of the tooth that my researches and this paper have to deal.

Figure 2 is also of a low magnification for the purpose of showing all the tissues in relation to one another. It is claimed by most writers that the external epithelium of the enamel organ is atrophied before the time of the completion of the enamel. Thus Magitot¹ states that the external epithelium of the enamel organ is atrophied before the time of the completion of the enamel. Tomes is also of the same opinion. This picture splendidly demonstrates that this theory is not correct. The enamel is completed in its development. The external epithelial layer is beautifully shown extending from the neck of the tooth entirely around its outer surface. At the lower borders at the neck of the tooth the external epithelial layer of the enamel organ is situated quite a distance

* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Owing to lack of space this article has been abbreviated for publication in THE JOURNAL by the omission of some of the illustrations. The complete article appears in the author's reprints.

from the enamel, while across the entire crown it is in close contact. The entire tooth is pushing its way toward the surface as the root develops.

To demonstrate further the correctness of this fact, I present Figure 3, showing the temporary premolar

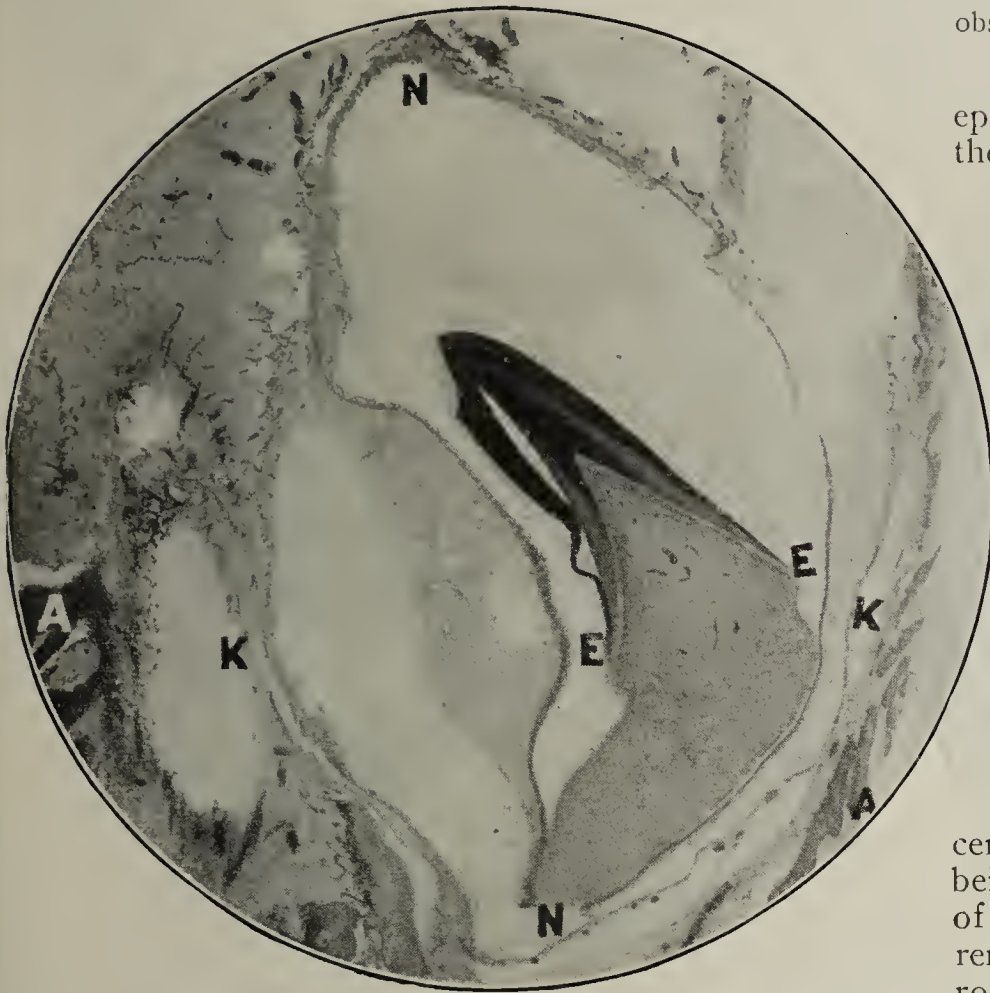


Fig. 7.—Completed root: *A*, alveolar process; *E*, end of enamel; *K*, wall of sac; *N*, external epithelial layer; $\times 16$.

tooth of a dog about 1 year old in position and the permanent tooth erupting, causing absorption of the root of the temporary tooth. The crown of the permanent tooth, including the enamel, is completely formed and is pushing its way by absorption into place. The external epithelial layer of the permanent enamel organ is nicely shown next to, but some distance from, the point of the tooth. Outside the epithelial layer partly attached to, and partly removed from it, may be seen the fibrous sac of the permanent tooth in contact with the absorbed roots and alveolar process of the temporary tooth. The alveolar process, the cementum, the dentin and pulp of the temporary tooth are shown. Osteoclast absorption can also be readily seen. I have hundreds of sections from dogs and human beings to demonstrate that the external epithelial layer remains intact until the eruption of the tooth through the alveolar process.

To show further that the external epithelial layer and the fibrous sac do not always absorb away until the eruption of the tooth, the following case in practice will demonstrate:

A boy, aged 14 years, had erupted all the permanent teeth with the exception of the right inferior second bicuspid. All of the temporary second molars remained in the jaw longer than usual. They were extracted before they became loose in order that the bicuspids might erupt at their proper period. When the temporary right second inferior molar was removed, the bicuspid did not erupt, although there was plenty of room between the first bicuspid and the first permanent molar. A bright red membrane was present over the bicuspid crown after the temporary tooth had been removed. This condition remained for eighteen months. I finally excised this tissue, and the tooth developed into

position. When this tissue was placed under the microscope the two layers, one the external epithelial, the other the fibrous sac, were distinctly seen. Either there was insufficient energy exerted in the bicuspid tooth to absorb these two membranes, or the fibers of the sac were so dense and strong that the tooth could not push its way into position. All of us have observed similar conditions in our own practice.

As it has been shown conclusively that the external epithelium may and does outlive the development of the enamel until after the eruption of the tooth, we are now prepared to trace its erratic development through its future career. We have seen in former pictures that even after the enamel has begun to form, the external epithelium retains its connection at the neck of the tooth until it has completed its development. As soon as development of the enamel has become completed, the epithelial cells of the internal layer and the material composing the stellate reticulum have exhausted themselves. The external epithelial layer, therefore, has severed its connection with the internal layer at the neck of the tooth, and, the end of the external layer being free, it drops into space or attaches itself to the inner surface of the dental sac, the end of the external epithelial layer resting at the junction of the sac and the root of the tooth.

Figure 4 shows the development of an inferior central incisor at birth. While this specimen was being prepared for the microscope, the posterior part of the alveolar process was destroyed. Enough tissue remains, however, to show the development of the root of the tooth. The nidus of arteries at the base of the papilla is located quite a distance from the

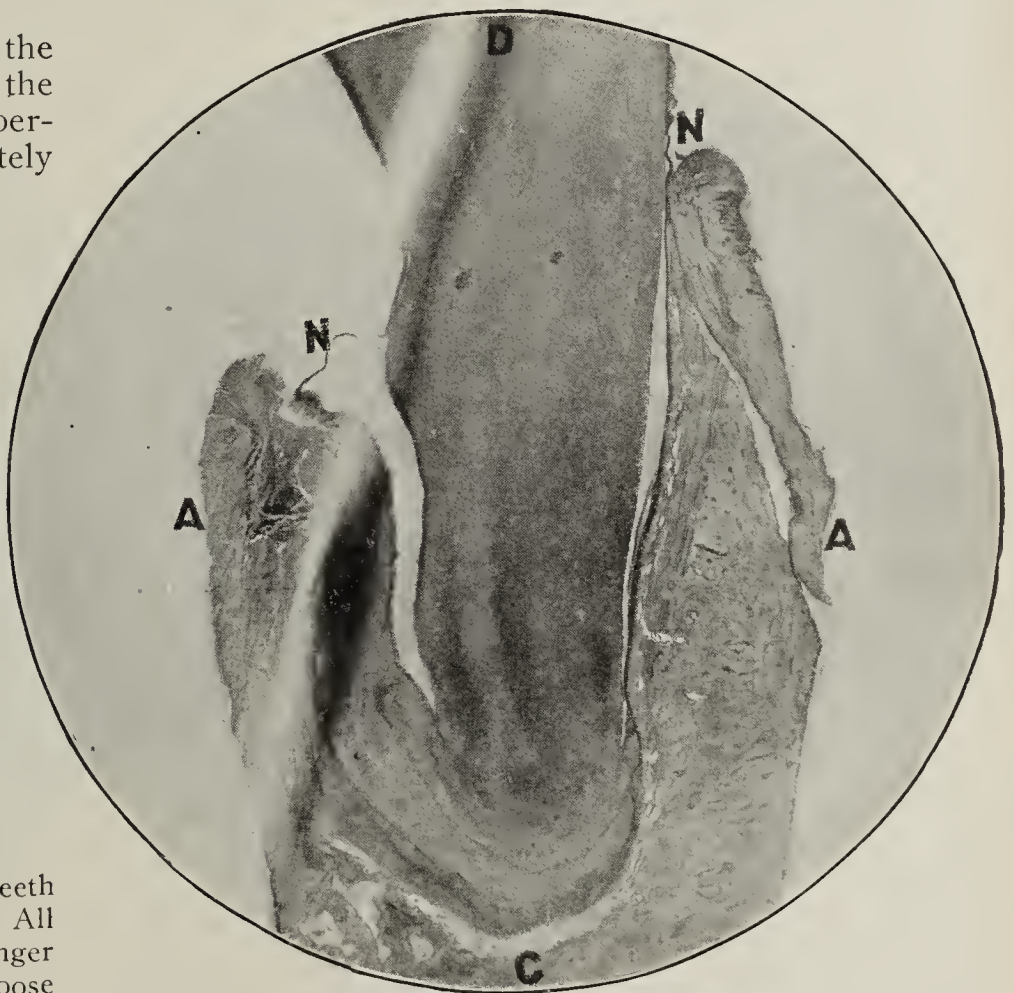


Fig. 10.—Root and alveolar process of a human cuspid tooth: *A*, alveolar process; *C*, cementum; *D*, dentin; *N*, Nasmyth's membrane; $\times 8$.

neck of the tooth, as compared with Figure 1, showing that the root of the tooth has developed nearly one-half its length. The edge of the enamel shows the location of the neck of the tooth. The external

epithelial layer originally extended to that locality before severing its connection with the internal layer. Note that the end of the external layer now rests at the base of the papilla at its junction with the dental sac. Note that the external epithelial layer has grown

external epithelium and the edge of the enamel. It is well to call attention at the present time to the dark spot in the fibrous sac outside the external epithelium. Note that bone has not yet developed at that locality. The part of the external epithelium that is nourished by the fibrous sac sends out healthy normal epithelial cells, which migrate in all directions in the fibrous sac. Sometimes they are single, sometimes two or more are together, and they form themselves into different shapes. Sometimes they are in rows and sometimes they form cylinders like a gland. These will be shown more clearly later on. Carry in your mind's eye the end of the external epithelium where it turns on itself at right angles at the right of the picture. This locality will be shown by a higher magnification later.

Figure 6 shows another human tooth developing at birth. The distance between the edge of the enamel and the nest of arteries at the base is readily outlined. The external epithelium at the right has been partially destroyed for want of nourishment, and the dead epithelial cells are scattered in the space. At the left the external epithelial layer extends down to the junction of the fibrous sac and the dental papilla. Here again, epithelial cells shown by the dark spot have migrated outside the external epithelium into the fibrous tissue. New bone is developing at the right which will eventually encroach on the soft tissues.

Figure 7 shows the entire development of the root of the tooth. The neck of the tooth can be easily outlined at the edge of the enamel. The enamel is completely formed, the dentin still developing. The ends of the external epithelial layer, originally located at the end of the enamel at the neck of the tooth, now



Fig. 11.—End of root and alveolar process of a human bicuspid tooth: A, alveolar process; B, periodontal membrane; C, cementum; D, dentin; $\times 23$.

in length, which it is capable of doing, but in the development of the root of the tooth, the crown and the root have grown upward from the base where the arteries are located. At places along the external epithelial layer dead cells are given off where it does not receive nourishment from the fibrous sac. Quantities of dead cells have migrated from the external epithelium and are located on the enamel on both sides of the crown. Where the external epithelium has obtained its nourishment from the sac wall, the cells are in a comparatively normal healthy condition.

Figure 5 shows another incisor crown with the enamel normally developed. The internal epithelial layer and the stellate reticulum have entirely disappeared, while the external epithelial layer is still located on the inner surface of the dental sac. The edge of the enamel both anteriorly and posteriorly is distinctly outlined. The external epithelium has dropped down to the junction of the papilla and the fibrous sac, which is also readily seen. The distance, however, between the end of the external epithelium and the edge of the enamel is quite marked. This is the root of the tooth. Here again details are sacrificed to obtain a large area to show the relation of the different tissues to each other. The nest of arteries, however, at the base is readily observed. Like the other pictures, these arteries were originally located at the base of the crown, as seen in Figure 1.

The root of the tooth developing from the base has carried the crown of the tooth toward the surface. Hence the difference in location of the ends of the

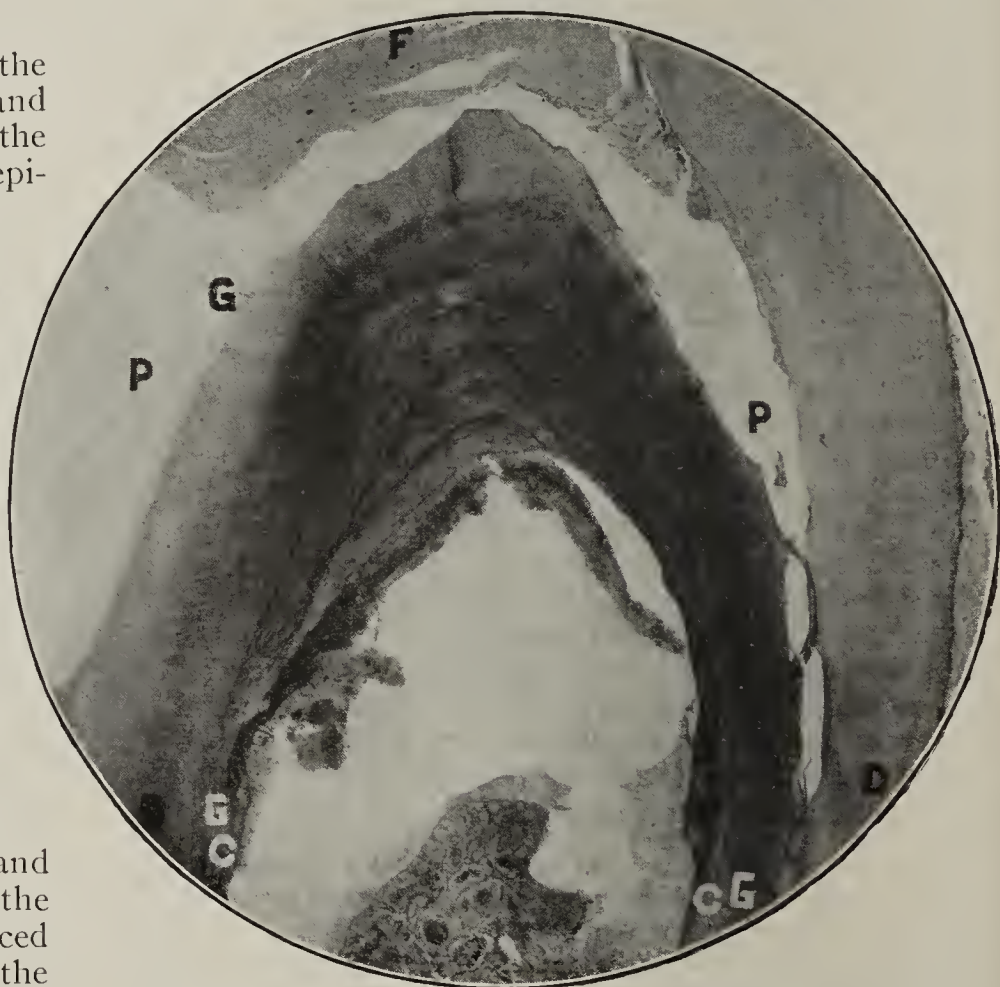


Fig. 12.—Human inferior second molar: C, cementum; D, dentin; F, filling material in pulp chamber; G, granular layer of Tomes; P, pulp canals; $\times 13$.

are located, as shown in the other illustrations, at the junction of the papilla and the fibrous tissue of the sac. In this case in the laboratory treatment it has been torn away at the end of the root from the fibrous

sac; hence the reason for the two edges not coming together and completing the circle around the dentin. At the upper border outside the external epithelial layer, epithelial cells which I have called "epithelial debris"² may be seen migrating into the fibrous tissue.

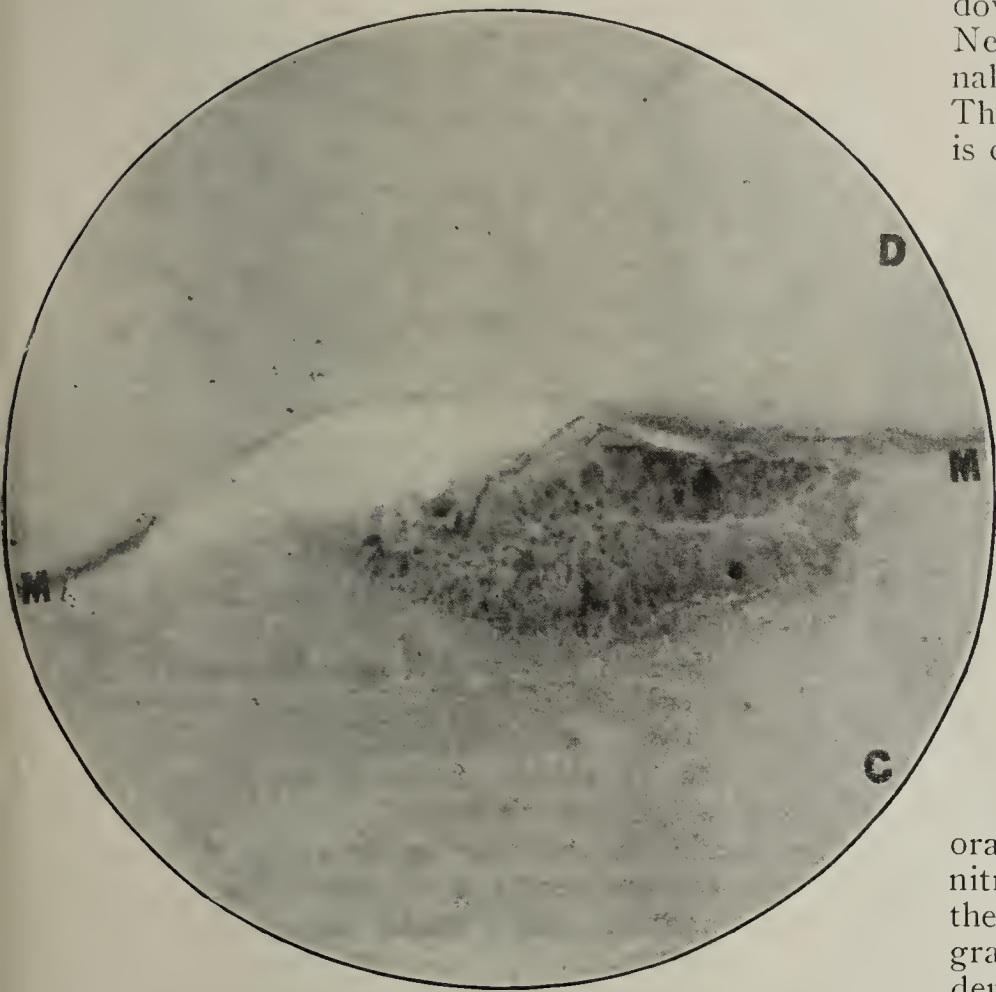


Fig. 14.—Still higher magnification of cavity containing a nest of epithelial cells: C, cementum; B, dentin; M, external epithelial layer in the granular layer of Tomes; $\times 275$.

It will be noticed that the external epithelial layer is located between the dentin papilla and the dental sac, or follicle. As the dental sac adapts itself to the formed dentin, the external epithelial layer is molded to the outer surface of the dentin and the inner surface of the sac.

The sac wall eventually becomes the peridental membrane, which develops the cementum. Naturally, if the external epithelium extends below the neck of the tooth, cement substance is deposited on the epithelial layer and not on the dentin. As we have shown, sometimes the epithelial layer stops at the neck of the tooth, sometimes midway along the root, and frequently it extends entirely around the dentin. Sometimes the epithelial cells are destroyed for want of nourishment. Again, not infrequently the epithelial layer does not adapt itself smoothly to the dentin, and loops are formed; in this manner we obtain the granular layer of Tomes to a smaller or larger degree. The following illustrations show my contention in this regard.

Figure 8 shows the end of the root of a dog's tooth. Between the cementum and the dentin is seen the granular layer of Tomes. Spaces are noticed throughout the entire distance, some small and others quite large. These spaces contain protoplasm and the debris from the external epithelial layer.

Figure 9 is the entire root of a cuspid tooth with the alveolar process of a man, aged 37. This is a very low magnification in order to show all the structures in position. The details, therefore, in a measure are

lost. In following the external epithelial layer from the gum margin at the right from the dentin across the space to the alveolar process, it can be traced down one-half the length of the root, at which point it becomes attached to the dentin and passes diagonally downward across the root and to the opposite side. Near this locality may be seen a small opening, originally an artery. This is the granular layer of Tomes. The large mass of material outside the granular layer is cementum.

Figure 10 is a similar reproduction of a very low magnification of a first bicuspid taken from the same mouth. This picture shows the details much more clearly. The external epithelial layer can be traced from one side of the crown down the entire length of the dentin around the end of the root, up the opposite side, and back to the crown. The cement is located outside the epithelial layer and the granular layer of Tomes. We shall see later that this external epithelial layer becomes a part of Nasmyth's membrane.

To appreciate the position of this epithelial layer and its relation to the dentin and cementum, I present Figure 11. This is the root of a cuspid tooth of a man, aged 37. The dentin, the cementum, the peridental membrane and the alveolar process are all plainly shown in this illustration.

In the preparation of these specimens in the laboratory for the microscope, if we employ 5 per cent. nitric acid or 3 per cent. nitric acid for some time, the acid destroys the epithelial layer, including the granular layer of Tomes. In preparing sections the dentin is pulled entirely away from the cementum, which is held firmly to the alveolar process by the fibers of the peridental membrane.

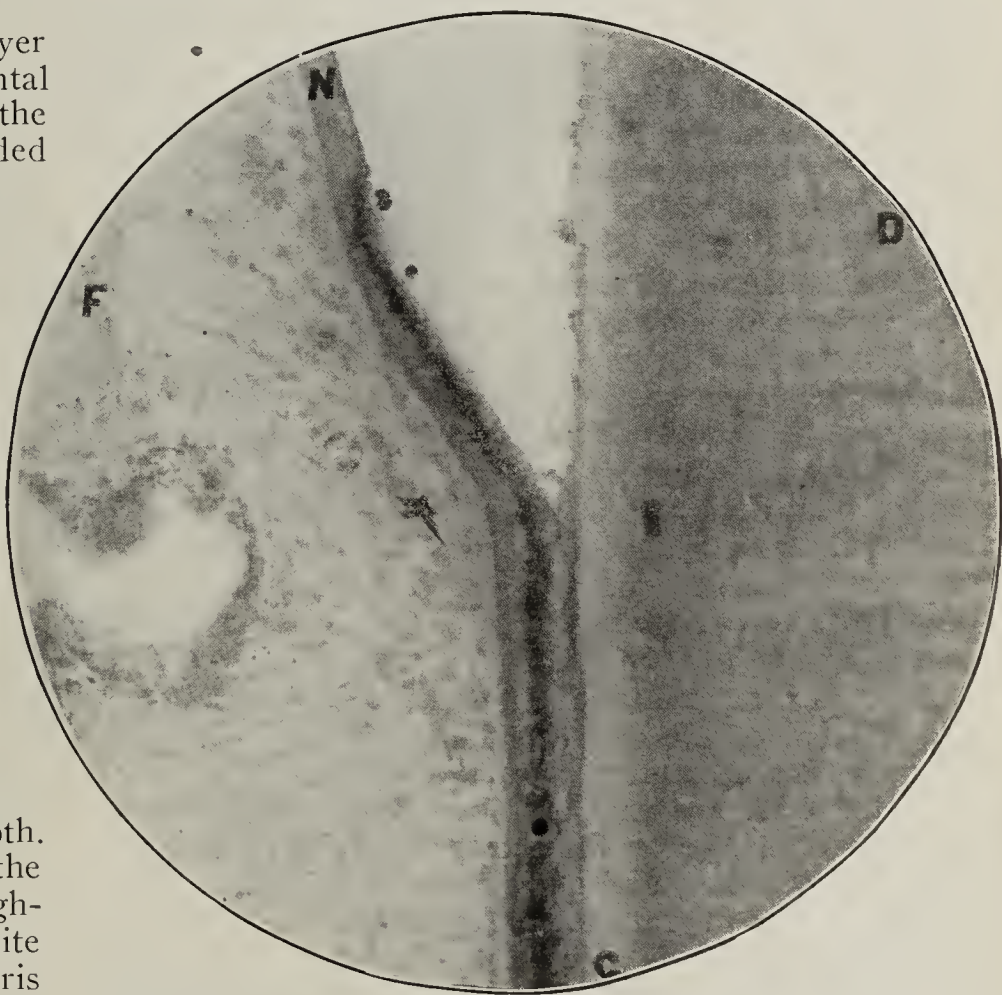


Fig. 15.—Permanent incisor tooth of a sheep; C, cementum; D, dentin; F, fibrous sac; N, Nasmyth's membrane; $\times 230$.

The following facts further substantiate the fact that the external epithelial layer often extends partly or entirely around the dentin and inside the cementum. Epithelial cells that have lost their nuclei when granu-

lation has taken place in the body of the cell — apparently dead cells — stain bluish purple or purple. This purple line is frequently seen extending from the crown on one side of the tooth between the dentin and cementum and around to the crown on the other side.

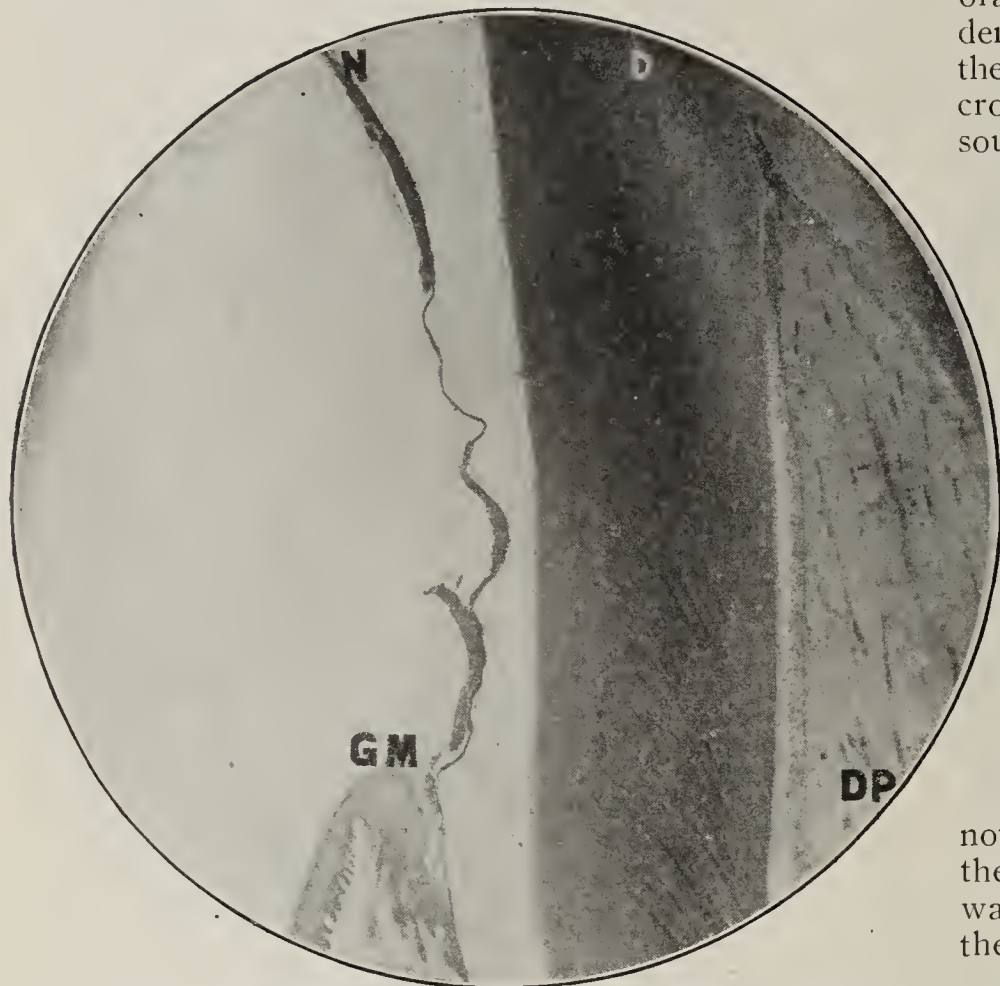


Fig. 16.—Same tooth higher above the gum margin: *D*, dentin; *DP*, dental pulp; *GM*, gum margin; *N*, Nasmyth's membrane; $\times 24$.

For further proof that the external layer can and does extend entirely around the dentin of the roots of the teeth, the following illustrations are presented.

Figure 12 shows the lower part of the crown and roots of a human molar tooth. The crown had been imperfectly filled with gutta-percha, which did not reach the roots of the tooth. Layer after layer of cementum is seen between the roots. At the center and midway between the dentin and the cementum a bright spot is observed. Following this bright spot in either direction, a dark line may be traced moving between the dentin and the cementum down the entire length of the roots. The dark line is the epithelial layer extending around the dentin from the crown of the tooth. A loop of the external epithelium occurred at the bright spot, leaving a space, the granular layer of Tomes.

A higher magnification, Figure 13, gives a better detail of the cavity and the dividing line between the cementum and the dentin. The epithelial cells are well shown. A still higher magnification, Figure 14, shows the cells in a granular formation. The question now is, How could epithelial cells migrate to the inner surface of dense tooth structure and be well nourished in any other way than that described? The external epithelial layer can be traced throughout the length of the root on either side up to the neck of the tooth.

As I have demonstrated that the external epithelial layer of the enamel organ may and does in many instances extend part way or entirely around the dentin of a molar or single rooted tooth, and that it may

survive the entire length of life, we are now prepared to take up the subject of Nasmyth's membrane.

NASMYTH'S MEMBRANE

In some of the lower animals, especially the herbivora, the cementum alternates with the enamel and dentin to form the surface of the crown of teeth for the purpose of mastication.³ The cementum for the crown of a tooth must be derived from the same source as that deposited on the root, since they are both contained in the sac or dental follicle. The sac of the tooth becomes the peridental membrane, and the peridental membrane produces the cementum.

We have seen that the fibrous sac and the external epithelial layer are in close contact throughout, and that the epithelial cells are nourished by the sac. As the tooth pushes its way through the bone by absorption, the epithelial layer and the sac wall follow the crown of the tooth. If the enamel is rough and pits are present owing to improper development, these tissues will cling to the enamel. On the other hand, if the enamel is quite smooth, these tissues will detach themselves and fold on the side of the alveolar process.

Figure 15 shows the neck of a tooth of a sheep. The epithelial layer and the fibrous sac, now the peridental membrane, are seen attached to the dentin on the root. They extend upward part way in the picture, and pass to the opposite side of the gingival space.

Figure 16 is taken higher up, showing Nasmyth's membrane on the opposite side of the gingival space and extending up to the point of the tooth, which

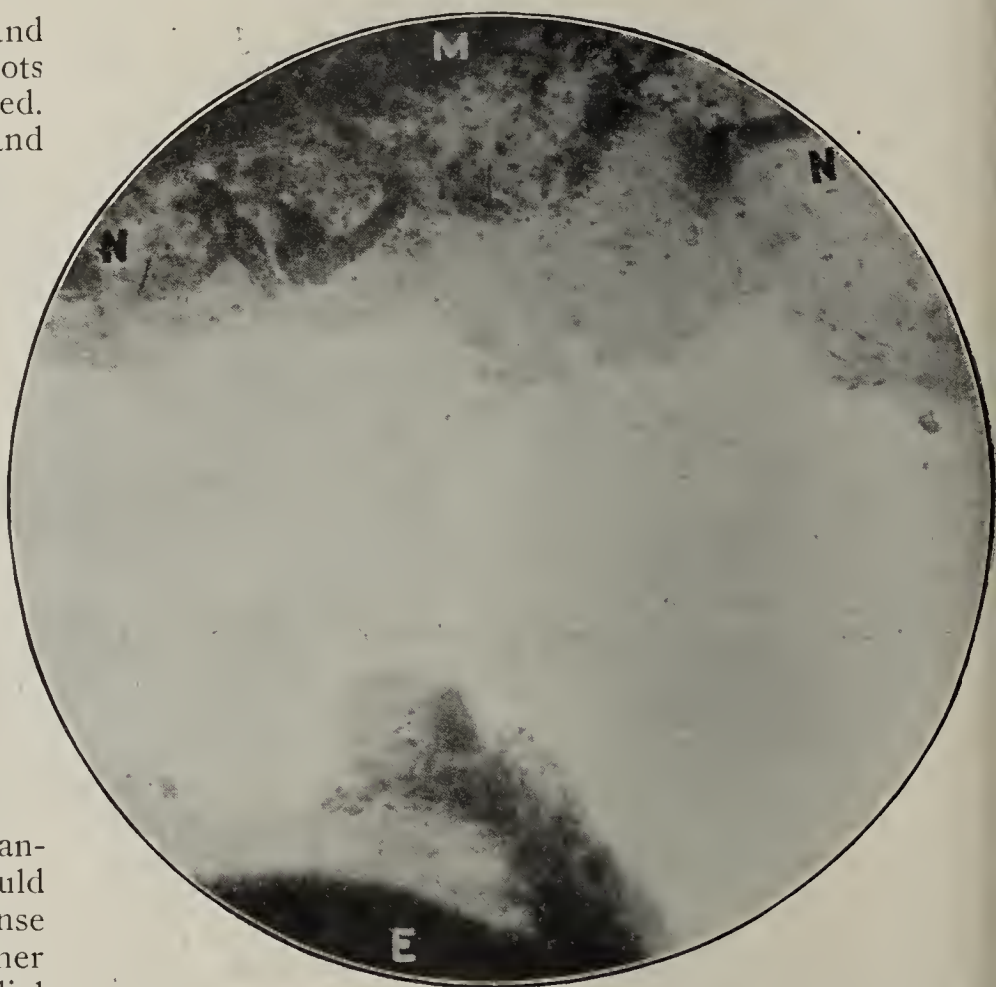


Fig. 18.—Taken from the upper border of Figure 5: *E*, enamel at cutting edge of tooth; *M*, external epithelial layer; *N*, epithelial debris; $\times 155$.

does not show in this illustration. The epithelial cells and the fibrous sac can be readily seen.

3. Owing to the length of this paper, details will be omitted.

Figure 17 shows a higher magnification of the first section of Nasmyth's membrane just above the gingival space. The epithelial cells and the fibrous sac with the line of demarcation are beautifully shown.

The peculiar consistency of Nasmyth's membrane is due to the action of acids on partly calcified epithelial cells in the preparation of the tissues for the microscope.

From an evolutionary point of view, the process of Nasmyth's membrane development in the human being is atavistic and is a survival from lower vertebrates.

Nasmyth's membrane may also be found in the pulp chamber. If we prepare the partly calcified odontoblastic layer for the microscope in like manner we obtain like results.

EPITHELIAL DÉBRIS⁴

Under a low magnifying power I have already demonstrated epithelial cells in the fibrous sac. These cells migrate into the fibrous tissue of the sac after the enamel has become fully formed and the external epithelial layer has separated itself and become attached to the inner surface of the sac wall. Frequently part or all of the external epithelium does not come in contact, and the cells die. Cells that are nourished migrate in single cells or in any number from two to fifty or more. They arrange themselves in strings, in doubles, in loops and glandular forms. Naturally a large number are found near and just below the neck of the tooth for the reason that the external epithelial layer is always found at that locality, while it does not always extend part or all the way around the dentin of the root. The following illustrations are taken at birth while the dental follicle is still intact and the tooth is just beginning to push its way to the surface. These pictures are all of a higher magnification, ranging from 150 to 300 diameters.

Figure 18 is one of the most interesting of all. It is located at the upper border of the sac and in the direct line of the advancing tooth. It shows the cutting edge of a human incisor tooth with a space between it and the external epithelium. Dead cells are seen on the surface of the enamel. The external epithelial layer is seen at the edge of this illustration. At the right, but not visible in the picture, is a break in the epithelial layer, and the fibrous sac has penetrated inside the layer. The fibrous tissue is observed below and in the space.

The epithelial cells or débris have migrated inside because of the fibrous tissue, instead of outside, as is usually the case.

Figure 19 shows the epithelial layer disintegrating at the right of the illustration; quantities of epithelial cells have migrated from the layer into the fibrous wall of the sac in the center. This picture is taken at the left of the crown of an incisor tooth at birth.

Figure 20 is taken at the right of a human incisor crown. Dead epithelial cells are seen on the enamel. The external epithelium is disintegrating. The live and dead cells are readily seen. Epithelial cells are seen at the left migrating into the fibrous structure.

Figure 21 shows the end of the epithelial layer taken from Figure 5. The layer is in close contact to the fibrous sac for the entire distance, except at the end. Cells are migrating into the fibrous sac at the right. At the end where the cells are not nourished, death is rapidly taking place.

Figure 22 is taken from a sheep and was shown in "Interstitial Gingivitis," published in 1899. It shows the cells in rows, in

glandular groups, and in different shapes. The most interesting thing of all in this picture is the group of epithelial cells caught and embedded in the cementum. The wonder is that they are not more numerous.

Up to this period, that is, while the external epithelial layer is disintegrating, the dental sac is isolated from the surrounding tissues by a space. The fibrous tissue of the alveolar process now begins to develop toward the sac, and the space is closed, thus uniting the sac with the fibrous tissue of the alveolar process. Bone absorption now rapidly takes place, filling the fibrous tissue and encroaching on the fibrous sac. After the fibrous

tissue of the alveolar process has united with the sac wall, the vascular supply has become established between the alveolar process and the sac, which has now become the periodontal membrane, and for the first time cement begins to deposit on the dentin or on the external epithelial layer if it extends below the neck of the tooth.

In the study of embryology and histology of the jaws and teeth, my experience has been that one can obtain better results by taking the material of both animals and man at birth rather than embryos in their early development. The reason for this is that in all other tissues of the body, embryology and histology must be studied from the beginning of evolution, because the tissues go through the process of development but once. On the other hand, the dental tissues develop twice, and by taking the jaws at birth we have

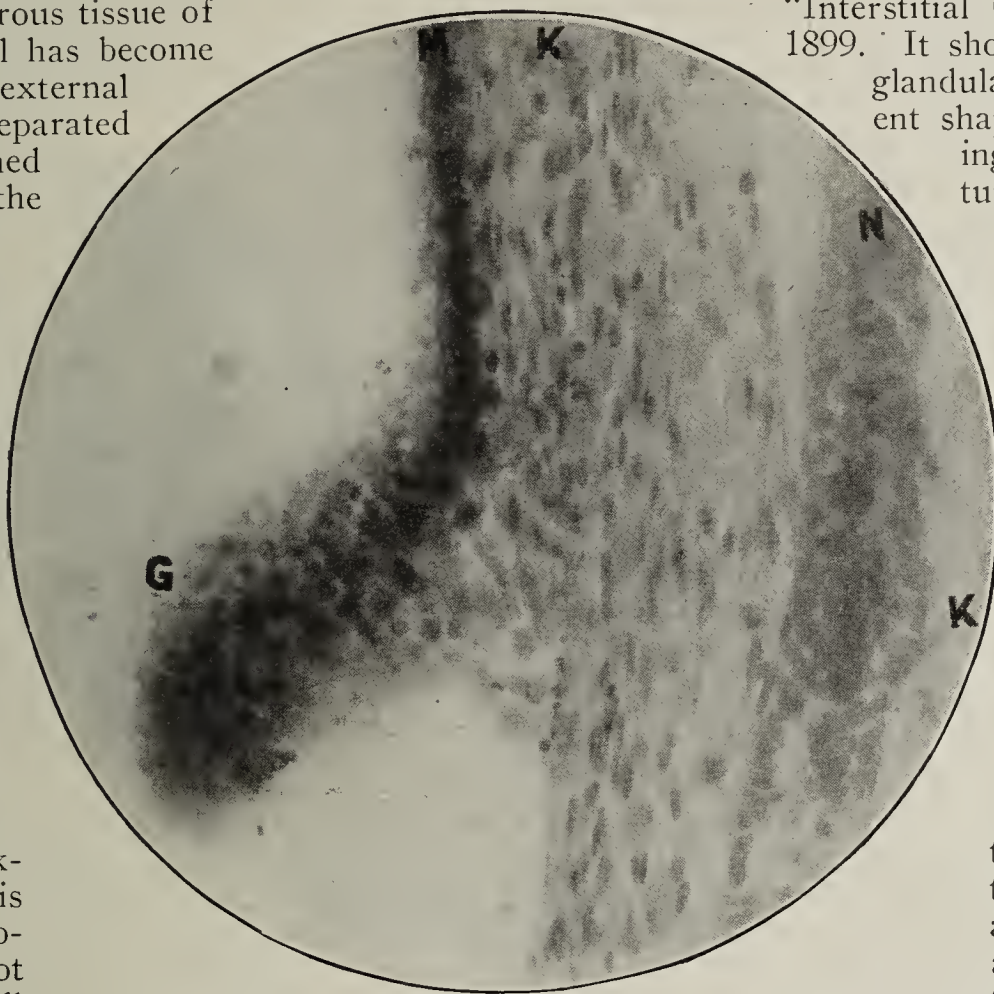


Fig. 21.—Higher magnification of the end of the external epithelial layer at N, in Fig. 5: G, granular or dead cells at the end of the disintegrating external epithelial layer; K, fibrous sac; M, epithelial layer; N, epithelial débris; $\times 400$.

4. The author first described epithelial cells in the periodontal membrane and named them "epithelial débris" in his work on "Interstitial Gingivitis or Pyorrhea Alveolaris," in 1899.

all of both sets of teeth still in the jaws under different stages of evolution. The jaws and tissues are more stable in their growth, the tissues are more easily recognized, and the relation of one structure to another is better outlined.

ABSTRACT OF DISCUSSION

DR. FREDERICK B. NOYES, Chicago: Dr. Talbot is mistaken in his interpretation of the material. The enamel is formed from the internal and not from the external layer. The external layer disappears and the internal remains. Nasmyth's membrane is a myth. The condition which Dr. Talbot found in many of these specimens is characteristic of all material prepared by the decalcified process. For some unknown reason, the cementum separates from the dentin in the process of decalcification, especially if the acid used is too concentrated. It is often exceedingly difficult to decalcify, especially if the blocks are large and we are trying to retain the entire tooth without separation of the cementum at the line of the dentin; but I do not believe that this difficulty arises because there is there a line of epithelial cells. There is no evidence to support that view. The one thing I want to emphasize is the way the blood vessels follow the dental papilla. The blood vessels enter the dental papilla through its base. That is one of the items which must be considered in the investigations in regard to the retention of pulpless teeth.

DR. MARTIN DEWEY, Chicago: Some of the conclusions Dr. Talbot arrived at are based on misinterpretations of the specimens. What he called dentin was only the dentin papilla. The dentin had not yet formed on those specimens. He called attention to the tooth of a dog which he showed as a perfectly calcified tooth and did not mention the gingival ridge which is so well developed in the dog's tooth. The root had not begun to calcify in that tooth.

DR. EUGENE S. TALBOT, Chicago: I am aware of the fact that the substance of this paper is new and original, and that the text is entirely opposed to the views laid down in our textbooks. While it is possible, and perhaps true, that these types are not to be found in every tooth in our present state of evolution, yet I have found these conditions in the teeth of many persons of advanced age as well as in the lower vertebrates. I believe that these conditions are atavisms, of lower vertebrate types, but I have not had sufficient experience with microscopic structures of the lower vertebrates to express a definite opinion. They seem, however, to be degeneracies. The opposite views expressed offhand by those who discussed the paper can have little or no weight since the same amount of research with the same materials must be done before an intelligent opinion can be expressed. I would hardly dare to present such radical views in regard to the freakish actions of the epithelial cells if I were not supported by such men as Drs. Ludvig Hektoen, E. R. LeCount and Adelbert M. Moody, of Chicago, who devoted considerable time to studying the microscopic slides of the epithelial structures.

Social Hygiene Society.—In April the Massachusetts Society for Social Hygiene, 50 Beacon Street, Boston, began the publication of a quarterly bulletin for the promotion of the purposes of the society. In the first number, the objects of the society are set forth, together with its organization and methods of work. In a review of venereal disease legislation, attention is called to the new Massachusetts law for licensing, inspecting and regulating hotels and private lodging houses which may be concerned in promoting prostitution and venereal diseases. The bulletin gives in full the Massachusetts regulations governing the reporting of gonorrhea and syphilis. For the benefit of the public, the society also circulates pamphlets on social hygiene subjects, among them being Circular No. 4 on Venereal Diseases, and also a list of publications on social hygiene subjects. The executive committee of the organization consists of Charles W. Eliot, Earnest B. Dane, Dr. Hugh Cabot, Dr. David L. Edsell and the Rev. G. W. Miner.

OBSERVATIONS ON THROAT SMEARS IN MEASLES, RUBELLA (GERMAN MEASLES) AND SCARLET FEVER *

RUTH TUNNICLIFF, M.D.

CHICAGO

In previous articles,¹ I have described gram-positive diplococci, isolated in anaerobic cultures from the blood of measles and rubella patients. The measles diplococcus is small and round; the rubella diplococcus is larger, elongated, with pointed ends and a capsule. Diplococci similar to those isolated from the blood were also cultivated from the throat, nose, eye and ear of measles patients, and from the throat of rubella patients.

Examination of smears made early in these diseases from the tonsils and anterior pillars of the fauces has been found to show large numbers of diplococci corresponding morphologically to those found in the cultures. These diplococci begin to disappear with the abatement of the throat infection.

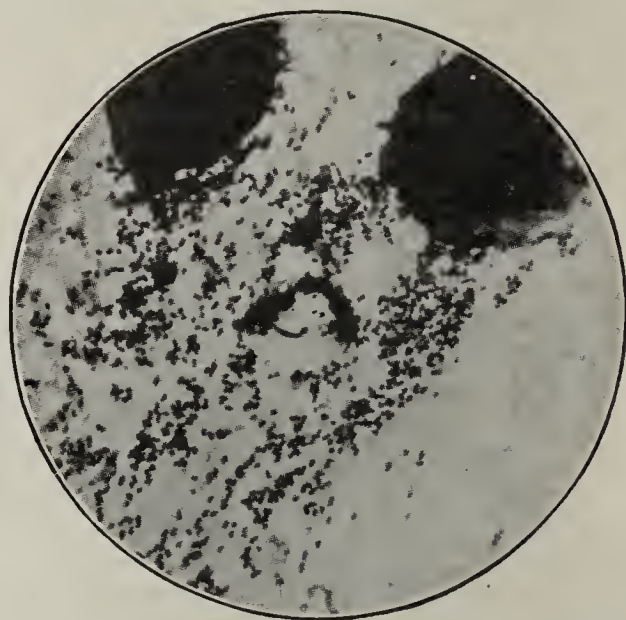


Fig. 1.—Smear from measles throat; carbol-gentian violet; $\times 1,000$.

The tonsils or anterior pillars of the fauces, the part most inflamed, is swabbed with a sterile swab, the material smeared rather thickly on a clean glass slide, fixed with heat, stained a few seconds with carbol-gentian violet, washed with water, and dried. The material may be smeared in serum and stained with some capsule stain, but the carbol-gentian violet stains quickly and gives a perfectly clear picture.

Of 135 throat smears examined, 18 were from measles, 29 from rubella, 30 from scarlet fever, 10 from diphtheria, 10 from streptococcus sore throat, 8 from mild (simple) sore throat, and 30 from normal throats.

As a rule the smear from a measles throat shows a variable number of polymorphonuclear and epithelial cells, and many small, round diplococci about 0.5 micron in length.

A smear from a rubella throat shows few if any leukocytes, but many epithelial cells, containing elongated, pointed cocci in pairs, sometimes in chains, often showing a narrow capsule. The diplococci are also

* From the Memorial Institute for Infectious Diseases.

1. Tunncliff, Ruth: The Cultivation of a Micrococcus from Blood in Pre-Eruptive and Eruptive Stages of Measles, *THE JOURNAL A. M. A.*, April 7, 1917, p. 1028; Observations on the Bacteriology and Immune Reactions of Rubeola (Measles) and Rubella (German Measles), *Jour. Infect. Dis.*, 1918, **22**, 462.

seen outside the cells, but are especially characteristic when on the epithelial cells.

Smears from scarlet fever throats show many polymorphonuclear leukocytes and a variable number of cocci, usually round, in pairs, or chains of rarely more than four, with generally a wide capsule.

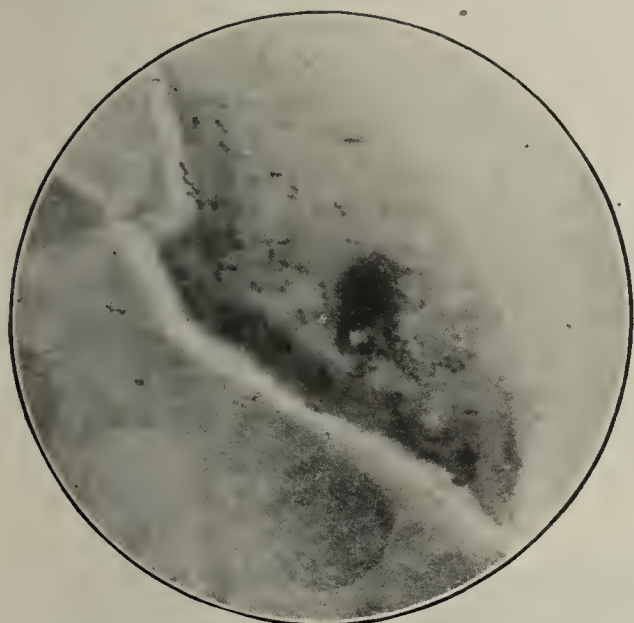


Fig. 2.—Smear from rubella throat; carbol-gentian violet; $\times 1,000$.

I find that the hemolytic streptococci isolated from the throats of scarlet fever patients as a rule show a capsule, at least in the first generation. This is in accord with the observations of Smillie,² who found that freshly isolated hemolytic streptococci had a "capsular substance," disappearing rapidly on cultivation. He does not consider it a true capsule. The encapsulated diplococci in the smears are readily differentiated from cocci with a clear zone of retraction.

It has not been possible to distinguish the diplococcus in the scarlet fever throat smears from those in nonscarlatinal throats containing hemolytic streptococci (diphtheria, streptococcus sore throat, and measles). In a case of rubella following scarlet fever, both types of diplococci were observed in the throat smears.

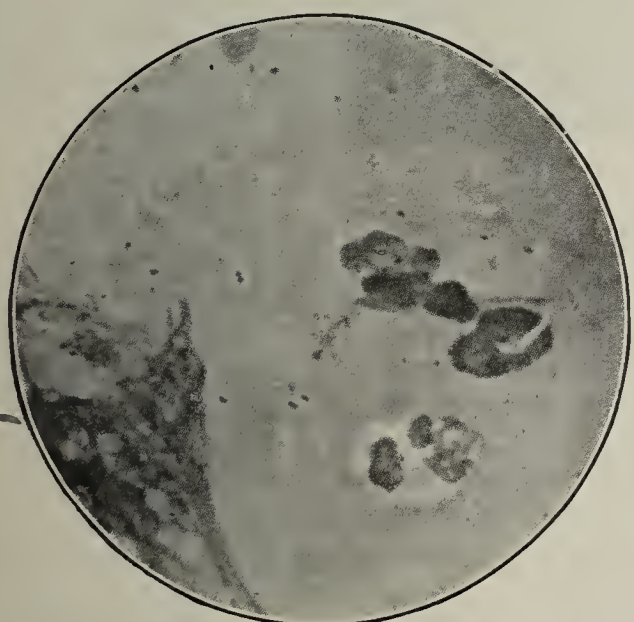


Fig. 3.—Smear from scarlet fever throat; carbol-gentian violet; $\times 1,000$.

If the tonsils contain crypts so that a great variety of bacteria are present, it may be impossible to recognize any characteristics pointing to the source of the smear. A successful smear from the diagnostic point of view must contain one predominating diplococcus.

The three types of diplococci described were not recognized in the thirty normal throats, except four times, when the rubella coccus was found in persons closely associated with rubella patients. The rubella diplococcus was also observed in three of the eight cases of so-called simple sore throat, two in roommates and one in a nurse of rubella patients. These smears were made during an epidemic of rubella, and doubtless the other diplococci can be found in smears of normal throats during epidemics of measles and scarlet fever.

There is rarely much difficulty in making a diagnosis of measles, but at times it is not easy to differentiate a mild case of scarlet fever from rubella. In the Durand Hospital, throat smears are proving helpful in differentiating these two diseases, especially in conjunction with leukocyte counts, as the number of leukocytes is increased in scarlet fever and reduced in rubella.

RUPTURE OF THE UTERUS THROUGH THE CESAREAN SECTION SCAR*

EMIL NOVAK, M.D.

BALTIMORE

The number of cases of rupture of the uterus following cesarean section that had been reported up to 1913 was sixty-three, according to the exhaustive review of the literature published in that year by Findley.¹ By 1916 the number had risen to seventy-four,² and since then a number of other cases have been reported. The occurrence must, therefore, be looked on as relatively rare, so that it would seem to be worth while to put even a single case on record. Aside from the infrequency of rupture of the cesareanized uterus, I have been led to report the following case by certain rather unusual circumstances attending it, and also by its pertinence to the debate as to the correctness or incorrectness of the old dictum, "Once a cesarean, always a cesarean."

REPORT OF CASE

History.—A white woman, aged 19, had had a cesarean section performed, May 5, 1916, the indication having been intrapartum eclampsia. The operation was performed by one of the most competent obstetricians in Baltimore. The child was delivered dead, but the mother recovered from the operation and her convalescence was uneventful, except for a slight infection of the abdominal incision.

The patient enjoyed good health and menstruated regularly up to October, 1917. The last regular menstruation appeared, Oct. 13, 1917. Some months later the patient consulted Dr. B. O. McCleary, who diagnosed pregnancy. The course of this second pregnancy was normal in every way. At about the expected date of confinement, July 15, the patient went into labor, and was then transferred to the hospital. Her own statement as to this confinement is that there were only two or three typical labor pains, these being followed by severe and constant pain over the entire abdomen, associated with some rigidity of the abdominal walls. This diffuse pain persisted for three days, being accompanied by a fever ranging from 99 to 101.5 F., and by a slightly accelerated pulse, never higher than 100. After the subsidence of the pain, on about the fourth day, the patient was able to get around fairly comfortably, but she remained in the hospital awaiting the reinauguration of labor. According to Dr. McCleary, no fetal heart sound was to be heard

* From the Gynecological Department of Johns Hopkins University.

1. Findley, P.: *Am. Jour. Obst.*, 1916, **74**, 411.

2. Bell, J. N.: *Am. Jour. Obst.*, 1916, **74**, 950.

2. Smillie, W. G.: *Jour. Infect. Dis.*, 1917, **20**, 45.

after this spurious labor, nor did the patient perceive any fetal movements.

Examination.—About six weeks after the expected time of confinement, August 29, I saw the patient in consultation with Dr. McCleary. At this time the abdomen was enlarged to the size of a full term pregnancy, the walls being quite rigid, so that the fetal parts could not be mapped out. No fetal heart sounds were heard. On vaginal examination, I was surprised to find that no presenting part could be felt, the cervix being closed and fairly firm, not resembling in feel the cervix of pregnancy. In view of the rather clear-cut history, and of the foregoing findings, only one diagnosis seemed possible—that of rupture of the uterus with extrusion of the fetus into the abdominal cavity.

Operation.—The operation was performed, September 1. A long incision was made paralleling that of the previous cesarean section. Just above the umbilicus a thick, spongy tissue was encountered, which, on extension of the incision, was found to be the placenta. A few centimeters above the placental area, the amniotic sac was entered. About 2 quarts of clear amniotic fluid escaped. A large, partly macerated fetus was found lying in the abdominal cavity in an oblique position, the head being above and to the right, under the dome of the diaphragm, and the extremities extending downward and to the left. The amniotic sac was intact, except where it had been incised on the opening of the abdomen. The uterus had undergone involution after rupture, being about the size that one would expect six weeks postpartum. The anterior wall of the uterus had been split asunder through the line of the old incision, the rift extending from the fundus to about the level of the internal os. This is well shown in the accompanying illustration, which also shows the manner in which the placenta was turned out through the uterine gap, partly reimplanting itself later on the anterior parietal peritoneum. Both fallopian tubes were covered with light, sheetlike adhesions. The right ovary was thoroughly disorganized through cystic degeneration, being about the size of a pullet's egg.

A subtotal hysterectomy was performed, the left ovary, which was normal, being conserved. On removal of the uterus, together with the attached placenta, umbilical cord and fetus, an enormous cavity was left. The walls of this were formed in a general way by the parietes anteriorly, and by the adherent coils of intestine above and behind. It was a beautiful illustration of foreign body encapsulation. The inside of the cavity was lined by tightly adherent amniotic membrane, which was removed where this was possible. The large cavity left on the removal of the fetus was then marsupialized, several large cigaret drains being introduced in various portions, and then brought out through the abdominal incision. The latter was closed in tiers in the usual manner, being reinforced by a number of interrupted silk-worm-gut sutures. Recovery from the operation was uneventful, the patient being discharged from the hospital three weeks after the operation.

COMMENT

A striking feature of this case was the fact that the occurrence of uterine rupture was not associated with internal hemorrhage or with shock. This observation,

while unusual, is not unique, a case similar in this respect having been recently reported by Neill.³ The uterine scar in my patient seems to have been separated without producing any hemorrhage whatsoever, perhaps because of the tampon-like action of the fetal head, as it was delivered through the gap. Certainly there was no sign of either old or recent hemorrhage at the subsequent laparotomy, nor was there any appreciable degree of shock at the time of the occurrence of the rupture. As has been stated, there was more or less diffuse abdominal pain for a few days, but after that the patient was comparatively comfortable, walking about the ward with little inconvenience.

From the standpoint of obstetric practice the most important feature of this case is furnished by the history of an infected abdominal incision, with slight fever for several days, after the cesarean section which had been performed in 1916. The investigations of Williams,⁴ Findley¹ and others assign great significance to such an occurrence. It appears to have been pretty well demonstrated that uterine rupture

after cesarean section practically never occurs when the convalescence from the cesarean operation has been entirely normal, that is, when there has been no febrile reaction or other evidence of infection of the uterine scar. In other words, assuming that the uterine wall has been properly sutured, rupture in subsequent pregnancies will not take place if the uterine incision heals promptly, without infection. The invasion of the uterine scar by decidual elements in subsequent pregnancies, to which some have attached importance as predisposing to rupture, is probably of much less importance than the element of infection. In my patient, the occurrence of stitch infection in the abdominal

incision after the cesarean section may be taken as *prima facie* evidence of infection and poor healing of the uterine incision, which had been sutured by the best technic.

As far, therefore, as the bearing of the case on the general question is concerned, it emphasizes the ominous significance of infection in the uterine incision as an element of danger in subsequent pregnancy. On the other hand, nothing in the case shakes in any way the position held by most obstetricians that the management of cesarean patients in subsequent pregnancies should not be too strongly influenced by the fact that rupture of the uterus occurs in a small proportion of the patients, probably not exceeding 2 or 3 per cent.

26 East Preston Street.

3. Neill, T. E.: *Am. Jour. Obst.*, 1917, **75**, 235.

4. Williams, J. W.: *Bull. Johns Hopkins Hosp.*, 1917, **28**, 335.



The arrow at *x* points to the rent in the anterior wall of the uterus. The placenta (*p*) has everted itself through the uterine wound, reimplanting itself on the anterior parietal peritoneum. Attached to the placenta is the fetus, showing beginning maceration.

Clinical Notes, Suggestions, and New Instruments

APPARATUS FOR ARTIFICIAL PNEUMOTHORAX

CHARLES M. MONTGOMERY, M.D., PHILADELPHIA

Even the smallest apparatus now on the market for the administration of artificial pneumothorax is unduly bulky and heavy to carry by hand. To obviate these difficulties the apparatus described herein, which, incidentally, costs practically nothing, has been found useful. It requires only one bottle, the gas container, the gas in this bottle being displaced by water that enters the container from a funnel. The neck of the bottle is fitted with a rubber stopper of the type shown in Figure 1 or smaller. This stopper has two perforations, one to hold the funnel stem, the other to hold the exit tube, which is made of glass bent at an angle. When the cork is in place in the bottle and water is poured into the funnel, the water will run into the bottle, displacing the air,

can usually pick up in the patient's house or in a drug store a suitable bottle to act as container. If nitrogen is preferred, the container must be carried with the cork in place and with the funnel and exit tube in the cork, the opening in each being closed to prevent escape of the gas. The apparatus set up in this way will, of course, occupy a slightly larger space than if it is taken apart; but the weight will be no greater. A small handbag will suffice to hold the apparatus. The only thing that needs to be carried in a sterile condition is the cotton filter. For this purpose a wide glass tube about 5 inches in length fairly firmly packed with cotton has proved satisfactory. The needle and the tubing, etc., between the needle and the filter can be sterilized at the last minute.

The withdrawal of pleural fluid and its replacement by air, performed with a single needle and puncture, can readily be carried out by using the apparatus just described. The entire outfit essential for alternate withdrawal of fluid and replacement by gas is shown in Figure 2, the gas container with empty funnel in position being on the right, and the aspirating bottle with suction apparatus in front of it being on the left. The needle is seen attached by rubber tubing to an

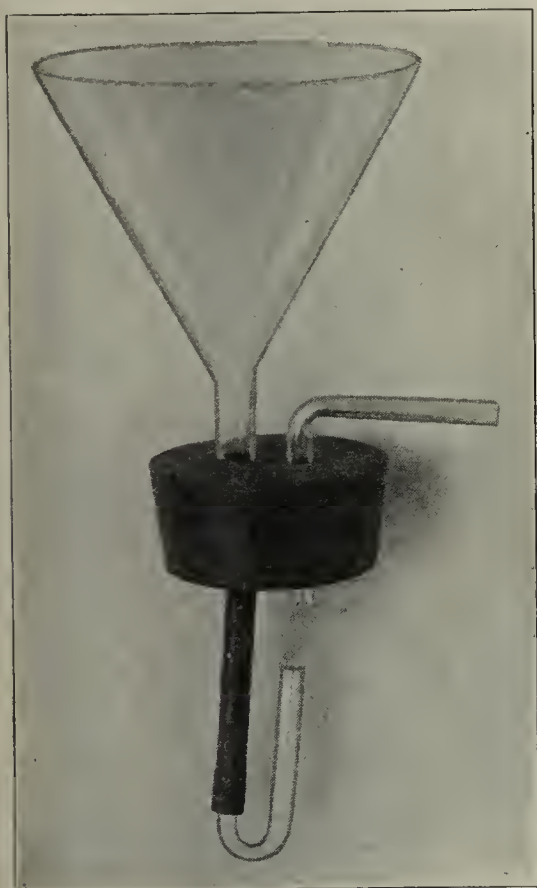


Fig. 1.—Stopper and funnel.

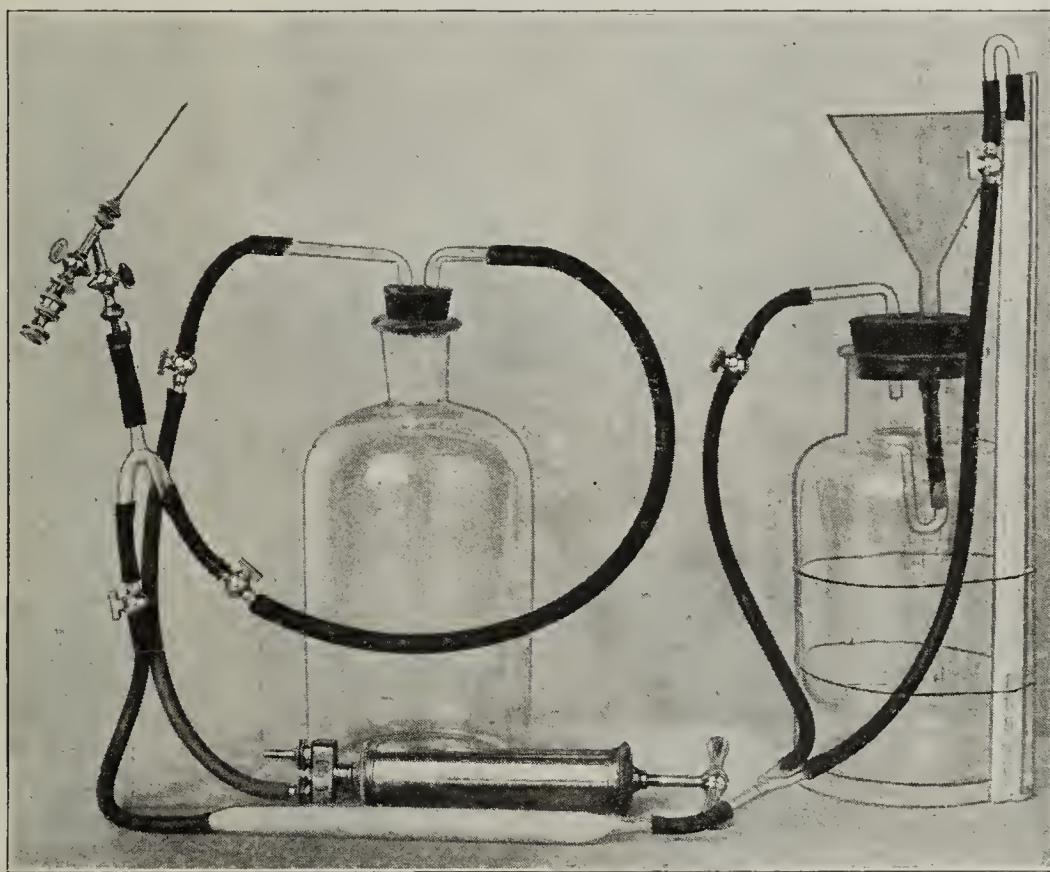


Fig. 2.—Combined apparatus for aspiration and artificial pneumothorax.

which escapes by way of the exit tube, unless, as will happen under certain conditions, some of the air finds its way back through the funnel stem and so out through the funnel. This is effectually prevented by using a trap such as a glass U-tube, one limb of which is connected with the lower end of the funnel stem by a piece of rubber tubing, as shown in Figure 1. If air is prevented from escaping through the glass tube of exit, the water soon ceases to flow from the funnel into the container. Under these conditions the pressure in the container will be represented by the distance between the free end of the U-tube used as the trap, and the upper level of water in the funnel. This distance, and therefore the pressure, measured in centimeters of water, are capable of a satisfactory degree of regulation. It is preferable to see that the funnel does not at any time become entirely empty.

A bottle of any desired size may be used as the gas container, one of about a liter capacity being shown to the right in Figure 2. Beyond the tube of exit from the container, the tubing, etc., are arranged very much as in the customary way. For convenience the manometer is held against the container bottle by rubber bands. If air is selected for treatment, the different pieces in the apparatus can be separated from one another so that they will occupy a very small space. In fact, if one carries a perforated cork of the proper size, he

inverted glass Y-tube, the right limb of which leads to the aspirating bottle, a single stopcock being placed between. The left limb of the inverted Y-tube leads indirectly to the gas container, the bottle shown in the right of the picture, with the manometer supported by rubber bands. Between the Y-tube and the container are seen: rubber tubing, stopcock, rubber tubing, glass tube containing cotton to filter the air (shown in the foreground), and rubber tubing beyond the filter, the distal end of which connects with a second glass Y-tube. The right limb of this leads to the manometer, with one stopcock between; the other limb leads to the tube of exit in the gas container, a single stopcock intervening. When there is water in the funnel and the pressure in the aspirating bottle is negative, proper manipulations of the various stopcocks will permit alternate withdrawal of fluid and replacement by air, the needle being in fluid located in the pleural cavity.

Figure 3 shows a patient with a large amount of fluid on the left side and marked dextrocardia, while even the trachea is misplaced far to the right.

Figure 4 shows the same chest after withdrawal of fluid and replacement with air, a single needle puncture being used.

The fluid in this case was purulent, the result of tuberculosis, and had existed for six months, with the result that

the heart had not only been pushed to the right but had actually become anchored there, as manifested by severe distress and a marked negative pressure after withdrawal of a

emptied of fluid, about 2,200 c.c. in all, the patient being left entirely comfortable and the intrapleural pressure being about the same as at the start.

2210 Locust Street.

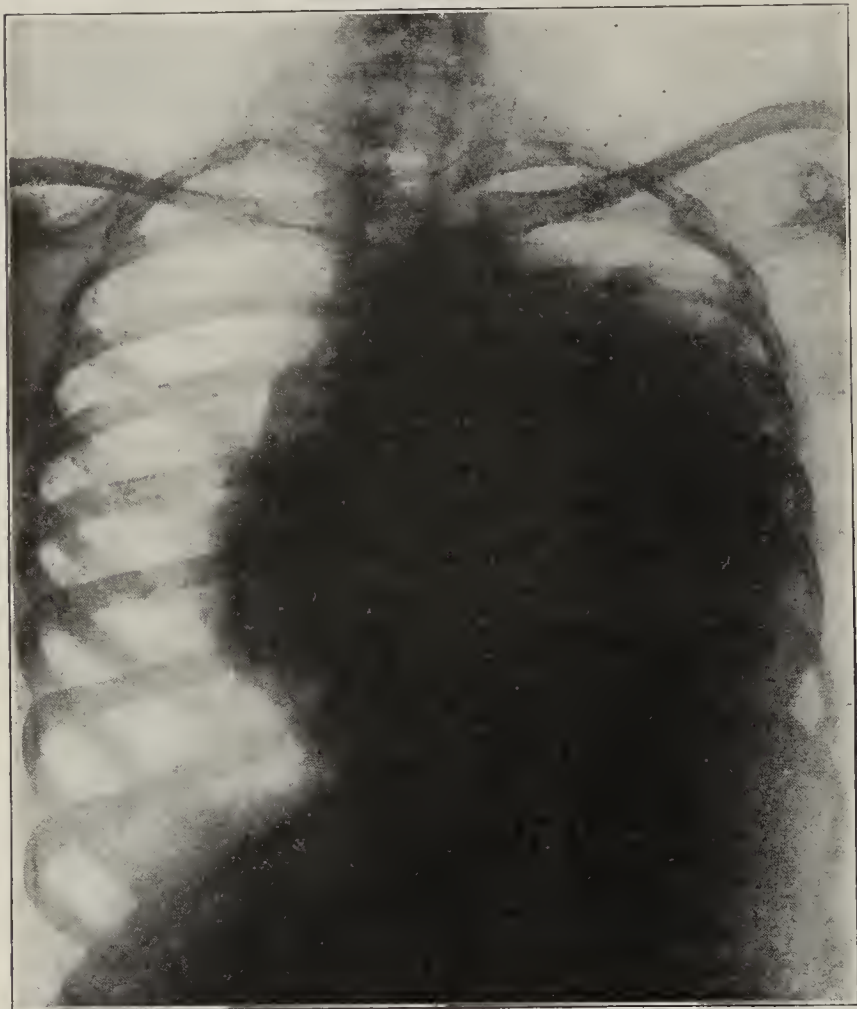


Fig. 3.—Patient with large amount of fluid on left side and marked dextrocardia.

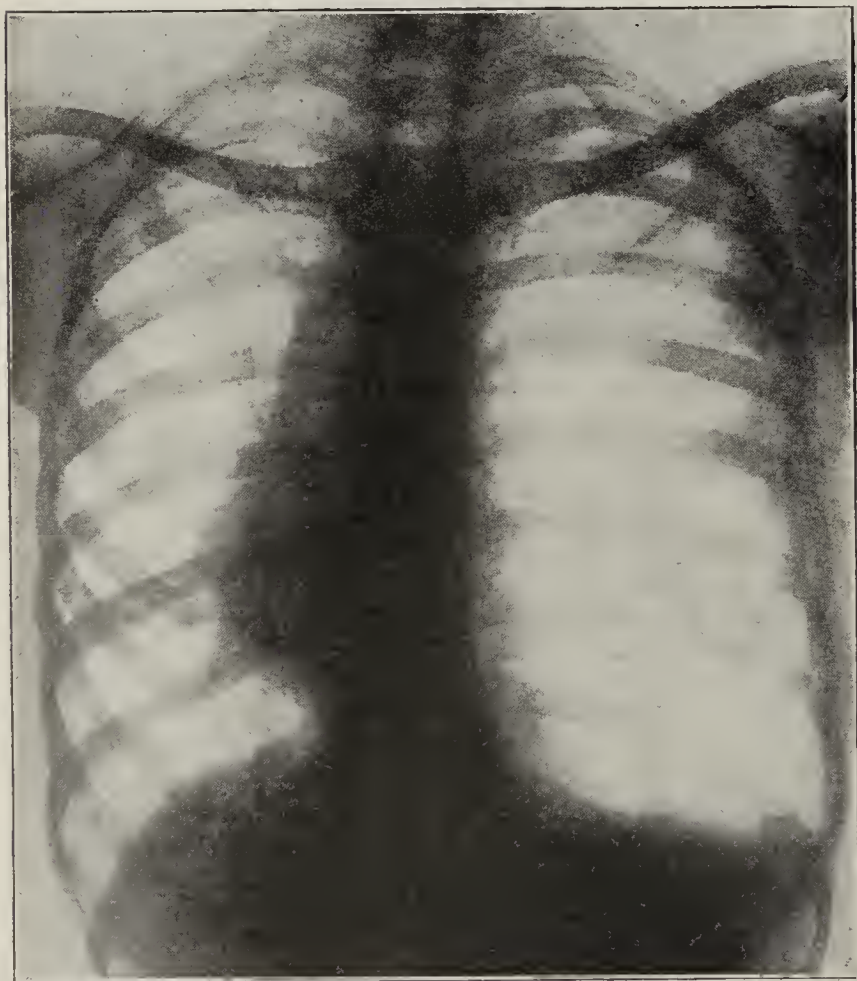


Fig. 4.—Chest of patient after withdrawal of fluid and replacement with air.

few hundred c.c. of fluid, the symptoms and negative pressure being immediately altered for the better by injection of air. Alternate withdrawal of fluid and replacement by air were continued till the pleural cavity was almost completely

A "SCHREIBER" ADAPTER FOR INTRAVENOUS INJECTIONS *

J. H. STOKES, M.D., ROCHESTER, MINN.

Those who appreciate the good qualities of the Schreiber needle in meeting the difficulties of intravenous injection technic will appreciate the serviceability of the device here illustrated, which has been in use in my service for several months. The Schreiber needle is made in only one, or at most two sizes. This adapter makes possible the use of a needle of any size desired to meet the indications in a particular case. The needle proper is attached to the standard Luer hub of the adapter, and adapter and needle are then used together as one instrument, in accordance with a technic that I have already described.¹ The device was developed in cooperation with Mr. P. L. Pinkerton of the Precious Metals



A, Conventional type of Schreiber needle; B, Schreiber adapter with two different types of needles; C, Schreiber adapter with 22 gage hypodermic needle attached.

Tempering Company, who submitted a sketch and later a specimen for clinical trial. Whenever, for any reason, it is found necessary to inject amounts of solution too large to be readily administered with a syringe into small or difficult veins, such as those of the scalp, hand and wrist, this adapter has proved exceedingly useful.

* From the Section of Dermatology and Syphilology, Mayo Clinic.

1. Stokes, J. H.: Certain Technical Refinements in Methods of Intravenous Injection, *Med. Rec.*, New York, 1917, 152, 13.

Recrudescence of Malaria in England.—Attention has been called to the possible recrudescence of malaria in England as one of the minor results of the war. It is known, says the *Scottish Geographical Magazine*, that anopheline mosquitoes exist in England, and men returning from malarious districts of the east and the Balkans with the parasites in their blood afford favorable foci for the spread of the disease in England. Some cases of indigenous malaria, it is said, have already been found in England and the Local Government Board is already making inquiries looking to precautions against the spread of the disease from returned carriers.

A NEW INHALER FOR NITROUS OXID ANESTHESIA

ALBERT H. MILLER, M.D., PROVIDENCE, R. I.

This inhaler for nitrous oxid or for nitrous oxid with oxygen or with ether vapor comprises a celluloid face piece with an inflatable rubber rim, an inspiratory valve, an expiratory valve, and a combined supply and rebreathing bag.

In the top of the face piece are two openings, in one of which is mounted the expiratory valve, closed by an outwardly opening disk of aluminum or mica controlled by a delicate and adjustable spring. The second opening com-

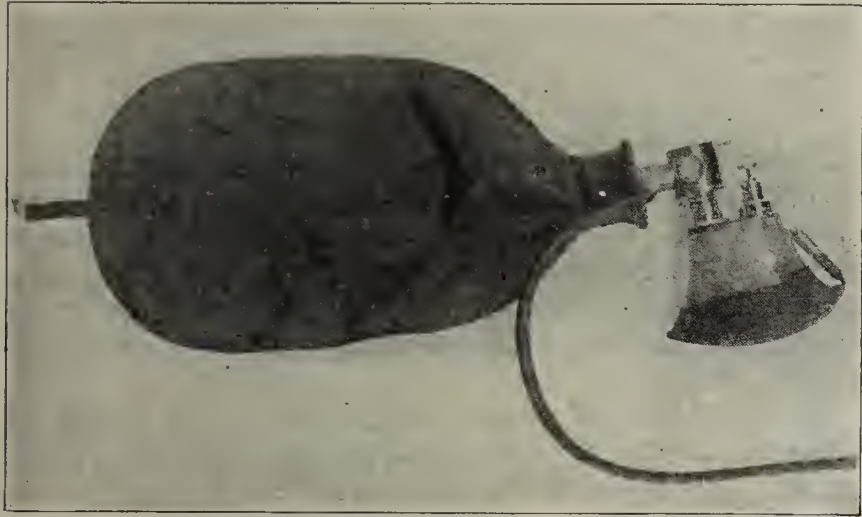


Fig. 1.—Inhaler assembled.

municates by a short tube with the base of a cup, open at the top and having two openings in the side, one for the admission of air and the other communicating by a short tube with the supply and rebreathing bag. A second cup is inverted and ground to fit closely into the outer cup. Diametrically opposite in the sides of the inner cup are two openings, one fitted with the inspiratory valve, closed by an inwardly opening disk of aluminum or mica. The inner cup revolves within the outer and is provided with a stop for three positions, in the first of which the patient breathes air through valves, the opening of the supply bag being closed; in the second, gas through valves, the air opening being closed; in the third position, gas to and fro, the inspiratory valve being idle.

The first position of the inspiratory valve, allowing air to be breathed through the valves, permits the adjustment of the inhaler to the face with the supply bag filled. The patient



Fig. 2.—Parts of inhaler: From left to right, wide mouthed bag; outer cylinder with bag adjustment, wire mask and supply tube; inner cylinder with inspiratory valve; face piece with expiratory valve; rubber rim.

tests the apparatus by breathing air through valves before gas is turned into the face piece. This important point, brought out by Hewitt many years ago, is frequently overlooked at present.

The second position, allowing inspiration of gas from the supply bag and total expiration through the expiratory valve, results in a more rapid replacement of intrapulmonary air by gas than when rebreathing is indulged in from the first, and a correspondingly rapid induction of anesthesia and absence of excitement.

The third position, with the inspiratory valve idle, converts the supply bag into a rebreathing bag. With a constant flow of gas into the bag, the first part of each expiration, consisting largely of unused gas from the upper respiratory passages, passes into the bag until it is completely filled. The latter part, coming from the lower respiratory channels and pulmonary alveoli, passes out through the expiratory valve. The proportion of the expiration which is retained in the bag and rebreathed depends inversely on the rate of flow of fresh gas into the bag; the more rapid the flow of gas, the less space remains to be filled by the expiration and the greater proportion of the expiration escapes. The proportion of rebreathing may be estimated by noting the point in expiration at which the expiratory valve opens. The tension of the spring controlling this valve is just sufficient to keep the valve closed until the bag is filled.

To sterilize, the expiratory valve is unscrewed and removed. The cups containing the inspiratory valve are separated and detached from the face piece. The inspiratory valve cap is unscrewed and removed. The supply and rebreathing bag, which is wide mouthed and reversible, together with the rubber rim, is sterilized in boiling water. All metal parts are sterilized in boiling water. The celluloid face piece may be placed in boiling water momentarily. It would be destroyed by prolonged boiling.

This inhaler is light, simple, efficient, and readily sterilized.
131 Waterman Street.

METHOD FOR STAINING THE DIPHTHERIA BACILLUS

FOSTER A. BECK, M.D. (WINDGAP, PA.)

First Lieutenant, M. R. C., U. S. Army, in Charge of Laboratory,
Post Hospital, Aeronautical General Supply Depot and
Concentration Camp

GARDEN CITY, L. I., N. Y.

The examination of a large number of smears taken from throat cultures for the diphtheria bacillus, led me to devise a method of staining that has given me excellent results. It is as follows:

STAIN 1

Gentian violet (saturated alcoholic solution) 10 c.c.
Acetic acid solution, 4 1/2 per cent. (distilled water being used). 90 c.c.

STAIN 2

Bismarck brown 0.480 mg.
Distilled water 125 c.c.

The water should be heated to boiling, then the Bismarck brown should be added, and the mixture boiled for one or two minutes and filtered cool.

The smear should be spread thin and even on the slide, dried in the air and then passed several times through the flame of an alcohol lamp or a Bunsen burner to fix.

The specimen should be stained for thirty seconds with Stain 1, the excess stain washed off with water, and without the specimen's being dried Stain 2 should be added for ten or fifteen seconds, and the specimen washed in running water, dried and examined with oil immersion.

The bacillus, when present, stains as follows: The body of the bacillus becomes a delicate shade of purple or brown, and the clubbed ends and polar bodies, dark purple or black.

Staphylococci, streptococci and pneumococci, when presented, should be stained brown, or brown with a tint of purple.

This method of staining has given me an average of 5 per cent. more positive cultures than any of the other standard methods.

An average of two minutes is the time required to stain the specimen and to examine and make the diagnosis.

Regimental Officers.—The regimental medical officer is a person of protean pursuits. His interests reach from the cleanliness of the cook's hands to the care of the wounded under fire.—McCombe and Menzies.

Military Medicine and Surgery

TRENCH FEVER*

A REPORT OF CLINICAL OBSERVATIONS AND RESEARCH AS TO THE ETIOLOGY, PATHOLOGY, PROPHYLAXIS AND TREATMENT OF TRENCH FEVER AMONG TROOPS

MAJOR W. BYAM, R. A. M. C.; CAPT. J. H. CARROLL, M. R. C., U. S. ARMY; LIEUT. J. H. CHURCHILL, R. A. M. C. (T.); CAPT. LYN DIAMOND, R. A. M. C.; LIEUT. L. LLOYD, R. A. M. C.; CAPT. V. N. SORAPURE, R. A. M. C., AND LIEUT. R. M. WILSON, R. A. M. C.

HAMPSTEAD, ENGLAND

(Continued from page 26)

THE CHRONIC DISEASE

It has become evident that in a large proportion of trench fever patients invalided to England there is a tendency to advance through a subacute toward a chronic condition with symptoms of disordered action of the heart and also in some cases of neurasthenia. The features of the chronic condition are most easily described by citing a case history of one of our patients, an A 1 man who went through his training without difficulty.

In November, 1915, he went to France, where he remained at full duty till the spring of 1916, when he reported sick several times with pains in the back, head and legs. This was diagnosed as "influenza." After he returned to duty he noticed much aching in the knee joints and also some headache. He was admitted to hospital in France three times, each time with fever. In September, 1916, he was admitted to hospital (his third admission) with pains in the back and legs, and a temperature of 103 F. He was confined to bed for four weeks. A diagnosis of rheumatic fever was made and the patient invalided to England, where he spent two weeks in bed and ten weeks more in hospital. On getting up he noticed that he was breathless.

His headaches continued until his return to France in March, 1917. Four days later he reported with fever and was excused duty for four days. He then finished his retraining. In the middle of June he again reported sick with fever and pains in the head, back and legs, becoming worse in the evening. This time he was excused duty for ten days.

June 30, 1917, he was sent to a field ambulance with symptoms as above. From there he passed to a base hospital where he remained fourteen days. His case was diagnosed as trench fever and he was invalided to England. He was admitted to hospital at Hampstead, July 14, 1917. This was approximately the four hundred and seventieth day of the disease. From this date there were frequent small rises of temperature. The patient was a man of good physique but looking ill. He complained of constant aches in the legs and shins and said his legs felt like giving way under him. The hands and feet were sweating and tremulous. A vivid red tache was present on light stroking. The area of splenic dulness was enlarged to percussion, but on account of tenderness of the left hypochondrium the spleen could not be palpated. The patient complained also of breathlessness on exertion, palpitation of the heart, pain over the precordium and giddiness, the symptoms known as effort syndrome or disordered action of the heart. The heart was not enlarged, and the sounds were normal. He was markedly exhausted.

This case is not an exaggerated picture of the established chronic trench fever, which may therefore be defined as a state of marked debility with or without attacks of slight fever and aching and characterized by a hyperexcitability of the nervous system

in general. The symptoms encountered may be thus summarized in the order of their importance: (1) exhaustion; (2) giddiness and fainting; (3) headache; (4) breathlessness on exertion; (5) pain; (6) irritability; (7) lassitude; (8) sweating; (9) coldness of the extremities; (10) palpitation and cardiac irregularity, and (11) fever.

Before the symptoms are discussed in detail, it must be pointed out that all these symptoms are present in the major portion of chronic cases.

In the handling and distribution of cases necessitated by military exigencies, patients with predominant symptoms will tend to be evacuated to cardiac hospitals, patients in whom nervous symptoms are marked to neurologic hospitals, and patients complaining of pains and aches to institutions for the treatment of rheumatic conditions. All these patients, however, if carefully examined will be found to show, in greater or less degree, the syndrome detailed above.

ACTION ON THE VAGUS SYSTEM

While it is extremely difficult to prove on what part of the central nervous system trench fever acts, we believe that a body of evidence exists which points to a specific action on the vagus. This evidence may be grouped under three heads:

1. It was observed by Lewis while studying disordered action of the heart that there was a tendency in some of these cases to what was described as "vagus lag," that is, a failure of the pulse rate to return to normal after the performance of a specific exercise. In other cases of disordered action of the heart the pulse returned rapidly to normal. A close study of this phenomenon (the return of pulse rate after exercise) in cases of trench fever has shown that the tendency is for a rapid and even exaggerated return to take place. Thus in a series of eight cases selected at random the pulse returned to below its rest rate in half a minute in two instances. In other words, the pulse had reached its normal rate in all in normal time. These were cases entering the chronic stage of the disease. In the acute stage a relatively slow pulse is the rule, and the return of the pulse rate to normal after effort is invariably exceedingly rapid. "Vagus lag" therefore in these cases is replaced by "vagus pull." This becomes more evident when a comparison is made with the return of the pulse in gas-poisoning controls.

2. It was observed that in a proportion of patients suffering from trench fever a long, deep inspiration was attended by a marked slowing of the pulse, with or without loss of volume. In a few instances, only loss of volume was observed. The phenomenon was studied in control cases with no history of trench

*NOTE.—The work on which this paper is based has been carried out at Hampstead for the War Office Trench Fever Investigation Committee, of which Major-General Sir David Bruce, K.C.B., F.R.S., A.M.S., is chairman. The members are: Lieut.-Col. D. Harvey, C.M.G., R. A. M. C.; Prof. H. Plimmer, F.R.S.; A. W. Bacot, Esq.; Major W. Byam, R. A. M. C.; Lieut.-Col. H. French, R. A. M. C. (Temp.); J. A. Arkwright, Esq.; Sir W. M. Fletcher, K.B.E., F.R.S., and Lieut. A. F. Hird, Gen. List. (Temp.), Secretary.

fever and no symptoms of disordered action of the heart. It was not seen in these cases. To determine whether this slowing of the pulse bore any relationship to vagus activity, a number of patients showing it were given a dose of atropin sulphate, $\frac{1}{32}$ grain. In each case atropin was found to abolish or greatly modify the effect of prolonged inspiration. The conclusion, therefore, that the phenomenon was definitely related to vagus activity became a difficult one to refute.

3. It was a matter of observation that a number of trench fever patients revealed cardiac irregularities during exacerbations of the disease, which irregularities disappeared in the intermissions.

A patient came under our observation suffering from acute trench fever, subsequently developed paratyphoid B, as proved by blood examinations, and finally relapsed twice with characteristic symptoms of trench fever, which symptoms had been conspicuously absent during the paratyphoid attack. During the initial trench fever his pulse tracings showed an extrasystole every third beat; throughout the paratyphoid fever no cardiac irregularity could be detected, though the attack was a severe one and the observations made were numerous, while with the trench fever relapses the extrasystoles returned as before.

Granted that a lowering of the sinus excitability, thus allowing stimuli to arise in other parts of the auricular wall, is a predisposing cause of this irregularity, it is manifest that vagus hyperexcitability would act toward this end. These three aspects when viewed in conjunction appear to us to offer at least a strong suggestion of a specific action on the vagus in trench fever. This view is strengthened when the tendency to a slow pulse rate in the acute cases, to fainting attacks and collapse is taken into consideration. Our observations, which are supported by those of the workers in France, show that the transition from bradycardia to tachycardia in trench fever cases usually takes place after the twenty-first day of the disease, and in the greater number of cases is found from the twenty-first to the fortieth day. Physical activity is not a necessary factor in the causation of disordered action of the heart, as many patients develop the condition while lying in bed. The impression exists, however, that allowing the patient up does increase the severity of this sequel. In an attempt to analyze the significance of the change in pulse rate certain coincident clinical phenomena were found to be of importance, as profuse sweating, flushing, headache, throbbing of the vessels of the neck, tremulousness, and in some cases discomfort in the throat and chest. These phenomena have been remarked by many observers, and have frequently been ascribed to hyperthyroidism. This view has been disputed, however, notably by Lewis, who found that the administration of thyroid extract by no means tended to exaggerate the symptoms of disordered action of the heart, a state of matters which he suggested might have been expected had hyperthyroidism been the basis of the syndrome. We ourselves, extending Lewis' work, have found in addition that far from exaggerating the symptoms, large doses of thyroid extract distinctly and definitely cause relief.

This finding has been confirmed in so many cases and with such uniformity that the beneficial effect of thyroid extract is not an accident.

The following are instances of what we mean:

CASE 1.—On the forty-sixth day of the disease, the patient developed marked sensations of exhaustion, shakiness, profuse sweating, and dyspnea on exertion. The pulse was rapid

and presented the appearance of disordered action of the heart on the chart. He was then put on 2 grains of thyroid extract thrice daily, and immediately the symptoms disappeared. A week later the thyroid extract was discontinued, and the symptoms returned with a tendency to fainting, severe headache and giddiness. A further course of thyroid extract was begun, and all symptoms again disappeared. On the patient's again being taken off thyroid extract, the symptoms returned.

CASE 2.—On the thirtieth day of disease the patient developed profuse sweating, marked tremor, dizziness, headache and tachycardia. He was then put on 2 grains of thyroid extract three times a day, and at once got rid of his symptoms. Treatment in this case has not been discontinued, and the patient remains well.

This experience was encountered even in cases in which there was definite thyroid enlargement, as the following clearly demonstrates.

CASE 3.—Thyroid enlargement and discomfort in the neck accompanied the appearance of symptoms of disordered action of the heart. This patient could take 9 grains of thyroid extract daily without ill effect, indeed with comfort, for he improved steadily while taking it.

It must not be understood, however, that the results of our use of thyroid extract in cases of disordered action of the heart following trench fever have led us to the conclusion formulated by Lewis, that hyperthyroidism plays no part in the mechanism of this condition. The most striking feature of the majority of early cases of trench fever is the disinclination of the patient to respond to calls for effort. This disinclination is no local weakness of the legs, but a general extreme exhaustion accompanied by fainting in many cases and by bradycardia. At this point, as has already been suggested, the dilator mechanism is in a high state of excitability, and the patient is literally without the power to relieve himself of the depressing effect produced. Indeed, the falling pulse rate and occasional simultaneous gastric disturbances, with sweating or pallor, stamp the attacks unmistakably as vagal and dilator in origin.

After the subsidence of the acute phenomena, it is found that the vagus system of these patients is not less excitable than it was at the onset of the disease, but the response to effort has now improved—in other words, the man is now able, by means of some mechanism which is brought into play, to compensate for the activity of his vagus mechanism when an effort is required of him. A lead in the direction of the true nature of this compensation has been given to us by the fact that in some cases enlarged thyroids have been encountered and also by the appearance of phenomena usually associated with hyperthyroidism.

These observations, coupled with the good effects of thyroid administration, have brought us to the conclusion that the so-called hyperthyroidism seen in these cases is in the nature of a compensation to the depressor effects of vagus hyperexcitability.

The work of Cannon, Cattell and Levy has demonstrated that the mechanism of pressor effects, as opposed to depressor, involves the suprarenals and the thyroid. Cannon and Cattell⁶ have placed the secretory innervation of the thyroid on a firm basis. They showed that thyroid secretion resulted from stimulation of the cervical sympathetic nerve and also from suprarenal secretion, the latter through the blood stream. That is to say, at times of suprarenal activity a call will be made on the thyroid secretion.

It is well known that vagal stimulation with its resulting depression calls for suprarenal or sympa-

6. Cannon, W. B., and Cattell, M.: *Am. Jour. Physiol.*, 1916, **41**, 39.

thetic activity. This fact is well established in the work of Roger,⁷ who says:

When, in a normal rabbit, we excite by a faradic current the peripheral end of the cut vagus, we observe a true stoppage of the heart, that is to say, a diastolic fall, sharp and profound, which is almost always followed by a return of the beats. The curve resulting is V-shaped. The first excitation always produces the most marked effect.

If now we carry out the experiment on a decapsulated rabbit, the first tracing obtained looks like normal tracing; but during the second faradization, the stoppage of the heart is prolonged and the return of the beat is made with difficulty.

Continuing our excitations, we soon obtain diastolic periods lasting as long as thirty or even forty seconds. . . .

How are we to explain these differences? We might say generally that the vagus in the normal rabbit shows less and less effect in repeated stimulations because it is becoming exhausted. If this were the correct explanation we should find the same phenomenon in the decapsulated rabbit. But since in the decapsulated rabbit exactly the reverse is found, we are forced to take into consideration the only element that differs in the two series of experiments—the suprarenal capsules. We thus arrive at the following conception:

When the action of the vagus becomes preponderant, when it acts, that is to say, with full force on the heart, a reaction probably in the nature of a reflex is produced on the suprarenal capsules which give out epinephrin. This epinephrin counterbalances the action of the vagus, prevents the stoppage of the heart, and raises the arterial pressure.

This conception leads to the supposition that an injection of epinephrin given to a decapsulated rabbit would cause the heart of that animal to respond like the normal rabbit's heart. That is exactly what happens.

The work of Cannon and others already referred to shows that this reflex stimulation of the suprarenals involves thyroid activity. Consequently the normal reaction of a man to excessive excitability of his vagus system will be a mobilization of epinephrin and thyroid and so a reaction based on the sympathetic system.

Examination of our patients shows that the effect of the toxin is a more general one than a purely cardiac vagal effect. There is in addition a depressor effect, a circulatory effect, resulting in fainting attacks of definite depressor and vagal origin.

In other words, not only is the heart held in inhibition, but also the wide splanchnic blood lake is dilated and a severe fall of blood pressure, similar to that seen during stimulation of the depressor nerve results. This effect has been thus emphasized by Lewis⁸ in describing a fainting attack observed in one of his patients:

The simultaneous fall of pulse rate and blood pressure stamps the attacks as vagal in origin, a view fully confirmed by the occurrence of simultaneous gastric disturbances.

Epinephrin, as is well known, acts by constricting splanchnic arterioles and so closing the dilated splanchnic lake. A marked pressor effect results. Indeed, Hoskins has shown that the pressor effect of epinephrin depends entirely on the emptying of this blood lake since, if the splanchnic area is excluded from the circulation, epinephrin no longer is able to produce any pressor effect.

Levy has conclusively proved that the pressor effect of epinephrin is multiplied from 200 to 300 per cent. if thyroid is present, and he has further proved that thyroid has no effect whatever on the vagus. Consequently, it is evident that, as Levy has said, "thyroid secretion renders more excitable the sympathetic

structure acted on by epinephrin in raising arterial pressure." It therefore follows that if the blood stream contains an excess of thyroid, less epinephrin will be required for any given pressor effect; or, in other words, the accelerator and other effects of epinephrin will be less evident in these cases, and effort will be accompanied by a smaller degree of tachycardia. We see in this the explanation of the slowing of the pulse we have encountered on thyroid administration.

THE DISEASE IN TRANSITION

We may now proceed to examine more closely the symptoms of the subacute and chronic disease, which symptoms, as we have pointed out, are progressive in character and subject to modification in their progress. Before doing so, however, we should like to insist on this fact of the modification of symptoms because, unless it is borne in mind, cases will be classified wrongly and those seen at one period will be regarded as differing from those seen at earlier or later periods; such differences are merely differences of degree. The disease, like most diseases, is a process rather than a fixed point. Each stage presents its own features. Each stage shades into the succeeding stage. When we speak of the chronic disease, disordered action of the heart, neurasthenia, etc., we by no means wish to imply that we believe the evil process is ended or that cure does not take place. The truth is that sufficient time has not yet elapsed to enable us to say whether the matter ends there, advances to some further phase of disability or gradually dissolves itself in cure. A proportion of cases certainly appear to establish a *modus vivendi*.

The subacute disease marks the passage from the acute to the chronic disease. The patient at the conclusion of the acute stage is in a condition of lassitude, the result, as we have suggested, of his active vagus. He is content to lie still without doing or thinking, and so remains unaware, in a physical sense, of his condition. During this period the pulse chart and temperature curve both tend to be subnormal. A little later the patient begins to enter once more on the affairs of life. He is now at once aware of the disability under which he labors, that is to say, of the disturbance in his nervous equilibrium occasioned by his hyperexcitable vagus system. In order to compensate for this, the opposing mechanism is called on to make greater efforts. There succeeds a period of rapid heart action, bouts of palpitation, and tendency to sharp relapses into weakness—a period that is of unstable nervous balance in which at one time so-called thyroid symptoms manifest themselves, at other times vagal symptoms.

Clearly, however, this stage is really a reaching out toward a new equilibrium, that is to say, a balance between the overexcited vagus and the sympathetic mechanism which is becoming overexcited also as a compensation. This new balance differs from the old balance of health in one momentous respect—it is a balance between extremes, and the daily swing of rest and activity is therefore greatly exaggerated. Activity becomes restless, nervous, violent; rest becomes heavy, somnolent, deep. The symptoms of so-called disordered action of the heart are produced, and the chronic stage has begun. This passage from the acute to the chronic stage shows four distinct phases: (1) the acute attack; (2) the period of rest following the attack; (3) the period of badly adjusted

7. Roger: *Quelques recherches récentes les fonctions de capsules suprarenales*, Presse Med., 1916, 24, 513.

8. Lewis: Report on Soldier's Heart to Medical Research Committee.

nervous balance, etc., and (4) the period of new adjustment of nervous balance—disordered action of the heart.

It is interesting to recall that in the course of a series of investigations into the nature of disordered action of the heart, Fraser and Wilson found that the response of the patients to epinephrin, the drug of the true sympathetic, was much exaggerated, while the response of the patients to apocodein, a drug which inhibits the true sympathetic, was also much exaggerated. This finding is in exact agreement with the expectations we might have entertained from our clinical study of the genesis of disordered action of the heart.

THE TEMPERATURE CURVE

The normal heat of the body depends on the amount of heat generated and the amount lost. There is a daily swing in health showing a low temperature in the early morning and a higher temperature in the late evening. That this swing is determined to some degree by the interrelationship of the pressor and depressor mechanisms is scarcely doubtful.

We should expect, therefore, that when the new equilibrium of our cases was established—what we call the chronic stage or stage of disordered action of the heart—the daily swing would be of a more exaggerated type in keeping with the exaggerated irritability of the nervous systems concerned in the new balance. This, in point of fact, we find, the daily swing amounting in most instances to 2 degrees Fahrenheit and often extending considerably above and below the normal line.

It must be realized, however, that a spiky relapse of fever often occurs during the chronic stage. In these cases nervous balance stands once more in need of a readjustment, the extent of which will depend on the extent of the disturbance produced in the vagal system.

THE CLINICAL PICTURE

In the later subacute stage of the disease the patient presents a well defined clinical picture. Throbbing headache is complained of, the face is flushed, the skin warm, profuse sweating occurs, marked tremor is present, and a sense of fulness in the upper chest is complained of. Sometimes constant nausea is felt, and faintness frequently occurs. The patients may faint, and often do so. When the chronic stage or stage of disordered action of the heart has been established, this extreme instability of the nervous system is less well marked. The patients no longer tend to swing from states of great excitement to states of complete collapse. Another and different clinical picture is seen. This clinical picture corresponds to the entity which has acquired the title of "neurasthenia," by some qualified with the words "of vasomotor type." No matter what name may be given to it, it will be found that there occur brisk reflexes, coldness and blueness of the extremities, irritability of temper, inability to fix the attention for long periods, and exhaustion, usually provoked by sustained effort, far in excess of that evoked by the same effort in healthy men. Breathlessness on exertion, palpitation, precordial pain and giddiness are features of both subacute and chronic conditions.

(To be continued)

PHYSICAL EXAMINATIONS UNDER THE SELECTIVE SERVICE

MEETINGS OF THE SECTION ON MISCELLANEOUS TOPICS, HELD IN THE STUDEBAKER
THEATER, CHICAGO, JUNE 13 AND 14*

(Continued from page 35)

QUESTIONS AND ANSWERS CONCERNING DRAFT REGULATIONS, CONDUCTED BY COL.

J. S. EASBY-SMITH

THURSDAY, JUNE 13

LIEUT.-COL. J. S. EASBY-SMITH said:

Question.—What disposition should be made of a registrant who has been suffering from diabetes mellitus?

My opinion is that he ought to be rejected. I think you will find that in the book, but if not, it seems to me you ought to know that a man who has diabetes mellitus will never be fit for general military service.

Question.—Are these rules to be applied to all men of draft age, or only to those who have to be examined hereafter?

Recently the Provost Marshal-General issued a request to boards, through the governors, to go over and recomb their classification lists in order to correct cases that have been improperly classified, because we realize that some have been improperly classified without deliberate fault of the boards. Boards ought also to comb their lists over as to physical groupings. Section 177 provides that when a man is rejected at camp, he shall be reclassified by the Local Board in accordance with the findings of the camp authorities.

In the new Manual you will find short explanatory notes to Section 177, the gist of which is as follows: We are going to try to get the Surgeon-General to issue an instruction

which will be followed by camp surgeons, so that when they reject a man and send back Form 1029-A or B, or whatever it is, they will state specifically the physical cause of rejection, if the rejection is due to physical cause.

And then there is another case in which I believe we will get cooperation through the Surgeon-General or Adjutant-General, when the camp surgeon will again put it into the record. Now, suppose the camp surgeon has rejected that man because he finds him suffering with some defect which unfits him for any sort of military service. Put him in Class 5. If he is rejected on account of some defect, he might leave him still in the deferred remediable group, or in Class C for special and limited military service. Put him in that. If you have any doubt about it, examine him over again, and group him; and then bear this in mind: You know the Local Board and the District Board have the authority to reopen, reclassify or reexamine cases at any time they choose. They cannot be compelled to do so. It is absolutely discretionary. You may have a man who is a malingeringer. He may come in with some sort of a fixed up case, and it may appear to be from some source that is not what it appears to be. There are a great many rejected. On subsequently learning that he is in good shape, and is working, call him in and examine him and regroup him.

Question.—Has the Advisory Board the same power as Local and District Appeal Boards?

Let me say that the Medical Advisory Board has no power except as the name indicates, to advise. The law puts the decision of these matters in the Local Board, subject to appeal and review by the District Board. The Medical Advisory Board makes the examination for the benefit of

* Because of lack of space some of the questions and answers rather special or non-medical in nature have been omitted from THE JOURNAL but will be included in the reprints. Reprints will be sent by THE JOURNAL on receipt of six cents in stamps.

the Local and District Boards, so that the Local and District Boards may exercise their discretion and judgment on the advice received from the Medical Advisory Board. If the Advisory Board thinks a man ought to be called in and reexamined by the Local Board, and so recommends, I think the Local Board would be very derelict in its duty if it did not comply with the request. You can reexamine and reclassify this man according to Section 177.

Question.—Mr. T. H. McKELLAR, Los Angeles, asked: Why should we not accept for limited service a man with one leg, or a man with one arm, because under the construction that was put on it for that individual, if he were able to do an honest day's work in a successful and skilful manner, earning his living without losing any time more than a man ordinarily in his vocation, and receiving full pay, or if he were a skilful man earning from \$5 to \$10 a day in a munitions factory, that man was qualified for special and limited service under the orders sent out. Is there no place in the limited military service for a man like this?

LIEUT.-COL. J. S. EASBY-SMITH answered: I can only say this: That the Surgeon-General, bearing in mind the old Army regulations, has provided these standards for physical acceptance or rejection. I am not prepared to argue whether or not a man with one leg or one arm ought to be held for special or limited military service. That is for the Surgeon-General and the medical authorities of the Army to settle. I will say that the only way to get uniformity is to adopt a standard rule, so that there will be uniform action on the part of the boards and the camp surgeons as to rejections and acceptances, and if the boards will live up to them, and the camp surgeons will live up to them, there will be few men for whom the government will have to pay double transportation.

Question.—Is a man of the age of 61 over the age for original entry into the Medical Reserve Corps?

I think he is not eligible.

Question.—In what occupations may men be held for special and limited service in the Army?

A good many of these questions are answered practically in the questionnaire for the new 21 year old men recently registered. It will be slightly different from the old questionnaire, because in it the additional questions occur as to the divinity and medical students. Hereafter not only men who are divinity students but also medical students at that time will be entitled to absolute exception. We have taken out page 4, reduced the number of questions, and inserted a removable slip which is to be put in, a temporary slip, which contains a list of about 400 occupations needed in the Army.

Question.—How about having the defect of registrant removed.

You cannot compel a registrant before being inducted into the Army to submit to having his defect remedied. You can compel him to submit to an examination, but you cannot compel him to submit to an operation to be remedied.

Question.—What about reclassification after physical defects have been removed by an operation?

If the operation is successful, the registrant can be reclassified. It may take two or three months before he is physically fit again, but if he is, he can go right into Group A, and is physically fit for general military service.

Question.—Can a malingerer be sent to a hospital for observation, and can he be compelled to stay at such a place?

I think that this may be done whenever a board decides that it is necessary, in order to secure a complete examination of a registrant and get the truth about him, that he be sent to a hospital and remain several days under observation. Of course, you could not compel him to pay the expense, but I should say you had a perfect right to compel him to submit to any reasonable examination.

Question.—Could we compel a registrant, irrespective of his social condition, to go into the Cook County Hospital, a charitable institution?

I will say that if Cook County Hospital is willing to hold him for observation, I think you can compel him to go there. I think the only limitation that would be applied would be as to whether or not it was reasonable, and whether or not it was reasonably necessary to hold the man under observation in order to ascertain his real physical qualifications.

Question.—Do we differentiate between congenital flatfoot and broken arch?

MAJOR HUBERT WORK answered: The term "flatfoot" bears particular reference to the flexibility and weight-bearing power of the foot, and not to the height of the arch.

Adjourned until 8:30 a. m., Friday, June 14.

FRIDAY, JUNE 14

Question.—Are dental students placed on the same status as medical students under the recent law?

This recent law registering the new 21-year-old men provides that any registrants who were medical students, recognized medical students preparing for the practice of medicine and surgery, shall be exempted, that is, those who had that status at the time the new law was passed. In a sense, the practice of dentistry is the practice of surgery. I do not know whether that question has been put up to the Surgeon-General's Office. I am sure that it has not been put up to our office yet, as to whether or not dental students are to be exempted, as well as medical students, and I should not like to express anything like an official opinion, because the question has not really been put up to the proper authority. My present view of the matter, however, is that, taking into consideration what the past law requires, dental students are not included in the provisions that apply to medical students proper, who are medical students in medical schools preparing for the practice of medicine and surgery. I do not believe that the dentist complies with all of the terms of that distinction.

Question.—Does the Provost Marshal-General advise Local Board medical members to go into regular service?

We have no authority to advise one way or the other. The attitude of the Provost Marshal-General's Office is this: If the Surgeon-General says that he needs more medical men in the Army, he ought to be able to get them; but if there is a community—and there are numerous communities in the United States, because the question has been put up to us frequently—that cannot spare the medical member of its board, because there is no other medical man available, I should say in that case that the man's first duty is to stay with the board, because without him the proper physical examinations, an essential part of the examination of a registrant, cannot be conducted, and there cannot be any real physical examination. In other cases this is a question for the member to decide for himself; but we have repeatedly authorized the governors to accept the resignations of local board members in order that they may accept commissions in the Medical Reserve Corps of the Army. That expresses our attitude; and it is only in the cases in which there is no other medical man to take his place that we feel he ought not to leave.

Question.—Suppose a man is inducted into service as physically fit, and at camp a defect, hernia, for example, is found; does he have to submit to an operation in camp or is he returned home?

If the camp has facilities for performing the operation, and the division surgeon feels that by undergoing the operation the man can soon be made fit for service, he will have to submit to the operation. If there are not facilities at camp for remedying that defect, or if, in the opinion of the camp surgeon, the operation would be such that the man would be laid up two or three or six months before he is really fit for active military service, it is for the division surgeon to say whether he will be operated on or sent back home. The law on the subject is, or one of the articles of war that govern the man after he is inducted into the service is, I think, that he must submit to any operation that is not "capital." Now, what is a capital operation and what is not a capital operation is, as you know, rather a debatable question.

Question.—Is it desired that a medical advisory board ever render a report more complete than is called for in the blank provided for questions and answers?

I should say yes; that if in the examination of a man something develops, and there is no space or room on Form 1010 for the recording of it, it should be recorded on a separate sheet and attached to the form; because the more information one has about a man, the more intelligently his case can be acted upon.

DR. WHITE: Do you make three copies?

COLONEL EASBY-SMITH: Yes, make an original and two copies, two carbon copies, and attach them.

Question.—DR. RALPH C. MATSON, division tuberculosis specialist, Ninety-First Division, Camp Lewis, Wis., asks, "What provisions have been made to prevent the return of tuberculosis patients rejected at camp, when the local or medical advisory boards think no tuberculosis exists?"

I have explained already that under Section 177 of the regulations, when a man is rejected at camp he has to be reclassified by the local board in accordance with the finding of the camp officials. Now, since that section was written, these new regulations were issued, and in order to make that clear, so that it can be applied in the light of the new physical

examination regulations, we put four important notes under Section 177, where it is printed on page 65 of the new standards. Of course, these standards consist, as you know, of the medical regulations proper; and there has been added as an appendix the essential parts of the selective service regulations relating to matters of procedure, in order that everybody may have them in handy form, the essential parts of the regulations governing the procedure.

Section 177 provides as follows:

When any selected man is rejected at a military camp or station, the commanding officer thereof will promptly notify his local board of the fact, specific cause and date of rejection, using Form 1029-A, and the Provost Marshal-General using Form 1029-B. When any selected man is, subsequent to acceptance, discharged at a military camp or station, the commanding officer thereof shall similarly notify the local board (Form 1029-C) and the Provost Marshal-General (Form 1029-D).

If the rejection or discharge is on account of the fact that the registrant is an alien, or an alien enemy, or upon the request of the accredited diplomatic representative of the country of which the registrant is a citizen, or that he is physically disqualified for general military service, the local board shall place the registrant forthwith in Class 5. If the discharge or rejection is on account of dependency or any other cause for deferred classification prescribed by these regulations, the local board shall proceed to reclassify the registrant in accordance with his status, as determined by the action of the military authorities in discharging him.

Now, that may need a little explanation. You will notice that that recognizes the possibility of a man's being rejected at camp, not only on account of physical disqualifications, but, having been accepted at camp, discharged on one ground or another apart from the question of physical qualification. The power to discharge any man from the Army, whether he be an enlisted man or a drafted man, is plenary in the President of the United States. He can discharge from the Army any man that he chooses. That function is exercised through the Adjutant-General, but practically it is exercised through camp commanders. So that sometimes a man has been accepted at camp and becomes a soldier; but an application is made for his discharge from the Army on the ground of dependency, or on the ground of necessary industrial occupation, or some other ground or because he is an alien enemy; or because—and we have had a great deal of trouble of this sort—we have had treaties with some country, for example, Switzerland, in which we agree that we will never put into our Army any of their citizens.

Application may be made to the Adjutant-General that a man be discharged on account of dependency. Earlier in the game there was a good deal of abuse—and I use the word not as reflecting on the camp officials—but there was a good deal of abuse in the authority of the camp commander to recommend the discharge of a man. In other words, the local board, or the district board may have passed on this very question of dependency, looked into it carefully, and found out that the man's claim was not established, and held him for service and sent him to camp. Sometimes he would go to camp and make an application, and some of these associations who are doing good work, but who sometimes are carried by their sympathies beyond what they ought to do, urged the camp commanders, through their associations, to discharge the man, saying, "This poor fellow has a wife and three children that are starving to death"; and the camp authorities will recommend his discharge to the Adjutant-General and he will be discharged; and ninety-nine times out of a hundred he ought not to be discharged. In some cases we found that a man had abandoned his wife and children and left them for two years, and yet he induced some of these associations to come in and beg for him, and they discharged him.

That is being corrected largely, because those abuses have been called to the attention of the camp commanders, and the general rule is now that before a camp commander will recommend the discharge from the Army of any man, they will refer that case back to the Local or District Board for recommendation. So that, while there is the absolute power to discharge from the Army, it is going to be exercised on the discretion of the Local and District Board. In other words, reclassify the man according to the grounds found by the camp authorities.

When it comes down to the matter of rejection for physical qualifications: when this section was written, we only examined men and divided them into two classes, those fit for military service and those unfit for military service. Now, we have the four groups; so that these notes in fine print on page 65 explain and amplify this Section 177 as follows:

Note 1. Section 177 is necessarily modified by the new grouping, also by new standards of physical examination, and should be applied in connection with Sections 116, 117, 118 and 120, of the Selective Service Regulations.

These particular regulations are the regulations authorizing boards to reexamine a man at any time, when the board thinks a man ought to be reexamined, whether reexamined as to his availability for duty, or reexamined on any claim that he may have for deferred classification; and it also covers the reexamination of a man physically, because, you know a man's physical status may change as well as his other status. And those sections give unlimited authority in discretion to Local Boards to reopen and reexamine a man's case.

Note 2. When the form 1029-C shows that the reason for the discharge of the registrant was physical disqualifications, which, under the new physical examination requirements, unfit him for any military service, the Local Board, under Section 177, shall place the registrant forthwith in Class V.

Now, having done that, there is nothing to prevent the board in the future, if it thinks that man may have recovered, to call him up for reexamination, and if they find him cured of that defect, reclassify him or regroup him.

Note 3. Where Form 1029-C shows grounds for discharge to be physical disqualification for general military service, but defects which might place him in the deferred remediable group, or leave him fit for special or limited military service, the Local Board should proceed to reclassify the registrant in accordance therewith, and if he is placed in Class 1, the board should proceed to examine the registrant under the new standards of physical examination and to classify such registrants in accordance with such physical examination.

Note 4. Local Boards are authorized under Sections 116, 117, 118 and 120, on their own motion, to reclassify registrants. Local Boards should keep advised with respect to any change in the physical conditions of discharged registrants which removes the physical disability, and have full authority if a change of status of this nature occurs, to reclassify the registrant, placing him in Class I, and order that he be reexamined.

That note will answer thousands of questions that we have had which have naturally arisen on account of the new standards.

DR. OWEN: It reads, "Exempt from further military service." Now, can we touch those men again, whom we have discharged?

COLONEL EASBY-SMITH: When were they discharged?

DR. OWEN: Last fall.

COLONEL EASBY-SMITH: Yes, sir. They should be reexamined under the new regulations, as if they had never been to camp at all. This Section 177 relates only to registrants or drafted men who are rejected from camp after Dec. 15, 1917. A man discharged from camp prior to Dec. 15, 1917, should be reexamined, and the Local Boards have the right, as we have seen, to reexamine the men who are now discharged; but the medical aides and the members of boards ought to be extremely careful to see that a man is not sent back to camp.

Question.—DR. MATSON, division tuberculosis specialist, Ninety-First Division, Camp Lewis, Wis., asks: If a board sends a registrant to camp as physically fit, and the examining surgeon and the authorities at the camp decide that the man is suffering with tuberculosis and rejects him and sends him back, what is the action of the Local Board?

The Local Board ought not to be stubborn, and in fact it would be violating the regulations, if it should insist on its decision being followed, and turned around and sent that man back to camp, because he is going to be thrown out again as soon as he gets back there. Of course, there may be a case in which a man has had incipient tuberculosis, he may have shown the germ in his sputum, and be rejected at camp, and later it may clear up. In that case it is for the board to exercise its authority of reexamining that man, and if it is perfectly sure that he has recovered, there is no reason why he should not be sent back; but a board ought not to send a man back to camp because it does not find the particular physical defect that the camp surgeons say they have found; because it is for the camp surgeons to say whether or not they will take him into the Army as physically fit.

Question.—A young man, aged 20, enlisted in the Navy; he was there a few months and came home; he says he was discharged because he carried meningitis germs in his throat. He registered, June 5, 1918. He has lived in a town of 5,000 all his life. No cases of meningitis resulted from him, either before he went to the Navy or after his return. Local and Medical Advisory Boards are not prepared to make cultures of the throat. Shall he be rejected on his word that he is a germ carrier or be sent to camp? He is otherwise physically fit.

First, you should not take the word of any man that he is a germ carrier. If you take a man's word for that, and do not have the facilities to take cultures, why, you probably would have to let a good many hundred thousand men out. I should say, however, that when a board is put on any sort of notice that a man possibly is a meningitis carrier, he ought to be given the most careful examination, because that is one of the worst diseases that can be taken into camp. I am surprised

that the Medical Advisory Board is not prepared to make cultures. I would send him to another Medical Advisory Board, and certainly some man on the Medical Advisory Board is qualified to take a specimen and send it to a hospital or have it cultivated and examined; and I should say there is nothing in this case at all to take it out of the ordinary case. The fact that he was in the Navy has nothing to do with examining him now; but, having been put on notice that he is possibly a meningitis carrier, the board ought to exercise great care in ascertaining whether he is or not.

Question.—DR. JOHNSTON, Wyoming, asks: What is the status of Filipinos in this country?

Their status is that of aliens. A Filipino is not a citizen, unless he has become naturalized. If a Filipino is residing in this country at the time of registration, he is obliged to register as every other man of draft age. If he has declared his intention to become an American citizen, he is liable to draft as any other declarant. If he has not declared his intention, he is entitled to claim exemption as an alien, and it must be granted to him, unless he waives it. In other words, the draft law is not applicable in the Philippines at all; and, if a Filipino is here, he is treated as an alien, just like our Indians. We have two classes of Indians, the citizen Indian and the noncitizen Indian. The citizen Indian is liable to military duty and liable to all the provisions of the selective service law; the noncitizen Indian occupies the same status as an alien, and cannot be drafted, unless he waives.

Question.—What is meant by "for insular troops?"

We do not know whether or not our drafted men are to be used outside the Hawaiian Islands. Recently the Provost Marshal-General gave us authority to waive all height and weight standards in the case of Orientals otherwise fit for full military duty.

I should say further, answering that, that this new regulation extended to all men raised in Hawaii and Porto Rico; that is, that the height and weight minimums are practically waived for men raised in the two islands Hawaii and Porto Rico.

I have not any authority to state officially what is going to be done with the troops raised in the two islands. I know that the policy has been—although it may be changed at any minute—to raise troops in those two islands, and to let them remain on duty in the islands, taking the place of the regulars who are there, so that the regulars can be called and go into service, and go overseas; and the troops who are drafted in the two islands shall stay at home taking their places. It may be that the policy will be changed and the Hawaiian troops and the Porto Rican troops put into the same service as the troops that are raised elsewhere; but I should say that the proper interpretation of this, that the height and weight minimums are waived, applies as to men drafted in either Hawaii or Porto Rico.

Question.—Under instructions, Form 75, will local boards classify in Groups B and C without recommendation of Medical Advisory Boards?

They can in clear cases. When they are doubtful they ought to send them to the Medical Advisory Boards.

Question.—When will old instructions be recalled?

We began last Monday the shipping out and distribution of the new instructions. We shipped 25,000 on Monday to the far western states, because we always begin to ship to the more distant points first, and by this time Form 75 will have been shipped to every state headquarters in the United States, and to the territories, and the distribution has probably begun already. We have given positive instructions to the Adjutant-Generals for transmittal to boards immediately on receipt of Form 75, and that old Form 64 shall be totally destroyed; not merely abandoned, but absolutely destroyed. These instructions will go into effect on their receipt, and they are being given to the camp commanders and the Adjutant-General, so that they will go into effect at the camps at the same time.

I would not examine those men that are going now, under these regulations, because the camp surgeons have not received them yet. I doubt whether your board has received them. That is another case for judgment. When you do get these new regulations and read them over, if you happen to know of some man that you ought not to have held for general military service, you ought to reexamine him and regroup him under the new regulations.

As I said this morning to the medical aides, we could write reams and reams of regulations that could cover thousands of pages, and it is beyond the range of human possibility to provide for every question that is going to arise in the application of a law like this, that has such widespread application.

There is only one thing to do, and that is to give men an outline of a course of procedure to follow. Appoint the right men to do the job, point out the objective to them, and let them go to that objective, using their good horse sense and sound judgment, following the general regulations that have been compiled. That has been done by the boards of this country; and I do not hesitate to say that if there is one single thing that has reached a greater state of perfection in its administration than anything else since war was declared, it is the administration of this Selective Service Law. This is due, not so much to our office as to you men in the field who have been administering the law and applying these regulations.

Question.—DR. BROWN, Milwaukee, said: The difficulty is that while these boards have been doing yeoman service, they find themselves confronted with men returned to them from the camp, reported back with hernias that they have not, and never did have, and where the services of elderly men in the medical profession is made as nothing by some young chap in camp who wears a uniform and decides absolutely against the facts in regard to some cases.

Unfortunately, that is one of the difficulties we have had. The trouble has been in the past largely on account of the fact that the camp surgeons were acting under one set of instructions and the boards under another. But there is no excuse for the cases you mention, when a man is rejected on account of hernia, and it is a matter of physical demonstration that he has not hernia. Now, the thing to do in those cases is to put it up to the medical aide, and let him take it up with the camp surgeon or the division surgeon and say, "Here is a man sent back, rejected at camp, of whom they say he has hernia, and here is a physical demonstration that he has not." Put it up to him. Is it crookedness or incompetence? If it is crookedness root out the rotten spot; if it is incompetence, put some one there that is competent. I think in this way, more than in anything else, the medical aides henceforward can be effective by being the go-between, or the means of communication between the boards and the camps, so that these abuses can be pointed out on both sides. Boards commit errors, and camp surgeons commit errors. Now, let us all bend our efforts toward correcting these errors and reducing them to a minimum. I think that if this meeting will accomplish a small percentage of this, it will be worth while.

Question.—DR. THROCKMORTON asks: Which examination shall stand, if a registrant is examined by a Local Board and pronounced fit for service, and he goes to the Medical Advisory Board and receives a recommendation for exemption, that he is unqualified; which examination shall stand?

I can answer that this way: The Medical Advisory Board has no right to determine the physical qualifications of a registrant. Only two bodies have that; in the first instance the Local Board, and in the second instance, if the man takes an appeal, the District Board. I am not talking about what happens when he gets to camp. The Advisory Board is what the name indicates; it is to advise the Local Board.

If I was on a board and the physician member of the board reported that he had examined a man and found him physically fit, and the man went to the Medical Advisory Board, composed of a number of physicians and they sent him back to the Local Board with their report saying, "We found so and so, etc.," I should be much inclined to take the opinion of several men who find something that the first man simply failed to find, rather than to take the opinion of the one man. It reduces itself, however, after all, to the exercise of common sense and good judgment.

Question.—DR. THROCKMORTON asked: Can the man examined go alone, without the recommendation of the board?

The man can go to the Medical Advisory Board in two ways: first, if he is not satisfied; supposing he is examined and the physician of the Local Board tells him, "You are physically fit," and he says, "I am not satisfied." Then he has the right to go to the Medical Advisory Board. He has to pay his own expenses, take his case to the Medical Advisory Board, and the Medical Advisory Board reports back to you. You are not bound by that.

Question.—DR. THROCKMORTON asked: In that case the local physician certifies on his examination paper for him to go there, or is he going on his own responsibility?

The only difference is that he can be sent by the Local Board if it is in doubt, and there the government pays his expenses. If the Local Board is not in doubt; if the Local Board by a vote of 2 to 1 has held that man for service, or rejected him, then he has to take the appeal himself, or rather he has to go there of his own accord and pay his own expenses.

Question.—Give the rule that allows a Local Board to reopen cases.

If you will refer to the Selective Service Regulations themselves, and to the index of the various sections, you will find that the Local and District Boards have absolute and unlimited discretionary power to reopen cases whenever they choose; and their action in reopening or refusing to reopen a case is not appealable. Their action is final.

Question.—Is it necessary for the oculist to examine a man sent up for hernia?

I should say when a man is sent up by the Local Board, and Form 1010 says that his eyes have been examined before, and that his eyes show 20/20 in the left and 10/20 in the right eye, or whatever it is, there is no reason why the oculist should duplicate that work, when he is sent up there simply to have one question determined concerning which the Local Board is in doubt.

Question.—DR. L. BLOCH asked: In the case of a man sent up from the Local Board, is it necessary to go through a complete examination at the head, and taking every part of him, after the Advisory Board has examined him? When some defect is found that disqualifies him, is it necessary to examine him further?

The new regulations are very much simpler in a great many instances than the old regulations, and a good many of the inconsistencies of the old regulations have been eliminated. In the first place, it would be perfectly useless for either the Local or Medical Advisory Board to go through the entire examination of a man after it had found a decided defect which would totally disqualify him for military service. It is simply a loss of work. So that either board, when it finds a defect which totally disqualifies a man, should go no further. Now, then, in the case of men who were sent up to the Medical Advisory Board, I should say that the character and the extent of the examination depends entirely on the man's examination as indicated on Form 1010, and also concerning the particular question of doubt which is referred up to the board. And even in that case, in some cases it is undoubtedly necessary to go over the man and make a complete examination of him. In other cases, I should say that the examination might be very limited. That is a matter for the sound discretion of the board, which it has to determine in each case. You cannot make a hard and fast rule that will govern every class of cases.

Question.—DR. BROWN, Milwaukee, asked: It has been found in many instances in the Advisory Boards that men coming from the Local Boards have eye defects not discovered in the Local Boards. If the men on the Advisory Boards do not make an examination of the eyes, how are those faults in vision not found by the Local Board to be discovered?

We are going to have mistakes made, and in some cases men on the Local Boards not doing their duty; but the regulations suppose that men will do their duty. If a man on the Local Board has missed something, and he actually marks down a man's vision as normal, I think the Medical Advisory Board can assume that he has made the examination and found what he reports. If the Medical Advisory Board finds that the Local Boards are sending men up with false reports on Form 1010 they ought to take some action to see that it is corrected. But I should say that if Form 1010 comes in blank as to the examination of the eye, you ought to examine the eyes. If Form 1010 says that a man's eyes are 20/20 and there is nothing that would call your attention to any defect, I see no reason why the Medical Advisory Board should pay any attention to his eyesight. But if Form 1010, as it comes up, shows that there is probably a defect, or if an ocular infection shows that there is some defect, I should say that it was the duty of the Advisory Board to look into his eyes.

Question.—Is it not a good safe plan, and the proper thing, for every Local Board to have an oculist on it to examine men for their eyes? I have been calling in an oculist to examine men whom I would certainly have passed, and they have been found to have defective eyes, and they would have been passed but for the work of the oculist. It is very satisfactory, and we do not let anybody get by us in that way.

We have encouraged that all we could. We have encouraged the Local Boards to ask the dentists to come in and help them to examine the men's teeth; and to have the various specialists, and the oculists and so on, come in. We sent out special instructions not long ago recommending that Local Boards should take advantage of the assistance of dentists in examining the men's teeth.

Question.—Does this order "Work or Fight" apply only to Class 1, or to all classes?

It applies to Classes 1, 2, 3 and 4, but not to Class 5. It applies to Class 1 in this way; Suppose a man has a very low order number, and he is away down at the bottom of the list,

and he is a loafer. Under that the Local Board has the authority to cancel his order number and put him right at the head of the list, and send him right to camp. That is the way it applies to Class 1.

Now, as to Classes 2, 3 and 4: It can transfer a man from any one of those classes into Class 1 and send him along with his order number, and also revoke his order number if he has a low order number. It does not apply to Class 5, because that is made up of men who are compelled practically to be exempted by the terms of the law; but it does apply to Classes 2, 3 and 4, as well as Class 1.

Question.—Can a man be transferred from Class 4 to Class 1, without being taken back to the District Board?

If you will read the new work or fight regulations, you will find that they will cover it. If a man has a wife and two children, is slinging dishes in a restaurant, and would rather do that than some more productive occupation, you can put him in Class 1, and the law compels him to send his wife \$15 a month. The government will add \$35 a month, and that wife and child will get \$50 a month, and you say to him, "Get into the Army." If before it goes into effect he abandons the slinging of dishes and takes up something more effective, something which an older man or woman cannot do, then all right; leave him where he is.

Question.—DR. P. R. BADGER, Local Board, Kankakee, Ill., asks: Does not the government realize the necessity of sending an Army officer with drafted men from the place of entrainment to the cantonment, in order to maintain proper conduct?

Of course, the regulations provide, as you know, that there should be a leader accompanying them, and the regulations further provide that if the members of the board feel that on account of the size of the party, and on account of danger of disturbances that some one should go with them, they may apply to the company commander to send military police to help them out.

We wrote a lengthy and full recommendation to the Adjutant-General, asking him that the regulations be put into effect whereby the camp commanders would instantly, on the request of the Adjutant-General of the state, furnish such military police as an escort as might be necessary, so that when the Local Board feels that it needs some sort of escort, it can telegraph to the Adjutant-General, who can ask the camp commander to furnish it. I hope there will be some permanent regulation in that matter, because undoubtedly there is need for it. But I would simply say to boards now that under the regulations as they exist you have the authority, when you feel it is necessary, to send along people to preserve order.

Question.—Should a man with one eye enucleated be sent in limited service?

I think the new regulations say that a man who is totally blind in one eye, but his sight is normal in the other, can be put in special military service. Nonprofessionally I cannot see the difference between a man who has one eye cut out, and a glass eye in there, with the sight in the other eye perfect, and the man who has simply lost the sight of one eye. Major Work, what do you say about a man whose vision is totally destroyed in one eye, but who has good vision in the other eye, and can be held for special limited military service; now, suppose he has actually lost the eyeball and has a glass eye. Is there any difference in those cases?

MAJOR WORK: He is blind in the eye just the same, but has one good eye. The eye is lost, whether the ball is lost or not; that is immaterial. It is the vision we are interested in.

Question.—LIEUTENANT DOBSON, Mississippi, asks: What recommendation shall the medical aide make in cases in which the examining physician on the Local Board lives distant from the headquarters of the board, thereby impairing the efficiency of the Local Board?

I should say that I would try to get a nearby physician, a man who is more available, and suggest to the governor that he recommend the substitution. The President makes the appointment, but we almost invariably follow the recommendation of the governor. I would recommend to the governor that this man be asked to resign, and that a nearby and more available man be appointed, if there is one.

Question.—DR. D. CHESTER BROWN asks: From statement it appears that all medical aides do not give all their time. Are they expected to?

They are expected to give all the time that may be necessary to perform the duties which have been placed on them when they accepted commissions. They have been sworn into the Army, and they are expected to devote their entire time to the work, if all their time is necessary to the proper performance of the duties assigned to them.

Question.—What shall we do with men who are physically fit for limited military service only, who are not specially capable for any special work, such as common laborers or farm workers?

The only thing you can do in that case is to find them fit for special limited military service, in whatever capacity you find that they are fit to work in.

Question.—DR. HERRICK, Chicago, asks: Can the Local Board deny to the registrant an examination by the Medical Advisory Board when he makes application in proper manner and at the proper time?

I should say that any Local Board would not be obeying the regulations, if it refused to send a man to a Medical Advisory Board, if he properly requested.

Question.—Even though the Local Board unanimously decides there is no reasonable doubt as to a man's fitness, does not such denial of the right of a second examination violate the spirit of the law?

Yes. And there has been some confusion on account of what are apparently inconsistent statements in, I think, Sections 122, 123 and 124. I should say that, notwithstanding the Local Board unanimously decides that a man is fit for military service, and that he has no defect, if he has made a request in due season to be sent to the Medical Advisory Board, he has the right to be sent there, and the Local Board ought to send him; and if the boards are acting to the contrary, they are acting in violation of the regulations.

DR. HERRICK: I asked that question, because some of the Local Boards have sent to the District Boards, on appeal made by the registrant, cases in which they had refused the registrant the right to appeal to the Medical Advisory Board. I note that you explain there that there is a little confusion in the wording of Section 123, and that explains it all. It clearly seems to me that the intent of the Selective Service Law is to give the man an opportunity of going before the Medical Advisory Board.

COLONEL EASBY-SMITH: Absolutely, if he wants to, the Local Board has no right to deny it.

DR. HERRICK: And it is assumed in Section 126, in the note, that the registrant appealing the result of his examination has already been twice examined.

COLONEL EASBY-SMITH: Yes. It is clearly the intent of the regulations to give the registrant an absolute right to go before the Medical Advisory Board if he wants to; and I hope that the medical aides will take all means to correct the erroneous application of the regulations, wherever they find it exists, and if they find it to take the situation up and report the matter to the Adjutant-General, so that he may issue instructions to the board, requiring it to live up to the regulations. That question no doubt arises in reading Section 123, or 124, or whatever it is, and you will observe that it really is directed to one class of cases, the doubtful cases, and does not apply to the preceding section, which gives the man the right to go up.

Question.—On what grounds can a member of a Local Board be excused from further duties?

It is almost impossible to answer that question. We feel that all boards have practically been drafted for the service, and should continue to perform their duty as long as they can do it without an undue sacrifice or without undue hardship; but if the time comes when a member of a Local Board feels that he cannot, in justice to himself or his family, continue to give all the time that is necessary, and somebody else in the community ought to do the work, why, put the matter up to the governor, so that the governor will recommend to the President that his resignation be accepted.

DR. HOCKMAN: Supposing he is ill?

COLONEL EASBY-SMITH: If a man is ill, he ought to resign and inform the governor that he cannot proceed further with the work on account of illness; in which case I have no doubt that the governor would send a recommendation to appoint a successor.

Question.—DR. H. L. ADAMS, Grundy Center, Iowa, asks: How about a Chinaman born in this country? Is he to be taken for military service?

Yes. A Chinaman born in this country is a citizen of the United States. He is liable to military service. Of course, we do not naturalize Chinamen, so that they are aliens; but Chinamen and Japanese, or persons of any other nationality born here are citizens.

Question.—Please discuss the dependency of physicians in the draft age: Are we to consider the possibility of their salary, if they are enlisted in the Medical Reserve Corps, or are we to consider only the \$30 a month of the man in the regular service?

You mean the case of a physician in the draft age who is a registrant and who has dependents. No, you are consider-

ing his case not from the standpoint of a man that is to be commissioned in the Medical Reserve Corps; you are considering him as a man, a drafted man who will get \$30 a month, and that the government will allow \$15, and add to it \$15 for the wife. You cannot consider the probability that a medical man who is drafted is going to get a commission. I think you would have to treat him as you would any other registrant, from that standpoint.

Question.—I had a question that came up before our board, the case of a man in the draft who had applied previously for a commission in the Medical Reserve Corps. He was rejected owing to defective vision. I simply marked him disqualified on account of his having been rejected in the Medical Reserve Corps.

You were wrong for the reason that in examining men for commissions in the Army the regulations look for a man practically 100 per cent perfect. The old regulations under which voluntary enlistments were made in the Regular Army, and so forth, under which they were examined, looked for men practically perfect, and the fact that a man, on examination, was rejected for a commission does not mean at all that he would not come well within the standards for acceptance into the Army as an enlisted man or a drafted man.

Take a man who passed the examination for a commission: He is put through a very stringent color blind test. As I understand it, in enlisting a man, and in drafting a man into camp, his vision is examined, but not for color blindness. Now, a man might be perfect physically and have good vision, and he might be color blind. On the other hand, there might be some other little defect which a man would have which would cause him to be rejected for a commission, but which would not have any effect on his qualifications as a drafted man. I do not think, therefore, that a board ought to pay the slightest attention to the fact that a man has been rejected either for enlistment or for a commission, when he has tried to get a commission and tried for voluntary enlistment in some branch of the service and has been rejected because of the different standards which are applied; and those different standards will continue to be applied, so far as the physical examination of officers is concerned.

Question.—How long a time has a man to accept a commission? What is the result if he does not accept? Can he resign?

If a man is offered a commission, he does not become a commissioned officer until he does two things: formally and in writing accept a commission and then take the oath of office. The President might send to the Adjutant-General the commission, but you are not a commissioned officer until you accept and take the oath of office. Whether the appointment is revoked for failure to accept within a certain time I do not know. That is a matter of regulation for the Adjutant-General.

DR. COBURN: Is the certified commission issued prior to the time of the oath, or afterward?

COLONEL EASBY-SMITH: Frequently the commission is issued, but it does not become effective, and a man does not acquire military status until he accepts it and actually takes the oath. I have known of a commission's being issued, and the man's taking the oath and accepting it several months later. Of course his entry into the service dates from the time of the oath of office, not from the date of the commission.

Question.—Could not the department get out a chart of physical standards, etc., similar to the one published by California?

I am glad that question was asked, because I intended to state that Major Work is now preparing a chart which can be issued, and which has been found of great assistance. They were issued by several of the states, and those that have been issued will now not be altogether accurate, under the new standards. So we expect to get out one of these big charts, and publish it for distribution, because the judgment is that where they have been used they have been of very great service.

Question.—What is the status of a student who has just completed his premedical course, but has not entered medical college as yet?

Under the exemption act it is no claim for exemption at all. We have under discussion with the Surgeon-General's Office a request for the adoption of some regulations which will permit the Surgeon-General's Office to protect certain classes of premedical students, by allowing them to enlist in the medical enlistment reserve corps. You remember that we protected medical students heretofore by permitting them to enlist in the medical enlisted reserve corps and remain in that on inactive duty, so long as they were completing their course, with the understanding that when that occurred they

would be ordered into active service in the Medical Corps. We shall probably adopt some method of that sort to protect the necessary premedical students, because the supply of physicians is really becoming very limited, and we shall have to look after that supply. It is just as important to protect the premedical students as the medical students themselves. I think some plan will be adopted which will enable them to be protected.

Question.—Did you state that it was contemplated issuing new physical examination papers, blanks?

Yes. We are anticipating revising Form 1010.

Question.—Is it contemplated to introduce any questions there in regard to the mental condition of the registrant?

I do not know. Major Work could speak on that. I might say here that if any of the medical aides, any members of the Local Boards, any medical members of the Local Boards or Medical Advisory Boards have any suggestions looking to the improvement of Form 1010, that is, the blank for reports of physical examination, we would be delighted to have all of you send them in. Do not delay by sending it through the Adjutant-General of the state. If you have any suggestion to make of an improvement in Form 1010, send it to the Provost Marshal-General. It will come to Major Work, and we will consider all of the different suggestions in making up these contemplated changes.

Question.—Should a man 57 inches in height already called for limited military service be inducted?

I think not. Of course, he has not been called yet. He is in Class 1 and has been put in Group C. But I think these regulations ought to be applied to men hereafter to be inducted. So I should say that a man who is 57 inches in height, if he comes within the standard in which you are required to put him in Group D, then do not induct him.

Question.—Why is not a registrant under 63 inches in height not to be used for special or limited service?

I think he can be, unless he has the other defects already mentioned in the same clause. I think the one defect of underheight does not necessarily reject him unless he has the other defects mentioned in the same clause. Suppose he has that one single defect and has not any of the others; then he might be put into a special military, limited military service.

Question.—Would it not explain that on the third line of page 25 if that "all" should read "general military service"?

Of course, a lot of apparent inconsistencies and things that are not clear are going to interfere from time to time. If it is necessary to issue some instructions to amplify that or clear it up, it will be done. I shall have a note made of that.

Question.—If a man in the draft age, Class 1, volunteers for some special service in the Army or Navy and is rejected, should the Local Board later induct this man into camp?

That should not have any effect on his subsequent standing with the board. They should examine him, and if he comes under our standards, hold him. The fact that he has been rejected previously is not binding on the board.

Question.—DR. O. H. BRUEGEL, East Lansing, Michigan, asks: If a man is referred to a Medical Advisory Board from a distant Local Board for first examination, and the Medical Advisory Board finds that he has an acute condition from which he may recover, has the Medical Advisory Board the right to ask him to return for a later examination, or should he be referred back to his Local Board?

Of course you know that several months ago transfer of physical examination used to be made from a Local Board to the Medical Advisory Board in the other jurisdictions. We have changed that, so that the transfer is now made from a Local Board to a Local Board. In that case the Medical Advisory Board ought to send to the nearest Local Board, and in either case I should say that the Local Board or Medical Advisory Board having jurisdiction of the physical examination of the registrant has the right, under the regulations, to require him to return later, if he is suffering from a temporary condition. As to whether or not he should come before them, or go to some other board, that depends on what the reasons are for him to be transferred to another board.

Question.—What would be the action of the Local Board in the case of a physician within the draft age, who applied for a commission shortly before he was to entrain, but did not have the commission before entrainment? He was honorably discharged for physical disability from the Medical Reserve Corps after two months' service.

The regulations say that a man may be commissioned in the Army, Navy or Marine Corps at any time, regardless of his class. If a registrant has been commissioned in the Medical Reserve Corps, and subsequently honorably discharged on account of a physical defect, and he returns back, he is treated just as if he had never been in the service; I would disregard his honorable discharge on account of the physical disability, because it might be a physical disability which would not permit his retention as a commissioned officer, and yet would leave him entirely qualified to be drafted. So I would simply put that man back on the classification sheet where he belongs, reexamine him physically, and if he is found fit, under the regulations, send him to camp.

Question.—The opportunity for statistical information and registration of tuberculosis is great. Cannot such statistical information for segregation and treatment be instituted by the Local and Medical Advisory Boards?

I should say so. And that reminds me of a matter that I ought to speak to all of you about in this respect. You will remember that Section 11 or 12 provides that the records of Local and District Boards on these matters are to be records open to public inspection, subject only to this: That those portions of the questionnaire, and the other records relating to a man's physical condition, and relating to dependency, cannot be inspected. In other words, a man ought not to have his physical qualification or disqualification exhibited to the world. Now, it has been thought that there was some conflict when a state law requires that all physicians who get any knowledge of the existence of communicable diseases report them forthwith to the local health authorities—it would seem that there was some conflict there. Well, now, there is not. If there is a state or municipal law or ordinance requiring him to report to the proper health authorities all cases of communicable diseases, then, of course, a physician member of a board is bound by that law, and must report to his health authorities such facts even though he acquires that knowledge on account of his connection with the board. That is not a violation of any confidential information. We have had the question frequently; and I want you all to understand that. Those state laws must be complied with, notwithstanding these physical examination reports as to a man, as confidential, so far as the general public is concerned.

Question.—In case a man is returned in good health with discharge on account of tuberculosis, and in sanatorium and by all diagnostic means it is impossible to prove this diagnosis, should he be placed in Class 5 or Class 1? The local board is satisfied that diagnosis at camp was a mistake. Page 137 we interpret as accepting him again. Are we right?

I should say that the finding of the camp commander as to that is positive, and is binding on the board. Now, if you think that this man at camp has made a mistake, you should get in touch with the medical aide, and get him to take it up through the Adjutant-General with the division surgeon, and suggest that this man be reexamined, and if you do reexamine him yourself and you find absolutely no symptoms of the disease, take it up with the camp surgeon and try to get him to revise it. If the camp surgeon sends the man back, and he says the man has tuberculosis, you do not have the right to substitute your judgment in place of his, although you may take it up the way I suggest.

Question.—When a registrant is called for service and found to be sick and unable to go, should he be sent as soon as he is able?

Yes; if it is a mere temporary defect. You can simply stay his induction order until he is fit for service.

Question.—DR. T. I. MOTTER, Medical Advisory Board 3, Illinois, asks: When a registrant makes appeal to the Advisory Board, shall the Advisory Board examine him only on such conditions as he claims, or make complete examination?

I think that is within the discretion of the Advisory Board. If the Local Board holds him and he says, "They have not any business to hold me, because I have a bad heart murmur," I think the Medical Advisory Board would be justified in examining his heart, and if they find him all right, send him back. That is a matter on which you cannot make a hard and fast rule, but it is a matter within the discretion of the board.

Question.—DR. O. L. WILLIAMSON, Marianna, Ark., asks: Many physically fit negroes have not a chest mobility of 2 inches. They do not know how to expand the chest. What shall be done in such cases?

I guess that is a local question, a problem that you will have to thresh out and settle for yourself. I do not know how to give a negro 4 inch expansion, if he has only 2.

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MORTALITY PHENOMENA IN THE PHILIPPINES

There has been a general tendency during the past few decades for the death rate in all civilized countries to fall. Undoubtedly the conquest of many of the diseases of childhood and the better control of communicable diseases, along with other modern developments of hygiene, have contributed to bring about this result. Nevertheless, the contrasts between the mortality statistics in the United States and some of the leading European countries show that it is important to consider the conditions in each country by themselves, if further progress in the mastery over early death is to be attained. For example, whereas in England and Wales the death rate has shown a decrease at all ages, in this country in recent years there has appeared to be an increase in the rate beyond the age of 45 years. This has been ascribed to the encroachment of the degenerative or regressive types of diseases, which affect chiefly those in middle life and old age.

Some new data bearing on the incidence of age and other factors in relation to deaths in our insular possessions in the Far East have been gathered by Manlove¹ at the University of the Philippines in Manila. The Philippines have a high mortality at an early period of life; this is likewise true in India where, as has been shown by Rogers,² the majority of deaths occur in the same period. Out of a Philippine population of seven millions within the registration area, 55 per cent. of the deaths took place between birth and 9 years, and 73 per cent. before the age of 40.

As the average duration of the life of Filipinos is shown to be considerably below forty years, great interest and still greater hygienic importance attach to the probable causes. These have been given by Manlove as high infant mortality, tuberculosis and the tropical diseases, such as cholera, dysentery and tropical fevers. The United States Census Bureau cal-

culated in 1912 that 400,000 of the present inhabitants of the Philippine Islands were "doomed to die of tuberculosis." During one year nearly 50 per cent. of the Filipino infants died.

If these conditions in earlier life are unlike those found in this country so far as the prevalence of tropical diseases forms a contrast in the East as a cause of death, the situation there shows a more or less constant increase of atheroma in successive decades of life, just as is true in Western countries. The incidence of atheroma with associated hypertrophy of the heart and chronic interstitial nephritis increases suddenly after 40 years of age, when it becomes an important factor in the cause of death. The high percentage of atheroma is probably due more often to chronic intestinal disorder leading to chronic toxemia, according to Manlove, than to any other condition, such as syphilis, alcoholism or abnormal blood pressure. The chief manifestations of syphilis in Filipinos as seen at necropsy seem to be in the arteries. High blood pressure and strain do not appear to be important factors in the production of atheroma or, probably, in the genesis of aneurysms in these people. The findings concerning vascular lesions at necropsy in the Philippines agree with the observations of Rogers for India.

INVALIDS AND WAR TIME FOOD RESTRICTIONS

As soon as the prospect of some degree of governmental control over food loomed up as a contingency of the war, many invalids and not a few of their medical advisers began to experience uneasiness regarding the effects on the sick. Thus far we in this country have undergone few if any severe hardships from restrictions of diet. Properly disposed persons have, it is true, given up wheat or, rather, have replaced this food with an equivalent substitutive cereal. Our sugar allowance has yet to be reduced to a limit that entails even slight changes in the palatability of our meals. The shortage of beef and some other forms of flesh is just beginning to make itself more keenly felt among the less well-to-do.

Under such circumstances our American patients have yet to experience any real hardships of food restrictions, even when voluntary rationing has been adopted by faithful patriots. But no one can foresee the immediate cessation of hostilities, not to speak of the restoration of normal food conditions in the world. Hence it is the part of preparedness to anticipate possible future deprivations by a plan of preparatory decisions that shall not menace the welfare of the sick more than is absolutely necessary, if, indeed, any danger in diet need be involved at all. Many months of experience in the case of our allies must serve in part as a guide. Recent regulations by the British Ministry of Food indicate that invalids are to be well

1. Manlove, C. H.: Incidence of Age, Atheroma, and Aneurysms as Seen in Autopsies of Filipinos, *Philippine Jour. Sc. (B)*, 1917, 12, 233.

2. Rogers, L.: Gleanings from the Calcutta Post-Mortem Records, *Indian Med. Gaz.*, 1910, 45, 84, 124.

cared for. The regulations allow a greatly increased ration to sufferers from diabetes and from tuberculosis. Diabetics are allowed the maximum of $2\frac{1}{2}$ pounds of butcher's meat, 1 pound of bacon, and $1\frac{1}{2}$ pounds of butter or margarin weekly. Tuberculosis patients are allowed a maximum of $2\frac{1}{2}$ pounds of meat, 1 pound of bacon, and 1 pound of butter weekly, in view of the fact that protein and fat are necessary to the diet of consumptives. Most foods, besides milk, which are important in cooking for the sick—such as eggs, fish, rice and flour—are not rationed. For all who need it, extra milk may be obtained through local food controllers.

The medical profession will endorse these special dispensations which help to provide "diets suitable to the complaints." Nursing mothers obviously deserve a supplemented ration, and particularly an extra allowance of milk where the supply is restricted. On the other hand, it is interesting to note, in view of a widespread demand for an allowance of white bread to invalids, that the British Ministry of Foods does not favor extensive applications of this sort, since it seems demonstrated that although the war breads may not always be as palatable as white bread, they are, when properly baked and thoroughly chewed, satisfactorily digested. We believe that American experts in nutrition are inclined to adopt this view despite the occasional outburst against the indigestibility of some special cereal mixture.

Fortunately the war may help to dispel the unfounded belief in some superior nutritive virtue of beef tea. However much it may please the palate or satisfy the patient, this concoction is anything but an efficient food. A shortage need not unduly disturb the dietitian. The same is true of a number of so-called sick room specialties or delicacies which may be delectable yet not indispensable. Accordingly, when physicians are importuned to provide special privileges for patients, they may do well to bear in mind a recent utterance¹ by one familiar with modern dietetics and the science of nutrition:

The physician's chief difficulty is not with the sick. It is with those, not obviously ill, who assume that the food to which they are accustomed is the food that is necessary for their health, and appeal to him to support this view by a certificate. Many people have grown up in the belief that their digestion is peculiar. Occasionally that is true, but nearly always it is not. Every one of experience will agree that genuine idiosyncrasies are among the rarities of medicine. The thoughtless indulgence of parents is sometimes to blame for restricted tastes; but whatever the cause may be, all doctors know what a handicap to the individual such special dislikes are in illness; and at the present time they prove most inconvenient to their owners. No one would pretend that the foods now available are what we would prefer either in health or sickness, and those who feel the change most will have general sympathy; nevertheless, it is the duty of the medical man to explain to such applicants that their condition is not one for the treatment of which it is justifiable to ask for a larger share of the national store.

It would, indeed, be difficult to frame the problem and the duty of the chronic dietary complainant with greater truth and fairness to all that is involved.

THE PATHOLOGIC EFFECTS OF CRAB LICE

Parasitology has ceased in recent years to be the concern only of the zoological specialist. The life history and habits of the animal parasites that infest man deserve more than passing notice from the student of medicine because they are already recognized as being involved in several of the serious infections of human beings. The relation of the flea to bubonic plague is now a familiar story. The body louse, *Pediculus humanus*, feeding on the blood of a patient, may become transferred to a healthy person and readily transmit the infectious agent. The demonstration of such a mode of dissemination of trench fever has only recently been an achievement of American scientists working near the battlefields of Europe.¹ The war has likewise emphasized the association of such parasites with the formidable typhus fever, and made delousing a sanitary precaution in many armed camps. Therefore, instead of dismissing the consideration of the mosquito, the flea and the louse as insects that are the subject of entomologic curiosity, the medical investigator of today is eager, and quite properly so, to cull every item of information regarding their biologic behavior. Thus has the modern science of parasitology become truly dignified.

Heretofore the crab louse, *Phthirus pubis*, has received little attention in comparison with the more familiar forms of body lice belonging to the genus *Pediculus*. It is not so prevalent, and it is not known to convey any infective disease. Statistics collected for verminous persons admitted to Boston hospitals show that about 3 per cent. were infested with crab lice. Thanks to the studies of Nuttall,² our knowledge of the biology and pathologic effects of this species has been made clearer. Although it appears to be parasitic chiefly on persons leading an active sexual life, recent investigations have shown that the crab lice frequently infest soldiers in barrack, a fact which gives an added wartime significance to studies of the insect. Although the pubic and the perianal and axillary regions are the sites of selection for its parasitism, there is according to Nuttall no evidence that these habitats are chosen because of their higher temperature and moisture. The selection of these regions seems to depend on the character of their hairiness. The belief entertained by some writers that crab lice are found only on white races is no longer tenable. It is true that these parasites are rarely found among

1. Strong, R. P.; Swift, H. F.; Opie, E. L.; MacNeal, W. J.; Baetjer, Walter; Pappenheimer, A. M., and Peacock, A. D.: Report on Progress of Trench Fever Investigations, Am. Red Cross Med. Bull., March, 1918; THE JOURNAL A. M. A., June 1, 1918, p. 1597.

2. Nuttall, G. H. F.: The Pathological Effects of *Phthirus Pubis*, Parasitology, 1918, 10, 375; The Biology of *Phthirus Pubis*, *ibid.*, p. 383, from which most of the following statements are taken.

1. Spriggs, E. I.: Invalid Rations, Brit. Med. Jour., 1918, 1, 505.

African negroes, owing to their cleanly habits; they shave their armpits and pubes. The lice have been found on the negroes who allow their pubic hair to grow.

The crab louse differs in its feeding habits from the more familiar body louse. It is relatively uncommon to see the insects wandering. They are almost helpless when detached from the hairs to which they cling continuously on the body. Indeed, the parasites move about by shifting from hair to hair. Nuttall points out that for this reason the crab louse is much more likely to be conveyed passively from host to host than is the genus *Pediculus*. Unless disturbed, the parasite remains confined throughout life to a limited area on the host's skin. Scratching of their persons by infected individuals no doubt aids in the spread of the crab lice on them and the dissemination of the insect farther afield. Shed hairs may become agencies in the distribution. Their habit of continuous feeding explains why the insects die so quickly when removed from the host.

According to Nuttall, the pathologic effects of the parasitism of the crab louse on man are on the whole of slight degree. Some persons are more sensitive than others to its presence. On the one hand, the louse may produce no reaction by its bite, or it may be tolerated on the person for years; on the other hand, it may induce pruritus of a more or less severe character, especially in the parts of the body that are most infested and where the skin is most delicate, namely, about the genitalia, the axillae and eyelids. All grades of pruritus are observable. Pale bluish-gray maculae mark the site of the insect's bite. They appear in from eight to twenty-four hours after the louse begins to feed on the spot affected. These maculae are a specific sign of the presence of *Phthirus* on man, but they are not always observed. They disappear usually within a week after removal of the offending parasite, disappearing more rapidly when the skin is irritated. Presumably these maculae are due to extravasated and altered blood.

Melanism, a pigmentation and discoloration amounting almost to blackness, has been described as due to the crab louse. Nuttall is convinced that when this occurs it is of nonspecific origin. It may follow infestation with either form of lice, arising in the course of pediculosis as well as phthiriasis. When itching due to the presence of any skin parasite is prolonged, the scratching leads to hyperemia, pigmentation and desquamation. Melanoderma occurs. Papular eruptions and eczematous inflammation may supervene; they are due to the human insults to the skin. Lesions induced obviously may lead to secondary skin infection with pyogenic bacteria. Rarely a febrile condition may thus follow. At present the allegation that the crab louse may convey tuberculosis scarcely deserves consideration.

THE EXCRETORY CAPACITY OF THE NORMAL KIDNEY

The kidney represents one leg of the tripod of life, to quote an old analogy long used in physiology, because the persistence of its function is indispensable to the maintenance of health in the higher organisms. Experience has demonstrated that all of the mechanisms of the body which have important activities to perform are endowed with large "factors of safety"; that is, they can, without detriment, carry a load far greater than that which is customarily expected of them. Even a greatly fatigued muscle group can be spurred up to an enormous final effort without danger, or at least without frequent damage. How about the capacity of the kidney to increase its work? It is an everyday experience in surgical cases of nephrectomy to see one kidney perform the duties that were previously exercised by two; in other words, the work of the kidney may easily be doubled without detriment.

Addis¹ and his collaborators in the Medical Clinic of Leland Stanford Junior University have found a far higher limit of performance in their experiments on urea excretion. The concentration of urea in the blood is one of the factors regulating the excretion of this waste product. The amount of active secreting tissue in the kidney is another. That the size of the kidney determines the order of magnitude of the average rate of urea excretion at all blood urea concentrations is shown by a comparison of the output in species of different sizes, respectively, at different levels of urea content in the circulating fluid. The average rate in man is more than thirty times greater than that in the rabbit. As the Californian clinicians express it, approximately a man weighs thirty times more than a medium sized rabbit. From the relation that exists between body weight and kidney weight there is presumably about thirty times more renal tissue in man than in the rabbit. The order of magnitude of the average rate of urea excretion appears, therefore, to be a function of the size of the kidney.

We are further assured that under physiologic conditions the performance of the kidney is not influenced by its limitations. This is only a potential factor, says Addis, in the regulation of renal activity, operative in extreme cases of reduction of kidney size by disease, or in the entirely artificial condition arising from the ingestion of large quantities of urea. The normal kidney has a possible range of action much greater than that which it actually covers; for if the average blood urea concentration of the rabbit is taken as 30 mg. per hundred c.c., the fact that the ratio continues to increase up to a level of 225 mg. indicates that the capacity of the kidney is about seven

1. Addis, Thomas; Sheoky, A. E., and Bevier, G.: The Regulation of Renal Activity, II, The Regulation of Urea Excretion by Anatomical Factors, *Am. Jour. Physiol.*, 1918, **46**, 11.

times greater than that which is just sufficient. In anatomic terms it shows, to quote Addis further, that there is seven times more renal tissue than is ordinarily called into full action. It is far fetched, therefore, to speak of kidney "fatigue" in health, when there is little evidence, in the light of such a factor of safety, to show that ordinarily the products of metabolic activity of the kidney accumulate so as to hamper the work of the secreting cells. The pathologic kidney, on the other hand, presents different situations.

Current Comment

THE HEN AND HER IMITATORS

Probably few foods are so widely used, so greatly relished or so much to be depended on as are eggs. The canny Scot may always be trusted as a judge of values, and the story is told of the Highlander and the Tommy who, on duty in France, captured a hen. The Tommy was anxious to kill it at once and eat it, but the Highlander said: "No. Let us keep her until tomorrow. She might lay an egg." Certain thrifty manufacturers, realizing the great demand for this food product and the rapidly increasing price, have placed on the market so-called substitutes. At least fifty such products are already available. At the request of the Pennsylvania State Department of Agriculture, Prof. C. H. Lawall¹ investigated more than forty of these substitutes. In the introduction to his report he says:

One of the most reprehensible ways of making money is to take some common, everyday substance, disguise or alter its appearance in some way, make a lot of exaggerated statements regarding it, and then sell it for about ten or fifteen times its market value, extolling it as an economical substitute for some expensive article. There has been no preparation of this class, within recent years, that has sprung into prominence with such rapidity as the so-called egg substitutes and with so little merit or legitimate warrant for their manufacture and sale.

The specimens exhibited resemble the "patent medicine" in many ways besides the method of promotion. It must be evident to any one that from 2 to 4 ounces of a yellow powder cannot possibly represent the nutritive value of two or three dozen eggs, and yet this is one of the mildest claims made by most of these exploiters. There is no question that these substitutes, rather than furthering economy, really add to the high cost of living. Practically every one of them has been found to be chiefly cornstarch colored with coal tar. The protein content varies from 0.7 to 35 per cent. Commercially dried egg, which is a legitimate market product, contains about 45 per cent. of protein. An egg of average size has a nutritive value of 75 calories; three dozen eggs would have a total food value of 2,700 calories. The nutritive value of almost any of the substitutes is about 100 calories an ounce, so that the largest of any of the packages would have a nutritive value of less than one-sixth the number of

eggs it claims to replace. In other words, the purchaser replaces an article of diet with a product costing one third as much, but having from one sixth to one eighth of the food value. Moreover, the substitute is colored with an artificial coal tar dye, the purpose being deceptive. The names of the product in every case are chosen to attract the purchaser. They range from simple Egg-O to Egg-Less, Eggnit, Sa-Van-Egg and the less grammatical Savaegg to the Miracle Egg Dispenser, Near-Egg and the miserable pun, Ecc-Kon-O-My. Lawall's conclusions are worthy of reprinting in toto:

First. The brightest light of publicity should be shed on these products, and the heaviest weight of official authority should be invoked to discourage their manufacture and sale.

Second. They afford an opportunity for unpatriotic profiteering, combined with the development of the art of camouflage to the point of perfection.

Third. Their names are deceptive; their composition in no wise resembles that of egg; the presence of color, in those where it is used, is a fraud, and the claims as to replacing value are either deliberate misstatements or ambiguous phrases.

Finally. Egg substitutes serve no purpose that cannot be served just as satisfactorily and much more cheaply by articles in daily use in every household.

The food commissioner of Pennsylvania, concurring in the statements of Professor Lawall, states that these substitutes are in violation of the general food act of that state, and if found for sale in the state of Pennsylvania, they will be dealt with accordingly.

YEASTLIKE FUNGI IN THE HUMAN INTESTINAL TRACT

Through his studies on the etiology of sprue, Ashford¹ has again directed attention to the possible rôle of fungi in certain diseases. He announced the constant presence of a yeastlike organism in the digestive tract of sprue patients. Yeasts and similar organisms are doubtless being taken into the body daily, just as are bacteria, through alimentary channels; and their fate and behavior are matters of obvious concern. Anderson² has remarked in this connection that some of the earliest attempts to associate microorganisms with disease resulted in the discovery of fungi as their causal agents. The fungi causing thrush and ringworm were known and described before any of the pathogenic bacteria had been isolated. Anderson reminds us that during the last quarter of the nineteenth century the bacterial diseases occupied so much of the time of students of human pathology that only in recent years has attention again been directed to the less important fungous diseases. Hence there is timely interest to the investigations he has made in the department of plant pathology of the University of Illinois on the character of the yeastlike fungi in the human intestinal tract. The value of the records may be in part inferred

1. Lawall, Charles H., and Foust, James: Egg Substitutes and So-Called Egg Savers, Bull. Penn. Dept. of Agriculture, 1918, 1, No. 7.

1. Ashford, B. K.: Is Sprue a Moniliasis of the Digestive Tract? Am. Jour. Trop. Dis., 1915-1916, 3, 32; A Monilia Found in Certain Cases of Sprue, THE JOURNAL A. M. A., March 6, 1915, p. 810; Relation of the Genus "Monilia" to Certain Fermentative Conditions of the Intestinal Tract in Porto Rico, June 5, 1915, p. 1893; Further Experimentation in Animals with a Monilia Commonly Found in Sprue, Am. Jour. Med. Sc., 1916, 151, 520.

2. Anderson, H. W.: Yeastlike Fungi of the Human Intestinal Tract, Jour. Infect. Dis., 1917, 21, 341.

from the fact that 175 persons were examined. Yeast-like fungi were commonly found. They were of many species and, for the most part, such types as are commonly present in nature and known as "wild yeasts." Presumably they are ingested with the food. If one may judge from Anderson's observations, however, the yeastlike organisms are present in relatively small numbers only in healthy persons. There seems to be no one species commonly present in the intestinal tract; furthermore, the feces of persons suffering from gastro-intestinal disorders of various types do not yield a larger number of yeasts than those from healthy persons. Nonpathogenic yeasts, when fed in mass, can pass through the alimentary tract in living condition and may be found in great numbers in the feces. Anderson states that they do not cause serious inconvenience when fed alone, and are not retained longer than the ingested food. It is by no means unlikely, however, that the presence of active yeasts in large numbers over long periods of time might give rise to harmful products or that the organisms might be able after a time to establish themselves in the mucous membrane to the detriment of the host.

ENDOGENOUS URIC ACID

Although the greater proportion of the uric acid that finds its way into the urine is demonstrated to represent the metabolic end-product of ingested purins or purin-yielding compounds, there is a smaller though always present fraction which appears even in the absence of such possible precursors. As a rule it has been believed that this endogenous uric acid, which usually amounts to about 0.3 gm. per day in an adult man, has its origin in the body tissues or else in the bodies of bacteria, which are always present in the alimentary canal. The more popular assumption has associated the endogenous uric acid with the disintegration of nucleoproteins in the continual metabolism of the body cells. However, observations made on the hourly output of endogenous uric acid under various conditions of food intake devoid of sources for this product have shown irregularities in the rate of the elimination of the purin end-product. It appears to be increased for a time after the ingestion of meals, so that some investigators, notably Mares, Smetanka, and Mendel and Stehle, have ascribed the augmented production to the work of the digestive glands. Renewed study of the problem at the University of Illinois by Lewis, Dunn and Doisy¹ has given a new turn to the subject. It was found that ingestion of protein in the form of egg-white or cheese, and likewise the intake of amino-acids, such as glycocoll, alanin, and aspartic and glutamic acids, are followed by a sharp rise in the output of endogenous uric acid about two hours after the intake. Neither urea nor ammonium chlorid, nitrogenous compounds administered in amounts comparable to the amino-acids, had any influence on the uric acid output. These results are believed by the Illinois physiologic chemists to indicate that the rise in uric acid excretion following

ingestion of protein food is due not so much to the work of the digestive glands as to stimulation of the cellular metabolism by the amino-acids liberated in the digestion of the protein.

FATTY ACIDS AND HEMOLYSIS

Faust's observations on the toxicity of oleic acid and oleates, and Tallqvist's studies on bothriocephalus anemia, have usually been cited as indicative of the significance of unsaturated fatty acids, such as oleic acid, in certain pathologic processes.¹ As a matter of fact, very little has been known definitely regarding the extent to which these compounds actually may occur in the organism. Chemical examination of fats of different tissue origin clearly demonstrates that the content of unsaturated fatty acid radicals, and notably of oleic acid, varies in different parts of the organism. Indeed, Leathes² has built up an elaborate theory regarding the saturation and desaturation of fats in the body, and the part that the liver in particular may play in the process. Fatty acids are transported in the circulation either free or combined as glycerids (true fats), esters of cholesterol, or soaps, as well as in the phosphatids like lecithin. To what extent they may occur has now been shown by Csonka,³ who finds that unsaturated fatty acids are a product of normal metabolism, being present in normal human blood, in which they form 48 per cent. of the total fatty acids. Judged by their iodine absorption power there are, in addition to oleic acid, other unsaturated fatty acids both higher and lower than oleic, although in small amounts. The iodine numbers of the unsaturated fatty acids in pathologic conditions are generally higher than in normal persons, especially in patients with low hemoglobin values. As such acids exist in normal human blood as well as in pathologic conditions without anemia, Csonka believes that it is necessary to look further for the primary cause of toxic hemolysis. Some of the current conceptions regarding lytic reactions in the blood will hereby demand revision and reinvestigation.

ANTHRAX FROM SHAVING BRUSHES

The occurrence of several cases of anthrax from infected shaving brushes among the American military forces indicates that we are not free from a danger which has been called to our attention by the English in the last three years. The first recorded case, apparently, was noted by the London correspondent of THE JOURNAL⁴ on July 9, 1915, only a week after the necropsy. This case, one other infection from a brush of the same origin, and a third due to a brush from a different source were thoroughly traced and reported by Elworthy.⁵ Other cases have been mentioned from

1. Lewis, H. B.; Dunn, M. S., and Doisy, E. A.: Studies in Endogenous Uric Acid Metabolism, Jour. Biol. Chem., 1918, **33**, 15.

1. Faust, E. S.: Arch. f. exper. Path. u. Pharmacol., Supp., 1908, p. 171. Tallqvist, T. W.: Ztschr. f. klin. Med., 1907, **61**, 427. Faust and Tallqvist: Arch. f. exper. Path. u. Pharmacol., 1907, **57**, 367.

2. Leathes, J. B.: The Fats, Monographs on Biochemistry; Ergebn. d. Physiol., 1909, **8**, 356.

3. Csonka, F. A.: The Fatty Acids in Human Blood in Normal and Pathological Conditions, Jour. Biol. Chem., 1918, **33**, 401.

4. THE JOURNAL A. M. A., July 24, 1915, p. 348.

5. Elworthy, R. R.: Outbreak of Anthrax Conveyed by Infected Shaving Brushes, Lancet, London, 1916, **1**, 20.

time to time by THE JOURNAL'S correspondent,⁶ the most detailed account of the whole series of cases up to February, 1917, appearing as a blue book of the Local Government Board.⁷ For the benefit of those who may encounter cases of this nature, and also for a general warning, a brief review of this report is given here. Of sixty-five English cases, civilian and military, sixteen were proved beyond reasonable doubt to have originated from infected shaving brushes, the evidence being that a new brush was used in each case just before the malignant pustule appeared, and that virulent anthrax was found not merely on the patient's brush (in which case the patient might have infected it), but on similar brushes obtained from the same shops or wholesalers. Most of the other cases were suspected of having originated in the same way. It is alleged that four of these cases were due to shaving brushes made in New York. Obviously these reports indicate the necessity of more care than is being given to the preparation of toilet accessories made from animal hides.

Medical Mobilization and the War

Students on Overseas Duty Not Granted Furlough

The Adjutant-General of the Army announces that is is the policy of the War Department not to allow the return of enlisted men from overseas to the United States for the purpose of completing their education. This policy applies to medical, dental and veterinary students.

New Regulations Regarding the Serving of Liquor to Soldiers

It is announced that new regulations have been made relative to serving liquor to soldiers which prevent selling, bartering, giving, serving, or knowingly delivering alcoholic liquor to any officer or member of the military forces within the United States, its territories or possessions or any place under its control, except to medical officers for medicinal purposes.

Physicians Born in Enemy Alien Countries Eligible for Commission Under Restricted Conditions

The Secretary of War has ruled that men born in an alien enemy country or in a country allied thereto, who emigrated to the United States prior to 5 years of age and who are of approved loyalty and a United States citizen either through their own or through their parents' naturalization, will be deemed eligible for commission in the Army. This, of course, includes commissions for the Medical Reserve Corps.

Public Health Activities Under One Control

Orders have been issued that all sanitary and public health activities carried on by any executive bureau, agency or office especially created for or concerned in the prosecution of the existing war shall be exercised under the supervision and control of the Secretary of the Treasury. This does not affect the jurisdiction exercised by the Surgeons-General of the Army and of the Navy and the Provost Marshal-General in the performance of their functions which are military in character as distinguished from civil public health duties.

Women Health Officers for Munitions Plants

Women health officers for munitions plants are to be trained under the direction of the women's division of the industrial service section of the Army Ordnance Department for the purpose of maintaining the health of women workers in munitions plants. An eight weeks' course was commenced, June 26, at Mount Holyoke College, South Hadley, Mass., for a limited number of women health officers who have had a college education or its equivalent, and most of whom have had experience with working women. These candidates are to be trained as health experts who, having a knowledge of the psychology of the woman worker, will be able to do constructive, preventive health work such as the physicians and nurses now employed by the plants are unable to do. These women health officers must, of course, be in good health, and be able to create among their charges a desire for wholesome living.

Mobile Hospital Units Ready for Duty Overseas

Mobile hospital units, ready to embark for service abroad immediately, including base hospitals, evacuation hospitals, evacuation ambulance companies, railroad hospital trains, convalescent camps and medical supply depots, have been organized by the Surgeon-General's Office in addition to the regular medical department units accompanying the various military organizations. Fifty railroad hospital trains of sixteen cars each, including operating rooms, kitchens, personnel car, etc., and with a capacity of 400 patients, have either been ordered sent to or have been delivered to the American Expeditionary Forces. Half of the organized base hospitals not yet in France are ready to leave at from two weeks' to a month's notice, each with a personnel of thirty-five medical and sanitary officers, 100 Army nurses (women) and 200 enlisted men, and a capacity of 1,000 beds adapted for expansion. The evacuation hospitals have each a personnel of thirty-four officers and 237 men, with a normal capacity of 1,000 beds, and have about the same equipment as the base hospitals. Each evacuation ambulance company consists of one officer and thirty-seven men who operate twenty ambulances; however, the strength of these companies can be increased on arrival in Europe. The personnel formed on this side for a convalescent camp include ten officers and ninety enlisted men, later augmented and largely replaced by medical officers and enlisted men from among those convalescing. Such a camp cares for 10,000 patients. At these camps a great deal of reconstruction work will be done, as will also be done in the convalescent depot now being formed for overseas duty.

Prisoners of War

The following American medical officers are reported to be prisoners of war in Germany: Capt. Elmer J. Presper, Philadelphia, attached to B. E. F.; Dr. J. Breckenridge Bayne, Washington, D. C., who has been serving in Roumania; Lieut. Robert Barnwell Rhett, M. R. C., Charleston, S. C., and Lieut. J. Frank Crawford, M. R. C., Warsaw, N. Y.

Wounded and Missing

Capt. Arthur H. Sewing, M. R. C., St. Louis, is reported to be missing.—Lieut. Allen G. Heard, M. R. C., Galveston, Texas, has recovered from the effects of a German gas attack, and has been ordered to six months' duty in a base hospital.—Capt. William J. Burdell, M. R. C., Lugoff, S. C., suffered the loss of his index finger and a wound of the thigh by a bomb dropped by a German aeroplane during a night raid.—Lieut. William J. McGregor, M. R. C., Wilkinsburg, who was wounded in France several months ago, has been transferred to the American Red Cross Hospital, London.—Capt. Charles H. Arnold, M. R. C., Lincoln, Neb., on duty with the British Army, suffered a severe wound of the head recently.—Dr. Paul V. Stewart, M. R. C., Warren, Pa., who was gassed recently, is reported to be convalescent.—Capt. Howard T. Wickert, M. R. C., Huntsville, Utah, is under treatment in a Paris hospital recovering from the effects of poison gas.—Dr. Francis E. Fronczak, health commissioner of Buffalo, was wounded by shrapnel, in the head, face and

6. THE JOURNAL A. M. A., Sept. 11, 1916, p. 1030; Jan. 13, 1917, p. 132; Aug. 4, 1917, p. 396.

7. Coutts, F. J. H.: Report on an Inquiry into Cases of Anthrax (Malignant Pustule or External Anthrax) Suspected to be Due to the Use of Infected Shaving Brushes, Reports of the Local Government Board on Public Health and Medical Subjects, New Series, No. 112, 1917.

right hand, while making inspection of front line trenches.—In the *Official Bulletin* of July 7 it is announced that Major Daniel F. McGuire, Pensacola, Fla., has been seriously wounded. This presumably applies to Major Daniel F. Maguire, M. C., U. S. Army, who is known to be in France and his home address is Pensacola, Fla.

Sanitary Section Cited

For courage in action the members of the 65th Sanitary Section, U. S. Army, has been cited in communique signed by the commander of the 121st Infantry Division. The communique states that in the heavy battles taking place the personnel of the sanitary section cited has been "always ready to go forward to the zones most intensely under enemy fire and expose themselves voluntarily to rescue and bring back our wounded. Worthy sons of their great country they show the initiative, the audacity, the calm courage of their race."

American Surgeons Decorated

Dr. W. D. Carlyle, a dentist of Salem, Ore., and at present on duty with the Y. M. C. A., Russian unit in France, was recently decorated with the Order of Stanislaus for bravery in caring for wounded.—Lieut. John W. Sherrick, M. R. C., Ann Arbor, Mich., has been given the military cross by the British government for bravery and devoted service in the trenches.—Lieut. Samuel H. Adams, M. R. C., Pittsburgh, now on duty with the British forces in France, has been awarded the military cross for bringing in an ambulance under shell fire.—Admiral Wilson has cited for daring bravery in rescuing thirty-four of the seventy-five members of the American munition ship *Florence*, which caught fire in French waters, P. A. Surg. Jesse A. Flautt, U. S. Navy, Galveston, Texas, and Asst. Surg. George E. Cram, Norwalk, U. S. Navy.—Lieut. Charles F. McCarty, Brooklyn, attached to the 9th Essex, has been given the military cross.—It was announced on July 5, that the Distinguished Service Cross had been awarded to Surg. Wrey G. Farwell, U. S. Navy, who "on June 6, personally supervised the evacuation of his wounded commanding officer across a field exposed to fire of machine guns and snipers, thereby displaying the greatest qualities of self-sacrifice and fidelity to duty," and to Asst. Surg. William H. Michael, U. S. Navy, who "displayed unusual courage on the morning of June 6, near Bois de Belleau when he established a dressing station in the open exposed to shell and machine gun fire. Under these conditions he worked several hours, evacuating a large number of wounded."

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

CALIFORNIA	MICHIGAN
C. D. R. GLEASON, San Francisco	H. L. CHARLES, Calumet
CONNECTICUT	B. R. CORBUS, Grand Rapids
M. L. CHENEY, Bridgeport	MINNESOTA
DISTRICT OF COLUMBIA	H. B. GRIMES, Madelia
F. D. ADAMS, Washington.	MISSOURI
C. M. DOLLMAN, Washington	A. M. GREGG, Joplin
GEORGIA	NEW HAMPSHIRE
T. S. CLAY, Savannah	L. R. BROWN, Leconia
ILLINOIS	NEW JERSEY
A. H. CARTER, Chicago	N. W. CURRIE, Plainfield
IOWA	C. M. GRAY, Vineland
A. C. DAVIS, Iowa City	NEW YORK
KANSAS	R. V. ALLEN, Canandaigua
W. B. BURR, Longton	C. W. GROVE, Geneva
KENTUCKY	M. CAMPBELL, New York
A. BELL, Hopkinsville	NORTH CAROLINA
W. W. DURHAM, Hopkinsville	C. O. ABERNETHY, Raleigh
J. G. GAITHER, Hopkinsville	RHODE ISLAND
MASSACHUSETTS	W. B. CUTTS, Providence
J. W. CLARK, Attleboro	TEXAS
C. S. CAPELLÉ, Boston	J. M. F. GILL, Austin
W. E. FAULKNER, Boston	C. W. GRIFFITH, La Porte
J. P. A. BACON, Lawrence	T. N. GOODSON, San Antonio
A. R. GARDNER, Lowell	
W. H. DRAKE, Weymouth	

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

DISTRICT OF COLUMBIA	NEW JERSEY
J. A. CONNOR, Washington	J. I. B. VAIL, Blairstown
FLORIDA	C. SIRKEN, Passaic
M. P. DEBOE, Cocoa	M. E. STITES, Port Norris
IDAHO	NEW YORK
R. J. CLUEN, Boise	L. F. CRAVER, Albany
ILLINOIS	A. BRAUNSTEIN, Bronx
T. O. ANDERSON, Chicago	J. E. HODES, Brooklyn
P. R. HUBER, Chicago	L. M. RUDERMAN, Brooklyn
B. H. WILCOX, Panama	J. SKEER, Brooklyn
A. H. BITTER, Quincy	F. D. SCUDDER, Locust Valley
J. H. WALLACE, Sandwich	E. B. BICKLEY, New York
INDIANA	J. E. CONROY, New York
L. E. FRITSCH, Evansville	F. M. GOODCHILD, New York
C. W. YECK, Evansville	J. A. MCCARTHY, New York
L. K. RYAN, Gary	G. R. PETZ, New York
H. O. WILLIAMS, Kendellville	H. ROSENSTEIN, New York
IOWA	F. E. TWINEY, New York
H. P. COLE, Thurman	C. A. TWITZ, New York
KANSAS	G. C. VOGT, Syracuse
C. E. SANDERS, Rosedale	NORTH CAROLINA
MARYLAND	H. McCOY, Asheville
J. J. WEBER, Baltimore	V. E. ERVIN, Troutmans
MASSACHUSETTS	OHIO
H. C. BEAN, Boston	V. J. GALLAGHER, Cleveland
W. H. GREENE, Boston	H. M. O'BRIEN, Cleveland
A. J. SULLIVAN, Brookton	OKLAHOMA
J. A. MATHER, Coleraine	T. B. HINSON, Enid
W. H. O'CONNOR, Dorchester	PENNSYLVANIA
W. H. FLANDERS, Melrose	R. S. GRIFFITH, Newquehoning
J. M. WILCOX, Newton Center	F. E. BRISTOL, Philadelphia
F. VAN NUYS, Weston	J. V. F. CLAY, Philadelphia
MICHIGAN	T. C. KELLY, Philadelphia
R. G. FERRIS, Detroit	R. A. LEOPOLD, Philadelphia
R. A. PERKINS, Detroit	J. G. PENZA, Philadelphia
J. M. WHALEN, Grand Rapids	R. S. REEVES, Philadelphia
MISSISSIPPI	C. D. SMITH, Philadelphia
R. R. WARD, Shipman	L. S. VOORHEES, Philadelphia
MISSOURI	A. E. BURKE, Scranton
R. D. COWAN, Ardric	W. J. O'MALLEY, Scranton
J. J. DAVIS, Kansas City	J. R. BURNS, Wilkes-Barre
J. I. DENMAR, Kansas City	SOUTH CAROLINA
E. P. Hall, Kansas City	A. F. MAHONEY, Clio
P. H. OWENS, Kansas City	TEXAS
A. L. PORTER, Kansas City	R. H. WHITE, Meridian
R. BARNWELL, St. Louis	VIRGINIA
L. C. McAMIS, St. Louis	J. F. TERRELL, Ashland
S. MOORE, St. Louis	G. H. LIGHTNOR, Haymarket
L. A. WILL, St. Louis	N. W. FILE, Ransons
	W. A. O'BRIEN, Richmond
	E. G. WILLIAMS, Richmond
	W. W. RIXEY, University

CORRECTION

Under "Orders to Officers of the Medical Reserve Corps," June 29, it is stated that Capt. JOHN T. O'FERRALL is ordered to *Fort Oglethorpe* for instruction in orthopedic surgery. An error was made in copying the order which reads: "Report in person to the commandant, Medical Officers' Training Camp, Camp Greenleaf, for the purpose of giving instruction in orthopedic surgery."

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To *Camp Beauregard*, Alexandria, La., as camp surgeon, from *Camp Logan*, Major HENRY P. CARTER.
To *Camp Colt*, Gettysburg, Pa., for sanitary inspection, and on completion to his proper station, Col. WESTON P. CHAMBERLAIN.
To *Camp Crane*, Allentown, Pa., for duty, and on completion to his proper station, Col. WILLIAM H. MONCRIEF.
To *Camp Devens*, Ayer, Mass., base hospital from Lakewood, Col. ALLEN M. SMITH.
To *Camp Fremont*, Palo Alto, Calif., as assistant to camp surgeon, from San Francisco, Major WALTER F. DAVENPORT.
To *Camp Hancock*, Augusta, Ga., for temporary duty, from *Camp McClellan*, Capt. OSCAR C. FRUNDT.
To *Camp Lee*, Petersburg, Va., for consultation, and on completion to his proper station, Lieut.-Col. EDGAR KING.
To *Camp Meade*, Admiral, Md., from New York City, Lieuts. CEDRIC E. FILKINS, ROY T. HASKELL, JOHN C. WOODLAND.
To *Camp Sherman*, Chillicothe, Ohio, for duty, from *Camp Beauregard*, Lieut. NEWTON W. SENTELL; from *Camp Travis*, Lieut. JAMES D. EDGAR.
To *Cape May*, N. J., base hospital, from the Surgeon General's Office, Lieut.-Col. EDWIN C. ELLETT.
To *Fort Oglethorpe* for inspection, and on completion to his proper station, Col. WILLIAM H. G. LOGAN.
To *Fort Riley* for duty, from Walter Reed General Hospital, Major ROBERT S. WOODSON.
To *Hoboken*, N. J., for duty, from *Camp McClellan*, Major RUGUS H. HAGOOD, Jr.
To *Lakewood*, N. J., for duty, from Walter Reed General Hospital, Col. CHARLES F. MASON.

To New York City for duty, and on completion to his proper station, Lieut.-Col. JAMES BORDLEY.

To report by wire to the commanding general, Central Department, for assignment to duty, from Canal Zone, Col. SAMUEL M. WATERHOUSE.

To Waynesville, N. C., for duty, and on completion to his proper station, Lieut.-Col. EARL H. BRUNS.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. SAMUEL E. SIMPSON.

The following order has been revoked: To Army Medical School for instruction, from Camp Sevier, Lieut. HARLIN G. TUCKER.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Devens, Ayer, Mass., for duty, from New York City, Lieut. DUKE C. BRADFORD, Birmingham.

To Camp Grant, Rockford, Ill., for duty, from Camp Sheridan, Major JAMES S. McLESTER, Birmingham.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. OMER ROAN, Eva.

To Fort McPherson, Ga., for duty, Lieut. ARTHUR McC. COWDEN, Oneonta.

To Fort Oglethorpe for instruction, Major HENRY B. WILKINSON, Montgomery; Lieuts. LEWIS A. WINDHAM, Daleville; ROBERT H. SHEPHERD, Jasper; ALFRED B. PICKERING, Lanterville.

To report by wire to the commanding general, Southeastern Department for assignment to duty, Lieut. MALCOLM D. SMITH, Prattsville.

Resignation of Lieut. THEODORE M. BLAKE, Fruitdale, accepted.

Arizona

To Fort Sill, Okla., base hospital, Lieut. EARL R. McPIEETERS, Clifton.

Arkansas

To Camp Bowie, Fort Worth, Tex., for duty, from Fort Riley, Lieut. CLAUDE W. DRACE, Piggott.

To Camp Pike, Little Rock, Ark., as orthopedic surgeon, from Boston, Lieut. RAYMOND C. WOLFE, Little Rock.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. OSCAR BARKSDALE, Bassett.

To Fort Sam Houston, Texas, base hospital, from Cape May, Capt. JOHN S. JENKINS, Pine Bluff.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. PASCHAL J. PARK, Cabot.

California

To Camp Bowie, Fort Worth, Texas, for duty, from Fort Riley, Lieut. CALVIN A. WALKER, San Francisco.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Capt. HENRY T. ROONEY, Colfax.

To Camp Fremont, Palo Alto, Calif., base hospital, from San Francisco, Lieut. CHANNING HALL, Alameda.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Fremont, Lieut. EDWIN R. FOUNTAIN, Merced.

To Camp Kearney, Linda Vista, Calif., base hospital, Lieut. GEORGE A. BRIGGS, Sacramento. With the board examining the command for nervous and mental diseases, Capt. FRED J. CONZELMANN, Stockton.

To Camp Lewis, American Lake, Wash., base hospital, Capt. WILLIAM C. MABRY, Los Angeles; Lieut. JOHN C. WILLIAMS, Fresno. For duty, Capt. WILLIAM H. MAYNE, Los Angeles; FRANK LER. CHAPLINE, Orange; BENJAMIN B. WARD, San Fernando; Lieuts. MARTIN MACAULAY, Monterey; HENNING KOFORD, Oakland; FRED E. KELL, San Bernardino; CORY C. LEDYARD, San Francisco.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. LESTER C. SCULLY, San Jose.

To Camp MacArthur, Waco, Texas, base hospital, Capt. ORLYN S. PHILLIPS, Los Angeles.

To Camp Pike, Little Rock, Ark., for duty, from Army Medical School, Lieut. LELAND O. W. MOORE, Alameda.

To Cape May, N. J., base hospital, from Camp Wheeler, Major HOWARD C. NAFFZIGER, San Francisco.

To Douglas, Ariz., camp hospital, Lieut. GEORGE W. REYER, Los Angeles.

To Fort McDowell, Calif., for duty, Lieut. LEWIS O. SELIGMAN, Dinuba.

To San Francisco, Calif., Letterman General Hospital, for temporary duty, Lieut. THOMAS N. CUNNANE, Los Angeles.

To Tucson, Ariz., University of Arizona, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Riley, Lieut. ORRA C. HYDE, Lincoln.

To Whipple Barracks, Ariz., for duty, Lieut. JOHN H. MALLERY, La Mesa; from Camp Kearney, Lieut. CHARLES A. SHEPARD, Needles.

Canal Zone

To Camp Pike, Little Rock, Ark., base hospital, Major WILLIAM McC. JAMES, Panama City, Panama.

Colorado

To Camp Cody, Deming, N. M., base hospital, Capt. EDWARD G. GRIFFIN, Lieut. NORBERT H. KNOCH, Denver.

To Camp Crane, Allentown, Pa., base hospital, from Hoboken, Lieut. FRANK DUNKLE, Denver.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Travis, Lieut. FOREST C. KRACAW, Oak Creek.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from Boston, Lieut. JOHN C. HERRICK, Denver.

To Camp Dodge, Des Moines, Ia., base hospital, from Camp Cody, Capt. JOHN R. ESPEY, Trinidad.

To Camp Greene, Charlotte, N. C., base hospital, from Camp Cody, Capt. WALTER F. CHURCH, Greeley.

To Fort Oglethorpe for instruction, Capt. THOMAS LER. A. SHAFFER, Sadila; Lieuts. JAMES McCARROLL, Denver; WALTER T. BRONSON, Pueblo.

To New Haven, Conn., for duty, Capt. WILBUR T. LITTLE, Canon City.

Connecticut

To Camp Devens, Ayer, Mass., base hospital, Capt. EDWARD F. McGOVERN, Bridgeport. For duty, Lieut. MILTON L. DRYFUS, New Haven; from Fort Oglethorpe, Lieut. JULIAN L. BIRDSON, Hartford.

To Camp Grant, Rockford, Ill., for duty, from Camp Cody, Lieut. MARK T. SHEEHAN, Wallingford.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. JOHN G. ADAM, Canaan.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. CHARLES W. KNAPP, Greenwich.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Capt. WILLIAM P. BURKE, New Haven.

To Camp Wheeler, Macon, Ga., base hospital, from Boston, Lieut. EDWARD B. ALLEN, South Manchester. With the board examining the command for nervous and mental diseases, from Camp Sheridan, Capt. WILLIAM R. MILLER, Southington.

To Fort Oglethorpe, base hospital, from Camp Dodge, Lieut. WILLIAM M. STAHL, Danbury. For instruction, Lieut. WILLIAM M. O'CONNELL, West Haven.

To Hoboken, N. J., base hospital, from New York City, Capt. EDWARD E. ROWELL, Stamford.

To New Haven, Conn., for duty, from Newport News, Lieut. SAMUEL H. BRAUDE, Rockville. Yale University, for duty, from the Surgeon-General's Office, Major MILTON C. WINTERITZ, New Haven.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Capt. HENRY G. ANDERSON, Waterbury. Neurological Institute, for intensive training, Lieut. SIDNEY L. RIESER, Middleton.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Gordon, Atlanta, Ga., base hospital, Lieut. JOHN G. O'CONNELL, Bridgeport.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Sevier, Major JOHN S. DYE, Waterbury.

Delaware

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Devens, Ayer, Mass., base hospital, Lieut. JAMES G. SPACKMAN, Wilmington.

District of Columbia

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Boston, Capt. HARRY L. SCHURMEIER, Washington.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. MELVILLE B. FISCHER, Washington.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Travis, Major FREDERICK D. OWSLEY, Washington.

To Camp Sevier, Greenville, S. C., as assistant to camp surgeon, from Fort Oglethorpe, Capt. JAMES B. LAUGHLIN, Washington. Base hospital, from Washington, Capt. WALTER A. WELLS, Washington.

To Fairfield, Ohio, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. CHARLES W. HYDE, Washington.

To Fort Oglethorpe for instruction, Lieut. JACOB KOTZ, Washington.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Dix, Wrightstown, N. J., base hospital, from Fort Oglethorpe, Lieut. DANIEL W. PRENTISS, Washington.

To Plattsburg Barracks, N. Y., for duty, Lieut. CLARENCE A. NEYMANN, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Upton, L. I., N. Y., base hospital, Capt. LEE P. KAULL, Washington.

To Washington, D. C., St. Elizabeth's Hospital, for intensive training, Lieut. ELMER B. M. CASEY, Washington.

Florida

To Camp Joseph E. Johnston, Jacksonville, Fla., as orthopedic surgeon, from Boston, Lieut. LELAND F. CARLTON, Tampa.

To Fort Oglethorpe for instruction, Lieuts. ROBERT L. MILLER, Deland; MOZART A. LISCHKOFF, Pensacola.

Georgia

To Camp Dodge, Des Moines, Ia., for duty, from Army Medical School, Lieut. HARVEY W. SNYDER, Atlanta.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. WILLIAM E. McCURRY, Hartwell.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. MARCEL-LUS F. COCHRAN, Barnesville.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Shelby, Lieut. JESSE L. MEEKS, Atlanta.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. ARTHUR P. FLOWERS, GEORGE C. MIZELL, Atlanta.

To Cape May, N. J., base hospital, Lieut. GRADY E. CLAY, Atlanta.

To Fort Oglethorpe for instruction, Major THOMAS S. CLAY, Savannah; Capt. GUY CHAPPELL, Dawson; JOHN B. RUDOLPH, Gainesville; Lieuts. ROBERT B. LAMB, Demorest; JAMES A. THRASH, Greenville; JAMES M. HARTLEY, Jeffersonville; DICK R. LONGINO, Rex; CHARLES USHER, Savannah; CONRAD L. ALLGOOD, Scottsdale; JESSE E. D. ISBELL, Toccoa.

To report by wire to the commanding general, Southern Department, for assignment to duty, Capt. OSCAR G. CRANFORD, Sasser.

To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School for duty, Lieut. RUSSELL F. WILSON, Atlanta. For instruction in the treatment of infected wounds, and on completion to Fort McPherson, Ga., for temporary duty, Capt. GEORGE P. HUGULEY, Atlanta.

To Sacramento, Calif., Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. JOHN H. HALL, Atlanta.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. GEORGE H. NOBLE, JR., Atlanta; OSCAR W. DEVAUGHN, Manchester.

Resignation of Lieut. SOLOMON YOUMANS, Normantown, accepted.

Idaho

To Camp Cody, Deming, N. M., base hospital, from San Francisco, Capt. CHARLES H. SPRAGUE, Pocatello.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Capt. LOUIS J. PERKINS, Lewiston.

To Camp Lewis, American Lake, Wash., for duty, Lieut. CHARLES H. BRYAN, Kamiah.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. JAMES F. MILLER, Inkom.

Illinois

To *Buffalo, N. Y.*, Technical High School, to make physical examinations and give medical attention to drafted men and on completion to his proper station, from Fort Oglethorpe, Lieut. ANTHONY T. WEBER, Chicago.

To *Camp Cody*, Deming, N. M., base hospital, from Fort Riley, Capt. DAVID H. KELLER, Winnetka.

To *Camp Custer*, Battle Creek, Mich., base hospital, Capt. LEROY H. DAGGETT, Wilmette. For duty from Fort Des Moines, Lieut. RALPH C. SULLIVAN, Chicago.

To *Camp Devens*, Ayer, Mass., for duty, from Army Medical School, Lieuts. CARL W. CLARK, THOMAS S. McCLANAHAN, WILLARD H. WATEROUS, RALPH G. WILLY, Chicago; from Fort Oglethorpe, Lieut. CLYDE D. GULICK, Urbana; from New York City, Lieut. CARL B. HERRMANN, Chicago.

To *Camp Doniphan*, Fort Sill, Okla., base hospital, Capt. JOHN C. FOLEY, Waukegan.

To *Camp Gordon*, Atlanta, Ga., for orthopedic instruction, and on completion to *Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Lieut. CALVIN M. DEBECK, Chicago.

To *Camp Grant*, Rockford, Ill., base hospital, Capt. CHARLES C. CLARK, Chicago; from Camp Dodge, Lieuts. LYNN W. ELSTON, ALBERT VANDERKLOOT, Chicago. For duty, Lieut. EDWIN P. McLEAN, Marca.

To *Camp Hancock*, Augusta, Ga., for duty, from Fort Oglethorpe, Capt. HENRY M. VAN HOOK, Mt. Pulaski.

To *Camp Logan*, Houston, Texas, as orthopedic surgeon, from Boston, Lieut. NELSON H. LOWRY, Jr., Chicago. Base hospital, from Fort Riley, Capt. SAMUEL D. NIXON, Chicago. For duty, from Fort Oglethorpe, Capt. LOGAN O. HAMILTON, Roodhouse; from Fort Riley, Lieut. RUSSELL R. TOMLIN, San Jose.

To *Camp MacArthur*, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. TULLY O. HARDESTY, Jacksonville.

To *Camp Meade*, Admiral, Md., for duty, from Army Medical School, Lieut. EARLE K. HALLOCK, Chicago; from New York City, Lieuts. ARTHUR E. ROGERS, Bloomington; FRANK T. DUFFY, Chicago.

To *Camp Shelby*, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. TOM F. BEVERIDGE, Chicago.

To *Camp Sheridan*, Montgomery, Ala., base hospital, Lieut. JOHN T. BROSNAN, Chicago.

To *Camp Upton*, L. I., N. Y., base hospital, from Fort Oglethorpe, Capt. ANDY HALL, Mount Vernon.

To *Camp Zachary Taylor*, Louisville, Ky., for duty, from Army Medical School, Lieuts. LESTER A. SMITH, JOHN E. STANTON, HARRY T. SWANSON, Chicago; LUTHER R. MOORE, McLeansboro; from Fort Oglethorpe, Capt. CHARLES E. SHULTZ, Shirley.

To *Cape May, N. J.*, base hospital, from Camp Meade, Lieut. HERMON H. COLE, Springfield.

To *Fort Bliss, Texas*, base hospital, from Camp Sheridan, Capt. GEORGE C. SHOCKEY, Melrose Park.

To *Fort Des Moines, Ia.*, base hospital, from Camp Dodge, Capt. SAMUEL M. EDISON, Chicago.

To *Fort McPherson, Ga.*, for duty, from New York City, Lieut. FRED McK. MILLER, Chicago.

To *Fort Oglethorpe* for instruction, Capt. JOHN A. KAPPELMAN, Chicago; CHRISTIAN H. ZOLLER, Litchfield; WILLIAM A. RIBBECK, Oak Park; Lieuts. WESLEY W. KUNTZ, Baylis; JOSEPH C. MOORE, Brimfield; WM. H. CONSER, Cambridge; WILLIAM PURK, STEVEN J. CONWAY, CHARLES W. GLOVER, PAUL M. HUNTER, DONALD E. MacGREGOR, WILLIAM H. MILLER, RICHARD A. ROCHE, PASHUPATI J. SARMA, Chicago; ALEXANDER B. TAYLOR, Cobden; HENRY M. WILSON, Granville; WELDON B. KILTON, Harvel; HOWARD C. EMONS, Marissa; SAMUEL W. COFFMAN, Maywood; RAYMOND J. JOSEPH, New Athens; JESSE M. HOYT, Nokomis.

To *Fort Riley* for instruction, from Camp Dodge, Lieut. THOMAS A. CARTER, Chicago.

To *Fort Sill, Okla.*, base hospital, Capt. GEORGE E. THOMPSON, Chicago; JOHN C. FOLEY, Waukegan; from Camp Dodge, Lieut. HOWARD T. KNIGHT, Elgin. For duty, from Fort Riley, Lieut. BURTON W. BIVINS, Oak Park.

To *Grand Forks, N. D.*, North Dakota School of Mines, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Riley, Lieut. JESSE H. McINTOSH, Chambersburg.

To *Hoboken, N. J.*, for duty, from Camp Custer, Major GEORGE F. SUKER, Chicago; from Fort Oglethorpe, Lieut. EMANUEL M. FAINER, West Frankford; from Richmond, Lieut. JOSEPH M. KNOCH, Lincoln.

To *Jackson Barracks, La.*, with the board examining the command for nervous and mental diseases, from Camp Sheridan, Capt. WILSON K. DYER, Kankakee.

To *Lake Charles, La.*, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. FRANK CARY, Chicago.

To *New York City*, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Hancock, Lieut. HARRY P. REUSS, Granite City. On completion to *Camp Sheridan*, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. EVAN H. N. GRIFFITHS, Chicago. Orthopedic Hospital, for instruction, from Boston, Capt. CLAUDE R. G. FORRESTER, Chicago.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. JAMES W. VANDERSLICE, Oak Park.

To *Washington, D. C.*, for duty in the Surgeon-General's Office, Major ALBERT J. OCHSNER, Chicago.

Honorably discharged, Capt. EDWARD F. WELLS, Chicago.

The following order has been revoked: To *Fort Oglethorpe* for instruction, Lieut. JAMES STEVENSON, Chicago.

Indiana

To *Camp Beauregard*, Alexandria, La., base hospital, Lieut. HOWARD H. JONES, Salmonia.

To *Camp Devens*, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CARL HENNING, Hanover.

To *Camp Gordon*, Atlanta, Ga., base hospital, Lieut. AUBREY L. LOOP, Economy.

To *Camp Hancock*, Augusta, Ga., for duty, from Fort Oglethorpe, Capt. HARRY H. THOMPSON, Noblesville.

To *Camp Logan*, Houston, Texas, for duty, from Fort Riley, Lieut. ARTHUR L. LEEDS, Michigan City.

To *Camp Shelby*, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. ROBERT G. JOHNSTON, Markle.

To *Camp Stanley*, Leon Springs, Texas, as orthopedic surgeon, from Boston, Lieut. MERRILL S. DAVIS, Marion.

To *Camp Zachary Taylor*, Louisville, Ky., base hospital, Lieuts. ERLE O. DANIELS, Marion; COL. C. MACKEY, Whiting.

To *Columbia, S. C.*, University of South Carolina, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. HARVEY K. STORK, Huntingburg.

To *Edgewood, Md.*, base hospital, Capt. JOSEPH L. ALLEN, Greenfield.

To *Fort Oglethorpe* for instruction, Capt. IRWIN W. DITTON, Fort Wayne; WM. CULLEN SQUIER, Milton; JOHN S. SPRAGUE, North Liberty; ARTHUR LER. KNAPP, South Bend; JULIUS C. BOHN, Terre Haute; Lieuts. HARRY H. DEES, Bickwell; JOSEPH KENTLING, Bloomington; EUGENE W. MITCHELL, Cannellton; ARCHIE S. BROWN, Clay City; WILLIAM C. LANDIS, Claypool; FAYE O. SCHENCK, Crawfordsville; STERLING P. HOFFMAN, Decatur; GEORGE M. SHEWALTER, Ellwood; GEORGE B. THOMAS, Greenfield; HARRISON A. WALKER, Indianapolis; ALFRED A. THOMPSON, Tynes.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. SAMUEL L. LINGLE, Paoli.

To *Washington, D. C.*, Elizabeth's Hospital, for intensive training, Lieut. EDWARD H. SCHLEGEL, Fort Wayne.

Iowa

To *Boulder, Colo.*, University of Colorado, to make physical examinations and give medical attention to drafted men, from Fort Riley, Lieut. LEONARD J. BOWMAN, Masonville.

To *Camp Dodge*, Des Moines, Iowa, as orthopedic surgeon, from Boston, Lieut. THEODORE A. WILLIS, Iowa City.

To *Camp Logan*, Houston, Texas, for duty, from Fort Riley, Lieut. IRVIN J. SINN, Williamsburg.

To *Camp Zachary Taylor*, Louisville, Ky., for duty, from Army Medical School, Major HAROLD A. SPILMAN, Ottumwa; Lieut. DONALD H. PITTS, Mondamin.

To *Fort Oglethorpe* for instruction, Major PHILIP B. McLAUGHLIN, Sioux City; Capt. PAUL H. SCHAEFER, Burlington; HERBERT M. DECKER, Davenport; Lieuts. JOHN D. CANTWELL, Davenport; LYSLE C. HOWE, JAMES W. WILSON, Milton; EARL R. LEONARD, Rock Valley.

To *Fort Riley*, with the board examining the command for nervous and mental diseases, from Camp Bowie, Lieut. PERCY B. BATTEY, Independence.

To *Fort Wadsworth, N. Y.*, for temporary duty, and on completion to his proper station, from New Haven, Lieut. MILTON D. JEWELL, Decorah.

To *Newport News, Va.*, for duty, from Fort Riley, Lieut. JOSEPH W. B. FLAGEOLLE, Sioux City.

Kansas

To *Camp Bowie*, Fort Worth, Texas, with the board examining the command for nervous and mental diseases, from San Antonio, Lieut. GEORGE E. HESNER, Topeka.

To *Camp Dodge*, Des Moines, Iowa, as orthopedic surgeon, from Boston, Lieut. WILLIAM G. BOUSE, Centralia. For duty, from Fort Riley, Lieut. JESSE W. BARKER, Chanute.

To *Camp Gordon*, Atlanta, Ga., base hospital, from Army Medical School, Lieut. ROY W. LAYTON, Kansas City; from Fort Riley, Capt. JAMES W. MAY, Kansas City.

To *Camp Logan*, Houston, Texas, base hospital, Lieut. WILLIAM LAPAT, Larned.

To *Camp Meade*, Admiral, Md., for duty, from Army Medical School, Lieut. ROY W. LAYTON, Kansas City; from New York City, Lieut. CASPER J. MIDDLEKAUFF, Hays.

To *Fort Oglethorpe* for instruction, Capt. HENRY G. SNYDER, Seneca; Lieuts. LEWIS D. MILLS, Greeley; WILLIAM L. BUTLER, Stafford; NED D. MILLER, Topeka; FORREST J. AUSTIN, White Cloud.

Kentucky

To *Camp Devens*, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. WILLIAM T. LITTLE, Calvert City.

To *Camp Gordon*, Atlanta, Ga., for orthopedic instruction, and on completion to *Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Lieut. WILLIAM G. ECKMAN, Covington.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, Lieut. CASWELL C. TURNER, Glasgow.

To *Camp Wheeler*, Macon, Ga., base hospital, Capt. JAMES U. RIDLEY, Robards.

To *Fort Oglethorpe* for instruction, Capt. WILLIAM C. CAYWOOD, Winchester; Lieuts. WILLIAM A. NOBLE, Covington; DALTON H. RAY, Dublin; CARLISLE R. PETTY, Louisville; JAMES ARTHUR KIRK, Philpot; ROBERT C. SIEVERS, Pine Knot.

To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Meade*, Admiral, Md., base hospital, Lieut. WILLIAM C. KUNKLER, Louisville.

Louisiana

To *Camp Hancock*, Augusta, Ga., for duty, from Fort Oglethorpe, Lieut. GEORGE F. ROELING, New Orleans.

To *Camp Shelby*, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. CHARLES B. LAW, Pelican.

To *Fort McPherson, Ga.*, for temporary duty, Lieut. EDWARD L. KING, New Orleans.

To *Fort Oglethorpe* for instruction, Lieut. EUGENE B. MIDDLETON, Heflin.

To *Hoboken, N. J.*, base hospital, from Camp Shelby, Lieut. FRANK CHETTA, New Orleans.

Maine

To *Camp Jackson*, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. HENRY M. CHAPMAN, Bangor.

To *Camp Upton*, L. I., N. Y., base hospital, Capt. ALBION H. LITTLE, Portland.

To *Richmond, Va.*, for consultation, and on completion to his proper station, from Camp Lee, Major TALCOTT O. VANAMEE, Portland.

To *Rockefeller Institute* for instruction in bacteriology, from Camp Upton, Capt. LESTER ADAMS, Bangor.

Maryland

To *Army Medical School* for instruction, Lieut. JOHN L. DORSEY, Baltimore.

To *Camp Crane*, Allentown, Pa., base hospital, from Camp Sheridan, Major HENRY O. REIK, Baltimore.

To *Camp Devens*, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. FRANCIS X. KEARNEY, Baltimore.

To *Camp Jackson*, Columbia, S. C., base hospital, Lieut. JOSEPH T. NELSON, Baltimore.

To *Camp Sevier*, Greenville, S. C., base hospital, from Camp Upton, Lieut. PHILIP PEARLSTEIN, Baltimore.

To *Fort Oglethorpe* for instruction, Lieuts. FRANCIS E. ROBERTS, Baltimore; FRANKLIN PIERCE SNODGRASS, Darlington.

To *Fort Riley* with the board examining the command for nervous and mental diseases, from Camp Sevier, Lieut. JOSEPH P. EDISON, Baltimore.

To *New York City* for duty, and on completion to his proper station, from Washington, Major ROBERT T. TAYLOR, Baltimore.

To *Philadelphia, Pa.*, Spring Garden Institute, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. MOSES L. LICHTENBERG, Baltimore.

To *Troy, N. Y.*, Troy Central High School, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. ALBERT L. WILKINSON, Raspeburg.

Massachusetts

To *Camp A. A. Humphreys*, Accotink, Va., with the board examining the troops for cardiovascular diseases, from Camp Hancock, Lieut. HARRY A. WALKER, Somerville.

To *Camp Crane*, Allentown, Pa., for duty, Capt. CHARLES E. THOMPSON, Fair Haven.

To *Camp Devens*, Ayer, Mass., base hospital, Lieut. ALTON J. CHOATE, Gloucester.

To *Camp Gordon*, Atlanta, Ga., base hospital, from Army Medical School, Lieut. WILLIAM F. GREANEY, Holyoke. With the board examining the command for nervous and mental diseases, and on completion to his proper station, from Camp McClellan, Lieut. BUELL L. ASHMORE, Palmer.

To *Camp Grant*, Rockford, Ill., with the board examining the command for nervous and mental diseases, from Camp McClellan, Capt. HEIMAN CARO, Palmer.

To *Camp Lee*, Petersburg, Va., base hospital, Capt. JOHN L. LOUGEE, Boston. With the board examining the command for nervous and mental diseases, and on completion to his proper station, from Camp Meade, Lieuts. RAYMOND K. FOXWELL, Cambridge; MARTIN W. PECK, Marblehead.

To *Camp Meade*, Admiral, Md., base hospital, Lieut. HERBERT E. MAYNARD, Winchester. For duty, from Fort Oglethorpe, Capt. WILLIAM J. HAMMOND, Boston.

To *Camp Sevier*, Greenville, S. C., base hospital, Capt. ERNEST L. HUNT, Worcester.

To *Camp Shelby*, Hattiesburg, Miss., with the board examining the command for nervous and mental diseases, from Camp Logan, Lieut. FRANCIS S. CALDICOTT, Milford.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, from Camp Shelby, Lieut. MANUEL F. GUNHA, Boston.

To *Camp Upton*, L. I., N. Y., base hospital, Major IRVING P. LYON, South Duxbury. For duty, from Army Medical School, Lieut. WILLIAM F. GREANEY, Holyoke.

To *Camp Wadsworth*, Spartanburg, S. C., base hospital, from Fort Sam Houston, Lieut. GEORGE H. BIGELOW, Boston.

To *Fort Oglethorpe* for consultation, and on completion to *Fort McPherson*, Ga., for consultation, and on completion to his proper station, Major ALEXANDER S. BEGG, Boston. Base hospital, from Camp Custer, Capt. SEARLE B. MARLOW, Boston. For instruction, Capt. ROBERT B. SCALES, Dorchester; HOWARD B. JACKSON, Melrose; JOSEPH W. KELLEY, Worcester; Lieuts. DANIEL F. MURPHY, Beverly; NATHAN ROSENBERG, Boston; JOHN E. CONNELLY, Brookline; FRANK W. CRAWFORD, Holbrook; THOMAS A. SHAUGHNESSY, Loominster; ALFRED F. McALPHINE, Somerville; WARREN D. RUSTON, West Somerville.

To *Fort Warren*, Mass., for duty, Capt. GILMAN L. CHASE, Clinton.

To *Madison, Wis.*, for duty, Lieut. VICTOR C. JACOBSON, Boston.

To *Mineola, L. I., N. Y.*, Signal Corps Aviation School, for duty, from Houston, Capt. JOHN G. JENNINGS, Boston.

To *New Haven, Conn.*, for duty, Lieut. ERNEST D. PILLSBURY, West Somerville.

To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Gordon*, Atlanta, Ga., base hospital, Lieut. ROBERT I. WALKER, New Bedford. Boys' Vocational School, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Capt. BERNARD RABINOVITZ, Springfield. Hospital for Ruptured and Crippled, for instruction, from Boston, Lieut. CLARENCE H. HYMAN, Salem.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Capt. CORNELIUS A. AHEARNE, JR., Salem; CORNELIUS P. HARKINS, Westfield.

To *Richmond, Va.*, Richmond and Westhampton Colleges, for temporary duty, Capt. GEORGE L. TOBEY, JR., Boston.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Williamsbridge, N. Y.*, for temporary duty, Capt. FRANK H. LAHEY, Boston; THOMAS F. CARROLL, Brookline.

The following order has been revoked: To *Camp Wheeler*, Macon, Ga., base hospital, Lieut. LOUIS STRAHLMANN, Boston.

Michigan

To *Camp Dodge*, Des Moines, Iowa, for duty, from Fort Riley, Capt. EMIL P. W. RICHTER, Saginaw.

To *Camp Gordon*, Atlanta, Ga., base hospital, Lieut. DAMON O. WALTHALL, Ann Arbor. For orthopedic instruction, and on completion to *Fort McPherson*, Ga., for further instruction, from Fort Oglethorpe, Capt. LUCIUS A. FARNHAM, Pontiac; Lieut. HENRY R. LEIBINGER, Detroit.

To *Camp Logan*, Houston, Texas, for duty, from Fort Riley, Lieut. ARTHUR TURNER, Detroit.

To *Camp Meade*, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. AUSTIN W. HEINE, Mount Clemens.

To *Camp Pike*, Little Rock, Ark., for duty, from Fort Sill, Lieut. CLAYTON A. WHITE, Burnips.

To *Camp Sevier*, Greenville, S. C., base hospital, Capt. ALLAN W. McDONALD, Detroit.

To *Camp Shelby*, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. VICTOR F. RYAN, Detroit.

To *Camp Zachary Taylor*, Louisville, Ky., for duty, from Army Medical School, Lieut. ARTHUR V. MURTHA, Flint; from Fort Oglethorpe, Lieuts. ALFRED H. RADZINSKI, Detroit; WALTER VAN DE ERVE, Norway; from Williamsbridge, Lieut. AARON L. CHAPMAN, Detroit.

To *Fort Oglethorpe* for instruction, Capt. MARTIN J. SCHWANS, Detroit; HARRY W. LONG, Escanaba; Lieuts. DUFFIELD R. KRUGER, Detroit; WILLIAM H. LAKE, Grass Lake.

To *Hoboken, N. J.*, for duty, from Fort Oglethorpe, Lieut. MAURICE J. CROSS, Delton.

To *Mesilla Park, N. M.*, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Riley, Lieut. GEORGE L. KOESSLER, Detroit.

To *Mount Clemens, Mich.*, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. GEORGE E. FROTHINGHAM, Detroit.

To *Plattsburg Barracks, N. Y.*, for duty, Lieuts. SYLVESTER L. BALLARD, Auburn; GUY C. CONKLE, Bayne Falls; ARTHUR B. EGAN, Muskegon; LEROY E. GIBSON, Oxford.

Honorably discharged, Lieut. DANIEL J. LEITHAUSER, Detroit.

Minnesota

To *Camp Custer*, Battle Creek, Mich., for duty, from Camp Pike, Lieut. HAROLD L. GOSS, Minneapolis.

To *Camp Dodge*, Des Moines, Iowa, base hospital, Capt. WILLIAM H. EATON, Duluth; WILLIAM W. LEWIS, St. Paul. For duty, from Fort Riley, Lieuts. JOHN STEVENS, Gonvick; HENRY E. DOUGLAS, Hutchinson; from Fort Sill, Capt. ARTHUR L. CLUDAS, Minneapolis.

To *Camp Grant*, Rockford, Ill., for duty, from Camp Sheridan, Lieut. WALTER E. GREMPER, Minneapolis. With the board examining the command for nervous and mental diseases, Capt. CHARLES R. BALL, St. Paul.

To *Camp Pike*, Little Rock, Ark., with the board examining the command for nervous and mental diseases, from Camp Upton, Lieut. FREDERICK P. MOERSCH, Minneapolis.

To *Camp Wadsworth*, Spartanburg, S. C., base hospital, Lieut. SAMUEL O. BLACK, Rochester; from Camp Pike, Lieut. CHARLES H. CHERRY, Chisholm.

To *Camp Zachary Taylor*, Louisville, Ky., base hospital, Lieut. HARRY C. McINTOSH, St. Paul. For duty, from Army Medical School, Lieut. DONALD H. PITTS, Minneapolis.

To *Fairfield, Ohio*, Signal Corps Aviation School, for duty, from Mineola, Lieut. ROY C. LOWE, Fairmont.

To *Fort Oglethorpe*, for instruction, Capt. JAMES F. LYNN, Waseca; Lieuts. CLAUDE W. WOODRUFF, Chatfield; ROLF HOODE, Duluth; FREDERICK W. FRANCHERE, Lake Crystal; JOSEPH M. HALL, Minneapolis.

To *Fort Sill, Okla.*, for duty, from Fort Riley, Lieut. HENRY I. TWISS, St. Paul.

To *Jefferson Barracks, Mo.*, for duty, from Fort Riley, Lieut. AXEL W. SWEDENBURG, Gully.

To *New Haven, Conn.*, for duty, Capt. JAMES N. ELLIOTT, Minneapolis.

To *Newport News, Va.*, for duty, from Fort Riley, Lieut. HARRY B. WEINBURGH, Waterville.

To *New York City*, Hospital for Ruptured and Crippled, for instruction, from Boston, Lieut. PIO BLANCO, Rochester.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. ROLLIN T. ADAMS, Mantorville; ALLAN B. STEWART, Owatonna.

To report to the commanding general, Philippine Department, for duty, from Camp Shelby, Major WALTER H. DARLING, Minneapolis.

To report to the Surgeon-General of the Army for duty, Major LEONARD G. ROWNTREE, Minneapolis.

To *Washington, D. C.*, for temporary duty, from Camp Dodge, Lieut. WALTER E. CAMP, Minneapolis.

The following order has been revoked: To *Fort Bliss, Texas*, base hospital, from Washington, Capt. WILLIAM R. WOODBURY, Rochester.

Mississippi

To *Camp Travis*, Fort Sam Houston, Texas, base hospital, Capt. LEONIDAS H. MARTIN, Hattiesburg.

To *Fort Oglethorpe* for duty, from Camp Logan, Lieut. JOHN L. WHITE, Sarah. For instruction, Lieuts. ARTHUR M. SHAEFFER, Jackson; ERNEST C. ROUSE, Kosciusko.

To *New Haven, Conn.*, for duty, Capt. THOMAS D. BOURDEAUX, Meridian.

To *San Francisco, Calif.*, Letterman General Hospital, for observation and treatment, from San Diego, Lieut. WILLIAM L. NEWTON, New Albany.

Missouri

To *Camp Bowie*, Fort Worth, Texas, for duty, from Fort Riley, Capt. JAMES F. COOPER, Hannibal; Lieut. CADWALLADER H. ATCHISON, Waldron.

To *Camp Dodge*, Des Moines, Iowa, for duty, from Army Medical School, Lieut. CHARLES H. OZIAS, Kansas City.

To *Camp Fremont*, Palo Alto, Calif., with the board examining the command for nervous and mental diseases, Lieut. GEORGE L. HARRINGTON, Independence.

To *Camp Logan*, Houston, Texas, for duty, from Fort Riley, Lieut. HENRY T. O'KELLEY, Patton.

To *Camp McClellan*, Anniston, Ala., base hospital, from Fort Porter, Capt. WILLIAM T. PATTERSON, Shelby.

To *Camp Pike*, Little Rock, Ark., base hospital, Lieut. MAX GOLDMAN, Kansas City.

To *Camp Wadsworth*, Spartanburg, S. C., base hospital, from Camp Jackson, Lieut. BRADFORD F. DEARING, St. Louis.

To *Camp Zachary Taylor*, Louisville, Ky., base hospital, Lieut. HERBERT S. MAXWELL, Hopkins.

To *Colonia, N. J.*, for temporary duty, from Camp Doniphan, Capt. RALPH E. NIEDRINGHAUS, St. Louis.

To *Fort Oglethorpe* for duty, Lieut. GEORGE A. TELFER, St. Louis. For instruction, Capt. CHARLES W. BERTRAM, St. Joseph; Lieuts. SHIELDS W. FAIR, Belton; LINCOLN J. PIERCE, Independence; WILLIAM H. HINES, Kansas City; WALLACE E. MATLOCK, Kennett; MINOR F. SEWELL, Malta Bend; ARCH KIRKHAM, Orrick; WILLIAM H. DUCKWORTH, St. Clair; STEPHEN R. COLEMAN, THOMAS T. HONSEY, St. Louis; ALBERT W. EBELING, Warrentown.

To *Fort Sill, Okla.*, base hospital, from Fort Oglethorpe, Lieut. JAMES L. DOWNING, Oak Grove.

To *Fort Thomas, Ky.*, for duty, from Fort Riley, Lieut. MILLER O. COOMBS, Joplin.

To *Hampton, Va.*, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. FREDERICK C. SIMON, St. Louis.

To *Houston, Texas*, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. THEODORE S. BLAKESLEY, Kansas City.

To *Montgomery, Ala.*, Signal Corps Aviation School, as flight surgeon, from Mineola, Lieut. JOHN H. TIMBERMAN, Marston.

To New Haven, Conn., for duty, Capt. PHREEBORN G. PAUGH, St. Louis; Lieut. FRANK JAMES, Sheldon.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. ARTHUR R. McCOMAS, Sturgeon.

To Washington, D. C., for duty in the Surgeon-General's Office, from St. Louis, Major HANAU W. LOEB, St. Louis.

To Whipple Barracks, Ariz., for duty, from Fort Riley, Capt. GAIL D. ALLEE, Lamar.

Honorably discharged, Lieut. FELIX COHEN, Kansas City. On account of physical disability existing prior to entrance into the service, Capt. SIMON W. WOLTZEN, Clinton.

The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. NATHAN ZOGLIN, Kansas City.

Montana

To Camp Cody, Deming, N. M., as orthopedic surgeon, from Boston, Lieut. ARTHUR A. HUSSER, Bingham.

To Camp Grant, Rockford, Ill., as orthopedic surgeon, from Boston, Lieut. JOHN W. OLSON, Troy.

To Camp Lewis, American Lake, Wash., for duty, Capt. ELMER L. SUTHERLAND, Sheridan; Lieuts. DRURA CLAIBORN, Big Timber; CHARLES E. BELTZER, Washoe.

Nebraska

To Brownsville, Texas, base hospital, from Camp Travis, Lieut. JOSEPH ANTONY, Omaha.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Grant, Capt. HARRY R. CARSON, Norfolk.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Capt. FINDLEY J. McRAE, Albion.

To Camp Sevier, Greenville, S. C., for duty, from New York City, Capt. JOHN R. BEATTY, Butte.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Major JOHN M. MAYHEW, Lincoln.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Zachary Taylor, Capt. SAMUEL J. STEWART, Hastings.

To Fort Oglethorpe as instructor, from Camp Sevier, Capt. WILLIAM N. ANDERSON, Omaha. For instruction, Capt. ELI B. HAMEL, Hastings; ROYAL SCUDDER, Nalmo; JAMES A. TROWBRIDGE, Superior; Lieut. HAROLD E. WHITE, Swanton.

To Fort Sill, Okla., base hospital, Capt. ELMER K. PORTER, Omaha.

To Indianapolis, Ind., Chamber of Commerce, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Riley, Lieut. WILLIAM H. PHILLIPS, Carroll.

To Whipple Barracks, Ariz., for duty, from Fort Riley, Lieut. FRANCIS J. STEJSKAL, Crete.

Nevada

To Camp Meade, Admiral, Md., for duty, Lieut. SAMUEL B. BYINGTON, Reno.

New Hampshire

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Shelby, Lieut. RALPH S. PERKINS, Exeter.

To Camp Pike, Little Rock, Ark., with the board examining the command for nervous and mental diseases, from Camp Gordon, Capt. HOWARD W. CLEASBY, Lancaster.

To Camp Travis, Fort Sam Houston, Texas, with the board examining the command for nervous and mental diseases, from Camp Sheridan, Lieut. GOODWIN A. JOHNSON, Concord.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Shelby, Lieut. LOUIS F. FALLON, St. Anthony.

To Fort Oglethorpe for instruction, Lieut. BURTON D. THORPE, Newport.

New Jersey

To Bayonne, N. J., Board of Education, Public School No. 2, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Capt. PALMER A. POTTER, East Orange.

To Camp Devens, Ayer, Mass., base hospital, Lieut. JOHN J. O'CONNOR, West Hoboken. For duty, from Fort Oglethorpe, Lieut. HENRY H. TOMLIN, Wildwood.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. EDWARD LER. MINARD, East Orange.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. WILLIAM G. SHEMELEY, Jr., Camden.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Sherman, Capt. HAROLD I. GOSLINE, Trenton.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. RAWLEY W. WARD, Carneys Point.

To Fort Oglethorpe for instruction, Major C. E. SUTPHEN, Newark; Capt. HARRY G. MACDONALD, Hackensack; Lieuts. PHILIP KRESCH, Bayonne; PERCY R. McFEELY, Bogota; MAX KUMMEL, Harrison; CHARLES P. DE FUCCIO, Jersey City; THOMAS J. KELLY, WILLIAM A. TANSEY, Newark; MICHAEL SARLA, Paterson; ABRAHAM OCKENE, West Hoboken.

To Fort Riley, base hospital, from Camp Logan, Capt. DENNIS F. O'CONNOR, South Orange.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Mineola, Capt. FERDINAND G. ANGENY, Avon-by-the-Sea.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Devens, Ayer, Mass., base hospital, from Fort Oglethorpe, Lieut. DAVID C. THOMPSON, Bloomfield.

To South Baltimore, Md., for duty, from Fort Oglethorpe, Lieut. HARVEY W. HARTMAN, Keyport.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ISADOR H. FRANKLIN, Jersey City.

New Mexico

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. HERBERT H. GALLATIN, Lovington.

To Fort Bayard, N. M., for duty, from Camp Cody, Capt. FRED A. DILLON, Clovis.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Kelly, Capt. WILLIAM MACLAKE, Siver City.

To Rapid City, S. D., to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. ETHAN S. C. MILFORD, Albuquerque.

New York

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. RAYMOND G. BELL, Binghamton.

To Camp Crane, Allentown, Pa., to examine the command for nervous and mental diseases, Capt. EDWARD A. SHARP, Buffalo.

To Camp Custer, Battle Creek, Mich., base hospital, Major JOSEPH B. BISSELL, New York City. For duty, from Camp Dodge, Lieut. WILLIAM P. SWEENEY, Saratoga Springs; from Camp Wadsworth, Lieut. ISAAC E. GREENBERG, Brooklyn; from Fort Des Moines, Major PERCY H. WILLIAMS, New York City.

To Camp Devens, Ayer, Mass., base hospital, Capt. RAY A. EDSON, Buffalo. For duty, from Army Medical School, Lieut. MICHAEL G. HEALY, New York. With the board examining the troops for cardiovascular diseases, from Camp Sevier, Capt. MARCUS A. ROTH-SCHILD, New York City.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Upton, Lieut. RALPH D. REID, New York. With the board examining the command for nervous and mental diseases, Lieut. RAY W. MOODY, Middletown.

To Camp Dodge, Des Moines, Iowa, for duty, from Washington, Capt. STEWART S. PIPER, Elmira.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. GEORGE C. BARONE, Buffalo.

To Camp Gordon, Atlanta, Ga., base hospital, from Army Medical School, Lieuts. WILLIAM J. CARROLL, Brooklyn; JAMES J. FITZGERALD, New York. For duty, from Fort Oglethorpe, Lieut. HAROLD C. GOLLY, Brooklyn. For orthopedic instruction, and on completion to Fort McPherson, Ga., for further instruction, from Fort Oglethorpe, Lieuts. FRANK N. POTTS, Buffalo; WILLIS E. CLARKE, KENNETH JOHNSON, New York.

To Camp Hancock, Augusta, Ga., for duty, from Fort Oglethorpe, Capt. JOSEPH C. DEVRIES, Brooklyn.

To Camp Laurel, Laurel, Md., for duty, from Fort Oglethorpe, Lieut. DWIGHT G. DUDLEY, Endicott.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from Boston, Lieut. HERBERT I. KALLET, Syracuse. Base hospital, from Camp Dodge, Major BERNARD S. OPPENHEIMER, New York.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Capt. CONRAD M. MEYER, New York.

To Camp Meade, Admiral, Md., for duty, from Army Medical School, Lieut. HORACE E. AURINGER, New York; from Camp Devens, Lieut. JOHN F. McNEIL, Central Islip; from Camp Wadsworth, Major ULYSSES S. KAHN, Binghamton.

To Camp Sevier, Greenville, S. C., base hospital, from Boston, Lieut. MORRIS T. KOVEN, Brooklyn.

To Camp Shelby, Hattiesburg, Miss., as orthopedic surgeon, from Boston, Lieut. ROWLAND P. STANLEY, New York.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. STEPHEN W. ROOF, New York.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Dodge, Lieut. ALOYSIUS M. MULHOLLAND, New York.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp Meade, Lieut. THOMAS F. MAHER, New York; from the Surgeon-General's Office, Major JOHN E. DAUGHERTY, Brooklyn.

To Camp Upton, L. I., N. Y., base hospital, Lieut. MAXIMILIAN A. RAMIREZ, New York. For duty, from Army Medical School, Lieuts. WILLIAM J. CARROLL, Brooklyn; JAMES J. FITZGERALD, New York.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. LAWRENCE M. HACKETT, Bolivar.

To Camp Wheeler, Macon, Ga., base hospital, Capt. CHARLES L. VAUX, Central Islip, L. I.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. VINCENT G. SMITH, Staten Island; from Fort Sill, Capt. LOUIS H. NAHUM, New York.

To Fort Logan, Colo., for duty, from Fort Riley, Lieut. WILLIAM E. CAMPBELL, New York.

To Fort McPherson, Ga., for duty, from New York City, Lieut. NEIL C. STEVENS, New York.

To Fort Moultrie, S. C., for duty, from Washington, D. C., Capt. STEWART S. PIPER, Elmira.

To Fort Oglethorpe, for instruction, Capt. JAMES B. THOMPSON, Amsterdam; ALBERT F. GRIFFITHS, Brooklyn; CHARLES P. HUTCHINS, Kingston; ALBERT DE F. YOUNG, Maysville; Lieuts. FRANCIS B. MAGUIRE, DANIEL F. O'KEEFE, Albany; PATRICK J. FITZGIBBONS, Amsterdam; EARL B. STEDMAN, Attica; WILLIAM B. AGAN, WILLIAM H. FIELD, CHARLES V. O'BRIEN, Brooklyn; ARTHUR F. GLAESER, Buffalo; THOS. L. McNAMARA, Corning; MORRIS H. NEWTON, Earlville; LESTER P. HOOLE, Eastport; FRANK H. CARBER, Forest Hills, L. I.; EARL L. EATON, Frankfort; WALTER J. FARRELL, Johnson City; LEONARD K. STELLE, Kingston; EDWIN A. CAMERON, STUART L. CRAIG, DAVID B. GILLIAM, FRANKLIN W. RICE, SIMON STEIN, New York; RAYMOND J. DEVINE, Syracuse; JOHN J. LEARY, Utica; MICHAEL J. J. COLUCCI, Yonkers; from duty as a private, Lieut. STEPHEN J. SPITZER, New York.

To Fort Riley with the board examining the command for nervous and mental diseases, from Camp Cody, Lieut. ABRAHAM M. RABINER, Albany; from Camp Greene, Capt. GEOFFREY C. H. BURNS, Central Islip, L. I.

To Fort Sill, Okla., base hospital, from Fort Oglethorpe, Lieut. THOMAS F. BERBEROVICH, New York.

To Fort Wadsworth, N. Y., for temporary duty, and on completion to his proper station, from New Haven, Lieut. FRANK C. BALDERREY, Ithaca.

To Hoboken, N. J., for duty, from Camp Custer, Capt. JAMES LER. HONDORF, Rochester; from Williamsbridge, Lieut. JACOB SACHS, Rochester. For sanitary inspection and on completion to his proper station, Major HARRY PLOTZ, Brooklyn.

To Knoxville, Tenn., University of Tennessee, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. LEO JACOBS, Brooklyn.

To Newark, Del., Delaware College, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. MILTON ARONOWITZ, Albany.

To Newark, N. J., Newark Board of Education, Central High School, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. HAROLD GROSS, New York City.

To New Haven, Conn., for duty, Capt. MONTGOMERY E. LEARY, Rochester.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Lee, Petersburg, Va., base hospital, Lieut. ALEXANDER McG. FOSHEE, Brooklyn.

To *Plattsburg Barracks, N. Y.*, for duty, Lieut. MARTIN A. MURPHY, Hoosick Falls; from Camp Sherman, Lieut. ASA L. LINCOLN, New York.

To *Richmond, Ind.*, Richmond Commercial Club, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. GEORGE J. HOGGEN, Rye.

To *Rockefeller Institute* for instruction in laboratory work, and on completion to *Army Medical School* for duty, Capt. EUGENE F. CONNALLY, Troy. For instruction in the treatment of infected wounds, and on completion to *Camp Devens*, Ayer, Mass., base hospital, Lieut. WILLIAM H. HAWKINS, New York. On completion to *Camp Dix*, Wrightstown, N. J., base hospital, Lieut. ALFRED G. LANGMANN, New York. On completion to *Camp Sevier*, Greenville, S. C., base hospital, Major THEW WRIGHT, Eden Center. On completion to *Camp Upton, L. I., N. Y.*, base hospital, from New York, Capt. WILLIAM H. W. KNIPE, New York. On completion to *Camp Wheeler*, Macon, Ga., base hospital, Capt. HORACE B. PRITCHARD, Syracuse. On completion to his proper station, from Camp Dix, Capt. HARRY P. MENCKEN, Long Island City.

To *Savannah, Ga.*, State Industrial College, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. MILTON E. GREGG, Mottville.

To *Walter Reed General Hospital*, Takoma Park, D. C., for duty, from Camp Crane, Lieut. CHARLES T. OLCOTT, New York.

To *Yonkers, N. Y.*, Saunders Trade School, to make physical examinations, and to give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. MONROE B. KUNSTLER, New York.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CHARLES C. OSBORN, Albany; RAYMOND C. CONKLIN, Buffalo.

The following order has been revoked: To *Newport News, Va.*, for duty, Lieut. EDWARD R. WARE, New York.

North Carolina

To *Camp Zachary Taylor*, Louisville, Ky., for duty, from Army Medical School, Lieut. FLOYD C. SHUGART, Albemarle.

To *Fort Barrancas, Fla.*, for temporary duty, from Camp Shelby, Lieut. MICHAEL SALIBA, Wilson.

To *Fort Oglethorpe* for instruction, Capt. JAMES A. ANDERSON, Gastonia; JOSEPH J. SAUNDERS, Williamston; Lieuts. GARLAND V. GREEN, Advance; JESSE M. RUSSELL, Canton; PHILIP S. EASLEY, Statesville; FRANK L. THIGPEN, Tarboro.

To *Hoboken, N. J.*, base hospital, from Camp Greene, Capt. JAMES M. COVINGTON, JR., Wadesboro.

North Dakota

To *Camp Beauregard*, Alexandria, La., as orthopedic surgeon, from Boston, Lieut. JAMES F. HANNA, Fargo.

To *Camp Bowie*, Fort Worth, Texas, for duty, from Fort Riley, Lieut. JOHN W. NEWLOVE, Minot.

To *Camp Grant*, Rockford, Ill., base hospital, Capt. MARTIN P. RINDLAUB, Fargo; ROBERT D. CAMPBELL, Grand Forks.

To *Fort Oglethorpe* for instruction, Lieuts. LEROY SANTE, Ellendale; WILLIAM L. COWPER, Michigan.

To *Fort Riley*, base hospital, Capt. OTTO W. McCLUSKY, Carrington.

Honorably discharged, Lieut. EDMUND C. STUCKE, Garrison.

Ohio

To *Camp Custer*, Battle Creek, Mich., for instruction, and on completion to *Camp Sherman*, Chillicothe, Ohio, with the board examining the command for nervous and mental diseases, Lieut. TEDREW S. KEYSER, Cleveland.

To *Camp Devens*, Ayer, Mass., for duty, from Fort Oglethorpe, Lieuts. FRED C. HUNT, Girard; JOHN D. SIDDALL, Kalida; WALTER J. WEISER, Marion; from Fort Wayne, Major EDWARD D. JINKS, Lima.

To *Camp Jackson*, Columbia, S. C., base hospital, Lieuts. MOSE S. GRIFFITH, Batavia; HARRY M. SAGE, Columbus.

To *Camp Lee*, Petersburg, Va., base hospital, Capt. GEORGE GILL, Elyria.

To *Camp MacArthur*, Waco, Texas, for duty, from Fort Oglethorpe, Capt. IRVING S. WORKMAN, Mount Vernon; Lieuts. EDGAR P. COOK, Granville; RAYMOND C. SCHUTTE, Kenton.

To *Camp Sherman*, Chillicothe, Ohio, with the board examining the command for nervous and mental diseases, from Fort Thomas, Lieut. AVONIA E. KISER, Cincinnati.

To *Camp Upton, L. I., N. Y.*, as orthopedic surgeon, from Boston, Lieut. MARTIN E. HARRELL, Woodstock.

To *Camp Wadsworth*, Spartanburg, S. C., with the board examining the command for nervous and mental diseases, from Camp Wheeler, Lieut. HARRY H. McCLELLAN, Dayton.

To *Camp Wheeler*, Macon, Ga., base hospital, Capt. WILLIAM E. SAVAGE, Cincinnati.

To *Camp Zachary Taylor*, Louisville, Ky., for duty, from Army Medical School, Lieut. CHARLES L. MAXWELL, Columbus; from Camp Sherman, Capt. JOHN W. SHEETZ, Columbus; from Williamsbridge, Lieut. JOHN H. NICHOLS, Columbus.

To *Fort Adams, R. I.*, for duty, from Fort Oglethorpe, Capt. JULIAN V. WINANS, Madison.

To *Fort H. C. Wright, L. I., N. Y.*, for duty, from Fort Oglethorpe, Capt. HIRAM P. H. ROBINSON, Medina.

To *Fort Oglethorpe* for instruction, Capt. JESSE T. McCARTNEY, Barnesville; HOWARD F. SCHELL, Cincinnati; HARRY B. DORNBLASSER, Springfield; Lieuts. COURTLAND B. MEUSER, Ashland; HENRY R. BROWN, Chillicothe; EDW. C. MYLETT, FRANCIS J. OSBORNE, Cleveland; HUGH J. SAVAGE, Corning; DAN M. SKINNER, Hamilton; SAMUEL C. CALDWELL, Lancaster; CLARENCE M. VALENTINE, Linden Heights; LEW H. HAUMAN, West Cairo; ELMER H. NAGEL, Youngstown.

To *Mineola, L. I., N. Y.*, Signal Corps Aviation School, for duty, from Princeton, Lieut. MARTIN H. URNER, Cincinnati.

To *New York City*, Cornell Medical College, for duty, and on completion to *Hoboken, N. J.*, for duty, from Camp Dix, Major RALPH W. HOLMES, Chillicothe.

To *Plattsburg Barracks, N. Y.*, for duty, Lieut. HARRY R. BROWN, Chillicothe.

To *Rockefeller Institute* for instruction in bacteriology, and on completion to *Army Medical School*, for duty, Lieut. FOY C. PAYNE, Springfield. For instruction in laboratory work, and on completion to

Hoboken, N. J., base hospital, from Camp Gordon, Capt. ROY F. DRURY, Akron.

To *South Baltimore, Md.*, for duty, from Fort Oglethorpe, Lieut. CLIFFORD P. KROHN, Morrow.

Oklahoma

To *Camp Custer*, Battle Creek, Mich., base hospital, from Camp Grant, Capt. ANTONIO DeB. YOUNG, Oklahoma City; from Camp Pike, Lieut. JAMES C. HAWKINS, Blackwell.

To *Camp Dodge*, Des Moines, Iowa, for duty, from Boulder, Colo., Lieut. DAVID C. WILLIAMS, Luther.

To *Camp MacArthur*, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. ARCHIE BEE, Oklahoma City.

To *Camp Travis*, Fort Sam Houston, Texas, base hospital, Capt. ARTHUR W. WHITE, Oklahoma City; WILLIAM A. COOK, Tulsa; Lieut. WILLIAM R. LEVERTON, Hobart; from Camp MacArthur, Capt. GREGORY A. WALL, Tulsa.

To *Fort Oglethorpe* for instruction, Capt. LEANDER A. RICE, Oklahoma City; THOMAS C. McCURDY, Purcell; ALBERT M. CHAMBERS, Quinton; Lieuts. JOHN H. PAYNE, Durham; JOHN V. ANDERSON, Fairview; JAMES W. PROWELL, Ketchum; P. R. DAVIS, Noble; GAYFREE ELLISON, Norman; JOSEPH B. SHANNON, Pauls Valley; STANLEY B. JONES, Sallisaw; GEORGE A. WESTFALL, Supply.

To *Fort Riley*, as orthopedic surgeon, from Boston, Lieut. ALONZO P. GEARGART, Blackwell.

To *Pocatello, Idaho*, Technical Institute, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Riley, Lieut. GEORGE E. HARTSHORNE, Spire.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. THOMAS P. SHI, Blanchard.

Oregon

To *Allesandro, Calif.*, Marsh Field, Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. CARL W. ROBBINS, Gold Beach.

To *Camp Dodge*, Des Moines, Iowa, for duty, from Fort Riley, Capt. ROGER BISWELL, Haines.

To *Camp Lewis*, American Lake, Wash., base hospital, Capt. ERNEST A. SOMMER, Portland. For duty, Lieut. HAROLD T. ALLISON, Heppner.

Pennsylvania

To *Camp Beauregard*, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. PAUL C. BRUCE, Pittsburgh.

To *Camp Crane*, Allentown, Pa., for duty, from Camp Upton, Capt. WILLIAM L. ESTES, JR., South Bethlehem; from Edgewood, Capt. ANDREW HUNTER, McKeesport.

To *Camp Custer*, Battle Creek, Mich., for duty, from Camp Dodge, Lieut. ROBERT E. STRASSER, Reading; from Camp Greene, Lieut. SCOTT A. NORRIS, Homestead.

To *Camp Devens*, Ayer, Mass., base hospital, Lieut. LOUIS W. KOHN, Plymouth.

To *Camp Dix*, Wrightstown, N. J., base hospital, from Camp Meade, Lieut. ISAAC H. SHELLY, Ambler. For duty, from Camp Wheeler, Capt. JACOB J. RUTBERG, Philadelphia.

To *Camp Forest*, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieut. VINCENT J. GRAUTEN, West Chester.

To *Camp Gordon*, Atlanta, Ga., base hospital, Lieut. DANIEL J. LANGTON, Philadelphia. For orthopedic instruction, and on completion to *Fort McPherson, Ga.*, for further instruction, from Fort Oglethorpe, Lieuts. RAYMOND A. WOLFF, New Kensington; MORRIS A. COHEN, Pittsburgh; ALEXANDER J. McRAE, Wilkes-Barre. With the board examining the command for nervous and mental diseases, Lieut. IRA A. DARLING, Warren.

To *Camp Grant*, Rockford, Ill., base hospital, from Boston, Lieut. GEORGE M. ASTLEY, Philadelphia.

To *Camp MacArthur*, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. JOHN H. MOSS, Archibald.

To *Camp McClellan*, Anniston, Ala., base hospital, Lieut. MIECZYSLAW E. SMOCZYNSKI, Philadelphia.

To *Camp Meade*, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. EDWIN E. BROPHY, Meadville; from New York City, Lieut. CHARLES S. FOX, Philadelphia.

To *Camp Pike*, Little Rock, Ark., as orthopedic surgeon, from Boston, Lieut. WILLIAM C. KELLER, New Bethlehem. For duty, from Army Medical School, Lieut. CLAYTON L. McCOY, Hastings.

To *Camp Sevier*, Greenville, S. C., base hospital, from New York, Lieut. ABRAHAM E. COLCHER, Philadelphia. For duty, from New York, Lieut. WILLIAM D. BAUN, Philadelphia.

To *Camp Shelby*, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieuts. LOUIS SELIGMAN, Philadelphia; WILLIAM E. RECTON-WALD, Pittsburgh.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, from Camp Shelby, Capt. THOMAS W. GRAYSON, Pittsburgh.

To *Camp Travis*, Fort Sam Houston, Texas, base hospital, from Camp Bowie, Lieut. FRED D. REYNOLDS, Pittsburgh.

To *Camp Wheeler*, Macon, Ga., base hospital, from Camp Gordon, Lieut. CHARLES C. GANS, Chambersburg.

To *Fort Moultrie, S. C.*, for duty, from Camp Laurel, Lieut. WILLIAM C. KESSLER, Philadelphia.

To *Fort Oglethorpe* as instructor, from Philadelphia, Major EDWARD MARTIN, Philadelphia; Capt. WILLIAM H. FURNESS, Wallingford. For instruction, Capt. JOHN R. OWENS, Pittsburgh; Lieuts. CHARLES E. SCHLAPPICH, Bernville; JOSEPH P. McCLAY, Chambersburg; GEORGE B. SICKEL, Chester; JOSEPH R. SWARTZLANDER, Doylestown; GEORGE A. TREIMAN, Harrisburg; ROSCOE Z. COPE, Hatfield; GEORGE F. CROTHERS, Linwood; JAMES R. DAVIS, McKees Rocks; JAMES L. SHOEMAKER, Norristown; FRANK B. BLOCK, DONALD B. COOVER, LEO F. SCANLAN; RUDOLPH ALBERT WALTHER, Philadelphia; MARL A. BRADFORD, Pittsburgh; ROBERT L. ELLIS, York.

To *Fort Porter, N. Y.*, for duty, from Washington, Capt. WILLIAM S. RUCH, Carlisle.

To *Greensboro, S. C.*, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. SAMUEL W. REEVES, Fawn Grove.

To *Hoboken, N. J.*, for duty, from Camp Lee, Capt. STEPHEN W. TUNNELL, Philadelphia.

To *Jersey City, N. J.*, William L. Dickson High School, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. CLARENCE L. YOUNG, Peckville.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Jackson, Capt. HARRISON A. GREAVES, Philadelphia; from Fort Monro, Capt. WILLIAM C. MEANOR, Beaver.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Gordon, Atlanta, Ga., base hospital, from Fort Oglethorpe, Lieut. EARL P. WICKERHAM, Pittsburgh.

To Plattsburg Barracks, N. Y., for duty, Lieut. WALTER J. LEAMAN, Leaman Place; from Fort McPherson, Capt. HARRY C. WES-TERVELT, Pittsburgh.

To report by wire to the commanding general, Eastern Department, for assignment to duty, Capt. RICHARD G. BURNS, Pittsburgh; BENJAMIN R. KOHLER, Reedsville; Lieut. JOHN L. HOFFMAN, Ashland; CHARLES E. LINDEMAN, Pittsburgh.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Hancock, Lieut. WAYNE L. SNYDER, Brookville.

To Sunbury, Pa., for duty, and on completion to his proper station, from Philadelphia, Lieut. CHARLES S. MILLER, Philadelphia.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Sherman, Major STANLEY M. RINEHART, Pittsburgh. St. Elizabeth's Hospital, for intensive training, from Camp Dix, Lieut. JOSEPH P. BOYLE, Philadelphia.

Porto Rico

To Camp Dodge, Des Moines, Ia., for duty, from Army Medical School, Lieut. AUGUSTINE R. LAUGIER, San Juan.

To Camp Meade, Admiral, Md., for duty, from Army Medical School, Lieut. JUAN H. FONT, Barran Quitas.

Rhode Island

To Camp Custer, Battle Creek, Mich., for duty, Lieut. JOHN E. RUISI, Westerly.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Shelby, Lieut. CHARLES L. LYNCH, Providence.

The following order has been revoked: To Fort Oglethorpe for instruction, Capt. ALLEN A. WEEDEN, Woonsocket.

South Carolina

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Capt. LOAMI J. SMITH, Ridge Springs.

To Camp Meade, Admiral, Md., from New York City, Lieut. LACY W. CORBETT, Bishopville.

To Fort Oglethorpe for instruction, Lieut. DAVID A. BIGGER, Rockhill; CLAUDE C. LANGLEY, Travellers Rest; PAUL K. SWITZER, Union.

To report by wire to the commanding general, Southeastern Department, for assignment to duty, Capt. GASTON DE F. WILSON, Spartanburg.

To West Orange, N. J., Essex Vocational School, to make physical examinations, and give medical attention to the drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. JOHN M. BARNWELL, Florence.

South Dakota

To Camp Dodge, Des Moines, Ia., base hospital, Capt. GILBERT G. COTTAM, Sioux Falls.

To Camp Travis, Fort Sam Houston, Texas, as orthopedic surgeon, from Boston, Lieut. ALEXANDER O. FASSER, Belle Fourche.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Riley, Lieut. JOHN C. ROGERS, White Lake.

To Fort Oglethorpe for instruction, Lieut. ELROY L. PARKE, Canton; FRANK H. STEWART, Kimball; FLOYD D. GILLIS, Mitchell; OLAF HARALDSON, Watertown.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. ELI M. MOREHOUSE, Yankton.

Tennessee

To Camp Crane, Allentown, N. J., base hospital, from New York, Lieut. LEONARD G. CROSBY, Memphis.

To Camp Devens, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CHARLES Y. BAILEY, Baileyton.

To Camp Jackson, Columbia, S. C., for duty, and on completion to Washington, D. C., for instructions, from Camp Hancock, Capt. LEE A. STONE, Memphis.

To Camp Logan, Houston, Texas, base hospital, Lieut. JESSE B. WHITE, Brownsville.

To Camp Meade, Admiral, Md., as orthopedic surgeon, from Boston, Lieut. CECIL E. WARDE, Memphis. For duty, from Army Medical School, Lieut. TATE B. COLLINS, Trezevant.

To Camp Shelby, Hattiesburg, Miss., for duty, from Fort Oglethorpe, Lieut. ALBERT V. KEEBLER, Harriman.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. WALTER W. WIDENER, Laurel Bloomery.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. HARRY M. WESTOVER, Pinson.

To Fort Oglethorpe base hospital, from Camp Cody, Lieut. GEORGE L. BROWN, Memphis. For instruction, Capt. JOHN B. SHOUN, Hampton; JOHN H. KING, Nashville; Lieut. DANIEL B. ENSOR, Carter; GEORGE C. THOMAS, Greenfield; JOHN J. GREER, Knoxville; SUMNER C. ANDREWS, Memphis; LEONARD W. EDWARDS, Nashville; MILTON E. CANNON, Riceville.

To Indianapolis, Ind., Arsenal Technical School, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Capt. MARVIN A. BLANTON, Union City.

To New Haven, Conn., for duty, Lieut. BAYARD SULLIVAN, Chattanooga.

To Washington, D. C., East Potomac Park, for duty, from Fort Oglethorpe, Lieut. HARRY M. WESTOVER, Pinson.

Texas

To Atlanta, Ga., University of Atlanta, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Capt. EDWARD C. FOSTER, Whitt.

To Camp Alfred Vail, Little Silver, N. J., for duty, from Army Medical School, Capt. W. AUDA VEE CASH, Abilene.

To Camp Bowie, Fort Worth, Texas, for duty, from Fort Riley, Lieut. JOSEPH D. COLLINS, Arlington; REESE F. CURRIE, Manchaca.

To Camp Crane, Allentown, Pa., base hospital, from Hoboken, Lieut. CHARLES C. COOKE, Keene.

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Riley, Capt. FOSTER R. WINN, Alvin; DAVID C. WYLIE, Aspermont.

To Camp Grant, Rockford, Ill., with the board examining the command for nervous and mental diseases, from Camp Custer, Capt. CLEVE C. ODOM, Childress.

To Camp Logan, Houston, Texas, base hospital, Lieut. JOHN R. RANSON, Cleburne; FRANK H. NEWTON, Dallas. For duty, from Fort Riley, Lieut. KINCY J. SCOTT, Temple.

To Camp Meade, Admiral, Md., for duty, from Camp Wadsworth, Lieut. ERNEST H. HAMILTON, Kilgore.

To Camp Newton D. Baker, Fort Bliss, Texas, base hospital, from Fort Bliss, Capt. THAD SHAW, San Antonio.

To Camp Travis, Fort Sam Houston, Texas, with the board examining the command for nervous and mental diseases, from Camp Sheridan, Lieut. CHARLES W. STEVENSON, Loraine.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. JOSEPH KOPECKY, El Campo.

To Chicago, Ill., Armour Institute of Technology, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Riley, Lieut. OZRO W. CUNNINGHAM, Valley View.

To Fort Oglethorpe for instruction, Lieut. JAMES O. BUTLER, Banders; EARL H. NEWTON, Corsicana; HENRY CLAY, Dallas; JULES L. DELAMBRE, ARTHUR J. MYNATT, FRANK L. ROBRINS, Houston; MARVIN MCT. LANDRUM, Lampasas; JOHN W. HARPER, Paducah; from Camp Travis, Lieut. EDGAR V. HENRY, Coleman.

To Fort Sam Houston, Texas, base hospital, Lieut. EDWIN M. SYKES, San Antonio.

To Fort Sill, Okla., base hospital, Capt. LUKE P. ALLISON, Brownwood. For duty, from Fort Oglethorpe, Lieut. THOMAS R. BEECH, Slaton.

To Jacksonville, Fla., for duty, from Everman, Texas, Capt. EUGENE W. R. WILLIAMS, Celeste.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fort Worth, Texas, Major ALBERT F. BEVERLY, Austin.

To Princeton, N. J., Princeton University, for duty, from Camp Greene, Lieut. DANIEL H. BROOK, Travis.

To report by wire to the commanding general, Southern Department, for assignment to duty, Capt. WILLIAM S. LASATER, Aledo; PLEASE D. BARNHILL, Brenham; ISAAC P. SESSIONS, Rockdale; Lieut. JOSEPH E. DILDY, Brownwood; SAMUEL S. McCRUM, Lone Oak.

To San Antonio, Texas, Aviation Section, Signal Corps, for duty, Lieut. SCOTT C. APPLEWHITE, San Antonio.

To Tallahassee, Fla., to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Oglethorpe, Lieut. GROVER C. FOX, Dallas.

Utah

To Camp Dodge, Des Moines, Ia., for duty, from Fort Riley, Capt. JOHN O. EVANS, Salt Lake City.

Vermont

To Camp Dix, Wrightstown, N. J., with the board examining the command for nervous and mental diseases, from Fort Porter, Capt. STEWART L. GOODRICH, Waterbury.

To Camp Forrest, Chickamauga Park, Ga., as orthopedic surgeon, from Boston, Lieut. ALBION A. CROSS, Williamstown.

To Fort Oglethorpe for instruction, Capt. WARREN J. HOWARD, Waitfield; Lieut. CLARENCE L. GANNON, Burlington; MAURICE L. CHENEY, Lundonville.

To Hoboken, N. J., for duty, from Fort Oglethorpe, Capt. WALTER J. WHITE, Middlebury.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Capt. JAMES M. HAMILTON, Rutland.

Virginia

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Oglethorpe, Lieut. JOHN M. RATLIFF, Marvin.

To Camp Custer, Battle Creek, Mich., base hospital, from Boston, Lieut. CHARLES W. MERCER, Richmond.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. DOUGLAS S. DIVERS, Rocky Mount.

To Camp Lee, Petersburg, Va., base hospital, Lieut. RUSSELL L. HADEN, Crozet.

To Fort Benjamin Harrison for duty, from Camp Sheridan, Major WILSON E. DRIVER, Norfolk.

To Fort Oglethorpe for instruction, Capt. LURTY N. HARRIS, Harrisonburg; Lieut. JAMES W. JORDAN, Ashland; EDWIN H. CORNS, Gate City; ROBERT L. RHODES, Roanoke.

To Fort Wadsworth, N. Y., for temporary duty, and on completion to his proper station, from New Haven, Lieut. JAMES L. STRING-FELLOW, Norfolk.

To Hoboken, N. J., base hospital, from New York City, Lieut. PATRICK M. CARROLL, Richmond.

To New Haven, Conn., for duty, from duty as an enlisted man, Lieut. JAMES J. BARFIELD, Catawba Sanatorium.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WILLIAM De H. FITZHUGH, Morrisville.

Washington

To Camp Custer, Battle Creek, Mich., for duty, from Camp Pike, Lieut. EARLE V. SHEAFE, Winlock.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from Boston, Capt. HERBERT Y. BELL, Centralia.

To Camp Lewis, American Lake, Wash., for duty, Capt. JOHN R. STEAGALL, Tacoma.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Army Medical School, Lieut. LUTHER R. MOORE, Seattle.

To Chicago, Ill., Old South Division High School, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Riley, Lieut. HARRY MARTIN, Cashmere. Wendell Phillips High School, for the same duty, Lieut. WILLIAM A. MITCHELL, Colfax.

West Virginia

To Camp Bowie, Fort Worth, Texas, as orthopedic surgeon, from Boston, Lieut. EARL B. HENSON, Charleston.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. CHARLES P. S. FORD, Hansford; from Camp Upton, Capt. CECIL DENHEM, Weston. For duty, from Fort Oglethorpe, Capt. HARRY G. STEELE, Bluefield. For orthopedic instruction, and on completion to Fort McPherson, Ga., for further instruction, from Fort Oglethorpe, Lieut. CHARLES M. TRUSCHEL, Wheeling.

To *Camp Greene*, Charlotte, N. C., for duty, from Montgomery, Capt. EMMET R. BUCKLEW, Grafton.
To *Camp Jackson*, Columbia, S. C., base hospital, Lieut. EARL B. GERLACH, Huntington.
To *Camp Meade*, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. VICTOR L. GLOVER, Inwood.
To *Fort Oglethorpe* for instruction, Capt. EDWARD F. SHAFER, Huntington; Lieut. CHARLES B. WILLIAMS, Philippi.
To *New York City*, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp McClellan, Capt. HARRY M. LAVELLE, Littleton.

Wisconsin

To *Camp Custer*, Battle Creek, Mich., base hospital, Capt. HARLOW S. ROBY, Milwaukee.
To *Camp Devens*, Ayer, Mass., for duty, from Fort Oglethorpe, Lieut. CORNELIUS N. STUESSER, Oconomowoc.
To *Camp Dodge*, Des Moines, Ia., for duty, from Fort Riley, Lieut. HAROLD KALLING, Black River Falls.
To *Camp MacArthur*, Waco, Texas, base hospital, from Fort Riley, Lieut. FLOYD W. APLIN, Waukesha.
To *Camp Meade*, Admiral, Md., for duty, from Fort Riley, Lieut. PETER L. SCANLAN, Prairie du Chien.
To *Fort Oglethorpe* for instruction, Capt. ALLAN S. WHITE, Rice Lake; Lieuts. JENS ANDERSON, Racine; EDWARD L. GARNER, Rhinelander.
To *Fort Porter*, N. Y., for duty, from Ann Arbor, Capt. JOHN M. CONLEY, Oshkosh.
To *Fort Thomas*, Ky., with the board examining the troops for cardiovascular diseases, from Fort Riley, Lieut. CARLTON M. BEEBE, Sparta.
To *New Haven*, Conn., for duty, Lieut. ARTHUR A. PLEYTE, Delafield.
To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Upton*, L. I., N. Y., base hospital, Lieut. ARTHUR T. JOHNSON, Sauk City.
To report by wire to the commanding general, Central Department, for assignment to duty, Capt. FRED D. JACKEY, Thorp.
To *Whipple Barracks*, Ariz., for duty, from Fort Riley, Lieut. RAYMOND N. NELSON, Horicon.
The following orders have been revoked: To *Camp Devens*, Ayer, Mass., as assistant to camp surgeon, from Hoboken, Major EDWARD J. BARRETT, Sheboygan. To *Fort Oglethorpe* for instruction, Lieut. LEO A. HOFFMANN, Milwaukee.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Free Aid for Service Families.—The Talent Workers Hospital, San Diego, announces that any families of men in the United States service may obtain free treatment from 11 to 12 daily.—The dental department of the College of Physicians and Surgeons, San Francisco, offers free medical and dental attention to wives and families of fighting men and to soldiers and sailors not under the jurisdiction of government hospitals.

Personal.—Dr. George H. Locke, Lockford, has been appointed a state fire warden.—Dr. Arthur M. Smith, Oakland, has resigned as superintendent of the Alameda County Hospital.—Dr. C. W. Bryant, Lamoine, physician for the Lamoine Lumber Company, fractured both bones of the right leg near the ankle in a hand car accident.—Dr. Robert A. Peers, Colfax, head of the state board of health, has been made assistant chief of the tuberculosis bureau of the American Red Cross in France.—Dr. Peter Janss, Los Angeles, is under treatment in a hospital in Los Angeles.—Dr. George S. von Wedelstaedt, Los Angeles, was exonerated of the charge of violation of the espionage act, June 10.—Dr. Samuel C. Kohs of Stanford University has been elected assistant professor of psychiatry in Reed College, Portland, Ore.

DISTRICT OF COLUMBIA

Society Incorporated.—The Senate, June 29, passed a bill incorporating the medical society of the District of Columbia. The incorporators named are: Drs. George Wythe Cook, Frank Leech, John W. Chappell, Edward G. Seibert, Philip S. Roy, Raymond T. Holden, Wilfred M. Barton, Edward Y. Davidson, John B. Nichols, Albert L. Stavely, Charles W. Frazoni, Henry C. Macatee, Daniel S. Lamb, Archie W. Boswell and J. Lawn Thompson.

Personal.—Dr. William Creighton Woodward, health officer of the District, has accepted the position of municipal health officer of Boston and will report for duty, August 1, succeeding Dr. Francis X. Mahoney, retired. Dr. Mahoney will resume private practice.—Dr. Isaac Stone, professor of gynecology in Georgetown University, has resigned after twenty-six years of service and has been succeeded by Dr.

J. Thomas Kelly.—Drs. James M. Moser and John A. Foote have been appointed associate professors of pediatrics in Georgetown University.

Supervisions of Serums and Vaccines.—Ignorance or neglect, or both, on the part of a considerable number of druggists, with respect to the precautions needed for the preservation of the potency of serums, vaccines and other biologic medicinal reagents carried in stock, has led the health officer to issue a cautionary letter to all druggists in the district. Investigation showed prophylactic and curative agents of this group stored on the tops of counters and show cases, and in drawers and cupboards, mingled with chance assortments of other goods, without any effort whatsoever to keep them at any temperature other than the ordinary room or atmospheric temperature. Druggists have been urged to keep all such biologic agents in proper containers, in refrigerators, preferably in contact with the ice. Druggists unable to do this have been urged to discontinue the sale of such articles. Inspections will be made from time to time and unless the advice and caution given by the health officer prove effective an effort will be made to obtain legislation to meet the difficulty.

ILLINOIS

Illegal Practitioner Fined.—The Illinois Department of Registration and Education reports that J. F. White, Paxton, was fined \$25 and costs for violation of the act in regard to the treatment of human ailments.

Chicago

Hospital Closed.—Health Commissioner Robertson, July 5, is said to have ordered the Lincoln Hospital, 4147 Lake Park Avenue, which has been operating without a license, to be closed.

Personal.—Dr. Wilbur E. Post has left Chicago as a member of the mission to Persia, which is headed by President Harry Pratt Judson of the University of Chicago.—Dr. William M. Harsha has been appointed superintendent of the Municipal Tuberculosis Hospital.—Dr. Jesse D. Payne was injured internally, July 5, when a Wilson Avenue express train crashed into a bumper at the Wilson terminal.—Dr. Halford J. Morlan fractured his right arm while cranking his automobile, June 30.—Dr. B. Barker Beeson has been reelected Grand Northern Praetor of the Phi Beta Pi Medical Fraternity.

INDIANA

Examinations Must Be in English.—The state board of medical registration and examination passed a resolution in January, discontinuing the translation of examination questions into foreign languages. The last questions to be printed in a foreign language were at the June examination of the board, for two graduates of the University of Athens, Greece, who had made application for the examination prior to the passing of this resolution.

Personal.—Dr. Orvall Smiley, Indianapolis, has been appointed a member of the Indianapolis City Board of Health and Charities.—Dr. Guthrie H. Wisener has been appointed by the city board of health, medical resident of the Indianapolis City Hospital and assistant to Dr. Herman C. Morgan, acting superintendent of the institution.—Dr. Marcus Ravdin has been elected president, Dr. Gardner C. Johnson, vice president, and Dr. Walter R. Cleveland, secretary, of the Evansville School Clinic for Indigent Children.

MARYLAND

New Buildings at the Marine Hospital.—Provision for improvements at the Marine Hospital, Baltimore, was recently made by Congress and plans for the new structures have been completed. These will include additional ward buildings, laboratories and kitchens, and will necessitate a considerable increase in the hospital staff. All civil employees of the government, injured in any way in the performance of their duties, may receive treatment at the hospital, in addition to members of the merchant marine, the Navy and the coast guard. Army men are also numbered among the patients. The present capacity of the hospital is 150 patients. This will be increased to 250. Surg. Charles W. Vogel, U. S. P. H. S., is director of the hospital.

For Blinded Soldiers.—Plans of far-reaching scope which will make Baltimore the center for the reeducation of all war-blinded soldiers were outlined by Col. James Bordley at a recent meeting held at U. S. Army General Hospital No. 7 at Evergreen. Colonel Bordley addressed the members of

the Junior League and the alumnae of St. Timothy's and the Bryn Mawr schools, who have volunteered to serve as assistants to the professional teachers and directors of the work at Evergreen. In addition to the schoolrooms and workshops which are now going up at Evergreen, and which would embody all the latest and most practical ideas in the education of the blind, elaborate plans are being made for housing members of the families of the blind men who may come to Baltimore to visit them.

Personal.—Dr. George Walker, Baltimore, who went to France with the Johns Hopkins Hospital Unit, more than a year ago, has been detached from the unit and now has general supervision over social hygiene work in the three ports of entry of the American Expeditionary Forces.—Dr. Walter A. Baetjer, Baltimore, has been assigned to special service and is making a study of the prevention and treatment of "trench fever," which is one of the menaces to the health of the allied forces.—Capt. George L. Stickney, Baltimore, who has been ill in a hospital with trench fever, is rapidly recovering.—Dr. Mary R. Fleming, formerly of Baltimore, who was connected with a hospital at Tabriz, Persia, which was sacked recently by the Turks, is safe. It is understood that Dr. Fleming and her associates left Tabriz before the advent of the Turks.—Dr. Katherine T. Jones, Fullerton, has been appointed assistant superintendent of the Orthopedic Hospital, Philadelphia, from which she was graduated in 1914.—Dr. John R. Oliver, of the Henry Phipps Psychiatric Clinic, has been appointed special medical examiner for the supreme bench of Baltimore city, a new position created by the judges to assist in the administration of justice, especially in the criminal court.—Dr. Theodore A. Schaefer, a graduate of the University of Maryland, has been appointed a member of the staff of the Druid Sanatorium, Baltimore.

MASSACHUSETTS

Harvard Medical School Investigates Food Poisoning.—In the interests of food conservation, the Department of Preventive Medicine and Hygiene of the Harvard Medical School has made a special research problem of the determination of safe and unsafe foods, and desires to get in immediate touch with outbreaks of food poisoning and infections in order to obtain definite knowledge as to the origin of these cases. Physicians and health workers within a reasonable distance of Boston are therefore requested to telephone this department, Brookline 2380, charges reversed, immediately on the discovery of any cases of disease attributable to food in any way. An investigator, who will endeavor to establish the cause of the trouble, will be sent without expense to the community.

MISSOURI

Personal.—Dr. Theodore F. Frazer, Commerce, has been elected assistant physician of State Hospital No. 4, Farmington, to succeed Dr. Frank L. Long, who has resigned to enter the military service.

Milk Commission Officers.—At the meeting of the medical milk commissioners of Kansas City, June 3, Dr. George C. Mosher was elected chairman; Dr. Albert G. Hull, vice chairman, and Dr. Frank C. Neff, secretary.

Health Offices Move.—Under the reorganization of the Kansas City Health Department by Dr. Eugene H. Bullock, health commissioner and superintendent of the General Hospital, it is probable that every department of the board of health, excepting the Emergency Hospital, will be moved from the Water Works Building to the General Hospital building, and that the Emergency division will be moved to the city hall.

St. Louis

Clinics Opened.—Under the joint auspices of the St. Louis Tuberculosis Society and the City Hospital Department free night clinics for diseases of the chest have been opened at 1411 South Broadway and 1243 South Vandeventer Avenue, under the supervision, respectively, of Drs. Paul F. Kistner and Andrew C. Henske.

NEW JERSEY

Personal.—Dr. Elmer G. Wherry, Newark, who recently underwent a serious operation at Asbury Park, is recuperating.

New State Officers.—At the annual meeting of the Medical Society of New Jersey held in Spring Lake, June 25 and 26, the following officers were elected: president, Dr. Thomas W. Harvey, Orange; vice presidents, Drs. Gordon K. Dickinson, Jersey City; Philander A. Harris, Paterson, and Henry B.

Costill, Trenton; recording secretary, Dr. Thomas N. Gray, East Orange (reelected); corresponding secretary, Dr. Harry A. Stout, Wenonah (reelected), and treasurer, Dr. Archibald Mercer, Newark (reelected). The president, Lieut.-Col. William G. Schaffer, M. C., N. A., Lakewood, was unable to be present, as he is on duty with troops.

NEW YORK

Three Counties Start Work on Tuberculosis Hospitals.—Ground has been broken for new tuberculosis hospitals in Broome, Rockland and Nassau counties. The contracts for the Broome County institution total \$117,233. The hospital is being constructed at Chenango Bridge, several miles from Binghamton, and is to have seventy-five beds. The Rockland County Hospital will be located near Summit Park and will cost approximately \$90,000. The Nassau County Hospital will be located on a 97 acre site near Farmingdale, and the contracts total \$108,259.

Eight More Cities to Have Tuberculosis Clinics.—The state Charities Aid Association, which is assisting local public and private tuberculosis organizations to establish dispensaries for the medical oversight, assistance and supervision of tuberculous soldiers rejected from military service, has made arrangements with local organizations which will assure the opening of dispensaries in Hudson, Newburgh, Kingston, Binghamton, Auburn and Mount Vernon within a month. Approximately \$2,500 a year is needed to secure a medical and nursing staff and to equip and operate a dispensary in the smaller cities of the state. Arrangements have been completed for the reopening of clinics in Cohoes and Auburn. In a series of villages and towns in Westchester County, plans are under way for occasional clinic service to be given by tuberculosis specialists of New York.

New York City

Women Urged to Study Medicine.—The Medical Women's Association of New York has initiated a campaign urging educated young women to study medicine.

Personal.—Governor Whitman has appointed Dr. Walter B. James head of the state commission for study of the feeble-minded and their needs, which position was created through legislative enactment this year.

Lutherans Offer Hospital for Soldiers.—The board of directors of the Lutheran Hospital of Manhattan, July 2, passed resolutions offering their hospital building and equipment, without charge during the period of the war, to the government. The building has been open only a year and has accommodations for 100 patients. They have also offered a well-equipped nurses' home in the vicinity of the hospital.

Dr. Brown Acquitted of Charges by Health Commissioner.—After the hearing, July 5, at which Dr. Lucius P. Brown defended himself against the charges preferred against him by Mayor Hylan and Commissioner McBride, Health Commissioner Copeland expressed admiration for the official accomplishments of Dr. Brown. He admitted that the results of Dr. Brown's work were of value to the city and acquitted him of the charges alleging administrative mistakes.

Women Sought to Treat Gas Cases.—The Women's Overseas Hospital, which has now thirty women surgeons, nurses and aids in France, has been asked by the French government to send immediately fifty women to conduct a hospital of 300 beds to be established for the treatment of gas cases. Dr. Alice Gregory, who headed the civilian unit of the Women's Overseas Hospital, has resigned to go to the front to establish a dressing station. She will be succeeded by Dr. Marie K. Formad of Philadelphia.

Mount Sinai Unit at the Front.—The Mount Sinai Hospital Unit, designated as United States Base Hospital No. 3, has been established in a monastery near the front. Its staff consists of twenty-six officers, sixty-five nurses, 150 enlisted men, and several untrained women. Accommodations are provided for 1,500 patients. Mount Sinai Hospital and the American Red Cross provide the surgical supplies. The chief officers in the hospital are: Major Michael A. Dailey, commanding; Major George Baer, laboratory chief; Major Howard Lilienthal, chief surgeon; Major Herbert W. Celler, chief of the medical service, and Majors Edward Beer and Walter M. Brickner, surgeons.

OHIO

Personal.—Dr. Frances M. Hollingshead, Columbus, director of child hygiene in the state health department, has left on indefinite leave of absence to conduct child welfare work

for the American Red Cross in France.—Dr. Howard A. Brown, Carroll, was operated on in the Protestant Hospital, Columbus, June 26, and is reported to be doing well.—Dr. Wade MacMillan, Cincinnati, has been appointed medical director of Miami University, Oxford.—Dr. John M. Withrow, Cincinnati, resigned, June 26, as chairman of the local district federal draft board on account of ill health.—Dr. A. Richard Kent, Springfield, sustained severe injuries of the leg in an automobile accident, June 20.—Commissioner Allen W. Freeman, Cincinnati, who has been head of the state department of health since last October has been called to military duty and Deputy Commissioner James E. Bauman will direct the work of the health department.

Extend Tuberculosis Hospitals of State.—Nearly one half of the counties and more than three fourths of the population of the state will be included in territory provided with tuberculosis hospitals, when temporary hospital district organizations effected within the past two weeks are carried to completion, the state department of health announces. Of the two newest tentative districts, one is composed of Wood, Hancock, Seneca, Crawford and probably Wyandot counties, and the other includes Jefferson and Belmont counties, with Tuscarawas, Harrison and Carroll counties as probable additional members. These districts were created under temporary organizations by the county commissioners involved, in meetings at Fostoria and Steubenville. Another district, comprising Ottawa, Sandusky, Erie and Lorain counties, with Huron County considering the question of joining, recently organized on a permanent basis, and decided to appropriate \$125,000 for the construction of a hospital.

PENNSYLVANIA

New Dispensaries.—The state health board has decided to establish, without delay, thirty new dispensaries with the object of diminution and possible elimination of the menace of the transmission of venereal diseases.

Memorial Building Dedicated at Eaglesville.—A building, dedicated to the memory of the late Stanley V. Mastbaum, long a director of the Eaglesville Sanatorium, and erected at a cost of \$15,000, subscribed by his friends, was turned over to the board of directors of the sanatorium, June 22. The structure, one of the largest of the group of buildings comprising the sanatorium, has a capacity of thirty beds and will be occupied by the more serious cases of tuberculosis.

Endow Beds in Military Hospital.—An entire ward of ten beds has been endowed for one year in Military Hospital No. 1, located near Neuilly, on the outskirts of Paris, by the Baldwin School at Bryn Mawr, in memory of Elizabeth Nicholl Hill. Other recent endowments have been: a bed for six months from St. Clement's Episcopal Church, Philadelphia; a bed for one year from the New Century Club, Philadelphia; a bed for one year from Mrs. J. William White, in memory of her husband, Dr. J. William White.

Philadelphia

Personal.—Dr. Jay F. Schamberg has been elected professor of dermatology of the Jefferson Medical College to succeed Dr. Henry W. Stelwagon, resigned.—Dr. Martin E. Rehfuß has been elected associate in medicine at the Jefferson Medical College.—Lieut. Walter J. Daly, member of the United States Medical Corps, has been reported by the British War Office as wounded while serving with a British force.—Dr. Joseph M. Asher has been appointed assistant surgeon to the Philadelphia General Hospital.

WEST VIRGINIA

Personal.—Dr. Page D. Barlow, McMechen, is reported to be critically ill at his home.—Dr. Uriah H. Debendarfer, Mannington, is under treatment at the Ohio Valley General Hospital, Wheeling.

Board Ruling Regarding Reciprocity.—At the April meeting of the West Virginia Public Health Council it was voted to cancel reciprocal relations with such states as continue to recognize medical colleges rated in Class C by the Council on Medical Education.

Entire Village Purchased for Sanatorium.—The town of Denmar, Pocahontas County, has been purchased by the state board of control and the land and buildings will be used by the state for the establishment of the new State Colored Tuberculosis Sanatorium, for which appropriation was made by the last legislature.

CANADA

Compulsory Vaccination.—The colonial secretary of the Dominion of Newfoundland has announced that residents of Nova Scotia or New Brunswick may not enter Newfoundland unless they have been successfully vaccinated within the last seven years.

Faculty Changes.—The University of Toronto announces that Dr. T. Brailsford Robertson, formerly professor of biochemistry and pharmacology in the University of California, San Francisco, has been appointed professor of biochemistry in the University of Toronto, and also, that Dr. John J. R. Macleod, formerly professor of biochemistry and physiology in the Western Reserve University, Cleveland, has been appointed professor of physiology in the University of Toronto.

New Manitoba Society Officers.—The annual meeting of the Manitoba Medical Association was held at Winnipeg, June 20 and 21, and the following officers were elected: president, Dr. George D. Shortreed, Grandview; vice presidents, Drs. G. Cansell and Daniel H. McCalman, Winnipeg; secretary, Dr. Hugh Mackay, Winnipeg, and treasurer, Dr. Sidney J. S. Pierce, Winnipeg. The association placed itself on record as being convinced of the benefit of the restrictions placed on the use and sale of alcohol in Manitoba.

Personal.—Because of the additional work caused by the call of the 19 year old class, two more medical boards have been formed in Manitoba, over which Lieut.-Col. H. Blanchard, and Dr. Charles A. Ritchie, Winnipeg, have been appointed to preside.—Col. Wilbert G. Fraser, Ottawa, has been appointed A. D. M. S., and placed in charge of the Petawawa Camp.—Dr. Henry F. MacKendrick, Galt, Ont., has returned home after more than a year's service with the Royal Army Medical Corps.—Captain Gunn of the Brant Military Hospital has been appointed medical superintendent of the Military Hospital of Newmarket under the invalided soldiers' commission.—Capt. Hibbert W. Hill, medical officer of health of London, Ont., has resigned to become director of the public health association of the state of Minnesota.—Dr. Robert Ferguson, London, has been elected president of the Ontario Medical Council.

GENERAL

Fund for Relief of Blind.—It is announced that a fund of \$100,000, to be known as the permanent Blind Relief War Fund Foundation, has been sent to Col. James Bordley, Baltimore, director of the Red Cross Institute for the Blind.

A Warning.—Some time ago THE JOURNAL published a warning relative to the activities of a person working under the name of L. C. Sykora, who called on physicians relative to the purchase or maintenance of roentgen ray apparatus. The Liebel-Flarsheim Company of Cincinnati writes: "A local physician informs us that he called on them claiming that he represented our company and agreed to repair their x-ray machine. When this doctor next wanted to use this machine he claims that about \$60 worth of platinum interrupter points had been taken off by this party."

New Officers.—At the annual meeting of the American Laryngological, Rhinological and Otological Society, Inc., the following officers were elected: president, Col. H. S. Birkett, M.D., Montreal; chairman, eastern section, Dr. Robert Lewis, New York City; chairman, southern section, Dr. Clifton M. Miller, Richmond, Va.; chairman, middle section, Dr. Otto J. Stein, Chicago; chairman, midwestern section, Dr. Claude E. Cooper, Denver; chairman, western section, Dr. John J. Kyle, Los Angeles; secretary, Lieut.-Col. William H. Haskin, West Point, N. Y.; treasurer, Dr. Ewing W. Day, Pittsburgh, and chairman, publication committee, Dr. George L. Richards, Fall River, Mass.

Bequests and Donations.—The following bequests and donations have recently been announced:

Women's Hospital in the State of New York, New York City, and the New York Dispensary, each \$10,000 by the will of Miss Cornelia Beekman.

Cornell University, to continue the John Metcalf Polk scholarship in the Medical School, \$5,000 by the will of Dr. William Mecklenburg Polk.

Lankenau and St. Agnes Hospitals, Philadelphia, each \$500 by the will of J. A. Muller.

University Hospital, Philadelphia, \$3,000 for the Children's Orthopedic Ward. Philadelphia, College of Physicians, \$500, by the will of Dr. Gwilym G. Davis.

Episcopal Hospital, Philadelphia, one half of a fund of approximately \$90,000, contingent on the death of his widow, by the will of John C. Brown.

FOREIGN

Epidemic of Influenza.—The report came from London, July 2, that the influenza epidemic that has been so prevalent in Spain has entered England, is spreading rapidly, and has already reached the midland counties where schools have been closed and many mines are in danger of being shut down.

Memorial to Massei.—A portrait bust of the late F. Massei, professor of otorhinolaryngology at the University of Naples, was recently installed in the hospital where most of his work has been done. His "Manual on the Pathology and Treatment of the Larynx" has been translated into several other languages, and the list of his other works fills nearly a page in the Surgeon-General's Catalogue. He founded the *Archivi Italiani di Laringologia* in 1881.

Typhus in Portugal.—Late issues of *Medicina Contemporanea* of Lisbon state that the epidemic of typhus at Oporto is decreasing, only 288 cases having been reported during the latest week, which is forty-nine less than the preceding week. Dr. R. Frias, whose death we recently recorded, succumbed to this disease. Three cases were reported at Lisbon. At Oporto barracks are placed at the disposal of the persons compelled to leave the *ilhas* which are being burned down as fast as they are emptied. (These *ilhas* were described in Cortezo's report, summarized in THE JOURNAL June 29, 1918, p. 2059.)

Weeding Out the Tuberculous from the Italian Army.—Prof. E. Maragliano, member of the Italian upper house and of the council of the ministry of war, has been visiting five of the different centers for detailed examination of tuberculosis suspects. At each point he held conferences to which all the medical officers and other physicians in the vicinity were summoned. His purpose is to impress on all the absolute intention of the army and government to discharge from the army and to exclude from admittance to military service all who are suffering from tuberculosis, whatever its gravity or form. He will visit the four other centers of the kind in turn, thus completing the rounds of the *centri militari di accertamento per i tubercolotici*.

Influenza in Spain.—According to the *Medicina Ibera* of June 1, just received, the Spanish Public Health Service has announced that the epidemic prevailing at Madrid seems to be of grippal nature, and that no specific microbe has been isolated from the nasopharyngeal secretions. In the majority of cases the streptococcus and a gram-negative diplococcus of the catarrhalis type are all that is found. The disease is so mild that none are willing to have blood drawn for tests of specific agglutination. The governor of the Madrid province has established a scale of prices for a number of the commonly used drugs, after calling the druggists and wholesale dealers into consultation and taking an account of the stocks of the different drugs. The price list includes quinin, 1.5 pesetas per gram; sodium salicylate, 0.25 peseta; sodium benzoate, 0.5 peseta; aspirin (Bayer) 3 pesetas per tube, other makes 2.5 pesetas per tube; castor oil, 0.5 peseta per thirty grams. Penalties of from 500 to 5,000 pesetas can be imposed for infractions. These restrictions are said to have caused general indignation in the entire profession. In particular some deplore the distinction in price made between the imported and the home-made acetylsalicylic acid. The governor's decree seems to have been based on the assumption that the pharmacists would practice extortion on account of the prevailing epidemic, and this is regarded as an insult to the profession. (A peseta is about 20 cents.)

SOUTH AND CENTRAL AMERICA, MEXICO
AND WEST INDIES

Uruguayan Hospital at Paris.—The *Revista Medica del Uruguay* announces that the government has granted a monthly appropriation of 300 pesos to the Hospital Franco-Uruguayo recently organized at Paris by Uruguayan residents of France.

Child Welfare Congress.—The Second Pan-American Child Welfare Congress (*del Niño*) is to be held at Montevideo next December. Prof. L. Morquio is president of the committee of the organization, and reports that the arrangements for it are well under way.

De Castro at Montevideo.—The dean of the medical school of the University of Rio de Janeiro, Dr. A. de Castro, is also honorary professor of the University of Montevideo. He recently delivered two lectures there as the guest of the Uruguayan Medical Association, and receptions and excursions in his honor were given by the local medical society and the Club Medico del Uruguay. The subjects of his addresses were "The System of Paraglandular Organs" and "Observations of a Neuropathologist."

PARIS LETTER

PARIS, June 14, 1918.

Vocational Schools of the Union of Foreign Colonies
in France

This organization, founded for the care of war victims, and whose membership comprises the best known members of the allied and neutral colonies, celebrated recently the second anniversary of the foundation of the oldest of its five establishments: l'Ecole de rééducation professionnelle du Grand Palais. On this occasion a fête was held at the Grand Palais for the students of the school at which were present the professors, former students, the members of the Council of Administration of the union, delegates from other educational schools of the union, and the resident pupils of the other establishments, at the quai Debilly, Maison-Blanche, Invalides and the agricultural school at Juvisy. Important addresses were made, among them one by M. Ladislav Kone, one of the administrators of the Ecole du Grand Palais, and one by M. Walter V. R. Berry, president of the union, in which it was stated that having started with eight courses or ateliers of reeducation, the school now has twenty-five; the number of students has increased in two years from thirty-nine to 350, and since its foundation, 1,592 wounded and disabled soldiers have been given vocational training. But that is not all. By its influential connections in industrial and commercial circles, the union has also helped these people to secure advantageous employment or start in a modest business for themselves. One maimed soldier, for example, a former mechanic, is now assistant director of a cinema film factory at London, with a salary of 700 francs per month.

Centers of Medical Instruction

Two centers of medical instruction have been created for the duration of the war, one in Paris, the other in Lyons, for medical students now in the army. Students who have been at the front since August, 1914, will be sent to these instruction centers, among them the students of the first year (who have taken the second inscription), and of the second and of the third year as far as the second examination of the "third doctorate" exclusively.

Rank for Medical Students

The undersecretary of state of the Service de Santé militaire has ruled that medical students who have had eight inscriptions validated before Dec. 1, 1914, will be appointed *médecins aides majors* of the second class, provided they have served in the army for two years; one year as *médecin auxiliaire* at a medical post or in a sanitary formation of the *zone de l'avant*, and that they have successfully passed an examination testing their aptitude.

Medical Care of War Invalids

Measures have been taken by the authorities to permit war invalids, disabled soldiers and pensioners to receive at any military hospital the treatment necessary for their recovery.

Medicinal Plants

France imports thousands of tons of medicinal plants, representing a value of several tens of millions of francs. The Comité des plantes médicinales, recently appointed by the minister of commerce, is of the opinion that France should produce as far as possible all of the necessary medicinal plants, and therefore it is instructing the public at large concerning the harvesting and drying of the medicinal plants most commonly used, such as poppy petals, cherry peduncles, and linden flowers.

American Red Cross Child Welfare Work at Marseilles

The American Red Cross, in order to direct the attention of the people of Marseilles to the well-being, health and development of the children, has organized conferences, at which moving pictures are shown, thus instructing parents and children in principles of hygiene that will safeguard the health of the little ones. The mothers are urged to bring their babies to daily consultations where the children are examined by specialists. The result of the examination is recorded in a health bulletin which is given to the mother free. A hygienic exhibit has also been organized; nor has the physical education of the children been neglected. A playground has been built, occupying a considerable area, in which all necessary apparatus for play and physical training has been installed.

Bombardment of Hospitals

May 28, the German aviators deliberately bombed hospitals located several kilometers behind the front, in which were half a score of sick and wounded Americans, as well as several hundred wounded and sick French soldiers. A number of the patients were wounded by glass fragments. One French nurse was killed, another was mortally wounded, and several civilians were killed. Three Canadian hospitals also have been partly destroyed by German aviators since May 19. A large number of the wounded were killed or wounded again. Many bomb fragments fell into the wards. Barracks and cantonments have been either destroyed or damaged during these aerial raids by the Germans; neither the presence of women nor of the sick and wounded has deterred them from carrying out their work of tragic destruction.

Assassination of Professor Pozzi

Dr. Jean Samuel Pozzi, professor of clinical gynecology in the Paris Faculté de médecine, was assassinated in his consulting room on the evening of June 13 by a man on whom he had operated about two years ago. The man was a petty official who had been cured, or, at least, saved from a grave complication, but he feared a relapse and believed that another operation should be performed. He wrote several letters to Dr. Pozzi, and as he became more and more insistent on having an interview with Pozzi, the latter wrote that he would see him on the evening of the 13th. It was during this interview that the assassin fired four shots at Pozzi and then turned the weapon on himself, shattering his left temple. One of the bullets entered Pozzi's abdomen, producing multiple penetrating wounds of the intestine. The patient was at once conveyed to a hospital installed in the Hotel Astoria and was operated on by Dr. de Martel in the presence of M. Clemenceau, the premier, a close friend of Pozzi. Unfortunately, the nature of the wounds was such that Pozzi died during the operation.

Pozzi was born, Oct. 3, 1846, in Bergerac, in southwestern France. He was the son of a clergyman of the Reformed church. He received his doctorate degree in medicine in 1873. Two years later he was appointed associate on the Paris Faculté de médecine, and in 1877 surgeon to the hospitals. In 1901 he was made professor of clinical gynecology, a chair created especially for him. He wrote a number of works, touching not only on gynecology but also on general surgery. His book, "Traité de gynécologie clinique et opératoire," has been a great success since its first edition, which was published in August, 1890, and was sold out in February, 1891. This book was awarded the Godard prize of the Académie des sciences in 1890, and the Huguier prize of the Académie de médecine in 1892. It was translated into several foreign languages, among them English. Pozzi was elected a member of the Académie de médecine in 1896, serving as vice president in 1918. Pozzi always took an interest in politics, and for nine years he was the representative in the senate of his native province, the Dordogne.

LONDON LETTER

LONDON, June 11, 1918.

Interallied Food Supplies

Last November, the interallied congress at Versailles appointed an interallied scientific food commission, consisting of two delegates from each of the four countries, America, England, France and Italy. A delegate representing Belgium has since been added. The object of the commission is to consider all questions affecting the supply of food to the various allied countries, in agreement with the allied food executives (which determine the division of food among the Allies), and to make recommendations to their respective governments. The delegates have held two meetings, the first in Paris and the second in Rome, and they are now holding one in London. During their first two meetings they had to establish certain physiologic principles, such as the amount of food necessary for each man, and as a result, the amount of food necessary for each country. That involved the consideration of the population, in age and sex, in a way that would establish the food needs of each country. The next problem is the making of a census of the production of food-stuffs in each country. When the delegates have assured themselves of the correctness of these figures, they will then know what is the deficit that will have to be met by importation. In this way the commission will be able to advise the allied executives as to the amount actually necessary to be imported into each country. The meeting of the commission

in London was opened by J. J. Thomson, O.M., president of the Royal Society, and the delegates present were: America—Russell H. Chittenden, professor of physiologic chemistry, Yale University, and Graham Lusk, professor of physiology, Cornell Medical School, director of Russell Sage Institute of Pathology, New York; France—Dr. E. Gley, professor at the Collège de France, member of the Academy of Medicine, and Dr. J. P. Langlois, professor of medicine, Paris, member of the Academy of Medicine; Italy—professor Bottazzi, director of the Institute of Physiology, University of Naples, and Professor Menozzi, director of the School of Medicine, Milan; Great Britain—Dr. Ernest H. Starling, F.R.S., professor of physiology, University College, London, and Mr. T. B. Wood, Fellow of Conville and Caius College, Drapers Professor of Agriculture in the University of Cambridge; Belgium—Dr. H. Rulot, inspector of health and hygiene in the Belgian Ministry of the Interior.

American Wounded at Windsor

The king has given permission for a hut hospital to be built, according to the latest design, in Windsor Great Park, near his castle, for the benefit of American wounded, who are to be brought to England for treatment. A fully equipped hospital of 500 beds is the splendid gift which the Joint War Committee of the British Red Cross Society and the Order of St. John has decided to present to the American Red Cross. The site of the new hospital has a fine view of Windsor Castle, and it is hoped that the institution will be ready early in the autumn. The gift has been accepted by Major Endicott on behalf of the American Red Cross.

The Future of the Medical Profession Under a Ministry of National Health

It is remarkable that while this country is engaged in the greatest of all wars, in its struggle on which depends not only its future but also the future of civilization, such questions as the future relation of the medical profession to the state should be calmly discussed. It shows a spirit of confidence very different from the vaingloriousness of the Germans, one which resembles that of the other great world empire of the past comparable to it in many ways. It may be remembered that when Rome was engaged in its life and death struggle with Carthage, and Hannibal was defeating her armies and overrunning her territory, the very ground under his feet was sold in Rome. At the Royal Society of Medicine the future of the medical profession under the ministry of health has been under discussion at several meetings. Sir William Osler has made a characteristic contribution to the subject and criticized the present condition of things severely. He said that the insurance, the tuberculosis, the syphilis, the maternity and the child welfare legislations have brought the state to the door of the physician; and willy-nilly, he has become in some measure a civil servant. Much of this legislation has lacked effectiveness owing to the timorous regard for the fetish of local authority. He hoped that a strong ministry of health would not be content with a guerilla warfare against such preventable diseases as tuberculosis and syphilis. With intellectual weakness in high places the profession has too often suffered the pace to be set by organized ignorance. For example, how many thousands a year does the King Edward Hospital Fund contribute to the pathologic and clinical laboratories of the London hospitals? What is the annual budget for pathologic work in each of the hospitals controlled by the Metropolitan Asylums Board? But the war has furnished the profession with a great lever in public health matters. He discussed three points. The first was the independence of the physician. A scheme with a formidable roll of inspectors, directors, administrators, secretaries and ministers had been suggested. But could a free-souled, self-reliant man exist as their executive officer? He did not see how that competition which has played such an important rôle in the life of the profession for 2,500 years was to continue with the whole population in a state service. His point was the relation of the state to research. There was an invincible prejudice against state aid which was peculiarly insular and Anglican. There were no grounds for this. Excepting Lister's work, practically all the first hand discoveries had been made by men in official harness, such as Griffith, Evans, Manson, Ross, Bruce and Leishman. The debt to the Local Government Board for its researches and preventive medicine was a hundredfold greater than to all the universities combined. His third point was the position of hospitals in the scheme. They were preparing for the change, and within a few years there should be a thoroughly working combination of the

voluntary agencies with the state. The country hospitals had already placed their services most generously for the work in tuberculosis, in syphilis, and in child welfare. But to come into a national scheme there would have to be certain radical alterations in the arrangement of the staff. In many the tuberculosis officer, the syphilis expert, the neurologists under the pension boards, the maternity physician and the infant-welfare physician had been recognized, and special departments opened. The difficulty would be with the medicine and surgery, if there were to be paid consultants attached to the hospitals. He would speak of medicine only, as nowadays we could grow surgeons anywhere. Not so the modern physician, who had to be a man of much broader gage, and was harder to cultivate. To grow a good consultant, take a physician of 30 or thereabouts, make him a half-time man with a good salary, give him from eighty to 100 beds, with control of the outpatients and a staff of paid assistants. His hours in the hospital would be from 9 to 1, and his work would consist in seeing the special patients sent from the neighboring physicians, making the ward visit, and directing the work in the clinical laboratories. The afternoon would be occupied in private consultations and in country visits at fixed rates. What a godsend such a man would be in every county.

Marriages

ASST. SURG. HORACE EVANS SPRUANCE, U. S. Navy, San Diego, Calif., stationed at North Island, to Miss Elise Johnson Whipple of Santa Ana, Calif., June 12.

CAPT. JEROME FRANK STRAUSS, M. R. C., U. S. Army, Chicago, on duty at Camp Logan, Texas, to Miss Lois Mary David of Chicago, June 7.

CAPT. WALTER SCOTT WALLACE, R. A. M. C., Newport, Wash., to Miss Louise Estelle Boggs of Lewiston, Idaho, June 22.

WILLIAM GORDON LYLE, New York City, to Miss Leontine de Sabla of San Mateo, Calif., and New York City, June 28.

LIEUT. ELMER WALFRED SEABURG, M. R. C., U. S. Army, to Miss Mabel Barbara Belsley, both of Peoria, Ill., June 5.

LIEUT. EDWARD CHASE DURGIN, M. R. C., U. S. Army, to Miss M. Violet White of Newtonville, Mass., June 10.

CAPT. WILLIAM H. SMITH, M. R. C., U. S. Army, to Miss Elsie Steer, both of Baltimore, at Philadelphia, May 14.

LOREN KENNETH MEREDITH, Des Moines, Iowa, to Miss Irene Shadbolt Hix of Ludington, Mich., June 22.

JESSE T. RAINES, Malesus, Tenn., to Miss Ruby H. Dillingham of Colorado Springs, Colo., June 19.

FREDERICK BRYTON LITTLE, Manayunk, Pa., to Miss Eleanor Derr Slingluff of Norristown, Pa., June 19.

WILLIAM FRANCIS HESLIN, JR., to Miss Marguerite Ursula Madden, both of New York City, June 29.

JOHN ROLAND BLACK, to Miss Mary D. Bussey, both of Jefferson, Iowa, at Madrid, Iowa, June 16.

WILLIAM MOORE, New York City, to Mrs. Henrietta W. Boughton, at Norwalk, Conn., June 23.

WILLIAM STUART WATSON, Ivy Rock, Pa., to Miss Lillian B. Reiff of Royersford, Pa., recently.

GEORGE KARL FENN, Chicago, to Miss Vera Eleanor Wallace of Chicago Heights, Ill., recently.

ROBERT GORDON KOGER, Norwich, Kan., to Miss Ermon Sloan of Albany, Ky., June 26.

GILBERT EMANUEL ANDERSON to Miss Margaret Gill, both of North Bend, Ore., May 31.

HENRY WILLIAM STUVER to Miss Addie Josephine Aicher, both of Denver, June 15.

WILLIAM JOHN ZOPFI to Mrs. Sarah M. Hoover, both of Findlay, Ohio, recently.

ISRAEL SHERRY to Miss Dora Josephine Lichtenstadt, both of Chicago, June 26.

GORHAM BACON to Miss Margaret Butterfield, both of New York City, June 29.

JACOB GEIGER to Miss Virginia Lowenstein, both of New York City, June 16.

WALTER O. GREEN to Winifred Green, both of Louisville, Ky., June 10.

Deaths

Lieut.-Col. Frank C. Todd, M. C., N. A., Minneapolis, Minn.; on duty at Camp Dodge, Iowa; University of Minnesota, Minneapolis, 1892; aged 48; a Fellow of the American Medical Association; elected second vice president of the Association and chairman of the section on ophthalmology



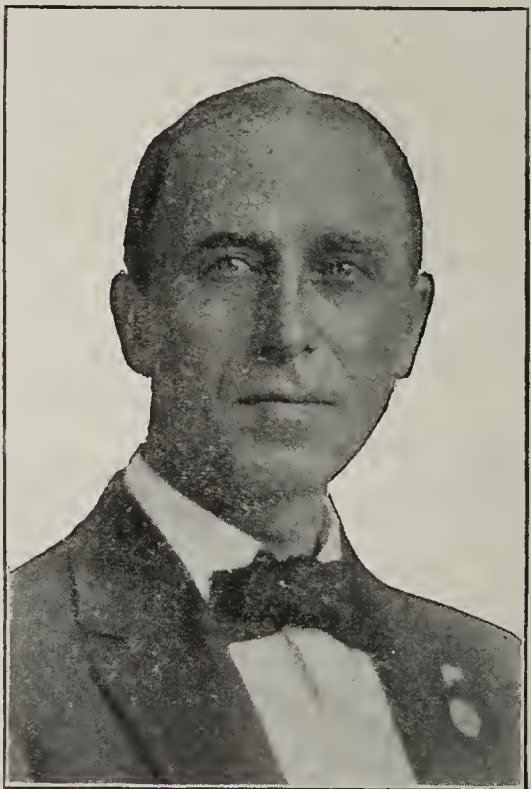
Died in the Service

LIEUT.-COL. FRANK C. TODD, M. C.,
N. A., 1870-1918

in 1913-1914; died in the Presbyterian Hospital, Chicago, July 4, from lobar pneumonia. Dr. Todd had been professor and chief of the department of diseases of the eye, ear, nose and throat in his alma mater since 1869; surgeon to the University of Minnesota, the Hill Crest Surgical, St. Barnabas, City, Northwestern, and Asbury hospitals; and Chicago, Milwaukee and St. Paul Railway Company. He was a member of the American Academy of Ophthalmology and Otolaryngology; president of the Minnesota Academy of Medicine in 1914, and the Hennepin County Medical Society in 1902. He

was also the author of several monographs on subjects connected with his specialties and one of the collaborators of the American Encyclopedia of Ophthalmology.

William Mecklenburg Polk, New York City; College of Physicians and Surgeons in the City of New York, 1869;



Died in the Service

IN FRANCE

MAJOR GEORGE E. HILGARD, M. R. C.
U. S. ARMY, 1877-1918

aged 73; a gynecologist of international repute; died in a sanatorium in Atlantic City, June 23. Dr. Polk entered the Confederate Army in 1861, and served throughout the Civil War. He began practice in New York City in 1869; was professor of therapeutics in Bellevue Hospital Medical College, from 1876 to 1879, professor of obstetrics and gynecology in the New York University from 1879 to 1898, and dean and professor of gynecology in Cornell University Medical College since 1898. He was a Fellow of the American Medical Association; president of the American Gynecological Society in 1896; president of the New York Obstetrical Society in 1884; president of the New York Academy

of Medicine from 1910 to 1914; a member of the Continental Anglo-American Medical Society of Paris, and once its vice president, and one of the founders of the International Congress of Gynecology and Obstetrics. Since 1890, Dr. Polk had devoted himself entirely to gynecologic surgery.

Lieut. Harold Sidney Morgan, M. R. C., U. S. Army, San Diego, Calif.; Johns Hopkins University, Baltimore, 1915;

aged 28; was killed in action in France, April 12. Before graduation he was assistant to Dr. Wilfred Grenfell on the hospital ship *Strathcona*, on the Labrador coast. He volunteered for war service in the autumn of 1917, and was sent to France with a reenforcement of the Presbyterian Base Hospital Unit No. 1. After a month at the base he was made medical officer of the Ninth Battalion Royal Irish Fusiliers, British Expeditionary Forces, and was on duty with this command until his death. On April 12, he was in one of the regimental aid posts at the front near Kemmel when a shell burst near, wounding him severely. While he was being carried into a dugout to receive first aid, a shell explosion buried him and the bearers.

P. A. Surg. Paul Tonnel Dessez, U. S. Navy, Washington, D. C.; University of Georgetown, Washington, D. C., 1897; aged 42; a Fellow of the American Medical Association; on duty with the United States Marine Corps in France; was killed at Chateau Thierry, about June 6. The Distinguished Service Cross was awarded posthumously to Surgeon Dessez for "organizing the service of caring for and evacuating the wounded in a most systematic and admirable manner, constantly exposing himself to the enemy, displaying extraordinary heroism, coolness and energy."

Major George Engleman Hilgard, M. R. C., U. S. Army, Belleville, Ill.; Washington University, St. Louis, 1897; aged 41; a Fellow of the American Medical Association; formerly captain and assistant surgeon, Illinois National Guard, assigned Fourth Infantry; a veteran of the Spanish-American War; who was sent to France, in the latter part of last year, and was on duty in the front lines, and as the result of a breakdown from overwork, was sent to a hospital in Paris; died there, June 25.

Charles B. Leonard, Detroit; Detroit College of Medicine and Surgery, 1904; aged 37; a member of the Michigan State Medical Society; instructor in chemistry in Detroit Medical College, and assistant to the chemist of Wayne County; who had been ill with pneumonia followed by empyema and diphtheria; died at his home, June 28, from embolism of the brain.

Marie Louise White, Chicago; Northwestern University Woman's Medical School, Chicago, 1892; aged 48; a Fellow of the American Medical Association; an instructor in the Post-Graduate Medical School of Chicago, and one of the most prominent women physicians of the city; died at her home, July 6, from heart disease.

Floyd Russell Greene, Eureka Springs, Ark.; Washington University, St. Louis, 1876; aged 66; a Fellow of the American Medical Association; for many years an officer of the Carroll County Medical Society; president of the board of health of Eureka Springs; died at his home, June 17, from chronic nephritis.

Fred Conley Rice, Ripley, N. Y.; University of Buffalo, N. Y., 1902; aged 40; a Fellow of the American Medical Association; formerly health officer of Chautauqua County; while driving in his automobile over a grade crossing at West Cortland, June 21, was struck by a trolley car and instantly killed.

Washington G. Kishler, St. Marys, Ohio; Medical College of Ohio, Cincinnati, 1846; aged 94; a member of the Mississippi Valley Medical Association; a veteran of the Mexican War; died at his home, June 11, from lobar pneumonia.

William John Moore, Syracuse, N. Y.; New York University, New York City, 1880; aged 59; health officer of Cortland, N. Y., for twenty-one years; formerly coroner of Cortland County; died in the Syracuse Memorial Hospital, June 19, from septic pneumonia.

Claude Conwell Sackett, Laurel, Neb.; State University of Iowa, Iowa City, 1898; aged 43; a Fellow of the American Medical Association; for several years a member of the school board; while fighting robbers, June 18, was shot and died from his wounds, June 19, in a hospital in Sioux City.

William H. White, Otisville, N. Y.; Johns Hopkins University, Baltimore, 1907; aged 38; physician in charge of the Women's Unit of the New York City Tuberculosis Sanatorium, Otisville; died in that institution, May 9, from pulmonary tuberculosis.

James J. Smith, New Britain, Conn.; College of Physicians and Surgeons, Baltimore, 1888; aged 55; a specialist on diseases of the eye, ear, nose and throat; died in the Hartford Hospital, May 23, from cerebral hemorrhage.

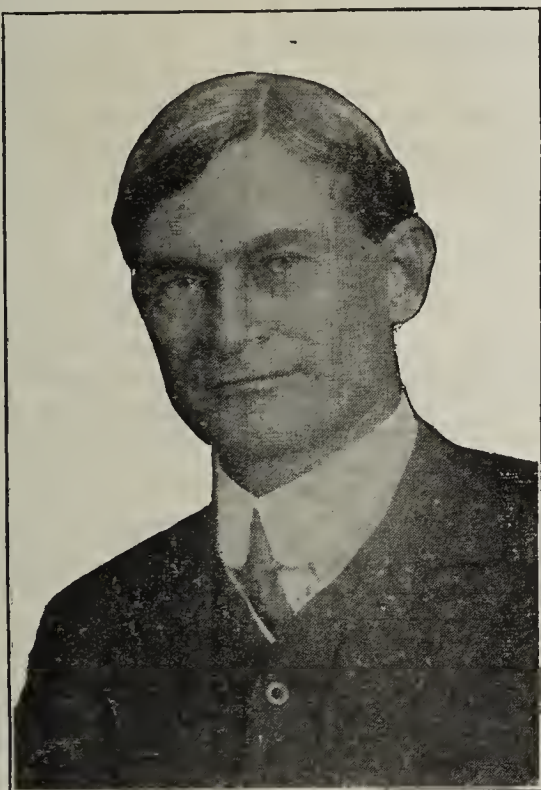
Robert McDonald Shannon, Piqua, Ohio; Starling Medical College, Columbus, Ohio, 1896; aged 49; a Fellow of the American Medical Association; surgeon to the United States Steel Corporation, Piqua; died at his home, June 23, from cerebral hemorrhage.

E. Lee Branscome, Galax, Va.; University College of Medicine, Richmond, Va., 1901; aged 53; was found dead in his office, June 22, from the effects of morphin, believed to have been self-administered, with suicidal intent.

William Seymour Petrie, Fairview, Ky.; New York University, New York City, 1879; aged 61; who recently underwent operation for disease of the stomach; died at the home of his sister in Hopkinsville, Ky., June 20.

Brady O'Neill Williams, Martins Ferry, Ohio; University of Pennsylvania, Philadelphia, 1873; aged 71; a Fellow of the American Medical Association; died at his home, June 28, from cerebral hemorrhage.

Louis S. Tucholka, Chicago; Hering Medical College, Chicago, 1901; aged 43; who was awaiting trial for manslaughter on account of an alleged illegal operation; died in the hospital of Cook County Jail, June 28.

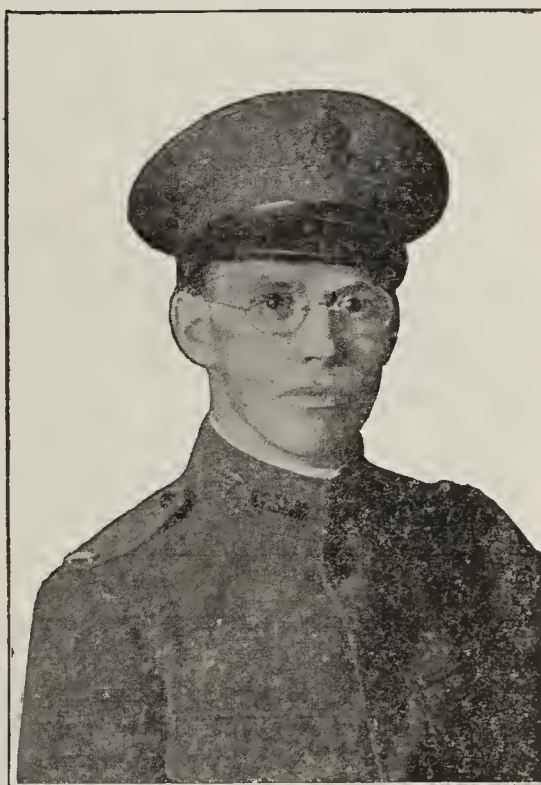


Died in the Service
AT CAMP SHERIDAN
MAJOR WOODS WALKER LYNCH,
M. R. C., U. S. ARMY,
1873-1918

(See The Journal, June 29, p. 2046)



Died in the Service
IN FRANCE
LIEUT. HAROLD S. MORGAN, M. R. C.,
U. S. ARMY, 1890-1918



Died in the Service
AT FORT OGLETHORPE, GA.
LIEUT. WILLIAM E. EMERY, M. R. C.,
U. S. ARMY, 1890-1918

(See The Journal, last week, p. 57)

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

SILVOL INELIGIBLE FOR N. N. R.

Report of the Council on Pharmacy and Chemistry

The following report on Silvol (Parke, Davis & Company) was adopted by the Council and its publication authorized.

W. A. PUCKNER, Secretary.

The Council took up the consideration of Silvol (Parke, Davis & Company) because of inquiries received. The fol-

The manufacturers did not reply to an inquiry with regard to the basis for the claims made for Silvol (see Appendix). The referee was therefore obliged to deduce these claims from the firm's advertising matter. About the same claims are made for the local use of Silvol as are generally made for Argyrol. These may be accepted without detailed evidence in view of the similarity of the two preparations.

Its usefulness, as suggested in the advertising, when given by mouth "in the treatment of acute or chronic gastritis, gastric ulcer, or gastro-enteritis," or the efficacy of very dilute solutions (0.2 per cent.) against dysentery, etc., is doubtful and requires substantiation by evidence. The claims that Silvol is astringent, though nonirritant and noncoagulant, that it is a "powerful germicide" or even that it is a "powerful antiseptic," and that it may be used with advantage wherever "a silver salt is indicated," need substantiation. There is no proof of the assertions that Silvol is "the most efficacious of silver salts"; "the most efficient silver antiseptic," and "the most remarkable organic silver compound. . . ."

As the manufacturers have not presented any evidence for their highly improbable claims, and as they have not signified any intention of making their claims agree with substantiated facts, it is recommended that Silvol be declared inadmissible to New and Nonofficial Remedies.

The Council adopted the report of its referee and authorized its publication.

APPENDIX

The following letter from the Secretary of the Council was sent to Parke, Davis & Company, March 20, 1917. No reply to it has been received:

The referee of the Council who is conducting an investigation of silver preparations asked me to inquire if you are willing to submit your evidence for the following claims which are made in your circulars for Silvol:

1. How it is possible for the solution to be astringent, and at the same time nonirritant and noncoagulant?

2. That intestinal irrigation with a Silvol solution containing 10 to 15 grains to the pint is sufficiently bactericidal to "be used in the abortive treatment of such infectious processes as dysentery, cholera infantum, and colitis."

3. What evidence have you as to the degree of antiseptic and germicidal power of Silvol solutions?

4. What evidence have you as to the degree of antiseptic and germicidal power of 5 per cent. Silvol Ointment?

A reply to the above questions and any other information in regard to Silvol will receive careful consideration.

MORE TESTIMONY FROM THE TOMBS!

Kankakee Daily Republican

Associated Press Daily Service

KANKAKEE, ILLINOIS, FRIDAY, JUNE 14, 1918

PROFIT BY THIS

Don't Waste Another Day

When you are worried by back-ache; By lameness and urinary disorders—

Don't experiment with an untried medicine

Follow Kankakee people's example.

Use Doan's Kidney Pills. Here's Kankakee testimony. You wish.

H. G. Ford, 157 W. Chestnut st., Kankakee, says "I believe heavy lifting weakened my kidneys and caused my back to ache. When I stooped over to lift anything, sharp pains took me in the small of my back and nearly doubled me up. Mornings my back hurt me worse than any other time. My kidneys acted irregularly, the secretions were highly colored and hard to pass. I had severe pains in the back of my head, too. Many times I saw stars when I got up quickly. I bought two boxes of Doan's Kidney Pills at Betourne's Drug Store, and they greatly benefited me and put my kidneys in order."

60c at all dealers. Foster-Milburn Co. Mfrs., Buffalo, N. Y.

1. PLACE OF DEATH		STATE OF ILLINOIS	
County: Kankakee	Registration No. 457	State Board of Health	Bureau of Vital Statistics
2. FULL NAME: <u>Harold Greasley Ford</u>		STANDARD	
PERSONAL AND STATISTICAL PARTICULARS		MEDICAL CERTIFICATE OF DEATH	
3. SEX: male	4. COLOR OR RACE: white	5. MARRIAGE: married	16. DATE OF DEATH: March 19, 1918
6. DATE OF BIRTH: January 5, 1872	7. AGE: 46 yrs. 2 mo. 14 da.	17. I HEREBY CERTIFY, That I attended deceased from Nov. 1, 1917, to March 19, 1918, and that death occurred, on the date stated above, at 10 AM.	18. CAUSE OF DEATH: Pulmonary Tuberculosis
8. OCCUPATION: (a) Trade, profession, or particular kind of work: Painter	9. BIRTHPLACE (State or country): Indiana	19. PLACE OF BIRTH: Ambrose Ford	
10. NAME OF FATHER: Ambrose Ford	11. BIRTHPLACE OF FATHER (State or country): Not known	12. MOTHER'S NAME (State or country): Sarah Johnson	
13. BIRTHPLACE OF MOTHER (State or country): not known	14. THE ABOVE IS TRUE TO THE BEST OF MY KNOWLEDGE		
15. (Refer to) Mrs. H. G. Ford, 157 W. Chestnut Ave., Kankakee, Illinois.			
16. MARCH 21, 1918, H. G. A. Sylvester, Registrar		17. H. P. Rehr, Undertaker	

Mr. Ford's testimonial for Doan's Kidney Pills appeared in a Kankakee paper, June 14, 1918—nearly three months after he was dead and buried! "Follow Kankakee people's example. Use Doan's Kidney Pills," says the advertisement.

lowing report was submitted by the referee in charge of silver preparations:

Silvol (Parke, Davis & Company) is a silver-protein preparation of the Argyrol type. Like Argyrol, it is said to contain about 20 per cent. of silver. The referee finds that, like Argyrol, it is nonirritant to the nasal mucosa in a 10 per cent. solution; does not precipitate with chlorid; dissolves in water readily; a 25 per cent. solution has a high specific gravity (Silvol, 1.137 at 20 C.; Argyrol, 1.147 at 20 C.), and is not very viscid (viscosity, 1.25). A 1:1,000 solution of Silvol is clear and about 50 per cent. deeper in color than a solution of Argyrol of the same strength.

Silvol differs from Argyrol mainly in that its solutions yield a fine precipitate with egg albumin (under suitable conditions), while Argyrol is nonprecipitant; and in that Silvol solutions are not so effectively decolorized by Lloyd's reagent.

Report on Sickness Prevention.—The National Industrial Conference Board, in Research Report No. 6, May, 1918, discusses the problem of sickness insurance and sickness prevention, quoting the figures of rejections for physical unfitness in connection with the draft as given out by U. S. Provost Marshal-General Crowder. The report also gives figures and facts brought out in various reports and investigations of industrial accident and injury and preventable illness, most of which have already been reviewed in THE JOURNAL. In connection with sickness insurance, the experience of various European countries, and of new Zealand and Australia is set forth, and recommendations are made with reference to the solution of the problem without giving the details of any definite plan. The report is a brief but valuable contribution to this timely subject, and may be obtained from the office of the board, 15 Beacon Street, Boston.

Correspondence

HOUSE ORGAN THERAPEUTICS

To the Editor:—My mail is frequently cluttered with pseudo-scientific data from various manufacturers of proprietary remedies which contain as much real scientific information as the *Police Gazette*. I am enclosing a sample page of such a periodical. The article has been so cleverly worded in the first paragraph, as to impress the unthinking with the idea that sodium cacodylate is superior to arsphenamin, when we know in reality that sodium cacodylate has been proved practically worthless in syphilis (*vide* "Venarsen"). One case is reported, in which twenty injections of sodium cacodylate were administered intravenously, from October 23 to December 14. On December 18, a Wassermann test proved negative, it had been strongly positive on October 20, but during the same interval from October 23 to December 14, the patient had been taking by mouth "Ricord pills" each containing half a grain of yellow iodid of mercury; granted that he had taken these pills regularly, during all that time, it might well be that the Wassermann would be sharply influenced by them. Again, a negative Wassermann in the midst of treatment proves little; it might be positive again in a few days. The article stimulates the further use of a product of known worthlessness in the treatment of syphilis. How any one can use sodium cacodylate in preference to arsphenamin in syphilis is beyond me. If I mistake not, the Propaganda Department has not taken up the matter of these various pamphlets of the drug companies, such as the *Doctor's Factotum*, *Therapeutic Notes*, etc., lauding to the skies such articles as "Seng," "Cactina Pillets," etc., *ad nauseam*. The saddest part of the whole thing is that it must bring returns from the unthinking, otherwise they would soon disappear, which would be a great relief for the scrub-women who empty our waste baskets.

PAUL E. BECHET, M.D., New York.

[COMMENT.—The "sample page" sent by Dr. Bechet is from the March-April, 1918, number of P. D. & Co.'s *Therapeutic Notes*. It contains an "Original Communication" on "The Treatment of Syphilis with Sodium Cacodylate, by Adolph Lappner, M.D., Detroit, Mich." The "article" while nominally devoted to the praise of sodium cacodylate is virtually a puff for "Ricord Pills," a Parke, Davis & Co. product.]

THE CORRECT SHOWER BATH

To the Editor:—During recent visits to several camps and forts of the United States Army, I was surprised to discover that all showers were arranged perpendicularly, and that they were so built in accordance with the Quartermaster's Manual, second volume, page 351, despite the fact that the public bathhouses of this country have since their initiation in 1890 proved the absolute superiority of the oblique shower head (at an angle of 45 degrees).

There is no doubt in the minds of those who have given this subject any thought that while the vertical shower may serve equally well for cleansing, it fails in the equally if not more important object of the shower, to furnish the refreshment and invigoration produced by the forcible impact of water on the skin nerves, vessels and muscular structures. Since the latter depends on the force or pressure under which the water is delivered, it is obvious that this beneficent action is precluded because of the fact that no matter how strong the pressure the water falls with force only on the hairy scalps, from which it trickles on the body. The oblique shower, on the contrary, strikes the back, chest or sides, avoiding the head unless the head is intentionally exposed for cleansing.

The great enhancement of efficiency among our industrial workers and our soldiers derivable from the correctly constructed shower cannot at this time be too much emphasized or too quickly brought to the attention of the authorities.

That the antiquated shower head is still in use in the Army and other recently constructed public bath establishments is evidence not only of the force of habit but unfortunately also of the fact that the rationale of the action of water in health and disease is still a *terra incognita* among otherwise well informed men.

There is something more, indeed much more, in the shower bath than its cleansing in a sanitary way, just as there is something more in the cold bath in typhoid fever than temperature reduction (which happily is being recognized of late). That there is something far more important in thermic fever than reduction of abnormally high temperature has been painfully demonstrated by the largest statistics of an epidemic (648 cases) which I endeavored to utilize as a lesson (Principles and Practice of Hydrotherapy, William Wood & Co.) in 1898. And yet the fifteenth edition of the most popular American textbook on practice still teaches the heresy that reduction of temperature by the cold bath is the best treatment of thermic fever (although the German translation of the eighth edition has a footnote exposing this fallacy), and nearly every textbook on practice teaches the same fallacious and fatal treatment. It may be mentioned, incidentally, that the cold shower or affusion reduced the mortality from this disease from 38 to 6 per cent.

It is gratifying to state that the Surgeon-General of the United States Army, and its Quartermaster-General and the head of the Bureau of Industrial Housing, have taken cognizance of my appeal to them for correction of this physiologically incorrect construction of the shower.

SIMON BARUCH, M.D., New York.

"SODIUM VERSUS POTASSIUM"

To the Editor:—Your editorial in the issue of June 1 on "Sodium Versus Potassium" is both illuminating and suggestive, and illustrates the point that our boche friends have been working the American public in a manner that is shameful in this matter of the potassium salts. As you say, we are creatures of habit, and their clever propagandists have taken advantage of this to persuade us that the K salts are superior to those of the Na group, whereas, quite the contrary, the latter group is every bit as effective and less depressing. In order to obviate this fallacy I would suggest that you keep standing on your editorial page some such brief text as the following:

American doctors should

HELP WIN THE WAR

by prescribing sodium salts for the States and let the Prussians prescribe potassium salts for Potsdam! Sodium is produced in America, is less depressing than potassium, is quite as effective, and is 50 per cent. cheaper!

You no doubt could influence other medical journals and also the chemical and pharmaceutical publications to follow your example and thus help materially in putting the Hun out of business.

WILLIAM D. BYRNE, M.D., Chicago.

ADVANTAGES GAINED BY SERVICE IN MEDICAL RESERVE CORPS

To the Editor:—Are there many of our young physicians hesitating about entering the service? The recent letter appearing in the medical press from the office of the Surgeon-General asking for more medical men has, I believe, met a generous response. However, having spent a week here as the guest of the surgical staff of the base hospital, I have been impressed with the advantages there are for those who enter the service. No postgraduate course can equal it. No clinic is as complete in system and organization. It is the realization of any physician's fondest hopes. It is going to give America a splendidly improved medical profession. It teaches a system of efficiency that will be an asset after returning to civil practice. It is surely worth the while.

J. CHRISTOPHER O'DAY, M.D., Camp Lewis, Wash.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PERMANENCE OF MEDICAL RESERVE CORPS, AND DETAILS OF ADMISSION

To the Editor:—1. Will the Medical Reserve Corps be disbanded entirely at the close of the war? If not, will the commissioned officers be given the opportunity of remaining in the service if they so desire?

2. Is it permissible for a commissioned officer of the United States Public Health Service to apply for a commission in the Medical Reserve Corps, or for examination for the Medical Corps of the Regular Army, without first obtaining permission to do so from the Surgeon-General of the Public Health Service?

3. Does the age limit for entrance to the Medical Corps (32 years) mean that an officer must be examined and be commissioned before he reaches his thirty-second birthday?

4. How long a time would probably elapse between the time of application for permission to take the examination for the Medical Corps of the Army and, in the event of success in the examination, the time of commission? How long between the date of application for commission in the Medical Reserve Corps and the date of assignment to active service?

5. If an officer makes known his preference for any branch of medical work or for foreign service, has he any assurance that this preference will be given consideration?

6. Does the recent act permitting commissioned officers of the Army to buy supplies from the Quartermaster's Department apply to officers of the United States Public Health Service? Please omit my name.

S. S. C., South Carolina.

ANSWER.—1. The Medical Reserve Corps is a permanent organization. Physicians enlist for a term of five years, and at the end of that period can be recommissioned if they desire.

2. A commissioned officer of the United States Public Health Service should apply for permission to the Surgeon-General of that service before undertaking to secure a commission in another service of the government.

3. Presumably, yes; but probably the application would be favorably considered if the candidate was otherwise qualified.

4. Following the preliminary examination, applicants who are successful are appointed to the Reserve Corps with the rank of first lieutenant and ordered to active duty at the Army Medical School, Washington, D. C., for instruction as candidates for admission to the Medical Corps of the Army. The applicant is required to make an agreement to accept a commission in the Medical Corps, if found qualified in the final examination, for at least five years thereafter unless sooner discharged. Candidates under consideration receive the pay allowances of first lieutenants. A final or qualifying examination of the graduates is held by the Army Medical Board immediately after the close of the term of the Army Medical School. It covers the candidate's physical qualities, clinical skill and general aptitude for the service. If successful, he is at once given a commission in the Medical Corps.

5. After the acceptance of his commission in the Medical Reserve Corps, the officer will receive from the Office of the Surgeon-General a questionnaire on which he will be permitted to state his preference and aptitude for various branches of medical service and his special training in these branches. An endeavor will then be made to assign him to the work for which he is especially fitted.

PUBLICATIONS ON PSYCHIATRY, NEUROLOGY, CRIMINOLOGY AND PSYCHOLOGY

To the Editor:—I should be greatly pleased if you would furnish me with a list of the leading journals on the subjects of psychiatry, neurology, criminology and psychology; also a list of new books on these subjects.

R. M. C., Kansas.

ANSWER.—We give below a list of journals and books on these subjects:

- American Journal of Insanity*, quarterly, Johns Hopkins Press, Baltimore, \$5.
- American Journal of Psychology*, quarterly, G. Stanley Hall, editor, Worcester, Mass.
- Brain*, the Macmillan Company, St. Martin's St., London, W. C., 16 shillings.
- Journal of Abnormal Psychology*, bimonthly, R. G. Badger, 194 Boylston St., Boston, \$4.
- Journal of the American Institute of Criminal Law and Criminology*, bimonthly, Northwestern University Press, 31 W. Lake St., Chicago, \$3.
- Journal of Nervous and Mental Diseases* monthly, 64 West 56th St., New York, \$8.

Mental Hygiene, quarterly, National Committee of Mental Hygiene, 50 Union Square, New York, \$2.

Psychological Bulletin, monthly, Psychological Review Company, Worcester, Mass.

Review of Neurology and Psychiatry, monthly, 20 S. Frederick St., Edinburgh, 25 shillings.

Adler, A.: Study of Organ Superiority and Its Psychical Compensation, Nervous and Mental Disease Publishing Company, 64 West 56th St., New York, \$1.50.

Adler, A.: The Neurotic Constitution, Moffat, Yard & Co., 116 West 32d St., New York, \$3.

Bronner, A. F.: The Psychology of Special Abilities and Disabilities, Little, Brown & Co., Boston, \$1.75.

Estabrook, A. H.: Jukes in 1915, Carnegie Institution, Washington, D. C., \$2.50.

Healy, W.: Mental Conflicts and Misconduct, Little, Brown & Co., 34 Beacon St., Boston, \$2.50.

Healy W., and Healy, Mary T.: Pathological Lying, Accusation and Swindling, Little, Brown & Co., Boston, \$2.50.

Healy, W.: The Individual Delinquent, Little, Brown & Co., Boston, \$5.

White, W. A.: Mechanism of Character Formation; An Introduction to Psychoanalysis, the Macmillan Company, 66 Fifth Ave., New York, \$1.75.

THE "ITALIAN CONSUMPTION CURE"

To the Editor:—Will you please let me know through THE JOURNAL where I can find a scientific account of the enclosed "Consumption Cure Found by Italian"?

LOUIS SHALET, M.D., West New York, N. J.

ANSWER.—The matter enclosed with Dr. Shalet's letter was a clipping from the New York Times of June 30, 1918, purporting to give an account of a new alleged cure for pulmonary tuberculosis said to have been "discovered" by Prof. Domenico Lo Monaco of Rome. The article, in its essentials, was similar to numerous other articles that have appeared in the daily press during the past few weeks. According to the newspaper reports the treatment consists of the subcutaneous injection of sugar—the particular form of sugar not being specified. Although THE JOURNAL regularly receives a large number of Italian medical journals, as well as medical journals from other European countries, no reference has been found in these scientific publications to this latest "discovery."

THE CHANCES FOR PHYSICIANS OF MIDDLE AGE BEING SENT ABROAD

To the Editor:—I have been informed by the examiner for the Medical Reserve Corps in Denver that at my age, 43, there is no chance for me to get into foreign service if I offer my services to the government. Kindly inform me whether this is true, and send me all the data possible in the matter, as I wish to offer my services, but want some chance for foreign service.

D. O. N., Colorado.

ANSWER.—It is not strictly accurate to state that a man 43 years of age will not be sent abroad, since a number of physicians beyond this age are already abroad, and others are no doubt being sent quite frequently. In general, it appears to have been the policy to send younger men, and those not so well qualified physically for the work have been utilized in this country. However, no absolute rule of age discrimination exists, so far as we know.

BASS AND HALL METHOD FOR DETECTING EGGS OF NECATOR AMERICANUS

To the Editor:—Please give briefly the Bass method of concentrating the eggs of the *Necator americanus* by specific gravity. Please omit my name.

H. A. G.

ANSWER.—The method for detecting the eggs, described by Bass and Hall, is to mix the feces thoroughly with ten times the volume of water, filter through gauze, centrifugalize the filtrate, wash the sediment, and centrifugalize. This is repeated twice. To the sediment is added calcium chlorid solution having a specific gravity of 1.250; the eggs will float to the surface. The surface fluid is poured off and diluted with water until the specific gravity is 1.050. After centrifugalization, the sediment, which will contain practically all the eggs in the stool, is examined.

WORTHLESSNESS OF NONVIRULENT TUBERCULOSIS VACCINE IN TREATMENT OF TUBERCULOSIS

To the Editor:—What are the views of the best physicians in regard to the treatment of tuberculosis with nonvirulent tuberculosis vaccine?

ROBERT L. KENNEDY, M.D., Bascom, Fla.

ANSWER.—There is no question that all who are competent to judge agree in holding this vaccine as absolutely worthless and, indirectly at least, harmful.

Medical Education and State Boards of Registration

REPORT OF THE FIFTH EXAMINATION
NATIONAL BOARD OF MEDICAL
EXAMINERS

Fort Riley, Kan., and Fort Oglethorpe, Ga., April 8-25, 1918

The fifth examination of the National Board of Medical Examiners was held in the Medical Officers' Training Camps at Fort Oglethorpe, Ga., and Fort Riley, Kan., April 8-25. The written examinations were held simultaneously in the two places. The laboratory and clinical examinations immediately followed the written examination at the former camp, while at Fort Riley this part of the examination was held from the 19th to the 25th of April. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; chemistry, 75; pathology, 75; bacteriology, 50; materia medica, pharmacology and therapeutics, 75; medicine 200; surgery, 200; obstetrics and gynecology, 75; hygiene and sanitation, 50, and medical jurisprudence, 25. A percentage of 75 was required to pass. Falling below 65 per cent. in two subjects, or below 50 in one subject, constituted failure.

There were fifty-three applicants who applied for examination. Twenty-three were found to have the essential preliminary and medical qualifications, and of these eighteen passed and five failed. The following colleges were represented:

PASSED		
Names	Colleges	Year of Graduation
Clarence Van Epps.....	Univ. of Iowa, and Univ. of Penna	1897 & 1898
Burton Argyle Baird....	Univ. of Iowa	1915
John Poag Tucker.....	Western Reserve Medical School.....	1916
Spencer Draper Whiting..	Boston Univ. School of Medicine.....	1905
Herman Alfred Heise....	Rush Medical College.....	1917
Wm. Nance Anderson..	Univ. of Nebraska College of Medicine..	1910
Chas. W. Rauscherbach..	University of Maryland	1912
William Cromwell Ely..	University of Pennsylvania	1916
Whitman King Coffin...	Harvard Medical School	1912
Reuben M. Hargrove....	Univ. of Texas Medical School.....	1912
Paul Brandt Roen.....	Univ. of California Medical School....	1914
Chas. John Harbeck....	Columbia Univ. Coll. of Phys. and Surgs.	1905
John Shaffer Simms....	Rush Medical College	1911
Clarence Henry Hyman..	Harvard Medical School	1916
Albert Warner Dewey...	Medical School Univ. of Colorado.....	1917
Pio Blanco	Johns Hopkins Medical School	1916
Walter H. Halloran	University of Minnesota Med. School...	1915
Harry Leroy Smith.....	State University of Iowa Medical School..	1916
FAILED		
Colleges		Year
Northwestern University		1907
Jefferson Medical College		1907
Indiana University Medical School		1913
University of Minnesota Medical School.....		1913
Rush Medical College		1916

AVERAGES OBTAINED

Card Number	Anatomy; Value, 100	Chemistry; Value, 75	Mat. Med., Phar. and Ther.; Value, 75	Obstetrics; Value, 75	Hygiene; Value, 50	Medicine; Value, 200	Surgery; Value, 200	Pathology; Value, 75	Bacteriology; Value, 50	Physiology; Value, 75	Medical Jurisprudence; Value, 25	Final Average
2	80	85	79	76	81	78	83	77	60	93	56	80.0
3	91	90	87	76	60	90	86	74	82	81	70	83.6
4	89	90	81	80	82	80	86	77	94	94	89	84.9
5	90	75	86	81	82	85	85	81	78	70	66	82.1
6	84	75	82	77	85	89	83	75	58	86	70	81.3
8	83	90	92	76	57	87	92	83	76	94	72	85.6
9	81	80	91	75	74	85	90	87	68	84	72	83.1
14	68	42	84	76	67	84	71	73	54	67	76	71.3
3	77	64	87	75	50	81	83	83	78	77	84	78.2
5	90	85	88	71	85	90	91	96	74	85	96	87.5
12	75	90	85	76	79	90	92	80	68	87	80	84.4
13	52	36	70	60	68	78	72	81	54	77	72	67.5
14	68	42	84	76	67	84	71	72	54	67	76	71.3
15	55	50	78	73	62	80	78	69	66	74	72	71.8
20	42	60	77	75	69	80	74	80	76	77	80	72.0
23	78	65	86	77	66	79	72	83	72	82	80	76.4
35	67	60	78	76	35	89	76	42	56	75	80	71.1
41	89	80	86	77	84	87	85	89	74	80	80	84.0
43	83	70	93	80	78	88	78	79	82	81	88	81.9
49	70	76	84	85	70	89	81	81	74	83	76	80.7
50	67	85	86	51	68	86	85	68	79	76		78.4
53	86	80	93	80	77	92	89	90	90	92	88	88.1
55	65	75	80	91	78	73	81	58	72	75	84	85.5
Gen. aver. by subjects	75.8	73.2	84.1	75.6	70.6	84.9	81.5	78.6	73.5	81.4	77.3	

General average of candidates is based on subject values as rated by the board.

EXAMINATIONS AND TIME ALLOWED

Subject	Kind of Examination	
	Written	Other, and Remarks
Anatomy.....	3 hours	Oral with prepared Spec. 20 min. for each candidate
Chemistry.....	3 hours	Two hours laboratory in physiologic chemistry
Physiology.....	3 hours	Laboratory 2 hours
Pathology.....	3 hours	Laboratory exam., 20 min. each cand.
Bacteriology.....	2 hours	Laboratory 2 hours
Materia medica, pharmacology and therapeutics.....	3 hours	Laboratory 2 hours
Medicine.....	3 hours	Clinical lab., 1 hour each cand.; clinical med., 3 hours
Surgery.....	3 hours	Lab. op. surg. and applied anatomy, 3 hours; clin. exam., 3 hours
Eye, ear, nose and throat.....		Clinical exam., 30 min. each candidate
Dermatology.....		Clinical exam., 30 min. each candidate
Obstetrics and gynecology.....	3 hours	
Hygiene.....	2 hours	
Medical jurisprudence.	2 hours	

New York January Examination

Mr. George M. Wiley, director, Examinations and Inspections Division, New York Department of Education, reports the written examination held at Albany, Buffalo, New York and Syracuse, in January, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 103 candidates examined, 60 passed and 43 failed. The following colleges were represented:

College	PASSED	Year Grad.	No. Examined
Rush Medical College	(1917)		1
Tulane University	(1913)		1
Johns Hopkins University	(1904) (1916) (1917)		3
Tufts College Medical School	(1915) (1916)		2
University of Michigan Homeo. Med. School.....	(1917)		1
Albany Medical College	(1915) (1916) (1917)		3
Columbia University	(1916, 2) (1917, 4)		6
Cornell University	(1915) (1916)		2
Fordham University	(1913) (1915) (1916) (1917, 3)		6
Long Island College Hospital	(1917, 3) (1918, 2)		5
N. Y. Homeo. Med. Coll. and Flower Hosp. (1916, 4) (1917)			5
New York Med. Coll. and Hosp. for Women.....	(1916)		1
Univ. and Bellevue Hosp. Med. Coll. (1915) (1916) (1917, 2)			4
University of Buffalo	(1917)		6
University of the City of New York.....	(1890)		1
University of Oklahoma	(1916)		1
Jefferson Medical College.....	(1904, 2) (1917)		3
Medico-Chirurgical College of Philadelphia ..	(1908) (1916)		2
University of Pennsylvania	(1906) (1916)		2
University of Vermont	(1917)		1
Medical College of Virginia	(1911)		1
Queen's University	(1917)		1
McGill University	(1914)		1
University of Bonn.....	(1890)		1

FAILED			
Atlanta Medical College	(1914) (1917)		2
Chicago Homeo. Medical College.....	(1896)		1
Johns Hopkins University	(1917)		1
Boston University	(1912)		1
Harvard University	(1914) (1915)		2
Tufts College Medical School	(1902) (1917) (1913)		3
University of Michigan Homco. Med. School.....	(1914)		1
Albany Medical College	(1917)		2
Columbia University	(1915) (1916)		2
Fordham University	(1913) (1916, 4) (1917)		6
N. Y. Homeo. Med. Coll. and Flower Hosp	(1913) (1915) (1916, 3) (1917, 3)		8
New York Med. Coll. and Hosp. for Women.....	(1917)		1
University and Bellevue Hosp. Med. Coll.....	(1917)		1
University of Buffalo	(1917)		3
Eclectic Medical College	(1916)		1
Medical College of Virginia	(1915)		2
Queen's University	(1914) (1916)		2
McGill University	(1900) (1915)		2
Royal University of Naples	(1908)		1
University of Bologna	(1912)		1

Mr. George M. Wiley also reports that 4 candidates were licensed through reciprocity and 1 candidate was granted a reregistration license, from Feb. 27 to April 15, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
New York Homeo. Med. Coll. and Flower Hosp.....	(1915)		Delaware
Jefferson Medical College.....	(1912)		New Jersey
Vanderbilt University	(1916)		Virginia
University of Virginia.....	(1916)		Virginia

Book Notices

DER HISTOLOGISCHE BAU DER VOGELSCHNECKE UND IHRE SCHÄDIGUNG DURCH AKUSTISCHE REIZE UND DURCH DETONATION. Von Dr. Nobuo Satoh. Arbeit aus dem Laboratorium der physiologischen Anstalt (Prof. Metzner) und der oto-laryngologischen Klinik (Prof. Siebenmann) der Universität Basel. Boards. Pp. 48, with 61 illustrations. Basel: Benno Schwabe & Co., 1917.

A glance at the contents of this book shows its great importance to different branches of medical science. The first part deals with the normal histologic condition of the labyrinth of birds, fixated *intra vitam*. In an introduction the technic of the fixation of the labyrinth of birds in the living is given, its decalcification, embedding, cutting and staining. This is followed by a description of the microscopic structure of the labyrinth of birds. The second part, on the experimental investigation of the injuries of the bird's organ of hearing by means of acoustic overirritation, is at present of special interest when the questions of shell shock are discussed from every angle. The experiments are carefully described, the microscopic findings given and shown in drawings, and the conclusions drawn free from all speculation. Twelve plates with fifty-five colored illustrations of unusually careful artistic execution help clarify a difficult subject. This is a completely rounded out continuation of similar investigations on mammals from the same laboratories of Siebenmann by Nager, Yoshii and Nakamura. It solves a number of questions which were left open or even seemed insoluble. The short, clear diction and the drawings repay fully for the time devoted to a careful study. Questions of priority are not discussed, and mistakes of others are not criticized but avoided. For example, in spite of the earliest possible fixation, changes of the sensory epithelium were observed less than one hour after death. It is remarkable that Switzerland at the present juncture finds time and money for scientific work which requires the cooperation of professors, technician, artist and publisher.

PRINCIPLES OF SURGICAL NURSING. A Guide to Modern Surgical Technique. By Frederick C. Warnshius, M.D., F.A.C.S., Chief Surgeon, Pere Marquette Railway. Cloth. Price, \$2.50 net. Pp. 277, with 255 illustrations. Philadelphia: W. B. Saunders Company, 1918.

The author has attempted to impart briefly the essential, basic principles of surgical nursing, relying largely on illustrations to aid the concise statements in the text. The work is divided into nineteen chapters, beginning with the preparation of a room and its equipment in a private house, taking up the preparation of the patient, the duties of the nurse before, during and after operation, anesthesia, the preparation of materials, the surgeon's kit, catheterization, the operation for appendicitis, and various hospital methods. The book throughout is rational and follows generally accepted procedure. An excellent table appears on page 135, giving common postoperative complications and their usual sequence. This should be of great service to the nurse in putting her on guard against these conditions. There are in all 255 illustrations, which are distributed over 267 pages, a veritable motion picture method of instruction, and one which is intensely practical. The chapter on hospital methods is composed almost entirely of illustrations, and should be most convenient in teaching the nurse these necessary procedures.

MEMORANDA ON ARMY GENERAL HOSPITAL ADMINISTRATION. By Various Authors. Edited by P. Mitchell, M.D., Lieutenant-Colonel, R. A. M. C. (T. F.), Officer Commanding No. 43 General Hospital. Cloth. Price, 5 shillings, net. Pp. 109, with illustrations. London: Paillière, Tindall and Cox, 1917.

"The primary object of the Army hospitals," says the author, "is to get the disabled, physically and mentally, fit to fight again." Obviously, therefore, the administration of Army general hospitals is a most important factor in winning the war. It has apparently been the policy of our own Medical Department to place regular medical officers in the medical administrative positions, and to leave the scientific and clinical medical work to the large body of physicians drawn from civilian life. Unfortunately, however, there were less than 500 regular medical officers available at the begin-

ning of the war, a number far from sufficient for the administrative work. It was necessary, therefore, to train civilian physicians in Army administrative methods, and this work is now being done both in special training camps and by placing these physicians in the work so that they may learn from their errors the correct methods. Mitchell's book is not based on American Army methods, but is a description of the English system of organization. The problems of an English general hospital are much the same as those of an American organization. The book, therefore, will be of value to American officers as a reference work; it is not, however, to be studied, since the forms, the apparatus and the equipment referred to are not directly applicable to the problems of the American officer.

AMERICAN ENCYCLOPEDIA AND DICTIONARY OF OPHTHALMOLOGY. Edited by Casey A. Wood, M.D., C.M., D.C.L., Professor of Ophthalmology, College of Medicine, University of Illinois. Volume XII—Ophthalmology, Legal Relations of, to Phonopticon, Crystal. Cloth. Price, \$8. Chicago: Cleveland Press, 1918.

Among the important articles in this volume of the encyclopedia are those on the literature of ophthalmology, in which a consecutive account of the development of ophthalmologic works, journals, etc., from early history to the present, is given; the ophthalmoscope and ophthalmoscopy, an extensive article, quite thoroughly covering the field; the orbit, its diseases and injuries, and operations on the orbit; ocular parasites, an extensive article, reminding the ophthalmologist of the comparative frequency and great variety of parasites invading the eye; Parinaud's conjunctivitis; a historical article on Paul of Aegina, with an enumeration of the eye subjects that he described, and comments on them; the perimeter and perimetry, an extended article with an extensive bibliography on an important subject; and a brief but good article on the optic nerve, its diseases, degenerations, injuries, etc., all of which are up to the well maintained standard of the previous volumes.

A MANUAL OF CLINICAL DIAGNOSIS BY MEANS OF LABORATORY METHODS FOR STUDENTS, HOSPITAL PHYSICIANS AND PRACTITIONERS. By Charles E. Simon, B.A., M.D., Professor of Clinical Pathology and Physiological Chemistry in the University of Maryland Medical School. Ninth edition. Cloth. Price, \$6. Pp. 851, with 235 illustrations. Philadelphia: Lea & Febiger, 1918.

The ninth edition of this time-tried text has brought it up to date. Numerous colored illustrations have been added which should be of great value to the student in correlating his textbook with his laboratory exercises.

Medicolegal

Osteopath Not a Physician and Surgeon

(*Ex parte Rust (Calif.)*, 169 Pac. R. 1050)

The District Court of Appeal of California, First District, says that the return of the sheriff to the writ of habeas corpus applied for in this case showed that the petitioner was held on a commitment of the police court of the city and county of San Francisco for violating the law regulating the practice of optometry. In support of his demand that he be discharged from custody he contended that by virtue of his being the holder of a certificate entitling him to practice osteopathy, he was by the terms of the act itself regulating the practice of optometry excepted from its prohibitory provisions. The exception referred to was contained in Section 10 of said act, and is: "The provisions of this act shall not be construed to prevent duly licensed physicians and surgeons from treating or fitting glasses to the human eye." The question to be determined, then, was whether an osteopath, licensed under the statute regulating that profession, was within the purview of the optometry law a licensed physician and surgeon. The act of 1913 regulating the practice of medicine and surgery provides for the examination of persons desiring to follow these professions, and for the issuance of two forms of certificate, one designated a "physician and surgeon certificate," and the other a "drugless practitioner

certificate." The distinction between these certificates is quite marked, and they are issued as the result of a different examination; and it is very apparent to the court that the term "duly licensed physicians and surgeons," as used in the section of the act above quoted, has direct reference to the holders of the former class of certificates to the exclusion of the holders of the latter. The cases cited by the petitioner from other jurisdictions holding that an osteopath may be said to engage in the practice of medicine and surgery had no application to the facts in this case, in which the question was much narrower and was one of statutory construction. Under the statute the court is clearly of the opinion that the petitioner was not a "duly licensed physician and surgeon," wherefore it was ordered that the writ be discharged and the petitioner remanded to the custody of the sheriff.

Damages for Alleged Negligence in Treatment of Dislocation

(*McCann v. Twitchell (Me.)*, 102 Atl. R. 740)

The Supreme Judicial Court of Maine overrules the defendant's exception and motion for a new trial after the jury returned a verdict in favor of the plaintiff for \$4,900 damages for alleged malpractice in the setting and treatment of his left arm by the defendant. The ulna of the arm had been broken and the radius dislocated by the plaintiff, aged 30 years, having been thrown from an automobile, and he claimed that the defendant, who took charge of his case, negligently failed to discover the dislocation and did not properly treat it after he did know of it. The defendant testified that he suspected there might be a dislocation of the head of the radius, but that the arm was so much swollen that he could not then determine that, and that he did not feel it was safe to etherize the plaintiff owing to his physical condition then as indicated by his breathing; and that he, and not the plaintiff, suggested that the roentgen ray be used. The court says that it would serve no useful purpose to attempt any extended analysis of the evidence bearing on the issues of fact in the case. No legal propositions by which the defendant was bound in the discharge of his duty to the plaintiff were in dispute. It was not urged that he did not possess the ordinary skill of members of his profession in like situation. He was bound to exercise ordinary skill and reasonable care and diligence in his treatment of the case, and to use his best judgment in the application of his skill to the case. Whether or not he did that was an issue of fact for the jury. They decided that issue in the plaintiff's favor. Nor does a careful study of the evidence satisfy the court that their verdict was wrong, either as to the defendant's liability, or as to the amount of damages awarded the plaintiff. Evidence was introduced tending to show that the plaintiff's disbursements and liabilities necessarily incurred on account of the injuries to his arm amounted to nearly \$1,400; his suffering was severe and long continued, and his arm was permanently crippled, though somewhat serviceable. Assuming, though not so deciding, that it was error for the plaintiff to testify that the defendant said, in conversation with him concerning his liability for negligence in treating the arm, that the plaintiff could do him no harm as he was protected by a liability insurance, the court thinks that such error should not be deemed a sufficient ground for a new trial in view of the fact that the presiding justice, on his own motion, and soon after the admission of the statement, ordered it struck from the record and instructed the jury to pay no attention to it in their consideration of the case, explaining to them fully why they should not do so.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Denver, Aug. 6-8.
Idaho State Medical Association, Seattle, July 17-19.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Oregon State Medical Association, Seattle, July 17-19.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Washington State Medical Association, Seattle, July 17-19.
Wyoming State Medical Society, Casper, Aug. 7.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

June, 1918, 8, No. 6

- 1 Medical Officers Training Camp. E. S. Tenney, Fort Riley, Kan.—p. 401.
- 2 Rural Health Administration Under Cooperative or Local Health District Plan. G. F. Ruediger.—p. 406.
- 3 Rural Health Administration Under State Health District Plan. F. W. Sears, Albany.—p. 412.
- 4 Health Publicity an Aid to Cooperation Between Health Department and Citizen. J. W. Trask, Washington, D. C.—p. 417.
- 5 Mosquito Control in New Jersey. R. H. Hunt.—p. 421.
- 6 Sanitation of Swimming Pools. C. E. Smith, Jr., and H. M. Schoberg, St. Paul, Minn.—p. 424.
- 7 Standards for Prevention of Compressed Air Illness. S. Erdman, New York.—p. 431.
- 8 Recent Progress in Ventilation. F. Bass.—p. 434.
- 9 Prevention of Hay Fever as National Problem. W. Scheppegegrell, New Orleans.—p. 437.
- 10 Medical Department Records, Morbidity Reports and Vital Statistics of Navy. J. R. Phelps.—p. 442.

Annals of Otology, Rhinology and Laryngology, St. Louis

December, 1917, 26, No. 4

- 11 Bone Metaplasia in Tonsil. H. Albert and M. G. Douglas, Iowa City, Iowa.—p. 909.
- 12 Double Otitis Media: Submiliary Pulmonary Tuberculosis. E. Amberg, Detroit.—p. 933.
- 13 Tubercular Mastoiditis—Radical Operation Under Cocain Anesthesia. H. Hays, New York.—p. 938.
- 14 Ozena and Asphyxiating Gas; New Etiologic Standpoint. M. Natier, Paris, France.—p. 942.
- 15 Carcinoma of External Ear; Report of Case. F. Warner, Columbus, Ohio.—p. 950.
- 16 Abscess of Lung Following Tonsillectomy. C. W. Richardson, Washington, D. C.—p. 961.
- 17 Obscure Syphilitic Manifestations in Nasal Cavities. D. Roy, Atlanta, Ga.—p. 967.
- 18 Case of Meningitis with Unusual Features. C. E. Perkins, New York.—p. 978.
- 19 Intranasal Operation for Chronic Dacryocystitis. C. F. Bookwalter.—p. 982.
- 20 Mastoid Cases from Roentgenologic Standpoint. G. S. Dixon, New York.—p. 986.
- 21 Dentigerous Cysts; Report of Case. I. Frank, Chicago.—p. 991.
- 22 Subacute Mastoiditis. H. B. Blackwell, New York.—p. 999.
- 23 Case of Meningitis of Otitic Origin. A. Kahn, New York.—p. 1004.
- 24 Treatment of Progressive Deafness from Chronic Secretory Otitis Media. F. P. Emerson, Boston.—p. 1007.

Boston Medical and Surgical Journal

June 20, 1918, 178, No. 25

- 25 Socialization of Practice of Medicine. M. Standish, Boston.—p. 837.
- 26 Adequate Community Organization for Health Educational Work. M. A. Abel, Framingham.—p. 850.
- 27 Relative Values in Antituberculosis Work. C. M. Hilliard, Boston.—p. 853.
- 28 Annual Report of Massachusetts Antituberculosis League, 1918. E. M. Spofford, Boston.—p. 858.
- 29 Follow-Up Work in Tuberculosis in Small Town and Villages in Massachusetts. B. M. Billings, Boston.—p. 861.
- 30 War and Tuberculosis. C. J. Hatfield, Philadelphia.—p. 863.
- 31 Conservation of Man Power in Industry. A. M. Staebler, Boston.—p. 868.
- 32 Idiopathic Epilepsy a Sympathicopathy. E. A. Tracy.—p. 871. To be continued.

Bulletin of Johns Hopkins Hospital, Baltimore

June, 1918, 29, No. 328

- 33 *Effect of Forced Feeding on Nitrogen Equilibrium and Blood in Pernicious Anemia. H. O. Mosenthal, Baltimore.—p. 129.
- 34 Clinical Significance of Various Cells and Parasites in Blood Stream and Production of Abortive Leukemic Changes and of Splenomegaly in Macacus Rhesus. A. W. Sellards and W. A. Baetjer, Baltimore.—p. 135.

33. Effect of Forced Feeding on Nitrogen Equilibrium and Blood in Pernicious Anemia.—Three patients who had pernicious anemia were put on high diets. The food was made as appetizing as possible, the personal wishes of the patients were consulted and no attempt was made to maintain a definite proportion of proteins, fats or carbohydrates. These

patients were all kept under strict supervision in a small metabolism ward. They remained in bed, thus establishing their metabolic requirements at as low a level as possible. The only medication which they received was dilute hydrochloric acid. In one case transfusions were given. There was no difficulty encountered at any time during the observation in bringing about an extensive assimilation of nitrogen. One of the patients retained 3.4 gm. of nitrogen a day for twenty-eight days, another, 3.4 gm. a day for thirty-two, and the third 6.8 gm. a day for thirty-six days. In two of the patients the improvement was not very striking; the hemoglobin in one case rose from 36 to 48 per cent. in twenty-eight days; during that time the patient received two transfusions; in the other case the hemoglobin and red blood cells were only very slightly increased at the end of thirty-six days; in the third case, on the other hand, there was a very marked improvement, the hemoglobin rising from 25 to 60 per cent. in thirty-two days and the red blood cells increasing correspondingly.

Mosenthal is convinced that the nitrogen in these cases is retained. The question as to what use the body makes of it is another matter. A control case of secondary anemia was treated in the same manner as the patients with pernicious anemia, with the exception that no hydrochloric acid was given. This patient received a higher caloric diet than the other patients. His desire for food was enormous and even with an intake of 68.9 calories per kilogram, he claimed that he could easily manage a little more. The nitrogen assimilation in this patient was decidedly higher than in those with pernicious anemia. This may have been accidental, but it suggests that the element of protein destruction does play a considerable rôle in pernicious anemia.

California State Journal of Medicine, San Francisco

June, 1918, 16, No. 6

- 35 Training of Nurses and Social Workers in Present Emergency. P. K. Brown, San Francisco.—p. 281.
- 36 *Interrelationship of Asthma and Tuberculosis. P. H. Pierson, San Francisco.—p. 284.
- 37 *Value of Renal Functional Studies in Prognosis and Treatment of Nephritis. S. H. Hurwitz, San Francisco.—p. 287.
- 38 Schistosomiasis in California. A. C. Reed, San Francisco.—p. 293.
- 39 Venereal Disease Control in California. H. G. Irvine and E. M. Watters, San Francisco.—p. 296.
- 40 Laboratory Technic Carried Out in Studies of Lobar Pneumonia in Base Hospital. K. J. Staniford.—p. 300.
- 41 Cerebral Edema in Intracranial Trauma. A. S. Lobingier, Los Angeles.—p. 303.
- 42 Sarcoma of Choroid; Report of Two Cases. B. F. Church, Redlands.—p. 305.
- 43 *Passage of Drugs from Blood Serum to Spinal Fluid. H. G. Mehrtens, San Francisco.—p. 306.

36. **Interrelationship of Asthma and Tuberculosis.**—Pierson emphasizes the fact that asthma is not always a diffuse process but often limited to a small area in one lung. Although the signs may be localized the symptoms may be localized or general. Whether primarily or secondarily infected the first evidence of pulmonary tuberculosis is an enlargement of the bronchial glands. Their enlargement is a part of the normal mechanism for the battle against the disease. It is through their functioning that antibodies are manufactured. When the person is enjoying good health the glands are not interpreted as a tubercular focus; it is only when the person is below normal that they are considered as of potential or possibly actual danger. In this latter type of a person the glands are swollen and more actively diseased. Their presence irritates the adjoining bronchi, setting up a low grade inflammation which may become the seat of secondary infection. These factors may start the vicious circle for an asthmatic condition. This condition may occur during childhood or later life and may irritate one bronchus and hence one lobe, or one lung or both lungs. This is a very important factor in properly interpreting localized asthmatic breathing. From the glandular condition slowly or rapidly develops a peribronchial fibrous thickening extending outward toward the periphery. This may involve one lobe much more than another. All this time the person is manufacturing antibodies, and if these are sufficient

the disease remains confined and not actually dangerous. If the scale turns against the person in this struggle, there may occur a breaking down of the glandular or lymphatic elements at the hilus or nearer the periphery and a focus start in the lung tissue. Again depending on the location and also on the extent of the process, one or more lobes may be involved by an irritating process in a bronchiole and a factor established for a possible localized asthma. The tuberculous disease may not break down so as to invade the smaller alveoli but it may cause a chronic inflammatory process in the bronchioles on which is developed a secondary infection. The possible tuberculous etiology for this secondary infection must not be overlooked in such instances. From this survey and working on the "nonpassive expiratory theory," Pierson explains clinically and pathologically that localized foci of tuberculosis may, and from experience do, actually set up a localized or general asthma.

37. **Value of Renal Functional Studies in Treatment of Nephritis.**—Hurwitz urges that studies of the permeability of the kidneys for fluids, salt, and nitrogen are of great assistance in the laboratory control of nephritis. They aid in visualizing the actual daily response of the kidney to the therapeutic measures and they serve as a guide in the management not only of the disease, but of the individual patient.

43. **Passage of Drugs from Blood Serum to Spinal Fluid.**—The introduction of the patient's own serum into the subarachnoid space produces an irritation manifested by a pleocytosis frequently as high as 1,800 cells per cm. Even drainage of 30 to 50 c.c. of spinal fluid may be followed by a mild reaction of 10 to 80 cells. Mehrtens thought it possible that this irritation of the choroid would enable drugs and antibodies to pass into the spinal fluid for a period of thirty-six hours. In order to secure exact information on this point, he attempted to bring sodium iodid from blood to spinal fluid. The technic consisted in injecting 50 grains of sodium iodid in a 10 per cent. solution intravenously every half hour for four injections. One hour after the last injection, 12 c.c. of spinal fluid was removed, a cytologic examination was made and the fluid was examined for iodine. In ten control cases no iodine was found. In the next group of cases (eight) the same routine was followed except that 10 c.c. of horse serum was injected into the subarachnoid space six hours before the intravenous injections of iodine. The resulting spinal fluids in six cases showed intense irritation in some cases up to 16,000 cells per c.mm.—in two cases practically no reaction was obtained. Those cases showing the intense reaction gave definite tests for iodine in the spinal fluid. The two cases showing little or no reaction gave negative tests for iodine. These results would seem to point to the irritation of the meninges as the essential feature in producing the permeability for iodine.

Canadian Medical Association Journal, Toronto

June, 1918, 8, No. 6

- 44 Medicine and Democracy. J. P. Morton, Hamilton, Ont.—p. 481.
- 45 *Determination of Basal Metabolism by Indirect Calorimetry; Case of Polycythemia with Splenomegaly. M. E. Abbott, Montreal.—p. 491.
- 46 Protein Milk in Treatment of Digestive Disturbances. A. Brown, H. Spohn and I. F. MacLachlan, Toronto.—p. 510.
- 47 Malaria in the Army. E. J. Williams.—p. 523.
- 48 Abscess of Lung. W. A. Wilkins, Montreal.—p. 530.
- 49 Two Cases of Dermoid Tumors Complicating Pregnancy. J. N. Hutchison, Winnipeg.—p. 535.
- 50 Canadian National Committee for Mental Hygiene. E. M. Russel.—p. 538.

45. **Determination of Basal Metabolism by Indirect Calorimetry.**—In the cases cited by the authors the basal metabolism was determined on two occasions, at an interval of five months. The average of the results showed a heat product of 40.9 calories per square meter of his body surface per hour, that is a rise above the normal standard, for persons of his sex and age, of 16 per cent. The second determination was made two days before discharge from the hospital, 45.3 calories per square meter were produced giving a raised basal metabolism of 28.7 per cent. This moderate rise of metabolism compares with cases of pernicious anemia studied by others in which a similar rise was noted, in

view of the red cell regeneration that frequently exists in both diseases. The author claims that this is the first observation of the kind ever made.

Florida Medical Association Journal, Jacksonville

April, 1918, 4, No. 10

- 51 Practical Eugenics. J. J. Kindred, New York.—p. 287.
- 52 Open-Air Life. J. M. Masters, Port Orange.—p. 291.
- 53 Diagnosis and Treatment of Myocarditis. R. R. Niblack, New Smyrna.—p. 292.
- 54 Relation of Pancreas to Diabetes. H. S. Munson, DeLand.—p. 293.
- 55 Diabetic Gangrene. D. T. Smith, Daytona.—p. 295.
- 56 Treatment of Tuberculosis of Skin. M. P. Guy, Daytona Beach.—p. 296.
- 57 Feeding of Tubercular Patient. C. C. Bohannon, Daytona.—p. 296.
- 58 Diet in Chronic Bright's Disease. V. Z. Baerecke, Deland.—p. 297.

Indiana State Medical Association Journal, Fort Wayne

June, 1918, 11, No. 6

- 59 The New Way. F. H. Martin, Chicago.—p. 223.
- 60 Repair of Birth Injuries. F. R. Clapp, South Bend.—p. 229.
- 61 Restoration of Part or All of Lower Jaw. H. R. Allen, Indianapolis.—p. 230.
- 62 Advantages and Disadvantages of Joining Medical Reserve Corps. F. W. Foxworthy, Indianapolis.—p. 231.
- 63 Physician's Whole Duty. A. G. W. Childs, Madison.—p. 235.
- 64 Phthisiogenesis and Its Relation to Classification of Pulmonary Tuberculosis. W. A. Gekler, Terre Haute.—p. 238.

Journal of Medical Research, Boston

May, 1918, 38, No. 2

- 65 *Anatomic Study of Senescence in Dogs; Relation of Cellular Changes of Age to Tumors. E. W. Goodpasture, Boston.—p. 127.
- 66 Immunity and Tissue Transplantation. Reactions Occurring About Tissue Transplanted Into Homologous Animals. M. S. Fleisher, St. Louis.—p. 191.
- 67 *Mitochondria of Tumors. E. W. Goodpasture, Boston.—p. 213.
- 68 Pathology of Spavin. S. A. Goldberg, New York.—p. 225.
- 69 Monostome of Genus Collyriclum Occurring in European Sparrow; Development of Ovum. E. E. Tyzzer.—p. 267.

65. **Relation of Cell Changes to Tumor.**—The material for this study consisted of the postmortem findings in fifty old dogs. Goodpasture was able to demonstrate general and widespread degenerative cellular changes and an associated simplification of structure, together with an acquisition of growth power accompanying the progress of age. Following in the wake of these regressive alterations are cellular redifferentiation, metaplasia, multiple benign and malignant tumors. These phenomena are consecutive and interrelated. Goodpasture has been led by his observations and by certain biologic facts to the following interpretation: Progressive cellular differentiation eventually leads to senescence by the constant accumulation in the protoplasm of more or less stable structural substances. A disturbance of assimilation or of metabolism of cells in time results, maybe, with the accumulation of injurious metabolic substances within either cytoplasm or nucleus. Many cells die, while others lose their specialization, and in so doing they recover to a greater or lesser degree their vitality and youth. These dedifferentiated cells possess potentialities for growth and differentiation in varying degrees. By the process of dedifferentiation cells may lose not only their specialization, but also the power of again becoming perfectly adapted to the needs of the organism. The simplest form of dedifferentiation may result in the regeneration of cells, which become easily adapted to specialized function. Further dedifferentiation gives rise to cells which when regenerated are capable of only partial resumption of function, while a greater degree of this change may entirely destroy the capacity of the cell to resume special function and structure, but leaves formative power dominant in its life. The continued growth of these cells results in tumors which are malignant. The malignant as well as the benign tumors of old dogs are usually multiple. Senescence in dogs is accompanied by multiple degenerative changes in many organs and tissues, and associated with these changes are multiple benign and malignant tumors, which seem to result directly from these degenerative changes. With age there is progressive differentiation which eventually injures the cells of the body. Many of these cells die, others become dedifferentiated in

varying degrees. These dedifferentiated cells possess the power to grow, but their capacity to function may be diminished or lost. From these dedifferentiated cells metaplasia and benign and malignant tumors arise.

67. **Mitochondria of Tumors.**—The number and, to a certain extent, the character of mitochondria of tumors may vary somewhat from the normal tissue in which they arise, but the difference is not sufficient to warrant a distinction between malignant and benign cells, nor is the difference in staining constant or uniform. Conclusions concerning the specific functional activity of cells, especially those of tumors, based on such evidence as an increased amount or difference in character of mitochondrial substance do not seem to Goodpasture to be justifiable. Mitochondria may be present in great numbers in cells which obviously are not concerned with specific function, that is, those undergoing mitosis, and in undifferentiated malignant tumors. Mitochondria are composed of material which is utilized by the cell in its general metabolic processes, and in this way may be indirectly involved in the formation of secretion and other specific structures.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

May, 1918, 11, No. 4

- 70 *Effect of Intravenous Injections of Some Sodium Salts; Supposed Toxicity of Sodium Phosphate. I. Greenwald, New York.—p. 281.
- 71 *Pharmacology and Toxicology of Copper Salts and of Amino Acids. H. L. Huber.—p. 303.
- 72 Treatment of Amebic Dysentery with Chaparro Amargosa (Castela Nicholsoni of Family Simarubaceae). A. W. Sellards and M. A. McIver, Boston.—p. 331.

70. **Intravenous Injections of Some Sodium Salts.**—Greenwald states that the symptoms observed after intravenous administration of neutral solutions of the sodium salts employed (chlorid, sulphate and phosphate) depend on: (1) Changes in the volume of the circulating fluid. (2) Changes in the osmotic pressure. (3) Change in reaction, due to selective retention of the cation. (4) Disturbance of the relation between sodium and potassium, calcium and possibly other ions in the blood and other tissues. (5) The nature of the anion, but probably only through its effect in determining the permeability of the cells to the sodium. There is no evidence of a direct, toxic action of the phosphate ion.

71. **Copper Salts of Amino Acids.**—Huber's experimental work seems to show that the three copper amino acids examined (leucinate, glycinate and glutamate) produce exactly the same physiologic effects as a simple inorganic salt, copper sulphate.

Medical Record, New York

June 22, 1918, 93, No. 25

- 73 Facts and Fancies About Tonsils. H. L. Swain, New Haven, Conn.—p. 1069.
- 74 Select Medication in Children. H. B. Sheffield, New York.—p. 1078.
- 75 Enteroptosis or Exoptosis? A. L. Benedict, Buffalo.—p. 1083.
- 76 Custodial Care of Addicts. E. C. Chamberlain, New York.—p. 1085.
- 77 The Structural and Relational Variations in Uterine Peritoneum. H. Crutcher, Tularosa, N. M.—p. 1086.
- 78 Cooperation Between Life Insurance Companies and Practicing Physician. T. W. Edgar, New York.—p. 1087.

Military Surgeon, Washington, D. C.

June, 1918, 42, No. 6

- 79 *Treatment of Tuberculosis. G. E. Bushnell.—p. 625.
- 80 Combat against Disease During War. C. U. Derckle.—p. 642.
- 81 *Causes and Prevention of Primary Pneumonias and Pneumonias Complicating Measles in U. S. Army. W. A. Pratt.—p. 653.
- 82 *Gunshot Fractures of Long Bones of Extremities. H. Frost.—p. 659.
- 83 Report of Physical Examination of Twenty Thousand Volunteers. C. L. Cole, E. W. Loomis and E. A. Campbell.—p. 675.

79. **Treatment of Tuberculosis.**—Speaking of tuberculin, Bushnell says, that he has too often seen very serious harm from tuberculin, as employed by others, to be enthusiastic concerning its use. Tuberculin is most helpful to those who need help least. Advanced cases of tuberculosis are very

seriously injured by it, but the rather numerous class of sanatorium patients who have little or no active tuberculosis, their disease being of a chronic, though often diagnosticated as acute type, are able to tolerate it, sometimes apparently to their advantage. Those physicians whose practice is mostly confined to cases of well marked, manifest pulmonary tuberculosis are rarely enthusiastic advocates of its use. An accurate diagnosis is indispensable. Tuberculin in the hands of the ignorant is a terribly deadly weapon. Bushnell believes that cases of genuinely active tuberculosis are more often harmed than benefited by it, and is of the opinion that better results in the long run for the average patient are attained by the psychical treatment. He is therefore opposed to its use in army hospitals.

81. Causes and Prevention of Primary Pneumonia.—In dry climates sudden changes in humidity are not encountered as a rule and people living there are acclimated, nevertheless they are affected by any sudden change in humidity. Pratt says that observations go to show that exposure to cold temperatures does not predispose one to pneumonia unless through excessive loss of body heat when resistance is lowered. Cold air is not necessarily pure air, yet in well ventilated, cool rooms the blood is better able to take up available oxygen. In view of this fact should we not surround all blood infections with these conditions, especially measles? The whole blood stream can become toxic in a remarkably short time, even in an hour. Many of these toxic elements are not eliminated as quickly as they are taken up by the blood. Carbon monoxid, although it is rarely present in the conditions under consideration, yet carbon, hydrogen and sulphur combinations may exist in gaseous states which unite with hemoglobin as readily as the monoxid of carbon.

In barracks at bed time, while healthy, active men are undressing after a day of marching or drilling, odors from their bodies abound, and we must not neglect to mention those nauseating emanations from the feet. Under these conditions, with slight disorders in the upper air passages, the often freshly cultured pathogenic germs enter and gain such a profound hold that all therapy seems hopeless. Pratt has observed the complexion of men living under conditions cited above, at reveille; invariably they are pale, almost to a man. After an hour or two of drilling the color comes back and is generally good toward evening. The night indoors follows, with results that should not happen. Whether troops are sleeping in barracks, cantonments, or tents, rules requiring open windows, or tent flaps, will only be disregarded unless we first of all make sure the bedding is adequate. Pratt points out that along with other rational measures the drafting at once of systematic sanitary regulations for troop trains seems imperative. The adoption of some, if not all, of these preventive measures would seem feasible, practical and not costly.

82. Gunshot Fractures of Long Bones of Extremities.—Frost relates some of his experiences in a base hospital in England. Among 4,000 cases there have been 550 fractures, of which 287, or 52.18 per cent., have involved the long bones of the extremities. About 13 per cent. of these have been simple fractures. The missiles causing the fractures (195) have been proportioned as follows: bullet, 49.8 per cent.; shell, 34.3 per cent.; shrapnel, 9.7 per cent.; grenade, 2 per cent.; undetermined, 4.1 per cent. Flesh wounds have been of this order: perforating, 59.6 per cent.; nonperforating, including gutter wounds, 40.3 per cent.; of the perforating wounds, 14.2 per cent. have had explosive exits. The majority of perforating and explosive wounds were caused by bullets; of nonperforating wounds, by shell fragments. Of 195 cases, 76.9 per cent. have been infected; and 23.1 per cent. non-infected.

In the infected cases, bullet and shell have been in about equal proportion; in the noninfected cases, the bullet has been the chief agent. The average period required for union of infected fractures has been seventy days while of noninfected fractures it has been fifty days. Likewise, the average time of treatment of this hospital has been: infected, 137 days; noninfected, seventy-four days. Infected fractures attain poorer ultimate function than the noninfected. Complications have

occurred as follows: nonunion, 6.1 per cent.; nerve injuries, 7.1 per cent.; secondary hemorrhage, 0.5 per cent.; ankylosis, 18.9 per cent.; muscle and tendon adhesions, 3.0 per cent.

Of 195 fractures, about 5.6 per cent. have required amputation. The majority of these had been amputated in France, about 55.5 per cent. of them required reamputation after admission. This is accounted for by the prevalence of flush amputations. The fracture cases (195) have been disposed of as follows: invalided, 43.6 per cent.; transferred to orthopedic hospitals, 15.7 per cent.; to convalescent homes, 30.9 per cent.; to duty, 9.6 per cent. There has been only one death in 287 long bone fractures; in a case involving the head of the tibia and knee joint, with resulting septicemia.

Missouri State Medical Association Journal, St. Louis

June, 1918, 15, No. 6

- 84 Traumatic Rupture of Kidney. M. Goldman, Kansas City.—p. 197.
- 85 *Mucosa of Rectum and Sigmoid Colon as Focus of Infection. H. W. Soper, St. Louis.—p. 200.
- 86 General Medical Aspect of Focal Infections Including Those of Gallbladder and Appendix. L. H. Hempelmann, St. Louis.—p. 205.
- 87 Focal Infections of Genito-Urinary Organs. H. G. Greditzer, St. Louis.—p. 203.
- 88 Focal Infections of Female Genitalia. F. J. Taussig, St. Louis.—p. 205.
- 89 Poison of Evolution. G. F. Wright, Oberlin, Ohio.—p. 207.
- 90 Pseudonymous Science and Philosophy of Deceit. E. W. Saunders, St. Louis.—p. 207.
- 91 Physiology and Pathology of Mediastinum. G. Richter, St. Louis.—p. 211.

85. Mucosa of Rectum and Sigmoid Colon as Focus of Infection.—Soper has found that the lower colon is frequently invaded by pus-forming organisms. The infection is mixed in character and exhibits an extreme degree of chronicity. The resulting systemic disease varies from merely nervous disturbances, headaches, and constipation to pus infection of the appendix and gallbladder, gastric ulcer, arthritis deformans and chronic kidney disease. Soper says that treatment by dry powder insufflation method of Rosenberg is extremely efficacious. Calomel is the powder of choice for local use, as it adheres well to the mucosa and cannot be easily dislodged. It is nonirritant and may be applied to the sensitive mucosa of the anal canal without producing pain. There is no danger from absorption. Not a single case of systemic disturbance followed the daily use of large quantities. Finally, calomel had probably more antiseptic power than any other available powder. In the search for foci of infection, the lower bowel must not be neglected. In fact, no general examination of a patient is complete without proctosigmoidoscopy.

Modern Hospital, St. Louis

June, 1918, 10, No. 6

- 92 Nursing Crisis. S. S. Goldwater, New York.—p. 389.
- 93 Nonrestraint System in Insane Wards of Nagasaki Hospital. N. Ishida, Nagasaki, Japan.—p. 393.
- 94 Standards of Hospital Education for Interns. J. M. Baldy, Philadelphia.—p. 397.
- 95 Nurses' Homes—Plea for Efficiency in Their Design. M. J. Sturm, Chicago.—p. 403.
- 96 Installation of Modern Roentgen Equipment at Moderate Expense. V. M. Moore, Grand Rapids, Mich.—p. 409.
- 97 Open Cottages at Kankakee State Hospital. E. Cohn, Kankakee, Ill.—p. 411.
- 98 New Maternity Building for West Philadelphia. L. W. Burrows, Philadelphia.—p. 413.
- 99 Little Journeys to Places and People Worth Knowing. M. J. Robinson.—p. 417.

Nebraska State Medical Journal, Norfolk

June, 1918, 3, No. 6

- 100 Nephritis. A. Sachs, Omaha.—p. 169.
- 101 Nebraska State Department of Health. W. F. Wild.—p. 173.
- 102 Rectal Examinations in Obstetrics. P. Findley, Omaha.—p. 175.
- 103 Treatment of Eclampsia. J. C. Edgar.—p. 177.

Northwest Medicine, Seattle

June, 1918, 17, No. 6

- 104 Surgery of Prostatic Urethra and Bladder Neck. G. McGowan, Los Angeles.—p. 159.
- 105 Fractures from Viewpoint of General Practitioner. R. H. Fisher, Rigby, Idaho.—p. 166.
- 106 Case of Uterus Bicornis Duplex. S. F. Wiltsie, Seattle.—p. 169.

- 107 Operative Indications for Deflection of Nasal Septum. O. M. Rott, Spokane.—p. 171.
108 Hemostasis in Tonsillar Surgery. E. F. Chase, Seattle.—p. 173.
109 Skin Changes in Lymphatic Leukemia. W. Brown, Tacoma.—p. 175.
110 Nocturnal Emissions and Continency. B. S. Peterkin, Seattle.—p. 178.

Surgery, Gynecology and Obstetrics, Chicago

June, 1918, 26, No. 6

- 111 Military Aspects of Surgery of Spine and Spinal Cord. C. H. Frazier, Philadelphia.—p. 589.
112 Old Injuries of Spinal Cord. A. B. Kanavel, Chicago.—p. 601.
113 *Changes in Trigon Due to Tuberculosis of Kidney, Ureter and Bladder. H. H. Young, Baltimore.—p. 608.
114 *Effect of Dichloramin-T Chlorinated Eucalyptol Solution on Peritoneum. S. P. Reinann and J. A. H. Magoun, Philadelphia.—p. 616.
115 Therapeutic Use of Radium in Gynecology. J. G. Clark, Philadelphia.—p. 619.
116 Radium in Uterine Cancer. H. C. Bailey, New York.—p. 625.
117 Study of Kidney and Ureteral Stones with Cystoscopic Method for Their Removal. V. D. Lespinasse, Chicago.—p. 631.
118 *Gunshot Injuries of Lungs; Report of Thirty Cases. C. Eggers.—p. 638.
119 *Is Purgation of Patients Before Operation Justifiable? W. C. Alvarez, San Francisco.—p. 651.
120 Ligation of Splenic Artery for Banti's Disease; Report of Case. A. W. Blain, Detroit.—p. 660.
121 Retroperitoneal Cysts of Wolffian Origin; Report of Case. J. M. Maury, Memphis, Tenn.—p. 663.
122 *Puerperal Septic Uteropelvic Thrombophlebitis; Report of Case. A. Turenne, Montevideo, Uruguay.—p. 668.
123 Exstrophy of Bladder; Report of Case. C. C. Coleman, Richmond, Va., and R. J. Wilkinson, Huntington, W. Va.—p. 678.
124 Transperitoneal Nephrectomy in Infants for Large Congenital Hydronephrosis. M. S. Kakels, New York.—p. 681.
125 New Fracture Orthopedic Operating Table. F. H. Albee, New York.—p. 683.
126 *Rubber Tube Reconstruction of Common Bile Duct. F. Hagler, St. Louis.—p. 689.

113. **Changes in Trigon Due to Tuberculosis.**—Cases are cited by Young to demonstrate that tuberculosis of the kidney may lead to great shortening of the ureter, resulting in traction on and marked elevation of the trigon, and invagination of the ureteral ridge into the ureter; that tuberculous ulceration may then produce an undermining of this elevated trigon and finally complete separation of trigon from the bladder beneath, except at the three corners (where the trigon is continuous with the ureteral muscle above and the urethral muscle below); that, after nephrectomy, healing of the vesical tuberculosis may leave this "trigonal bridge" with new mucous membrane beneath it except at the three corners where the "bridge" is attached and gets its blood supply.

114. **Effect of Dichloramin-T on Peritoneum.**—On the surgical service of the Lankenau Hospital, observations have led to the conclusion that very definite harm can be done by this method of treatment, and that, contrary to published opinions, skin irritation takes place, despite careful adherence to the principles of fresh undecomposed solutions, minimum dressings, avoidance of alcohol, water, and other substances likely to decompose the solution. Blood and exudate form a solid coagulum in the meshes of the gauze and interfere with drainage. The effect of solutions of 7.5 per cent. and 20 per cent. dichloramin-T chlorinated eucalyptol on the healthy peritoneum of dogs was investigated. The same strength solutions were used on infected peritoneum to determine if infection would be inhibited or destroyed. Observations from the surgical service on the effect of the 20 per cent. oil in the treatment of abscess cavities in the peritoneum shows that the solution causes clotting of blood and exudate on gauze, and drains, and leads to interference with drainage and trauma. In the peritoneum of dogs, it causes a violent irritation with a hemorrhagico fibrinous exudation. The same results in the peritoneum of dogs are produced by the 7.5 per cent. in a certain percentage of cases. Both the 7.5 per cent. and the 20 per cent. solutions are distinctly harmful to the peritoneum; the benefits are none.

118. **Gunshot Injuries of Lungs.**—Eggers' experience leads him to urge that perforating gunshot wounds of the thorax and lungs with a closed pneumothorax or without one, should be treated conservatively. Hemothorax producing alarming symptoms of compression should be aspirated early, remov-

ing just enough fluid at first to relieve the symptoms. Hemothorax running a normal course but showing no or little tendency to absorption, should be aspirated to prevent the formation of a thickened pleura, contraction of the lung, etc. An infected hemothorax should either be aspirated at first and later have a rib resection, or, if the symptoms are urgent, the rib resection should be done at once. An open pneumothorax with a small external opening should be closed by suture if the wound is clean, otherwise by a firm dressing or a tampon. An open pneumothorax with a large opening should promptly be treated surgically. If only the thoracic wall is injured, the wound edges should be excised, and the lung sutured into this window. In case the lung also has been perforated, this wound should likewise be excised and sutured and this portion of the lung then fastened into the thoracic window. In order to do these operations satisfactorily it is advisable to have a simple positive pressure apparatus at hand.

119. **Is Purgation Justifiable?**—Experimental observations made on animals have convinced Alvarez that purgatives should not be given before operations because some of the purgatives owe their effects to the fact that they are irritant poisons that must be removed quickly from the body. Others act by interfering with intestinal absorption and by upsetting the balance of salts. In either case they bring about pathologic conditions. The body is weakened and not strengthened. The dehydration of the body and the upset in salt balance are bad, particularly before an operation in which there may be hemorrhage and vomiting. With magnesium sulphate, there may be an increased amount of fluid in the bowel to disturb those who want it empty. In operations on the colon, liquid contents are harder to control mechanically than are solid masses. There is an increased growth of bacteria. There is some evidence that there is an increased absorption of toxins, and a greater permeability of the mucous membrane to bacteria. Undigested food may be carried down into the colon to supply increased pabulum for the bacteria. By weakening some parts of the bowel and making others more irritable, the even flow of material from stomach to anus is rendered impossible. Whether from disturbances in motility, in absorption, in the circulation, or in the bacterial conditions, there certainly is a tendency to flatulence and distention.

When the bowels must move frequently during the night, the loss of sleep is considerable. The purgation is particularly trying if the patient is wearing a large cast, has a broken leg, or other painful lesion which makes each resort to the bedpan an ordeal. If the patient should happen to have some intestinal obstruction, a gangrenous appendix, a badly diseased Meckel's diverticulum, or adhesions forming around some pus, purgation may directly cause death. Purgation makes the bowel react so poorly to drugs that there may be grave difficulties in meeting postoperative emergencies. Emptying the bowel by starvation and purging makes the resumption of colonic activity much more difficult. The colon must be filled and distended to a certain extent before it will empty.

The fact that children and nervous women will sometimes begin vomiting during the night, before the operation, Alvarez thinks, shows that the purge must be responsible for some of the postoperative nausea and vomiting. The ether adds the finishing touches to what was begun the night before. It is suggested that food be given as late as possible before operation; that even enemas be avoided if not absolutely necessary; that water and solid food be given by mouth as soon after operation as possible; and that purgatives be avoided after operation as well as before.

122. **Puerperal Septic Uteropelvic Thrombophlebitis.**—Thrombophlebitis has signs, symptoms, and a clinical evolution which, according to Turenne, permit a diagnosis to be made in the majority of cases. Although in more than half the cases there is a tendency toward subsidence and recovery, the high mortality justifies modern methods of treatment. Surgical intervention, especially ligation of the thrombosed veins, is rational. The transperitoneal route is the preferable one. Ligation of all the efferent venous trunks of the genital zone is desirable. Resection or evacuation of the

thrombus should be resorted to only exceptionally. The results obtained from direct intervention on the thrombosed veins should encourage new attempts at operations to fix definitely the field of operation. Operations on the veins is contraindicated in cases of permanent bacteremia, in accessible thromboses, and in cases of visceral pyemic localizations.

126. Reconstruction of Common Bile Duct.—Hagler reports a case of operation for acute gallbladder disease; no stones were found, but a markedly diseased gallbladder which had drained spontaneously into the duodenum. Cholecystectomy was performed, during which the common duct was accidentally injured and the duodenum necessarily opened. The duodenum was repaired, a gastro-enterostomy made, and the common duct drained. A duodenal fistula developed on the fourth day and healed spontaneously five days later. A complete biliary fistula persisted after the primary operation, and at the secondary operation this was found to result from a defective bile duct. The loss of a portion of bile duct was produced by necrosis in all probability occasioned by infection and the digestive action of duodenal contents. A Sullivan's reconstruction was successfully performed with excellent immediate results. Death occurred over seven months after the reconstructive operation, being caused by multiple liver abscesses, secondary to ascending infection of the bile passages. Secondary stricture of the ducts did not occur. Hagler says that in certain cases of bile duct reconstruction necessity may compel the employment of Sullivan's operation, which, while not a method of choice, may prove to be of great worth. Two dangers militate against a permanent satisfactory result: (a) stenosis of the new formed duct by cicatrization; (b) stone formation and ascending infection of bile passages. Danger of cicatricial stenosis may be minimized by keeping the tube in the newly formed duct sufficiently long to allow complete epithelialization and thorough establishment of the newly formed duct. This period depends on the extent of the gap to be bridged. Calculus formation and infection of the biliary passages may be in a measure guarded by: (a) Avoiding nonabsorbable suture. (b) Not allowing the tube to remain permanently. If the tube does not pass at the proper period it should be removed by operation. Both spontaneous passage and operative removal may be facilitated by allowing the tube to project a few inches into the duodenum. A T tube which can be removed at will without operation may be superior to the tube as employed by Hagler. (c) Formation, if possible, of a valvular opening into the duodenum. Gastro-enterostomy is advised as a rational procedure in cases in which fears are entertained for the security of a duodenal repair.

Tennessee State Medical Association Journal, Nashville

June, 1918, 11, No. 2

- 127 Swinging of Pendulum. R. McKinney, Memphis.—p. 49.
- 128 Medical Profession and Part It Plays in War. V. C. Vaughan, Washington, D. C.—p. 53.
- 129 Sanitary Conditions in Camps and Cantonments. V. C. Vaughan, Washington, D. C.—p. 56.
- 130 Medical Reserve Corps and Medical Military Activities. F. F. Simpson, Washington, D. C.—p. 59.
- 131 Surgery on Battlefield. W. J. Bell.—p. 61.
- 132 Neurologic Surgery; Diagnosis and Treatment of Brain Injuries. W. Sharpe, New York.—p. 67.

West Virginia Medical Journal, Huntington

June, 1918, 12, No. 12

- 133 Necrology. C. H. Maxwell, Morgantown.—p. 441.
- 134 Elkins Situation During Past Three Months. A. M. Fredlock, Elkins.—p. 453.
- 135 The Eye. G. M. Burton, Weston.—p. 455.
- 136 Difficulties in Diagnosing Accessory Sinus Inflammations. G. A. Hinnen, Cincinnati.—p. 465.

Wisconsin Medical Journal, Milwaukee

June, 1918, 17, No. 1

- 137 Treatment of Senile Cataract. H. Gifford, Omaha.—p. 1.
- 138 Advantages and Disadvantages in Use of Metallic Bone Plates for Fracture. K. Doege, Marshfield.—p. 10.
- 139 Bone Grafting in Treatment of Fractures. F. J. Gaenslen, Milwaukee.—p. 15.
- 140 Roentgen Ray as Aid in Reduction and Treatment of Fractures. J. A. Jackson, Jr., Madison.—p. 19.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 1, 1918, 1, No. 2996

- 1 Care of the Tuberculous Soldier. P. H. S. Hartley.—p. 609.
- 2 Roentgenographic Pelvimetry. W. R. MacKenzie.—p. 612.
- 3 *Part Played by Concomitant Infection with Anaerobic Organisms (Other than *B. Tetani*) in the Causation of Tetanus. W. J. Tulloch.—p. 614.
- 4 Ancurysm of Third Part of Left Subclavian Artery Treated by Ligature of Second Part. H. H. Brown.—p. 617.

3. Concomitant Anaerobic Infections in Tetanus.—Tulloch claims that there is good ground for believing that the ancillary part played by *B. welchii* in the causation of tetanus is clearly defined. The capacity of this organism for doing harm can almost be eliminated by the use of *B. welchii* antitoxin. The *Vibrio septique* may also play a part in the production of tetanus. Therefore, antibodies to the toxins of *B. tetanus*, *B. welchii* and *Vibrio septique* should be included in all serums employed for the prophylaxis of tetanus. Tulloch does not believe that such a serum would absolutely eliminate tetanus because other organisms, doubtless, may play a part in the causation of tetanus, especially *B. edematiens*.

Indian Medical Gazette, Calcutta

April, 1918, 53, No. 4

- 5 *Autogenous Oral Streptococcal Vaccines in Treatment of Seventeen Cases of Sprue. L. Rogers.—p. 121.
- 6 Present Position of Treatment of Syphilis. H. S. Matson.—p. 126.
- 7 Prevention of Malaria in Cantonments. P. Hehir.—p. 130.
- 8 Prevention and Treatment of Malaria. T. S. Ross.—p. 134.
- 9 How to Examine Recruits. J. F. James.—p. 136.
- 10 Laying Out of Large Military Camp. C. C. Murison.—p. 138.
- 11 Treatment of Carbuncles and Boils. K. J. Dikshit.—p. 139.
- 12 Injection of Lymph as Protector Against Smallpox. C. F. Fearnside and S. G. Poi.—p. 140.

5. Results of Vaccine Treatment of Sprue.—Seventeen consecutive cases have been treated by Rogers during the last four years. Five more patients with sprue and spruelike diarrhea have been treated in a similar way with autogenous oral streptococcal vaccine, and in each case there was satisfactory improvement. In the great majority of the cases, cultures were made when the tongue or mouth presented soreness or even small ulcers, but success was sometimes obtained during quiescence of the oral symptoms. Glycerin-agar was always used and commonly a nearly pure culture of streptococci was obtained, while they were nearly always the predominating organisms. When uniform surface subcultures had been obtained on sloped glycerin-agar tubes, 5 c.c. of sterile normal saline is added to each tube and heated to 56 C. for one hour, and 0.5 per cent. phenol added. After mixing by separating the colonies with a sterile platinum loop it is put up in from 0.5 to 2 c.c. doses, the approximate count being about 100 million per cubic centimeter; a 0.5 c.c. dose was always a safe one to begin with. If the reaction was slight or absent, as was almost always the case, 1 c.c. was given after five days and repeated weekly until there was little or no reaction, and when it was increased to 1.5 c.c., and eventually, if necessary, to 2 c.c., ten days' interval being allowed between the last mentioned doses. The injections are nearly painless and usually have to be continued for from three to six months in typical cases, and occasionally for longer with intervals of omissions. The only drug Rogers used to any material extent in the present series of cases is bismuth salicylate in 15 to 20-grain doses, three times a day at first, but gradually reduced to once a day when the stools fall to one or two daily. In a few of the worst cases a milk diet was given at first, but under the vaccine treatment Rogers found it possible to increase the diet more rapidly than can usually be done under other methods. Forty per cent. of the patients were cured; 40 per cent. were greatly improved; 18 per cent. were improved. Only one patient was not improved.

Lancet, London

May 25, 1918, 1, No. 4943

- 13 Teaching and Training in Hygiene: III. Training of Nonmedical Public Health Workers. H. R. Kenwood.—p. 727.
- 14 *Technic of Infected Wound Closure. F. B. Gurd.—p. 731.

- 15 Two Fatal Cases of Estivo-Autumnal Malarial Fever Occurring in England. A. J. Hall, E. H. Williams and J. S. C. Douglas.—p. 734.
- 16 *Method for Drainage of Deep Wounds of Thigh. W. S. Handley and P. J. Hanlon.—p. 735.
- 17 Skin Grafting in Treatment of War Burns. C. P. G. Wakeley.—p. 736.

June 1, 1918, 1, No. 4944

- 18 *Blood Transfusion in War Surgery. L. B. Robertson.—p. 759.
- 19 Acidosis of Shock and Suspended Circulation. A. E. Wright and L. Colebrook.—p. 763.
- 20 Pulmonary Fibrosis, Tuberculous and Nontuberculous. G. T. Hebert.—p. 765.
- 21 Intrapelvic Abscess, Complications of Gunshot Wounds of Buttock. W. Thorburn and G. Richardson.—p. 767.
- 22 Anaerobes in Soil Infected Wounds. H. Goodale.—p. 768.
- 23 Case of Amebic Abscess of Liver and Brain with No Previous History of Dysentery. T. D. M. Stout and D. E. Fenwick.—p. 769.

14. **Technic of Infected Wound Closure.**—Gurd believes that a more aggressive and direct method of treatment of infected compound fractures than is commonly employed in the home hospitals is indicated. The technic introduced by Rutherford Morison and Carrel, when properly employed, have each proved their usefulness in the hospitals in France. In a series of thirty characteristic cases the author has applied a modification and combination of these methods with gratifying results. The method has shown itself to be safe, not difficult to carry out, and has been followed by satisfactory results in a large proportion of cases. The treatment has consisted in excision and cleansing of original wound, if not already accomplished. Adequate incision of inflamed area is made, tubes are introduced, and discontinuous instillation according to method introduced by Carrel.

So soon as necrotic fascia, muscle tissues, etc., have separated or have been excised and profuse suppuration more or less controlled, the treatment is changed. The surface of the wound and the surrounding skin is thoroughly cleansed with soap and water and bathed with spirit. The wound is then dried, an excess of bismuth iodoform paste (Morison) is placed over the surface and into all pockets and bone cavities. Gauze gently wrung out of liquid petrolatum, and containing in its center a mass of bismuth iodoform petrolatum paste is placed everywhere in contact with the tissues. This is substantially the technic suggested by Morison with the addition of the paraffin gauze pack. This was commenced with the view of inducing the bismuth iodoform mixture to insinuate itself into all interstices of the wound, and appears to have proved its usefulness. Wounds so treated, even though they have been previously discharging freely, do not require dressing more often than once in five to fifteen days. Pain in injured limb and marked constitutional evidence of infection indicate necessity of further interference. Even though there be moderate staining through the dressings, the wound need not be disturbed, as the dressings do not tend to become foul, nor do proliferating granulations tend to invade, or become adherent to the paraffined gauze. In several cases it has been found useful in phlegmonous wounds receiving Carrel-Dakin instillations to protect portions of wound less severely infected by means of a bismuth iodoform petrolatum paste paraffin gauze pack.

The advantages claimed are: 1. Lessening of discomfort and pain to the patient as a result of increase in interval between dressings and shortening of open wound period. 2. Improvement in functional result in consequence of (a) less frequent disturbance of bone fragments during the dressing stage and the earlier application of complete immobilization in cases in which this is indicated. (b) A diminution in the number of adherent painful scars and nutritional disturbances. (c) Earlier opportunity for secondary operations, such as nerve and tendon suture and massage, etc. 3. Early transformation of patients from the dressing to observation class of men. 4. Shortening of hospital days per patient and consequent increase in the usefulness of hospital beds. 5. Economy of dressing material, both by reason of the infrequency of dressings and by shortening of the dressing period.

16. **Drainage of Wounds of Thigh.**—The drainage of a deeply infected thigh is a problem which has not yet received the attention due to its importance. Is it or is it not possible to arrest the spread of infection in the intermuscular planes

by well devised incisions? The largest and most important intermuscular space, and the one most easily opened up, is the space between the vastus externus muscle and the crureus. This space runs the whole length of the thigh and communicates with many of the other intermuscular spaces. It occurred to the authors that if this space could be thoroughly opened up the problem of drainage of the deep thigh tissues would be largely solved. Anatomic conditions favor the drainage of this space by an incision which does not divide any important structure or subsequently impair in any way the functions of the thigh.

The posterior limit of the space in question corresponds to the external intermuscular septum and lies on the postero-external aspect of the thigh in a position ideal for drainage by gravity as the patient lies in bed. The incision is made along at least two thirds of the length of the thigh and divides the fascia lata immediately behind the septum. The tissues are opened up in the place between the external intermuscular septum and the hamstring muscles until the linea aspera is reached. The external intermuscular septum is now cut through along its line of attachment to the linea aspera and its prolongations above and below. Drainage tubes or Carrel's tubes are now inserted, but the wound itself gapes so considerably that it is probable in many cases they will prove unnecessary. Incidentally the incision abolishes the constricting action exerted on the deep tissues of the thigh by their tight sleeve of inextensible fascia. On anatomic grounds and on the facts of one case the authors suggest that in a series of grave penetrating wounds of the thigh where primary excision of the wound has failed and sepsis is threatened colleagues on the lines of communication should adopt the plan of complete separation of the vastus externus from its origin. It will then be seen whether the method is applicable only to wounds of the region of the vastus externus, and with what degree of success and whether it is also successful as applied to wounds of the adductor region.

18. **Blood Transfusion in War Surgery.**—Of the indirect methods of blood transfusion there are three in general use at present on the British front: (1) syringes and cannulas; (2) paraffined glass containers; (3) anticoagulants (citrate method). Robertson says that to estimate accurately the value of the procedure at the front several factors other than the purely clinical must be considered, notably the distance of the station from the firing line, and the difficulties and time of transport of the wounded to the station. The sixty-eight cases cited by the author comprised the following: Primary hemorrhage (fifty-seven cases); (a) life saving (evacuated to base hospital in good condition) thirty-six cases; (b) immediately beneficial but died from shock, eight cases; gas gangrene, five cases; capillary bronchitis, one case; pulmonary embolism, one case; (c) no benefit, four cases; (d) harmful (hemolysis), two cases. Secondary hemorrhage: Nine cases of this type received blood transfusion; six recovered. Of the three that died, one died, of hemolysis (following a second transfusion), one of gas gangrene three days after transfusion, and one of streptococcus septicemia one month after transfusion. The last two cases had derived immense benefit from the transfused blood before they succumbed to the infection. Severe carbon monoxid poisoning: The two cases in which transfusion was done were among a number of men buried in a dugout in which certain combustible material caught fire. Venesection, with the removal of 1,000 c.c. of blood in two stages, gave moderate relief, but their condition remained grave and they were still of a bluish-gray color. The blood was almost black and of a peculiar syrup consistency. Blood transfusion (1,000 c.c.) made no immediate improvement, but the following day improvement was evident and the cases progressed to recovery.

Practitioner, London

June, 1918, 100, No. 6

- 24 Scalp Flaps and Depilation in Plastic Surgery of Face. P. P. Cole.—p. 461.
- 25 *Method for Radical Cure of Inguinal Hernia (Darn and Stay-Lace Method). W. S. Handley.—p. 466.
- 26 Dreams. F. P. Weber.—p. 472.
- 27 Treatment and Degree of Curability of Neurasthenia Pura. S. H. Bennett.—p. 478.

- 28 Treatment of Fecal Fistula. J. Taylor.—p. 487.
 29 Results of Mechanotherapeutics of Septic War Wounds. E. F. Cyriax.—p. 491.
 30 Case of Ascaris Infection. G. Ward.—p. 503.
 31 *Gunshot Wound of Abdominal Cavity Treated with Ichthyol and Glycerin. C. W. Duggan.—p. 505.

25. Darn and Stay-Lace Method in Treatment of Hernia.—After he has separated the sac from the cord and removed the former, Handley proceeds to the insertion of a slack "stay-lace" of stout silk, filling up the triangular interval, bounded above by the lower edge of the conjoined tendon, below by the edge of Poupart's ligament, and externally by the internal abdominal ring. The needle is entered through the edge of the conjoined tendon, immediately internal to the internal ring, then at a point vertically below it takes up Poupart's ligament from within the inguinal canal. It now returns and takes up the conjoined tendon, then Poupart's ligament at a succession of points approaching nearer and nearer to the pubic spine. Having come to this point it now retraces its steps, taking up each time either the conjoined tendon or Poupart's ligament at points intermediate to the stitches already inserted and successively nearer and nearer to the internal ring. Then the ends are knotted together. But it must be specially noted that the stitch is not pulled tight; it is left quite lax. Much care must be exercised during the tying of the knot to insure that the stitch does not run up taut during the process, and that on the other hand the knot is very securely tied. It will simplify this step if, during the tying of the knot, the assistant grasps the threads just behind the knot with two pairs of nonserrated forceps. Serrated forceps are apt to injure and weaken the silk where they grasp it. By the insertion of this slack "stay-lace," a sort of entanglement of silk is formed which prevents any descent of a future hernial sac.

The cord which has been dragged upward is replaced and the external oblique is sutured by a few interrupted silk sutures. The size of the external ring is reduced if necessary. Now comes the process of "darning" which aims at strengthening the external oblique. The surface of the external oblique aponeurosis is cleared down to Poupart's ligament, upward 2 inches beyond the cord, outward well beyond the internal ring. The cleared area is now darned exactly as if it was a weak spot in a stocking. The threads are inserted parallel to the intercolumnar fibers and at right angles to the main fibers of the external oblique aponeurosis, beginning at the upper and outer angle of the cleared area. When the darn is complete the ends of the stitch are simply cut off at points quarter inch from their points of emergence from the aponeurosis. There is no need to secure them in any way by a knot.

31. Gunshot Wound of Abdominal Cavity Treated with Ichthyol and Glycerin.—Duggan points out that the efficient treatment of gunshot wounds involves the two principles of antisepsis and osmosis. These two principles are, he claims, fulfilled by a combination of ichthyol and glycerin which he has been using for nearly three years. Duggan cites the case of a soldier who had received an abdominal wound which failed to heal under every method of treatment used in various military and civil hospitals. Ten months after the injury Duggan saw him. He had an inflamed scar at exit; evening temperature 101.2 F., no rigors; equal parts of ichthyol and glycerin were applied to scar preparatory to operation next day. During the night the scar gave way, and a large quantity of pus, with a strong fecal odor, escaped; the abscess cavity was syringed out with alcohol and the wound was dressed with equal parts of ichthyol and glycerin; the wound was dressed again at night. A probe could be passed into the abdominal cavity in the direction of the entrance scar for a distance of 5 inches. These dressings were continued for three weeks when the wound healed and the patient was discharged.

Annales de Médecine, Paris

January-February, 1918, 5, No. 1

- 32 *Sensibility of Bone to Tuning Fork. L. Bard.—p. 1.
 33 *Bacteriology of Tropical Sores. M. Gougerot.—p. 9.
 34 *Paralysis of Vasomotor Origin. R. Cruchet, F. Moutier and A. Calmettes.—p. 22.
 35 *The Cerebrospinal Fluid in Typhus. D. Daniélopou.—p. 44.

- 36 *Vaccine for Cerebral Abscess. Villandre and Rochaix.—p. 53.
 37 Mixed Typhoid and Paratyphoid. G. Etienne.—p. 63.
 38 Present Status of Epidemic Poliomyelitis. J. Paraf.—p. 73.

32. Sensibility of Bone to Vibrations of Tuning Fork.—Bard presents evidence to demonstrate that bone conduction of the vibrations of a tuning fork is more a matter of the sensibility of the bone than has heretofore been appreciated. The acoustic factor predominates at first and arrests attention, when the Weber test is applied to the ear, but as the tuning fork vibrations grow less intense, the tactile perception predominates, and persists after the acoustic has died out. The duration of the perception of the sonorous vibrations thus depends on the sensibility of the skull bones, and aural surgeons should revise their qualitative tests of the hearing, taking this fact into account. It naturally deprives the Schwabach test of all value, and the Gellé test is instructive only when the attention of the subject has been called to the necessity for distinguishing between the acoustic sensation, and the tactile sensation which the Gellé test does not modify. In numerous deafmutes and totally deaf persons, including one with cerebral neurofibromatosis, confirmed by necropsy, which had totally destroyed the auditory and vestibular nerves, Bard has found that the vibrations of the tuning fork placed on the skull are plainly perceived. By studying this on himself and on others with normal hearing he determined certain laws regulating conduction of vibrations in different bones throughout the skeleton, and the modifications induced by disease, especially by tabes.

33. Importance of Ordinary Bacterial Skin Diseases in Tropical Ulcers.—Gougerot's extensive experience among the colonial troops now on active service in France has demonstrated that in tropical regions simple bacterial skin lesions are often assumed to be typical tropical ulcers, Delhi sore, craw-craw, etc. On this mistaken diagnosis they fail to get proper treatment, and they drag along for months. Among the typical cases of ordinary streptococcus or staphylococcus lesions described is one of a physician previously practicing in Africa whose alleged craw-craw of seven months' standing subsided at once when treatment as for an ordinary bacterial dermatitis was applied, using pastes instead of salves, gauze instead of impermeable dressings, reducing intake of fluids, avoiding much perspiration and substituting oil or lard for petrolatum. Bacterial dermatitis is common under war conditions and in infants. When duly recognized and simple inexpensive treatment applied, the supposed intractable eczema, syphilitic manifestations or exfoliating dermatitis, often promptly disappears.

34. Nontraumatic Paralysis of the Arm.—Three cases are described of nontraumatic paralysis of one arm developing abruptly after several hours' exposure to cold and wet, on sentinel duty, crouching in the snow for four hours. After sleeping in their wet clothes the men woke with sensations "as if the hand was asleep," and cyanosis testified to the progressive vasomotor disturbances. The hand was contracted to form a shallow cup. The tests show that the vasomotors play the predominant rôle in the disturbances. Under hot baths twice a day improvement was realized, and in five or six months nearly normal conditions were restored. If the paralysis should return with cold weather, it will be easy to resume the hot baths.

35. The Cerebrospinal Fluid in Typhus.—Daniélopou here reports study of 142 cases. The fluid was more or less yellow in forty-eight cases during the second week. Cellular reactions also indicate that the typhus toxins have a special action on the tissues of the nervous system and the cerebral blood vessels, evidenced by the mononucleosis, increased albumin, and positive Noguchi test.

36. Vaccine Therapy of Abscess of the Brain.—Villandre and Rochaix found operative measures effectual in treatment of 47 of the 61 cases of infectious complications following a war wound of the skull, among 450 skull wound cases. In the 14 other cases, an inaccessible abscess developed in the brain. A cure was realized in all of the 3 cases given autogenous vaccine treatment, although the abscess returned later in one of the cases. Nearly 50 per cent. died of the 11 not given the vaccine therapy. The *Staphylococcus aureus* was

cultivated almost constantly from the projectiles and scraps extracted from the skull wound, even in those that healed apparently aseptically. In treatment of brain lesions, filiform drainage proved most effectual, that is, with horse hairs and a wire loop, but even with this the cavity tends to close up so that puncture has to be systematically repeated. One of the men was thus punctured every four or six days over a period of three months. The wire permits roentgen control also.

Bulletin de l'Académie de Médecine, Paris

May 14, 1918, 79, No. 19

- 39 *Ventilating System in Contagious Ward. J. Renault.—p. 368.
40 *Wire Ligation for Pseudarthrosis. E. Estor.—p. 370.
41 *Treatment of Malaria. S. Gréhan.—p. 372.
42 The Cerebrospinal Fluid After Concussions. Mestrezat, Bouttier and Logre.—p. 373.

39. **Ventilation of Contagious Ward.**—Renault gives figures showing the reduction in the mortality in the measles and scarlet fever wards since a system of ventilation has been arranged which renews constantly the air at the rate of once and a half per hour. The air is filtered through a thick layer of cotton; it enters the room back of the radiators and escapes through glass blinds, the strips of glass horizontal, installed above the windows.

40. **Treatment of Pseudarthrosis.**—Estor warns that silver wire is liable to stretch and break when buried in the tissues; iron wire is better for the purpose. With pseudarthrosis from any cause, he freshens the end of the stump to make a perpendicular plane surface. A wire, about 80 cm. long, is doubled and wound tight around the stump, nicks keeping it from slipping. Each stump is thus enclosed in a tight wire ring and the ends of the wires are all twisted together thus coaptating the stumps. The bone is strengthened by the wire ring, instead of being weakened, as when the wire bores through the bone, while the twisted ends form a metal frame to hold the stumps in place. In two cases of aseptic suture the wire was tolerated by the tissues, but in his eight other cases he had to remove the wire after consolidation.

41. **Treatment of Malaria.**—Gréhan relates that in his service in Africa, four years in the Soudan and five years in Morocco, he has always succeeded in apparently eradicating malaria by his practice of a daily intramuscular injection of 0.75 or 1 gm. quinin sulphate (according to the patient's size) for three consecutive days when the temperature reaches 39 C. (102.2 F.). If after a time, the temperature goes up again, he gives a new series of three injections, in the same dose. In a camp of German prisoners of war in Morocco, he had every man whose temperature ran up to 39 C. inscribed on a special list. When twenty names were on the list, he started the series of three injections, only fifteen minutes being required to inject the whole group.

Bulletins de la Société Médicale des Hôpitaux, Paris

April 12, 1918, 42, No. 12

- 43 Primary Tricuspid Insufficiency. C. Laubry.—p. 327.
44 *Lethargic Encephalitis. A. Chauffard and Bernard.—p. 330.
45 *Preventive Serotherapy in Measles. Nicolle and Conseil.—p. 336.
46 *Pneumonia from Night in Cellar. Netter and Triboulet.—p. 338.
47 *Rubeola in the Troops. Nobécourt and Richet.—p. 339.
48 Cirroid Aneurysm and Raynaud's Disease. F. Ramond and A. François.—p. 342.
49 Ptosis of Liver, Spleen and Stomach from Interposed Small Intestine. F. Ramond, Gernez and P. A. Carrié.—p. 344.
50 Generalized Diphtheric Paralysis with Meningeal Reaction. L. Legendre and L. Cornil.—p. 347.
51 Acute Leukemia in Young Man; Fatal in Three Weeks. L. Giroux and M. Verdier.—p. 352.

44. **Lethargic Encephalitis.**—See London and Paris letters, June 22, p. 1963. The discussion on Netter's cases and some observed by Chauffard suggests that the same cause inducing the lethargic encephalitis may be responsible for a certain proportion of cases of hemiplegia, aphasia and mania. It is possible also that poliomyelitis virus may localize at different points, and induce symptoms suggesting encephalitis or polyn neuritis or meningitis or cerebellar ataxia or peripheral facial paralysis.

45. **Preventive Injection of Measles Convalescent Serum.**—Nicolle and Conseil injected the serum from the oldest child in a family of four, at the seventh day of convalescence from

measles, hoping thus to ward off the infection from a boy of 2, the youngest in the family. He did not develop the disease although constantly with his three brothers who all developed the disease in turn in the course of three days. The injection was made the tenth day after the first symptoms in the first child.

46. **Pneumonia After a Night in the Cellars.**—Netter reports twenty-one cases of pneumonia in children taken down into cellar shelters for the night.

47. **Rubeola in the Troops.**—Nobécourt says that about seventy cases of rubeola have occurred in his division. Any tendency to epidemic occurrence was promptly aborted by twice daily medical inspection and isolation.

Paris Médical

April 20, 1918, 8, No. 16

- 52 *Simulation by the Insane. Laignel-Lavastine and P. Courbon.—p. 305.
53 *Cinchona in Malaria. P. Baufle.—p. 309.
54 *Prevention of Talipes Equinus, etc. Audion.—p. 316.

52. **Simulation of Insanity.**—This article warns that evident simulation of insanity does not exclude a psychopathic basis.

53. **Cinchona in Treatment of Malaria.**—Baufle has found cinchona a valuable adjuvant or substitute for quinin in many cases of malaria. The patients all prefer it to quinin, and his experience in fifty-six cases demonstrates its value, only five of the men having any further attacks after five days of treatment. In a parallel series of twenty-nine cases with quinin treatment, three had attacks afterward. The daily dose of cinchona was four cachets of 0.75 gm. each—a total of 3 gm. of the powder, and 120 c.c. of a 5 per cent. decoction of the powder—a total of 6 gm. He has this entire daily dose taken in his presence in the morning, paying no attention to impending attacks.

54. **Prophylaxis of Talipes Equinus, etc.**—Audion insists that after a sprain of the foot and ankle or war wound of the region, the men must not be allowed to step on the foot as long as this causes pain. When walking is painful, the men distort the foot to ward off the pain; the muscles are stretched and incurable talipes equinus becomes installed. The men must either be kept in bed until they can step on the foot without pain, causing them to raise the heel, or they must be fitted with a plaster boot holding the foot not at a right angle but in slightly talus flexion. The talus position is indispensable in immobilizing the foot, as the ordinary right angle position does not overcome the resistance of the extensors of the foot, the main factor in the equinus deformity.

Presse Médicale, Paris

May 23, 1918, 26, No. 29

- 55 *Phases of Uremia. F. Widal, A. Weill and P. Vallery-Radot.—p. 261.
56 *Data in Pulmonary Tuberculosis. P. Merklen.—p. 262.
57 *Extragenital Syphilitic Lesions. M. Pinard.—p. 263.
58 Physiologic Sugar Solutions. G. Lyon.—p. 264.

55. **Uremia in Chronic Nephritis.**—The symptoms from retention of chlorids with chronic nephritis can be dispelled by restricting the intake of chlorids, but the symptoms from retention of nitrogen are always menacing. Even when there are no symptoms of azotemia, the accumulation of urea in the organism can be demonstrated by the urea content of the blood. The prognosis of the disease and the duration of its evolution can thus be foretold from the urea content of the blood, and this with a precision rarely attained in the clinic. Study of kidney patients over long years has shown that the azotemia passes through a set of phases, from the onset to death, each of which has its special prognosis. When the ureosecretory constant is persistingly high but the urea content of the blood is within normal range, this may be considered the premonitory phase. The second phase is when the urea content of the blood ranges between 0.50 and 1 gm. The urea is evidently accumulating in the organism; another step has been taken along the road of ureosecretory disturbances. This initial azotemia may retrogress, but often it persists a very long time or passes rapidly into the next phase. But as long as it has not passed beyond 1 gm., the organism seems to adapt itself to this azotemia and it is

impossible to foretell the duration of the disease. The clinician should not let his prognosis be influenced by a higher constant, even when it indicates a pronounced deficit in the functional capacity of the kidneys. Cases are cited here which confirm anew that life can be maintained without apparent disturbances even when only a minimal area of the parenchymas are left. But when repeated examination shows that the azotemia is permanently above 1 gm., then the condition is extremely grave, and when 2 gm. is reached and passed, a fatal termination impends, the interval the shorter, the higher the urea content of the blood.

56. Pulmonary Tuberculosis.—Merklen classifies in four groups the men suspected of tuberculosis. His classification is based on the existence or lack of parallelism between the local and the general symptoms, and on the analogy between the objective symptoms in the course of stationary and of progressive tuberculous lesions from parenchymatous congestion, with or without bronchiolitis. The first of the four classes comprises the men with parallel general and local findings; the second those with general but slight or no local findings. Those with slight local findings are kept for closer examination. In the others the diagnosis is evident at a glance. The third group comprises the men with slight or no general symptoms but characteristic local findings. This group also requires prolonged study. It includes the numerous cases of tuberculosis developing by *petites poussées évolutives*. This method of evolution by waves is the explanation of the discrepancies so often noted between the man's clinical record and the findings of the moment. His disease progresses by a succession of phases of aggravation and improvement. The aggravation may be in the tissue modifications or in the toxemia, so the general symptoms or the local manifestations may predominate at different times, and the phase of improvement may reach an actual cure by sclerosis. Or these "pushes" may be slight and brief, and a somewhat prolonged study of the case may be required to demonstrate them. His fourth and last group comprises the cases of tuberculosis with an atypical course, recurring bronchitis, persisting congestion of the lung, chronic bronchitis with emphysema, febrile episodes. The diagnosis of the bacillosis may be very probable even at the first examination, but it generally requires confirmation. He describes further the interpretation of the radiologic findings, and discusses the numerous cases of pulmonary tuberculous lesions arrived at such a phase of healing and torpidity that in the conditions of ordinary life they never would be heard from. But with stress of active service the men grow thin and tire easily, complain of diffuse pains, and lack of appetite, and they "get out of breath" after exertion, but there is no cough or expectoration, and the temperature and pulse are normal. Conditions improve materially under repose, and they do not improve without it. Work or fatigue brings them back again.

57. Undiagnosed Extragenital Syphilitic Lesions.—Pinard relates four instructive cases of the spread of infection from an undiagnosed extragenital syphilitic lesion. In one case it was on the under part of the chin and was taken for a goiter for months until a skin lesion suggested its true nature. Another case of razor infection under the chin was not differentiated for two months and a half until swollen glands made swallowing difficult. In another case the retrospective diagnosis of syphilis was made after the man's wife developed symptoms of recent syphilis. The infection of both was traced to a syphilitic who was stationed next to the husband at table and bench.

Progrès Médical, Paris

May 4, 1918, **33**, No. 18

59 Association of Tubercle Bacillus with Acid-Resisting Oospores. A. Sartory.—p. 157.

60 *Primary Operations for War Wounds. A. Demmler.—p. 158.

61 Ethyl Chlorid in War Surgery. H. Vignes.—p. 159.

62 Antityphoid Lipo-Vaccine. C. Pradel.—p. 160.

May 11, 1918, **33**, No. 19

63 Paralysis of Four Cranial Nerves. C. Roubier.—p. 165.

64 *Medical Problems of Aviation. A. Bernard.—p. 166.

60. Primary Interventions for War Wounds.—Demmler discusses whether it is not advisable to suture the nerve at once,

as soon as the vitality of the tissues permits. Experience seems to be confirming the advantage of this. Tavernier among others has reported three cases in which the nerve was sutured within twenty-four hours of the injury, and the restoration was rapid and remarkable. Demmler urges, further, primary operations on the tendons as a routine measure, thus obviating the retractions and deformities otherwise liable. These primary operations, outside of periods of offensives, might be done at a base hospital not too far back.

64. Medical Problems of Aviation.—Bernard remarks that the task of the physician is almost exclusively along the lines of prophylaxis, selection of the candidates and surveillance over them until certain that they are fitted for the service. He insists that this surveillance should be incessant. The physician should live among them, and watch the physical and moral modifications induced by flying, and study each accident minutely to learn how such can be avoided. He says that the training camp should have a commission for study of these problems, including a physiologist, a physician, a surgeon, an ophthalmologist, a neurologist and an ear, nose and throat man.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 4, 1918, **48**, No. 18

65 *Ophthalmoscopy with Red-Free Light. A. Vogt.—p. 561.

66 Necessity for Intensifying the Campaign against Goiter and Cretinism. B. Galli-Valerio.—p. 569.

67 Realizable Campaign against Venereal Diseases. Dind.—p. 572.

68 *The Coagulovimeter. A. Fonio.—p. 574.

65. Advantages for Ophthalmoscopy of Light Free from Red Rays.—Vogt here reports with illustrations further ophthalmoscopic findings discovered with this special red-free illumination. His first communication was mentioned in these columns, March 30, 1918, p. 964.

68. Index of Coagulating Property of Blood.—The principle of Fonio's coagulovimeter is to use as the index the power of the given specimen of blood to overcome the coagulation-preventing action of a given quantity of magnesium sulphate.

Schweizer Archiv für Neurologie und Psychiatrie, Zurich

1918, **2**, No. 1

69 Reciprocal Independence of Muscle Tonus, Tendon Reflexes and Contractures. N. Betchov.—p. 3.

70 Syphilitic Atrophy of Frontal Lobe. M. Düring.—p. 21.

71 Peculiar War Contracture of Hand. R. Bing.—p. 40.

72 Malformations of Cerebellum. R. Brun.—p. 48. Continuation.

73 Tardy Cicatricial Epilepsy. F. Naville.—p. 106.

74 War Functional Nervous Disturbances. L. Schnyder.—p. 116.

75 War Wounds of the Nerves. Long.—p. 130.

Annali d'Igiene, Roma

April 30, 1918, **28**, No. 4

76 Biology of Paratyphoid B Bacillus. G. F. Gardenghi.—p. 161.

77 Pseudodysentery Bacilli. B. Maymone.—p. 173. Conclusion.

78 *Glanders in Felines. M. Carpano.—p. 183. Conclusion.

78. Glanders in Felines.—A preceding instalment of Carpano's work was summarized in these columns, April 27, 1918, p. 1267. He here reports supplementary research on dogs and cats.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 21, 1918, **39**, No. 32

79 Infective Jaundice. F. Laureati.—p. 313.

80 Fatal Poisoning from Mercurial Inunctions to Kill Vermin. G. Marangoni.—p. 321.

April 25, 1918, **39**, No. 33

81 *Ulcerative Intestinal Tuberculosis. L. Fioravanti.—p. 327.

81. Ulcerative Tuberculosis of the Intestine.—Fioravanti reports a case in which there was spasmodic stenosis from the tuberculous ulcers in the small intestine. Some tuberculous glands were seen in the mesentery corresponding to the region of the stenosis. He made a side-to-side entero-anastomosis in sound tissue above and below the region of the spasm, and the patient was in most satisfactory health, without symptoms from the bowels, when examined two years later. There was no serious pulmonary lesion in this case. In a second case nothing could be found to explain an invagination except a tuberculous lesion in the region, evidently mild but of long standing, with typical ulcerations.

The operation was the same and proved successful in both, but the young woman of the second case succumbed to post-operative pneumonia.

Policlinico, Rome

April, 1918, 25, Medical Section No. 4

- 82 *Pathogenesis of Diabetes Insipidus. C. Moreschi.—p. 97.
83 Wounds of Peripheral Nerves. S. Ricca.—p. 119. Continuation.
April, 1918, 25, Surgical Section No. 4
84 *Experimental Lesions of the Pituitary Body. A. Chiasscrini.—p. 97. Commenced in No. 1, p. 26.
85 *Autografts in Bones of Forearm. L. Losio.—p. 103.
86 Gaseous Infection of War Wounds. V. Calo.—p. 120. To be continued.

82. **Pathogenesis of Diabetes Insipidus.**—Moreschi describes in detail a case of so-called idiopathic diabetes insipidus in a girl of 19, with the urine findings, etc., as modified by intake of water, salt and pituitary extract. He excluded the symptomatic form of diabetes insipidus by giving 10 or 20 gm. of salt. The total amount of urine in the four following days increased materially, although the intake of fluids had been reduced, but the specific gravity did not increase—the reverse of what occurs with symptomatic diabetes insipidus. The girl had attacks of narcolepsy and there was atrophy of the left optic nerve, with left hemianopsia and right optic neuritis, while the pulse was small and slow and the blood pressure low. Analysis of the symptoms and of the effects of various therapeutic measures and comparison with the literature have apparently confirmed the assumption that diabetes insipidus is the result of deficient pituitary functioning with more or less functional modification of the ductless glands, and hence of the work of the vegetative nervous system—an endocrine-sympathetic dystrophy. Other causes for diabetes insipidus may be found in changes in the mid-brain, particularly in the floor of the third ventricle, or in changes in the vegetative system in the chest region from compression of the vagus or sympathetic by a tumor or aneurysm. The morbid conditions entailing the deficient functioning in the pituitary body may be from a tumor or chronic inflammatory lesions as well as from tuberculosis or syphilis or sclerosis of the gland.

In the case reported, 1 c.c. of the pituitary extract used seemed to be the optimum, larger doses not showing any better results. The effect was most pronounced about the ninth hour and entirely disappeared in twenty-four hours. The average specific gravity of the urine changed from 1.0016 to 1.0045; the average molecular concentration from 0.20 to 0.39; the elimination of chlorids was slightly checked, while that of phosphates increased from 1.75 to 2.27 gm.; of nitrogen from an average of 21.1 to 25.1 gm. The findings in this case apparently incriminate the pituitary body alone as responsible for these disturbances.

84. **Experimental Lesions of the Pituitary Body.**—Chiasscrini has found it possible to induce lesions of various kinds in the dog pituitary body through an opening in the temporal parietal region of the skull. Hyperplastic lesions in the intermediate part induced polyuria, sometimes intense. In the dogs with lesions of the anterior portion, the skin grew thicker and there was proliferation of bone tissue, suggesting the changes of acromegaly. Inflammatory and degenerative processes, leading to complete destruction of the pituitary body, entailed the most typical form of cachexia and asthenia. Inoculation of the sella turcica with the sporothrix or with tubercle bacilli induced progressive changes in the intermediate or anterior portions of the pituitary body, and these were accompanied by remarkable polyuria or symptoms suggesting acromegaly. In the course of this research the effect of artificial pressure in the sella turcica region was also studied. The report on this will follow later.

85. **Auto-Bone Graft in Gap in Ulna and Radius.**—In Losio's two cases, a segment in both bones of the forearm had been destroyed by a shell. The arm was much shortened and a splint had to be worn constantly. A graft was taken from the tibia and implanted in place. In one case the graft was 11 cm. long and 1 cm. thick, and included periosteum and a thin strip of bone marrow. It was slit in two, and one half was implanted in the bed made for it in the ulna, the other half in the radius. In one case there was pseudarthrosis

of the ulna. The results were most excellent in both cases, the men recovering the use of the arm. An illustration shows one of the men holding at arm's length a weight of nearly 7 pounds. The date is still too recent for the ultimate results to be known.

Riforma Medica, Naples

April 27, 1918, 34, No. 17

- 87 *Secondary Venous Hemorrhage. G. Razzaboni.—p. 322.
88 Hair Ball in the Stomach. I. Bruchi.—p. 324.
89 Recent Literature on Hemorrhage during Tonsillectomy. E. Aievoli.—p. 328.
90 *Prophylaxis of Tuberculosis in the Army. E. Maragliano.—p. 332.
91 *Aviators' Sickness. Editorial.—p. 333.
May 4, 1918, 34, No. 18
92 *Clinical Picture with Protozoan Disease. U. Gabbi.—p. 342.
93 Microbicidal Action of Nascent Chlorin and Oxygen. N. Pane.—p. 344.
94 Malocclusion of the Teeth. B. De Vecchis.—p. 347.
95 Occlusion of Colon Flexure. E. Aievoli.—p. 349.

87. **Secondary Venous Hemorrhage.**—Razzaboni remarks that the progress of the medical sciences during the war has rendered secondary venous hemorrhage extremely rare, yet cases are still occasionally encountered. Bacterial action is generally responsible, the bacterial proteolytic ferments weakening the damaged wall of the vein. The hemorrhage generally occurs suddenly, after some effort or manipulation of the region of the wound. If internal, the symptoms are those of any internal hemorrhage. The provisional hemostasis secured by careful packing, not leaving any spaces in which blood can accumulate, may be all that is necessary, leaving the gauze in place for a few days and then removing it cautiously so as not to disturb the thrombotic occlusion of the vessel. This may become organized in time. If this does not suffice, he has found very useful the application of small forceps, seizing the bleeding point in such a way as to fold in a large part of the circumference of the vessel. The forceps are left in place for several days, until they drop off of themselves. The entire cavity around the forceps is packed tight with gauze. If the external wound is not large enough to permit this, he enlarges it enough for the purpose. Suture of the opening in the vein is far more difficult than to use the forceps. A ligature above and below would also prove effectual, but is not always an easy matter in the depths of the wound. If the other measures fail, this has to be done, opening up the tissues to apply the ligatures on the sound vein walls above and below. With internal venous hemorrhage, suture of the opening is always preferable to ligation, if the vein is of large size.

90. **Prophylaxis of Tuberculosis in the Army.**—Maragliano reproduces a notice recently sent out by the Italian minister of war reiterating the importance of excluding from military service all men with any signs whatever of tuberculosis in any form or period, and discharging from the army all in this category. The minister declares that the large number of soldiers that have to go to the hospitals or be invalided on account of tuberculosis, soon after their enrolment, shows that his directions have been disregarded, and that men have been passed for military service who should have been excluded. He expatiates on the evils resulting from this, the crowding of hospitals and trains, the unnecessary expense, the expense to the state in pensions, etc., but beyond all this the evil to the man himself. His health might have been ample for civilian life, but the exigencies of warfare have upset the balance and thrown him a burden on society. The minister impresses on the boards of review, the medical inspectors and the hospitals to watch out for men suspected of tuberculosis or who are supposed to have recovered from tuberculous lesions and have them sent for examination to the board of revision.

Maragliano comments with approval on the minister's words, and says that they materially simplify the task of the medical examiners. The latter do not have to study each individual case to determine whether the good general condition turns the scale in favor of fitness for active service. No. If they demonstrate a tuberculous infection in the candidate, this excludes him. He may be in apparently perfect health, but the government does not wish to upset the balance which renders him useful to himself and to society. Experience has

demonstrated that otherwise he becomes useless to himself, to the army and to society, and becomes a source of danger to the service and to society. Maragliano emphasizes further that the various official circulars on the question have made it plain that the government does not wish to admit to or to retain in the army men affected with tubercle bacillus infection, even in its rudimentary forms, even when it has not yet determined any anatomic alterations. This is precisely the case in the clinical picture called "pretuberculosis"; certain findings prove the existence of tuberculous infection, but with our present means of clinical and radiologic observation we are unable to detect any anatomic changes. This clinical picture is equivalent to "latent" tuberculosis. The official announcements, he continues, are based on the teachings of pathology and the modern clinic in the matter of tuberculosis. Time and experience have demonstrated that tubercle bacillus infection, even if it has not yet created changes in organs, usually explodes under the fatigues and vicissitudes of military life, and the war department, in concordance with the two houses of parliament, has decided that it does not wish to have this happen. Hence it does not wish to have enter the army or stay in the army those in whom this may happen or it has already happened. Consequently the official announcement is positive, absolute; nothing is left to the judgment of the military medical officer or examiner, as with other morbid contingencies. If the man has tubercle bacillus infection of any kind, he is not wanted in the service. But provision is made for expert examination and revision to eliminate all doubts.

91. **Prevention of Aviator's Sickness.**—Prof. A. Aggazzotti proposes the term "hypobaropathy" to designate the disturbances experienced by aviators at high altitudes. The disturbances are the result of the rarefied air, and are the same as those experienced by mountain climbers, owing to the low barometric pressure. Acute pain in the normal ear is not a direct symptom from this cause, but is indirectly due to it, as he has explained. The conditions producing it are corrected by making swallowing movements, working the jaws, and yawning. There may be minute bleeding from the superficial vessels in lips and nasal mucosa, but the cold prevents extensive hemorrhage, and such has never been observed.

He accepts Mosso's explanation of the disturbances in rarefied air as due to changes in the gases of the blood, especially impoverishment of oxygen and of carbon dioxide. The proof of this assumption is provided by the absence of these disturbances, even in extremely rarefied air, if the blood is kept supplied with oxygen and carbon dioxide. In his own recent experiments at the Institute of Physiology at Turin, he was able to bear perfectly a barometric pressure of 140 mm.—which corresponds to an altitude of 13,491 meters—when he breathed a gas mixture consisting of 67 per cent. oxygen and 12.7 per cent. carbon dioxide. He used in this way 11 liters of the mixture, breathing naturally, without the slightest disturbance of any kind. With a mixture consisting of 67.8 per cent. oxygen and 13.4 per cent. carbon dioxide he found that all was well with him even at a barometric pressure of only 122 mm., corresponding to 14,589 meters. A higher altitude than this has never been reached in aeroplanes or in the pneumatic cabinet. His mind was clear, vision normal, his movements certain, with no tremor of the lips or sensation of heat in the face.

Another fact which aviators should bear in mind is that when they begin to feel disturbances from the rarefaction of the air, if they will make muscular movements, this improves the oxygenation of the blood, as respiration becomes more active, and carbon dioxide is produced in the muscles and passes into the blood. The question now is to provide the simplest and most convenient means for utilizing this concentrated gas mixture at high altitudes. The official board of aeronautics has research now under way at the uffici psicofisiologici di aviazione at Turin and Naples, seeking to solve the problem of a suitable mask and recipient.

92. **Clinical Differences Between Protozoan and Bacterial Diseases.**—Gabbi mentions as the chief differences the absence of complications with the protozoan diseases, especially on the part of the heart, joints, lungs—except in the later stages—

and of serous membranes, with the exception of trypanosomiasis and one variety of relapsing fever. Polyserositis has never been reported with a protozoan disease. Rashes are more common than with bacterial diseases, and kidney involvement is relatively common. Other features are the gravity of the course and the fact that each seems to have a specific remedy. The protozoan diseases occur in epidemic form, in spring, summer or fall, and are unknown in cool regions. He urges the general practitioner to trust to his impressions in dubious cases, instead of waiting for laboratory confirmation of a protozoan disease.

Brazil Medico, Rio de Janeiro

March 23, 1918, 32, No. 12

- 96 Eugregarina Parasites of Arthropods. IV. C. F. Pinto.—p. 89.
- 97 *Epinephrin Content of Suprarenals from Medicolegal Standpoint. O. Sampaio.—p. 90. Conclusion.
- 98 Painful Talipes. F. Luz.—p. 93.

97. **Epinephrin Content of Suprarenals from Medicolegal Standpoint.**—The first instalment of Sampaio's article was summarized in these columns, June 29, p. 2058. He here gives the findings in twenty-two cadavers. The epinephrin content of the extract of the suprarenals ranged from 0.50 to 0.16 per thousand in cases of sudden death, while the range in cases with agonal dying was only from 0.12 to 0.01 per thousand. It seems, therefore, that a strong concentration, for example, 0.33 per thousand, excludes the assumption of a lingering death, while below 0.05 per thousand excludes sudden death in the absence of disease of the suprarenals.

Gaceta Medica de Caracas

April 15, 1918, 25, No. 7

- 99 *Twenty-Fifth Anniversary of the Gaceta. L. Razetti.—p. 68.
- April 30, 1918, 25, No. 8
- 100 *History of Medicine in Venezuela. F. A. Riquez.—p. 79.

99. **The Gaceta.**—Razetti reviews the twenty-five years of his periodical and celebrates its "silver wedding with Father Time" by publishing serially the entire list of contents for the twenty-five years. He is perhaps the only medical editor who can assert that he has never rejected an article sent in for publication by a physician of his country. To his efforts was due the organizing of the first medical society in Venezuela.

100. **History of Medicine in Venezuela.**—Riquez relates that the founding of the *Gaceta* coincided with the First Pan-American Medical Congress, to which he was the official delegate from Venezuela, and from that year dates the organization of the profession. Before that, the country was hopelessly behind the progress realized elsewhere. Lister inaugurated the antiseptic method in 1869, but an interval of twelve years elapsed before it was applied in Venezuela. But after the founding of the *Gaceta* and of the local medical society, the country soon caught up with the progress of the medical world in general. Diphtheria antitoxin was brought into use within five months of its introduction into science, and even this delay was only from the inability of the Paris Pasteur Institute to produce enough for exportation at first. Riquez published in 1894 in the *Gaceta* a study of a certain disease which seemed to be neither malaria or typhoid and yet had features suggesting both. Two years later Achard published an identical description and coined for the disease the name paratyphoid. Bacteriology since has confirmed the correctness of the descriptions, but the incident confirms anew, Riquez remarks, "that for an idea to get diffusion throughout the world, it has to start in the brain of some Frenchman."

Medicina Ibero, Madrid

Jan. 24, 1918, 2, No. 12

- 101 *Digitalis and the Blood Pressure. D. T. Hernando.—p. 93.
- 102 Reforms Needed in Medical Education. S. Sierra y Val.—p. 99.
- 103 Puberty. Blanc y Fortacin.—p. 119. Conclusion.

101. **Action of Digitalis on Blood Pressure.**—Hernando's research on animals has shown that in normal animals digitalis has little if any influence on the blood pressure, but it has a marked influence in raising the pressure in the isolated heart, especially when it was working badly before.

Experiences in human beings practically confirmed these findings; as a rule the increase is insignificant and there may be even a drop in the pressure. The experiments that have been published showing a vasoconstrictor action were with doses too large to be used therapeutically. With smaller doses, digitalis has a vasodilating action. The mesenteric vessels are more sensitive than the peripheral, and digitalis seems to have a constricting action on them with a dilating action on the peripheral vessels. Epinephrin, strychnin and caffein have a similar action. This is particularly beneficial when the splanchnic vessels are gorged and the peripheral empty. The data presented confirm that the action of digitalis is almost exclusively confined to the myocardium. It increases the heart's contracting power, tonicity and excitability, but reduces the conductivity. The main field for digitalis therefore is in perpetual arrhythmia, the ventricle contracting irregularly and the auricle not realizing actual contractions. This type forms about 60 per cent. of the asystoly cases. With extrasystoles, and with sinus arrhythmia, the effect of digitalis is much less certain and it may even do harm. It is contraindicated with partial heart block, but with total block it may prove useful as it acts separately on the auricle and ventricle. In asystoly with abnormally high blood pressure, digitalis improves conditions in the heart, and thus reduces the blood pressure. Some of the action of digitalis may be explained by assuming that it increases the coagulating power of the blood, as Van der Velden seems to have established. In acute infectious diseases, when digitalis fails to relieve, some paralysis of the vessels or intense bacterial toxic action on the heart must be assumed. The pneumococcus toxin does not seem to act intensely on the heart, and the heart disturbances in pneumonia are more of mechanical than of chemical origin, which explains the efficacy of digitalis in pneumonia in comparison to other diseases.

Prensa Medica Argentina, Buenos Aires

March 30, 1918, 4, No. 30

- 104 *Measurement of the Pelvis. J. B. Gonzalez.—p. 427.
105 *Traumatic Spondylosis. H. L. Plaza.—p. 431.
106 Bernhardt's Paresthetic Meralgia. J. A. Lopez.—p. 437.
107 The Campaign against Tuberculosis. G. A. Alfaro.—p. 438.
108 Normal Beef Serum in Treatment of Anthrax. J. Penna, J. B. Cuenca and R. Kraus.—p. 439. Continuation.

104. **Obstetric Pelvigraph.**—Gonzalez gives an illustrated description of his quadrant instrument, which has a weight to hold it vertical. He compares the various features of this pelvigraph with others in use, claiming that it can be applied without causing pain and is extremely simple, while the figures are exact and provide a complete outline of the sagittal plane of the pelvic cavity with correct figures for the sacral measurements, for the conjugata vera and for the slant of the pubis.

105. **Traumatic Spondylosis.**—The necropsy showed that the pains in the stomach and other nervous troubles were, as supposed, the consequence of compression of the seventh and eighth spinal roots from a trauma affecting the spine seven years before. The man committed suicide just before the contemplated operation to sever the roots involved. Necropsy confirmed its feasibility.

Revista de la Asociacion Medica Argentina, Buenos Aires

March, 1918, 28, No. 160

- 109 Ileus from Gallstones or Diverticulum. B. N. Calcagno.—p. 151.
110 *Pathogenesis of Pelvic Infections. C. A. Castaño.—p. 159.
111 History of Gynecology in Argentina. C. A. Castaño.—p. 202.
112 History of Public and Social Hygiene in Argentina. E. R. Coni.—p. 219. Continuation.
113 *Disturbances of Pituitary Origin in Gynecology. J. Guardado.—p. 256.
114 Fibrosarcoma of Rectum. T. Kenny and G. Segura.—p. 261.
115 A Surgeon's Impressions of North America. R. E. Paskan.—p. 274.
116 *Buba, Espundia or Uta. J. F. Recalde.—p. 288.

110. **Pathogenesis of Pelvic Infections.**—Castaño refers particularly to phlegmons in the broad ligament, analyzing the literature on the subject of pelvic infections in general and the microbes responsible for them and their portals of entry. Besides surgical and accidental traumatism, horse-

back riding, chilling during menstruation and venereal excesses have been incriminated as accessory factors. Sound organs are not absolutely but only potentially sterile, and when the vitality of the organ is reduced from any cause, the scanty bacteria in the organ are able to attack the tissues. Castaño has been able to induce in animals by this mechanism typical phlegmons in the broad ligaments. He induced in the animals a latent microbism by injecting extremely attenuated cultures of staphylococci and then, aseptically traumatizing the uterus, the latent infection in the blood was attracted to that point. An inflammatory process developed in the uterus and this in time entailed a phlegmon in the broad ligament. He argues that this same mechanism may be responsible for certain cases of genital infections after abortions and deliveries, the latent infection previously present in the organism being attracted to the uterus by the wound-like conditions left by the termination of the pregnancy. In conclusion he lists twenty-five determining causes and eighteen predisposing causes for phlegmon of the broad ligament, emphasizing that mechanical, anatomic and constitutional factors may intervene in addition to the infectious factor. In eight cases personally observed, the gonococcus was found in the pus in one case, the pneumococcus, streptococcus, or staphylococcus and colon bacillus in some others, but in three cases it proved impossible to cultivate any microbes from the pus obtained by puncture of the posterior fornix of the vagina.*

113. **Pituitary Treatment in Gynecology.**—Guardado remarks that it used to be said that Nature protected tuberculous women against losses of needed blood by suppressing menstruation. But we know now that this amenorrhea is probably the result of a toxic action on the thyroid. This seems to be responsible also for the night sweats and the discrepancy between pulse and temperature. Likewise the influence of the pituitary body on ovarian function has been experimentally demonstrated. On the basis of these and other premises, Guardado urges a trial of pituitary treatment in gynecologic processes rebellious to other measures. He has found a combination of pituitary and ovarian treatment effectual in many cases of congestion in the pelvis. This organ therapy has failed in others, and in one case the scanty menses grew still scantier. In one woman with unusually developed hair system, the menses had gradually subsided to complete amenorrhea for six months. Under pituitary treatment menstruation returned to normal and has persisted normal during the year since. In another woman of 28 the amenorrhea was of over two years' standing and there were other symptoms of ovarian insufficiency. Ovarian treatment gave no relief, but under pituitary treatment menstruation returned to normal after a brief exaggerated period at first.

116. **Brazilian Buba.**—Recalde discusses prophylaxis and treatment of this form of leishmaniasis encountered in South America. It is known also as espundia or uta. He advocates excision of the sore, and has been applying this since 1913 with excellent results, especially when supplemented with tartar emetic by the vein. Prophylaxis includes refraining from picking the nose with the finger, and protecting all skin lesions with tincture of iodine. This causal leishman body does not get into the blood, and contagion occurs by direct contact of skin or mucosa. The leishman body once installed in the skin of man loses its flagella and becomes incapable of infecting other persons, although by direct contact it can start other lesions on the same person. Recalde ascribes to the loss of the flagella its inability to penetrate into the blood stream.

Revista de Medicina y Cirugia Practicas, Madrid

April 7, 1918, 119, No. 1501

- 117 *Suppurating Echinococcus Cyst in Lung. J. C. Castellvi.—p. 5.
April 14, 1918, 119, No. 1502
118 Enuresis Nocturna and Adenoids. A. M. Calderin.—p. 33.

117. **Echinococcus Cyst in Lung.**—The retrospective diagnosis was that an echinococcus cyst had "died" and had suppurated. The first symptoms were diagnosed "influenza with old sclerosis of the right apex." Nearly a year later the man of 46 returned complaining of occasional pain in

the right thorax and that for some time he had been expectorating white foamy sputum, occasionally blood streaked. The fourth, fifth and sixth interspaces were tender. There was a slight tendency to dyspnea, especially in certain attitudes, and there was slight tachycardia. These symptoms suggested irritation of the sympathetic system from some inflammatory process of undetermined nature, but the sputum and blood were free from tubercle bacilli and parasites, and puncture was negative, as also deviation of complement tests. Roentgen examination showed that the suppurating process could not be in the pleura. The symptoms grew rapidly more serious, and the man died suddenly the third month, the day before the contemplated operation.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

March 23, 1918, 1, No. 12

- 119 *Latent Nystagmus. J. van der Hoeve.—p. 790.
120 *Treatment of Tetanus Neonatorum. S. B. De V. Robles.—p. 800.
121 Physical Condition of Antwerp Schoolchildren. M. C. Schuyten.—p. 808.
122 Psychogenesis as Aid in Differential Diagnosis of Melancholia and Psychasthenia. J. H. van der Hoop.—p. 813.
123 *Tetanus or Hysteria? N. A. A. van de Roemer.—p. 819.

119. **Latent Nystagmus.**—Van der Hoeve describes eight cases with apparently normal conditions except when one eye was covered. Then nystagmus was evident at once in the other eye. This latent nystagmus might have serious consequences when extraneous conditions compelled the use of one eye only. He theorizes to explain this latent nystagmus, ascribing it to the unstable balance of the center for the associated movements of the eyes. Conditions gradually right themselves, and the nystagmus disappears in time.

120. **Tetanus Neonatorum.**—Only one of the three infants died in Robles' three cases; the others recovered although the symptoms had been very severe. The main reliance in treatment of tetanus in the newly born is on narcotics, chloral, ether, chloroform and morphin. He gave them freely, as the tolerance in tetanus is exceptionally high, and they seem to have a direct action on the tetanus toxin besides their sedative influence. He found the use of an incubator in a dark room a great advantage as it protected the infant against light and noise—every irritation of the kind bringing on new paroxysms. The infants were 9, 13 or 15 days old, and he injected 120 units of antitetanus serum several times. The incubation seemed to have been eight, ten and eleven days. Baginsky and Heubner are said to have never had an infant with tetanus neonatorum recover, Escherich had one recovery in fourteen cases and Shukowski had 2 per cent. recover.

123. **Tetanus or Hysteria?**—Roemer reports a case which warns that the possibility of hysteria should not be forgotten even when paroxysms suggesting tetanus develop in a person presenting an infected wound.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 4

- 124 *The Mosquitoes of the Dutch East Indies in connection with Malaria. W. Schuffner and others.—p. 1, p. 25 and p. 42.
125 *Prospects of Prophylaxis of Malaria. W. Schuffner.—p. 48.

124-125. **Mosquitoes of East Indies and Prophylaxis of Malaria.**—This profusely illustrated report of research on the various mosquitoes of the Dutch East Indies is printed in parallel columns in Dutch and German. Schuffner says that cutting down trees and bushes to destroy the lurking places for mosquitoes has proved of little use. In the Andamans the result was disastrous, as the treeless areas, although successful in getting rid of one type of mosquitoes, attracted another type, the ludlowi, which is much more dangerous from the malaria standpoint. It seems to be absolutely impossible to eradicate all breeding places for the mosquito except when natural conditions favor drainage. This is not the case in the fisher villages along the coast, which need it most. Only the well-to-do can have properly screened houses. Quinin prophylaxis is also impossible to realize in a scattered population where it has to be kept up indefinitely, without the discipline of a military or industrial environment. Adults soon weary of it, and it is possible only

in the rarest cases to give the children effectual quinin courses. Tropical hygiene is practically powerless against malaria as a folk disease. It is far easier to clear a place of beriberi, ankylostomiasis or cholera than it is to eradicate malaria in the general population. On all sides, he says, are heard the confessions of failure. Even Manteufel after twelve years' work at Dar-es-salam wrote in 1914 that "quinin prophylaxis of malaria is growing every year more and more unpopular among the blacks." With a population of 23,000 nearly \$5,000 had been spent annually for the purpose. Schuffner adds that the problem would be solved if we could discover some means or remedy which would destroy the gametes as promptly and certainly as quinin destroys the schizonts. Then the people could be compelled by law to submit to a thorough course of treatment.

Hospitalstidende, Copenhagen

April 24, 1918, 61, No. 17

- 126 *Light Treatment of Bone Tuberculosis. A. Berntsen.—p. 513.
127 Hallucinations. Wimmer.—p. 525. Commenced in No. 16, p. 496.

126. **Arc Light Treatment of Bone and Joint Tuberculosis.**—Berntsen has been investigating on twenty-seven patients the modifications in the blood during a course of carbon arc light treatment of so-called surgical tuberculosis. No noticeable changes were apparent in the blood picture, merely the fluctuations within the natural range.

Ugeskrift for Læger, Copenhagen

May 9, 1918, 80, No. 19

- 128 *Occult Hemorrhage. J. P. Gregersen.—p. 733. Commenced in No. 18, p. 691.
129 Purulent Sputum Does Not Appreciably Modify Test for Occult Blood in Stools. J. P. Gregersen.—p. 740.

128. **Occult Hemorrhage.**—Grégersen has simplified the test for occult bleeding in the stools. All that is necessary for it is a scrap of stool, so small that it can be carried between two slides, and the reagent, made up in powder form. It merely requires dissolving when ready to use, and is dropped directly on the fecal substance. The work issues from the medical service of the public hospital at Copenhagen, and states, to begin with, that the feces of normal persons, even on a meat-free diet, contain a certain proportion of blood (according to his data, from about 0.03 to 0.005 per cent.). Hence the phenolphthalein and thymolphthalein tests are not suitable as they give positive findings with extremely minute admixtures of blood. The sensitiveness of the benzidin test can be controlled by the strength of the solution. He uses a powder consisting of 2.5 cg. benzidin and 20 cg. barium peroxid. These powders keep well in waxed papers. When ready to use, one of the powders is poured into a measuring glass, and on top of this is poured 5 c.c. of a 50 per cent. solution of acetic acid. We thus obtain a 0.5 per cent. solution of benzidin in which the necessary proportion of hydrogen peroxid is generated as the barium peroxid is dissolved by the acetic acid solution. The latter solution also keeps well. The scrap of feces, about the size of a hemp seed, taken from the center of the lump, is spread in a thin layer on a slide, and from 2 to 4 drops of this reagent are dropped on it. If the specimen turns a greenish blue, a pale blue, in the course of from fifteen to sixty seconds, the specimen contains blood in a proportion of about 0.2 to 1 per cent. If the tint is a livelier blue and the change in tint occurs in from three to fifteen seconds, the blood content of the specimen is about 1 to 5 per cent. With a still more rapid change of tint and a darker blue, the blood content is over 5 per cent. Two or 3 drops of the reagent are required for 1 drop of urine. He has found persistent occult bleeding one of the very earliest symptoms of cancer. With gastric ulcer, the bleeding comes and goes, but never keeps up long. Negative findings for a few days disprove the assumption of cancer. Gregersen has found it convenient to prepare some filter paper by dipping it in a very dilute solution of acetic acid with minute blood admixture. The dried paper does not show the presence of blood, but if a drop of the benzidin reagent is dropped on it, the characteristic greenish blue tint appears at once. This is a convenient test to show that the reagent is properly made.

Order of the Day

Judging from the steady flow of orders from medical men in the Army, in the Navy, with the Marines, from medical examiners in draft districts and at the cantonments—from every branch of the Service, the “order of the day” must be—

Norris and Landis’ Diseases of the Chest and Physical Diagnosis

Not alone individual orders are coming in, but *quantity orders* from the Government as well. And this success among medical men in the Service is duplicated with physicians and surgeons in civilian and industrial practice. Indeed, the demand was so unusual that the first printing, large though it was, was quickly exhausted. The second printing is now coming from our presses.

Its Scope: Parts I and II take up the actual *methods* of diagnosis. In the section on inspection, the normal with its variations is contrasted with the pathologic contour, size, color, and other physical characteristics; and you are trained both to *see* and *interpret*. Palpation is gone into very thoroughly, on account of its peculiar value in detecting certain conditions. The chapters on percussion cover over 50 pages, giving you theory, actual technic with directions for strokes, and significance of findings. Auscultation is also treated very completely, normal and abnormal breath and voice sounds being fully considered. There is also a chapter on the *electrocardiograph*.

Parts III and IV take up the diagnosis of diseases of the bronchi, lungs, pleura, diaphragm, pericardium, heart, and aorta, by means of the four methods. Every disease of these organs is considered, and each symptom carefully analyzed.

130 pages on Methods of examining the lungs.

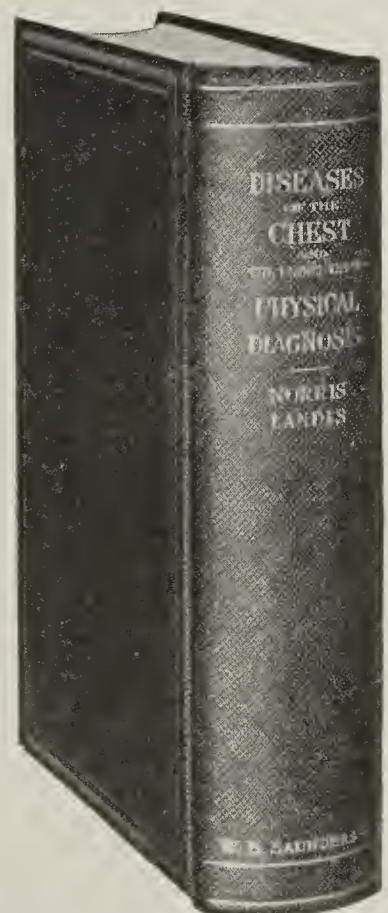
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SOCIETY	PRESIDENT	SECRETARY	ANNUAL MEETING
AMERICAN MEDICAL ASSN..	Charles H. Mayo, Rochester, Minn..	Alex. R. Craig, 535 N. Dearborn St., Chicago	
American Academy of Medicine.....	J. E. Tuckerman, Cleveland, O....	Thos. Wray Grayson, 1101 Westinghouse Bldg., Pittsburgh	No meeting.
Academy of Ophth. and Oto-Lar.	Major Allen Greenwood, M. R. C., U. S. A., Boston	Lee M. Francis, 636 Delaware Ave., Buffalo..	Denver, Aug. 6-8,'18
Association of Anatomists.....	R. R. Bensley, Chicago.....	C. R. Stockard, Cornell Univ. M. C., New York	Dec., 1918
Association of Electro-Therapeutics and Radiology	Frank B. Granger, Boston.....	Byron S. Price, 65 Central Park W., New York	Boston, Sept. 10-12, '18
Assn. for S. & P. of Inf. Mort..	Mrs. Wm. L. Putnam, Boston.....	Henry F. Helmholtz, Chicago.....	1918
Assn. of Genito-Urinary Surg's..	L. E. Schmidt, Chicago.....	Ex. Sec., Miss G. B. Knipp, 1211 Cath. St., Balt.	No meeting.
Assn. of Obstetricians and Gyn..	Albert Goldspohn, Chicago.....	R. F. O'Neil, 379 Beacon St., Boston.....	Detroit, Sept. 23-25,'18
Assn. of Path. and Bacteriologists	E. L. Opie, St. Louis.....	E. Gustav Zinke, 4 W. 7th St., Cincinnati...	
Association of Railway Surgeons..	Edwin S. McDonald, Cameron, Mo.	Oskar Klotz, Univ. of Pittsburgh, Pittsburgh..	Chicago, Oct. 16-18,'18
Climatological and Clin. Assn....	Guy Hinsdale, Hot Springs, Va....	Louis J. Mitchell, 29 E. Madison St., Chicago.	1919
Dermatological Association	Abner Post, Boston.....	Arthur K. Stone, Boston.....	
Gastro-Enterological Association..	John A. Lichty, Pittsburgh.....	Oliver S. Ormsby, 25 E. Washington St., Chicago	
Gynecological Society	John G. Clark, Philadelphia.....	F. W. White, 322 Marlborough St., Boston..	
Laryngological Association	Thos. H. Halsted, Syracuse, N. Y..	Geo. G. Ward, Jr., 71 W. 50th St., New York..	
Laryn., Rhin. and Otol. Society..	Geo. L. Richards, Fall River, Mass..	Harmon Smith, 44 W. 49th St., New York....	
Medico-Psychological Association.	E. E. Southard, Boston.....	Lt.-Col. W. H. Haskin, West Point, N. Y.....	
Neurological Association.....	T. H. Weisenburg, Philadelphia..	H. W. Mitchell, Warren, Pa.....	
Ophthalmological Society.....	William H. Wilder, Chicago	Frederick Tilney, 45 E. 63d St., New York...	
Orthopedic Association.....	John L. Porter, Chicago.....	W. M. Sweet, 1205 Spruce St., Philadelphia..	
Otological Society.....	Norval H. Pierce, Chicago.....	John Ridlon, 7 W. Madison St., Chicago.....	
Pediatric Society.....	Edwin E. Graham, Philadelphia...	Geo. E. Shambaugh, 122 S. Mich. Ave., Chicago.	
Physicians, Association of.....	Alex. McPhedran, Toronto, Ont....	H. C. Carpenter, 1805 Spruce St., Philadelphia	Atlantic City, 1919
Physiological Society	Frederic S. Lee, New York.....	Thomas McCrae, 1627 Spruce St., Phila.....	Atlantic City, May, 1919
Proctologic Society	Jerome M. Lynch, New York...	C. W. Greene, State Univ., Columbia, Mo....	
Psychopathological Association ...	S. E. Jelliffe, New York.....	C. F. Martin, 1831 Chestnut St., Philadelphia.	
Public Health Association.....	C. J. Hastings, Toronto, Ont....	H. W. Frink, 17 E. 38th St., New York.....	Chicago, Oct. 14-17, '18
Roentgen Ray Society.....	W. F. Mauges, Camp Greenleaf..	A. W. Hedrich, 126 Massachusetts Ave., Boston.	Ft. Ogleth., Ga., Sept. 4-6, '18
Society of Tropical Medicine.....	C. C. Bass, New Orleans.....	S. K. Simon, Act. Secy., New Orleans.....	Asheville, N.C., Nov. '18
Surgical Association	Lewis S. Pilcher, Brooklyn.....	John H. Gibbon, 1608 Spruce St., Philadelphia	
Therapeutic Society	W. Wayne Babcock, Philadelphia..	Lewis H. Taylor, The Cecil, Washington, D. C.	No meeting
Urological Association	A. L. Chute, Boston.....	Henry L. Sanford, Osborn Bldg., Cleveland...	
Association of Military Surgeons of the United States.....	Med. Dir. Geo. A. Lung, U. S. N. Brooklyn.....	{ Col. Edw. L. Munson, M. C., U. S. A.....	
Cong. Am. Phys. & Surgs. of N. A.	W. S. Thayer, Baltimore.....	{ Col. J. V. R. Hoff, Sec. ad int., Army Med. Museum and Library, Washington, D. C...	Washington, May, 1919
Conf. of St. and Prov. Bds. of N. A.	J. S. B. Pratt, Honolulu.....	W. R. Steiner, 4 Trinity St., Hartford, Conn.	
Med. Association of the Southwest.	Edw. H. Martin, Hot Springs, Ark..	Eugene H. Kelley, State Health Dept., Boston.	
Mississippi Valley Medical Assn...	F. M. Pottenger, Monrovia, Calif...	Fred H. Clark, El Reno, Okla.....	Dallas, Tex., Oct., 1918
Missouri Valley, Med. Soc. of the..	A. I. MacKinnon, Lincoln, Neb.	Henry Enos Tuley, 705 S. 3d St., Louisville, Ky.	Louisville, Ky., 1918
National Assn. for Study of Pellagra	Capt. Jos. F. Siler, U. S. A.....	C. Wood Fassett, 613 Lathrop Bldg., K. C., Mo.	Omaha, Sept. 19-20, '18
National Tuberculosis Association...	D. R. Lyman, Wallingford, Conn.	J. W. Babcock, Columbia, S. C.....	1918.
Nat. Assn. for Study of Epilepsy..	W. T. Shanshaw, Sonyea, N. Y.	Henry B. Jacobs, 11 Mt. Vernon Pl., Balt...	1919
Society of Amer. Bacteriologists...	R. E. Buchanan, Ames, Iowa....	Arthur L. Shaw, Sonyea, N. Y.....	No meeting
Southern Medical Association.....	L. F. Barker, Baltimore.....	A. Parker Hitchens, Glenolden, Pa.....	Boston, Dec. 30-Jan. 1
Southern Surgical Association.....	I. S. Stone, Washington, D. C.....	Seale Harris, Empire Bldg., Birmingham, Ala.	Asheville, N.C., Nov. 11-14, '18
Western Surgical Association.....	Leonard Freeman, Denver.....	H. A. Royster, Raleigh, N. C.....	Baltimore, 1918
		Arthur T. Mann, Donalson Bldg., Minneapolis	

State Association list appeared in this space two weeks ago; officers of the A. M. A. last week.

Corrections will be appreciated



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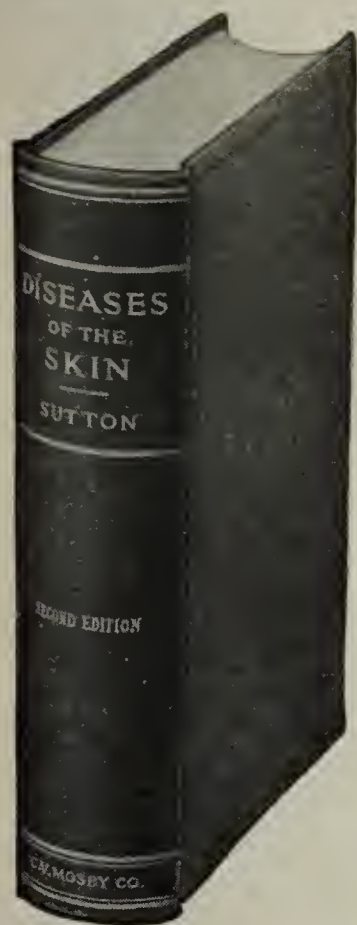
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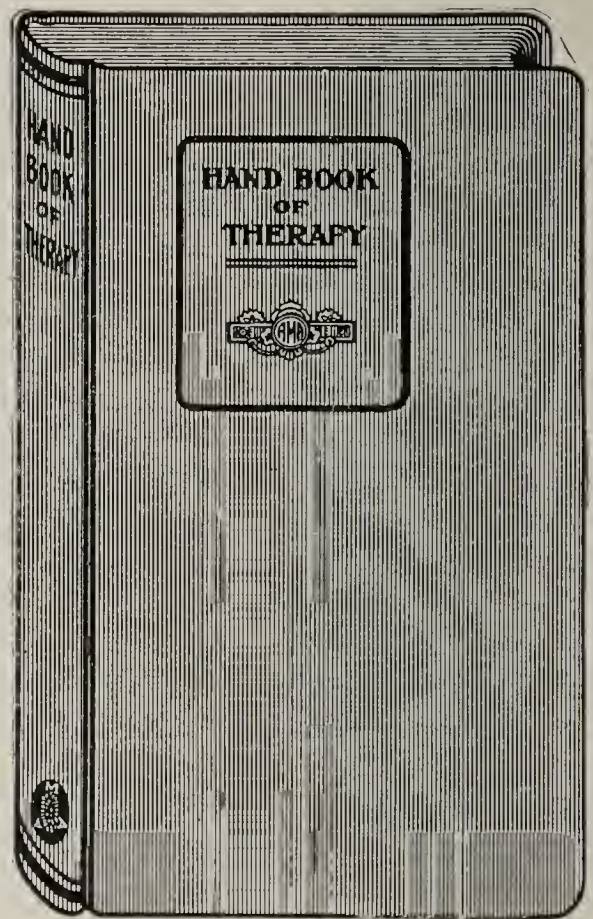
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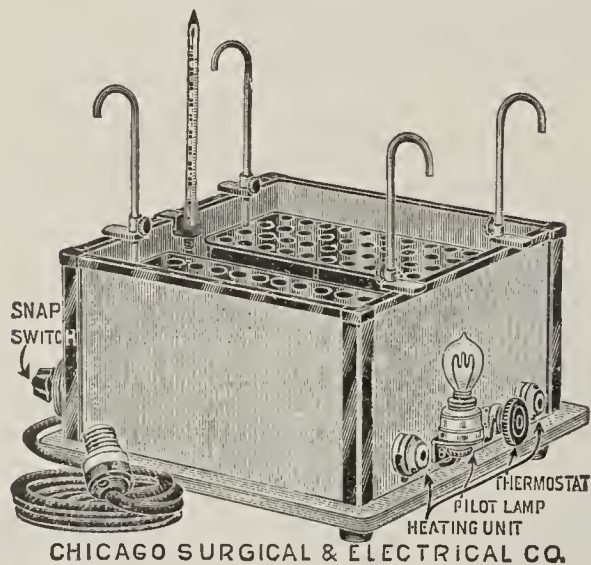
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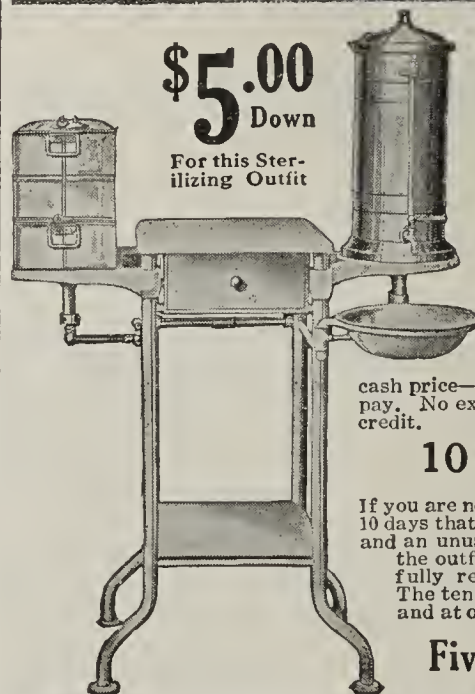
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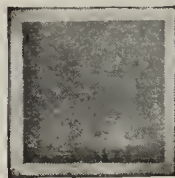
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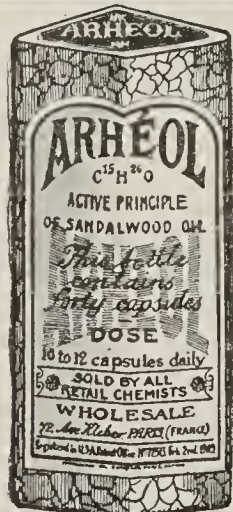


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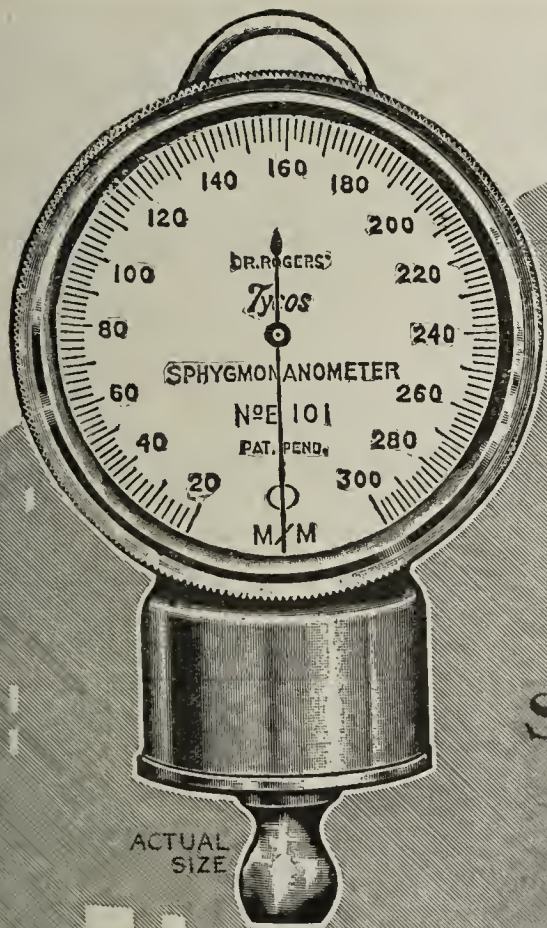
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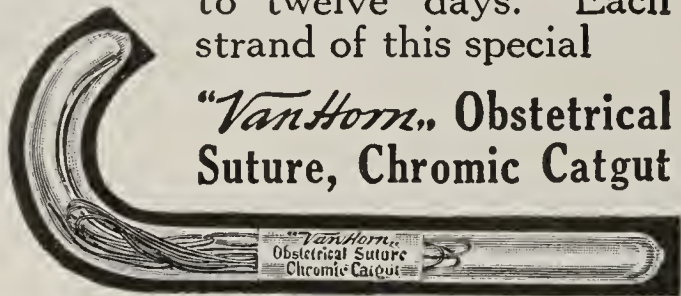
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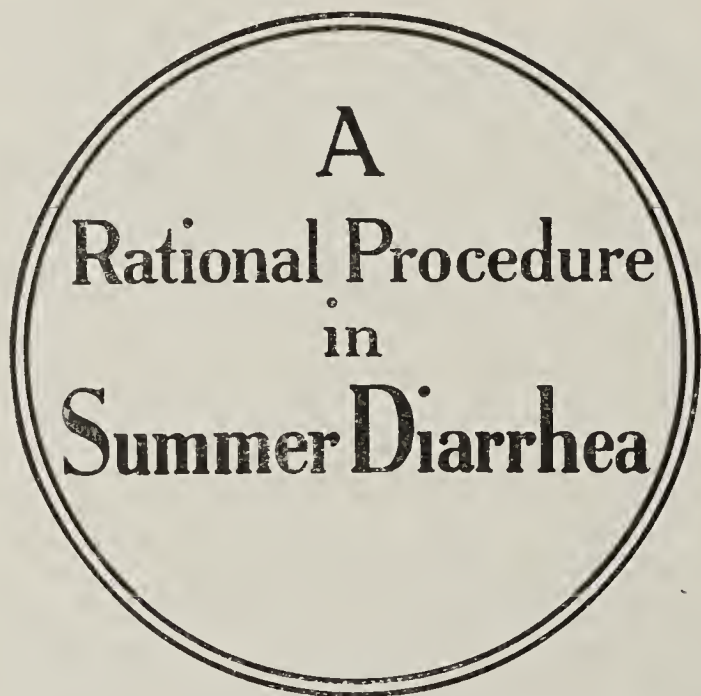
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SOME FURTHER CONSIDERATIONS CONCERNING THE TREATMENT OF NEUROSYPHILIS *

C. EUGENE RIGGS, A.M., M.D.

ST. PAUL

While dogmatism has no place in medicine, it is especially unfortunate in the weighing of evidence and the evaluation of data in the tentative endeavor now being made to determine the most efficient form of therapy for the treatment of neurosyphilis. Cotton manifests the true scientific spirit when he says that with a spirit of open-mindedness every method should be given a thorough trial, and that it is only by continual experimenting with new ideas that we can hope for progress in this new line of endeavor. If an apology were necessary because of my selection of this much discussed subject, it were best made in the words of Southard: "That no more important human problem now exists than syphilis, and that neurosyphilis is a highly important fraction of the total problem."

The three principal methods of procedure in the treatment of nervous syphilis are intraspinal, intracranial (subdural or intraventricular) and intensive. Are all of these methods of equal value, or is any one of them what we might call outstanding? Certainly the ultimate procedure, the ideal method, is yet to be evolved. Intraspinal medication has never had a fascination for me, neither have I been a victim of this belief. I have simply been impressed with the results I have observed which were in such striking contrast to those formerly obtained from the routine forms of procedure. While I have been interested in the physiologic discussion concerning the value or usefulness of intraspinal medication, yet the observation of the fact that patients in whom intravenous medication had utterly failed made apparently good clinical recoveries under the administration of the former, outweighed in my mind all theoretical or academic discussion. In over 800 intraspinal injections, we (Riggs and Hammes) have never seen one untoward result. In the light of this experience, the statement of Halliburton that "the use of salvarsan [arsphenamin] in locomotor ataxia and similar late syphilitic affections via the cerebrospinal fluid has been abandoned, as it is fatal not only to the syphilitic organisms but also to the patient," has been shown to be absolutely baseless as to fact, neither do I agree with Sachs "that there is nothing which the intraspinal method achieves that cannot be accomplished by the

intravenous." Fordyce tells us that he has seen generalized exfoliative dermatitis, persistent forms of gastro-enteritis, nephritis and obstinate jaundice follow intensive medication. Neither in regard to safety, then, nor in results obtained, is it to be preferred in properly selected cases to the intraspinal method. No one believes that it should be used to the exclusion of the intravenous method.

Under normal conditions, the choroid plexus is believed to be impermeable to the passage of all but a few drugs, but this does not always obtain, because in certain cases remedies introduced intravenously do reach the cerebral and spinal tissues. Barbat says that by the reduction of intraspinal pressure the permeability of the meninges to arsenic can be greatly increased and that arsenic can be made to pass into the spinal fluid in more than 96 per cent. of the cases suffering from tabes and paresis; he also believes that the antibodies in the blood serum which in this way gain access to the spinal fluid play a more important part than the small proportion of arsenic contained therein. Should this contention prove well founded, the potentialities of intensive intravenous medication are very greatly increased. Dr. Sachs' assertion that serious forms of paresis and tabes have not been favorably affected by intraspinal injections, and that nothing has been accomplished by them that could not be obtained by the intravenous method is absolutely at variance with my experience during the past four years. Personally, I have known of no advocates of the Swift-Ellis procedure to claim that paresis could be cured, although Southard states that by means of systematic intensive treatment, even "paretic neurosyphilis seems to have been cured." "Theoretically," says the same author, "we should approach all cases of neurosyphilis without bias or nihilistic prejudgments." In the past, we have repeatedly stated that the results of intraspinal treatments in tabes have been notable, that in over 70 per cent. of our cases (Riggs and Hammes) both blood and spinal fluid have become negative and that tabetic pain, gastric crises, bladder symptoms and the ataxic gait have been relieved as the result of this treatment. As to paresis, we have insisted that this form of therapy greatly increased the number of remissions and modified favorably the course of the disease, enabling many patients to pass their last days in the home environment.

Treatment of paresis by intraspinal injections has been the method adopted at Bloomingdale since 1912; thirty-five cases have been treated by Dr. Amsden since that time. Two were given intraventricular injections. Of eighteen cases in which no remission occurred, in six there were prolonged periods of arrest of the progress of the disease, fourteen patients died with an average duration of the recognized course of

* Chairman's address, read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the disease, two years and four months. Remissions of six months to two and a half years or more have occurred in 40 per cent. of the cases; long periods of arrest in 17 per cent. "These results," says Amsden, "justify persistence in the use of a form of treatment which has thus far been the only ray of hope for the sufferers from an invariably fatal disease. Cotton states that with the original method of Swift and Ellis, 33 per cent. of the patients were distinctly benefited and enjoyed remissions of from two to four years, and that a small number are still normal. He also thinks that this form of treatment is the most efficient one for tabes and syphilitic meningitis. These statements of Amsden and Cotton are in striking contrast with that of Finlayson, who says that the Swift-Ellis method was tried at the State Hospital at Warren, Pa., for two years and that the indifferent results did not justify its continuation. Fordyce believes that it is to be preferred in tabes, meningitis, meningomyelitis, meningo-encephalitis and in optic atrophy with positive fluid. That optic neuritis in the absence of all findings both clinical and serologic may sometimes be benefited by treatment is shown by the report of the following case recently seen with Dr. Hammes: A man 40 years of age; paper-hanger; contracted gonorrhea twelve years ago; at that time there were some sores on the penis which were regarded as nonspecific. For five months he had suffered from failing vision. This was so marked that he had to be led around. There were no symptoms of syphilis—clinical or biologic. Treatment gave prompt relief. He is again at work and can match paper without difficulty. Reasoner, Fordyce and myself have reported cases of syphilitic meningitis and meningomyelitis occurring respectively four and six months after the initial lesion which resulted in death. Fordyce thinks that intraspinal treatment given at this time acts more rapidly than in older infections and offers the only chance of cure and prophylaxis against later degeneration. Cases of nervous syphilis occurring in the florid stage of syphilis in spite of intensive medication, according to this writer, either die from intense meningitis or become candidates for paresis, tabes or cerebrospinal syphilis. All such should be treated intraspinally. Cases of abortive tabes, where the fluid shows no pathologic change, we have seen greatly benefited by intraspinal medication, notwithstanding the generally accepted belief that it is contraindicated in these patients.

All neurologists are familiar with the notable work done by Cotton in neurosyphilis; it is earnestly to be hoped that many other state hospitals will be stimulated by it to a spirit of research and healthful medical activity. Red tape, archaic routine and the dominance of the idea that custodial care, not treatment, is the true function of a state hospital, paralyzes all progress and creates the deadly atmosphere of an almshouse rather than that of a psychopathic hospital. Wardner, Hammond and Sharpe, Cotton and others, have called attention to the intracranial method in the treatment of paresis. Both Hammond and Cotton regard it as the most efficient procedure in paresis. The former believes that injection into the ventricle is much to be preferred to the subdural method, especially if there be thickening of the pia. The latter uses both the subdural and the intraventricular, beginning with the former for three or four doses, then giving at least five injections into the ventricle. In fifty-one cases treated last year by Cotton and Stevenson, some too far advanced for therapy to be of avail, remissions were

obtained in twenty cases. All of these were able to leave the hospital and only two have returned. Intracranial methods allow of larger doses of arsphenamin and more frequent administration; usually a small dose is given (0.3 gm.) intravenously and the serum reinforced with 1 mg. of arsphenamin. The various serums, the Ogilvie, the mercurial after Byrnes, the Swift-Ellis, arsphenamin in physiologic sodium chlorid solution, have been tried; while cases have received benefit from all, the Swift-Ellis has proved the most efficient (Cotton and Stevenson). In early paresis, the preparetic stage, where the process is limited to the meninges and the spirochetes have not invaded the cortex, the Swift and Ellis method will prove efficient. In confirmed forms of the disease, the effect of this treatment is not lasting and patients suffer relapse; it is not sufficiently intensive.

The most popular form of therapy in neurosyphilis is that of intensive medication with draining of the spinal fluid. The beneficial results obtained by repeated injections of arsphenamin and mercury have been explained on the supposition that the impermeability of the choroid plexus to drugs has been overcome by mass attacks Teutonized, as it were, by brute force, so that it was no longer able to resist the passage of spirocheticidal drugs to the spinal fluid. By intensive treatment is meant injections of arsphenamin twice a week (from 0.3 to 0.6 gm.) along with continued injections of mercury. Solomon says that in the Massachusetts series, intravenous injections are given at least twice a week and that from forty to fifty, even to a hundred injections, are sometimes given in a period of a few months in conjunction with mercury and iodids. The dictum of Southard that "no one can now successfully make a differential diagnosis between the paretic and the diffuse nonparetic forms of neurosyphilis in many phases of either disease, even with all laboratory refinements," makes it imperative to treat all cases in which differentiation is impossible. But this does not reach the crux of the matter. Grave symptoms found in paresis or tabes are by no means necessarily indicative of serious anatomic change. This is true as regards loss of memory, disorientation and apparent mental disintegration in the former or the characteristic clearly defined symptoms of the latter; irritation and functional perversion of neurons, not their destruction, being the probable cause. Meningeal inflammation plays an important rôle in the evolution of symptoms not only in cerebrospinal syphilis but in paresis and tabes as well. The clinical syndrome, therefore, be it ever so grave, does not of necessity mean a deteriorated brain or a degenerated cord. The only way, therefore, of doing justice to all because of this camouflaging of the incurable by that which can be cured or at least definitely ameliorated is to treat all.

The New York Psychiatric Society recently appointed a committee, of which Dr. Dana is chairman, to investigate the problem of the early recognition, treatment and prevention of paresis. The importance of this subject will be better appreciated if one considers the whole range of syphilitic mental disease, namely the psychoses resulting not only from paresis but from cerebral syphilis and tabes as well. The average number of patients treated for syphilitic mental disease in the state hospitals of New York during the fiscal year ending June 30, 1917, was 1,554, and it has been estimated that the economic loss to the

state was \$5,398,644.99 (Pollock). Because of this menace to the social order, it has been proposed to establish a hospital near New York City for the detention and treatment of syphilitics. Since Wile and Stokes maintain that probably every case of florid syphilis shows changes in the spinal fluid and that clinical symptoms of neurosyphilis of this period can probably be determined, and since also the same claim holds equally true with reference to the primary period, and as it is not improbable that these patients are potential candidates for syphilitic mental disease, it is believed by many that early intensive treatment may prevent involvement of the nervous system. The future of the syphilitic and the possibility of anticipating or arresting degenerative change, Fordyce thinks, depends largely on early and regular examination of the spinal fluid. My experience is not in accord with the assertion of Sachs "that there is absolutely no correspondence between a change in the cerebral content and the condition of the patient." Usually clinical improvement and biologic reduction sustain a direct relation the one to the other. Neurologists are familiar with certain cases in which this does not occur. Ayer points out "that frequently one may be able to reduce the cells and proteids to normal, and yet the Wassermann reaction persists and the patient shows no advancing symptoms." Fordyce calls attention to the relation existing between the clinical symptoms and spinal fluid findings in early syphilis associated with an acute meningitis, namely to the improvement corresponding with the biologic reductions; to the temporary remissions occurring in paresis and taboparesis, in which the spinal fluid shows no change aside from that observed in the cell count and the globulin; to the improvement that may occur in the spinal fluid while progressive mental deterioration goes steadily on. Aside from the two exceptional conditions noted he believes "that there is an intimate relationship between the clinical symptoms and the fluid findings."

Gains states that "In the serologically negative cases, there is corresponding clinical improvement, although frequently clinical improvement or apparent cure may take place even in the presence of a positive Wassermann." The most vigorous arsphenamin therapy may, according to Southard, fail to render the spinal fluid negative, yet the clinical condition may improve so greatly that the patient may be regarded as clinically recovered. For the past two years I have had under observation two cases of cerebrospinal syphilis, in both of which the blood became negative and the cell count and globulin normal, but in spite of the most persistent treatment the spinal fluid gave a positive Wassermann reaction. While one patient made a clinical recovery, the other has constantly suffered from subjective symptoms indicative of nervous syphilis. Unfortunately, as to the real significance of the spinal tests, their relation the one to the other, their prognostic importance and their response to treatment, but little is known. Without doubt, they are indicative of a pathologic condition in the nervous system. "They do not all represent," according to Southard, "the same inflammatory products and chemical conditions. They are prone to occur independently and they disappear under treatment at different rates." "The gold precipitating substance," says Weston, "is not the Wassermann producing substance," neither are the globulins and albumins believed to be the same. The colloidal gold test may become negative while all the other tests remain positive. Then again these may be prac-

tically negative, while it continues positive (Solomon). Solomon and Koefod tell us that the cell count is of no prognostic importance in syphilis of the nervous system unless there is an improvement in the other spinal tests, neither is it of aid in a diagnosis between paresis and cerebrospinal syphilis, nor does it give information as to the duration of the activity of the process or its severity.

Out of all this chaos, one fact seems to be patent: The rendering of these tests negative under treatment indicates a disappearance of the inflammatory reactions from which they arise and an arrest of the disease. As to the permanence of this improvement, with our present knowledge, it would be unwise to predict. Neither can one develop a spirit of optimism with reference to those patients in whom the biologic reactions are only partially or not at all influenced by treatment. It is well to recall the remarkable case of paresis reported by Tuzek; in this parietic, there was a complete remission for twenty years. What nature has once done, she may do again. While this is an exceptional instance and can afford but meager comfort, yet it must be kept in mind when considering these cases of clinical recoveries in which there is no correlation between laboratory findings and clinical betterment. I cannot help but feel that in all these cases of clinical improvement without serologic changes, a recurrence of symptoms with a progression of the disease ever impends and is ultimately inevitable. "Any method," says Lautman, "which produces a negative serology in addition to improvement of the clinical symptoms may be deemed efficient."

All of the three preceding methods (the intraspinal, intracranial and the intensive), in the light of our present experience, may, therefore, be called efficient. This is particularly true as regards cerebrospinal syphilis and tabes dorsalis, and even in paresis, the most hopeless of all the manifestations of syphilis. The accomplishment of these two purposes has in a measure met with success—certainly not with a lamentable failure. It is a well known fact that the percentage of remissions is much greater in treated than in untreated paresis. In 127 patients observed by Cotton, remissions occurred in about 4 per cent. of the cases. In a summary of 300 untreated cases of paresis, but five, says Solomon, left the hospital able to work, while in the treated cases, about 25 per cent. were able to leave self-supporting. The Massachusetts workers, according to him, do not claim cures, but they do claim "improvements." Paresis, he believes, is amenable to treatment to the extent of the restoration of the ability to work for a period, and this he says "is something of an achievement." According to Dr. Pearce Bailey, "treatment has a decided effect not only on the symptoms of paresis, but also on the working capacity of the individual." Dr. Fordyce thinks that little can be expected from the intraspinal or any other form of treatment in paretics, when the stage of institutional care has been reached. "The most that can be hoped for is temporary arrest of the encephalitis." It is in the cases of meningo-encephalitis—the preparetic type—in which this method is efficient. Hammond and Sharpe regard intraventricular injections as superior to both the intradural and intraspinal methods in the treatment of paresis, and they believe that in skilled hands it is practically free from danger. Solomon states that the Massachusetts workers have obtained improvement by every method used. Cotton, who has had an unusually extensive experience during the last

four years, regards the intracranial method (both subdural and intraventricular) as the most efficacious in the treatment of this disease. Since he has had no serious results following its use, he thinks it should be continued.

The present attitude of those most experienced in the treatment of nervous syphilis is best expressed by Southard: "While it has always been conceded that treatment would greatly help cases of diffuse and vascular neurosyphilis, the utmost pessimism has existed concerning the results to be obtained by treatment in cases of tabetic and parietic neurosyphilis, . . . and though it has been by no means settled in the minds of the various workers in this field as to what the ultimate results of such treatment will be, . . . still the majority of men who are treating these cases systematically feel very much encouraged."

THE PERSONAL EQUATION IN PSYCHIATRY*

L. B. PILSBURY, M.D.

LINCOLN, NEB.

In one sense of the term personality may be said to be everything in insanity. This is not to say that insane patients never fit well into types; it simply means that the study of personal character, of responsive reactions to environmental stimuli, of conduct and expression, are and always will be of paramount importance in investigations seeking to establish the psychologic status of the individual. It means, furthermore, that the hardest things to extinguish in an individual are the things that mark him off from other individuals. It may be said that this is a matter of inference only, but it seems to be in accordance with the facts. There is nothing strange about this, since memory plays as large a part in experience as experience does in personality. Conscious memories form the principal line of demarcation between individuals, and with extinction or great reduction of conscious memory we have concomitant narrowing of the field of consciousness. To just what extent unconscious memory comes into play to enliven the stream of consciousness is very difficult to say. A greatly confused and apparently amnesic patient with hallucinations of hearing has some basis for the recognition of the voices which he hears. We say that he imagines the voices and this is true enough, but how can he imagine that which he is not aware that he has ever heard? As a matter of fact, memory, either conscious or unconscious, supplies the necessary factors of recognition and convinces him that the sense perception, albeit false and objectively unreal, is the sound of a human voice. To be sure, the patient may maintain that it is the voice of Deity or of the King of Siam, whom he has never seen, but this proves nothing except that he is familiar with the human voice or else that he attributes to Deity or the Siamese King a mode of expression somewhat different and resembling, for example, the notes of a pipe-organ or of a nightingale. For obvious reasons, the congenitally deaf do not hear voices. Whether they have or imagine that they have sense perceptions which stand to them for a hypothetical human voice is another question.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Can personality be of etiologic significance in the determination of insanity? It can be, if by personality we mean that individual set or bias which creates a presumption in favor of either normality or abnormality in reaction to difficult circumstances, or in other words a fortunate or an unfortunate outcome of an adverse situation. The working out of the problem is a matter of personality, but what, forsooth, is personality? Modesty forbids an attempt at the colossal task of adequately defining this concept, but let us say that it has to do with aptitudes both inherited and acquired (provided there is such a thing as an acquired aptitude), with knowledge and its expression, or so to speak with knowing what to do and how to do it. These things enter into personality, which is made up largely of habitual modes of thinking, feeling and acting, of habitual ways of looking at things and doing things. What is it about the person that causes him to become insane? Not to overstate the case at all, if we could answer that question we would be flooding the field of psychiatry with such a light as shines now only on the exact sciences. As fast as we are able to introduce factors of precision, we will discard the speculative and the inferential, but with such a wealth of speculative material at hand we are sometimes in danger of forgetting that surmise and conjecture cannot fill the place of well grounded categorical affirmations. The field of fancy is filled with devious paths which do not always lead to the straight and narrow exit.

We cannot but be impressed by the tyranny of personality when we compare the introcentric and subjective precocious dement with the exocentric and objective maniac, but after all we cannot tell which component in the etiology has the greater effect in determining the psychosis, whether the personal make-up or the hypothetic disturbing factor, though very likely the former rules. In other words, given a set of similar adverse factors in two persons, each will respond with the psychosis for which the stage was set in the beginning. Now perhaps this is true and perhaps it is not, but at any rate it is a fascinating conjecture which leads us dangerously near to determinism. If certain people are to become insane and are to become insane only in a certain way, what is the use of all our therapeutic endeavor? A liberal psychiatry can hardly rest under the restraint of such freezing philosophic dogma.

It is sometimes very plausibly said, even by the laity, that there is nothing strange about a given person becoming insane, because he always seemed like that kind of a person, the insanity being in character or keeping, so to speak, and simply an exaggeration of existing traits or tendencies. Lay observation is sometimes acute, though without reasonable criteria as to causation. It often partakes of the mysterious and of the trivial. While it is impossible to deny that grief, worry, sunstroke or change of life may have something to do with insanity, it is highly improbable that they will cause it in the absence of the necessary determining factors. Why do some men with disease of the heart or the lungs or the liver become insane while some other men with disease even of the brain do not become insane? It is indeed astonishing what gross insult the brain will sometimes tolerate without resulting mental disintegration, and this brings us to the very interesting question as to whether the essential adjustment to adverse factors is made by the brain or by the mind or by both together.

The assumption of dualism in operation leads us to look for psychophysical parallelism, often a barren search, it must be confessed, but with points of reasonable expectation. The idea of effect without cause is abhorrent and a rational dualism seems to extricate us from the dilemma with which we are confronted, if we assume that physical injury or disease can cause only physical disorder and that insanity, therefore, is purely psychogenic in origin. It spares us the necessity of supporting the difficult thesis of materialism on the one hand or of idealism on the other, and allows us to bridge in some sort, at least, the gap between matter and spirit. This naturally calls for some sort of reactive mechanism between the two which we will not attempt to define, but which we hope some day to see elucidated. Any physical cause to be effective in the production of insanity must in some way affect the flow of ideas and we do not know how physical states can influence the flow of ideas, though they doubtless can do so very profoundly. We prefer to think of man as something more than a mere congeries of biologic adaptations, and yet we must not lose sight of the fact that perhaps the greatest achievement of modern psychiatry is to be found in the biologic point of view. I refer, of course, to the point of view that regards the human organism as a whole, both ontogenetically and phylogenetically, and takes account of all discoverable factors. To the extent that the psychiatrist keeps in mind all the elements of his problem, he will probably succeed in justly estimating both the cause and the character of the reaction. Fallibility of judgment is inherent in the human mind, which is no very dependable instrument at best and, therefore, to be used with due reference to a fairly large percentage of probable error.

ABSTRACT OF DISCUSSION

DR. WILLIAM O. KROHN, Chicago: The suggestion that if we could know the personality we would know something of the causes of the insanity, is very good. We do know that certain types of personality predicate what the insanity will be if the person becomes insane. In taking the reaction tests as to the speed at which the nervous impulses are transmitted from the brain, we know that if one individual becomes insane he will have a certain type of insanity, while another will have, say, the slowed up type of insanity. I found that carried out in the study of children in the public schools, where we find two distinct types: the explosive motor type and the sensory type. One child is bubbling up to express himself; he is always ready to say something whether he knows what he is going to say or not. Then, there are the others of the sensory type who hear everything, but are rather slow to express themselves. We know that the motor type of boy, if the proper environment for his development is not available, will develop a certain distinct type of insanity, while the other type, who holds himself in, receiving impressions and never able to express himself, will manifest another abnormal, distinct type of personality. Through the environmental and personal education we can at least determine to a large degree what type of personality the individual possesses, and in large measure overcome the handicaps with which the organism is invested when the individual is born.

DR. JOSEPH BYRNE, New York: The great objection I have to discussions on psychiatry and on questions pertaining to psychoanalysis and psychology in general, is that the audience do not seem to grasp them. That is a great loss to the psychologic study of medicine because we come here to learn. The doctor has raised pertinent questions in regard to personality. In the study of any question connected with neuro-psychiatry, I want to know first what the personality is.

There is an objective and a subjective personality, but what do we mean by the personality and the modifications of personality? The second question is the dual hypothesis, which I was rather glad to hear the essayist mention. We are taken up altogether too much with mechanistic conceptions in modern medicine. Dr. Haldane, one of the foremost physiologists of any age, gave mechanistic views a severe blow. He ridiculed the mechanistic conception as having too much weight in our physiologic and biologic laboratories. If there is any one conception that brands a man as being philosophical in his tendencies, it is the capacity to consider things as a whole and also as parts. As to bridging the gap between matter and mind, I do not think the doctor would succeed in that. Men in the past have tried to fathom that question and have absolutely given up all attempts at trying to bridge the chasm.

DR. RALPH REED, Cincinnati: One point brought out in the paper has always been interesting to me, and that is with regard to the relationship between the physical origin and the psychogenic origin of mental diseases. In psychiatry there seem to be two schools with distinct demarcation between them, one of which, when considering any mental disease the etiology of which is in doubt, shows an inclination to insist that the origin must be physical, the other showing a tendency to seek for some psychogenic origin. Two or three striking facts bear on both phases of this question. One is the tremendous destruction of tissue seen in many cases of organic brain disease, with very little mental change. Sometimes this is so striking that it is absolutely astonishing. On the other hand, we see cases in which a very slight amount of toxin introduced into the system is productive of profound changes in the individual's character.

DR. ALBERT E. STERNE, Indianapolis: One of the most dangerous things teachers and psychiatrists do is to promulgate a doctrine which the laity will gladly take up, even more than it already has, to wit: That a mental complex can stand on its own feet. If we are to be practical teachers of medicine and practical men in our consulting rooms and at the bedside, we must stand squarely on the basis that presupposes and establishes a fundamental organic condition for mental expression. It is obvious that there are psychogenic causes at times, such as emotions, particularly the emotion of fear, which produces changes in our mental attitude and expression. Nevertheless, we must hold fast to the fact that there are changes in the brain of a cellular character which are the fundamental causes of what are commonly termed mental diseases. I believe strongly in the materialistic side. While recognizing the value of psychogenic factors in the production of this materialistic phase, it is a mistake to think that the so-called physiologic changes which are shown by individuals are independent of organic changes in the cells. I do not believe that that hypothesis can be maintained. If we have gotten anywhere in the teaching and practice of psychiatry it has been by holding firmly to the fact that there is an organic basis for these diseases.

DR. HAROLD N. MOYER, Chicago: An old philosopher once said that when the understanding failed we used a word. I have enjoyed the discussion that occurred here because of the facility with which some of my colleagues can use words. I have not that faculty. As to the psychogenic and the somatic origin of mental disease: Mental disease is not tangible. It is not a thing purely. It is a human concept in the mentality of the psychiatrist. The facts are perfectly clear that some mental disorders are due to somatic and some to physical causes. Another equally obvious fact is that some are psychogenic in origin. We ought to announce that positively and stand resolutely on that proposition. Then again, there is a third group of disorders that are mixed—they are in part psychogenic and in part somatic and physical in origin. It is the business of the practical psychiatrist, the man treating mental disorders, to unravel the tangle in the case, and if he cannot have a mental grasp of the physical and mental side of his patient, he is not fit to treat him. In the practical treatment of psychiatric disorders this problem is presented in every individual case, and the success with which you solve it is the success with which you meet the indications in that particular case.

DR. BEVERLY R. TUCKER, Richmond, Va.: I am of the opinion that we have not laid enough stress on the hereditary factor in mental diseases. The doctor spoke of inherited aptitudes. I had occasion at one time to investigate the manufacture of artificial eyes, and it was found that it could not be very successfully carried out in this country without the importation of Bohemians trained for generation after generation in this particular work. I believe that it is an inherited aptitude, and that the simpler aptitudes involving the motor factors are the easiest to carry, and then we come to the ones below. I do not believe that people "go" insane. I believe that when physical disease is induced, for instance by toxemia, as by alcohol, this releases inhibition and then we see the individual stripped of all his veneer, and the man who becomes maniacal under alcohol has a maniacal tendency. We do not lay enough stress on the inheritance factor. I am of the belief that neither poison nor anything else can make a person insane unless he has an inherited tendency. In other words, a normal mental mechanism remains a normal mental mechanism, and the only influence that disease has on it is to cloud it. Any well-formed syndrome that is manifest has always been present. A person does not "become" insane; he has always been insane, and some particular determining factor makes that apparent.

DR. LAWRENCE B. PILSBURY, Lincoln, Neb.: I purposely avoided going into personality very much; personality is too big a problem. We do not know what personality is, we simply know some of its manifestations. As to somatic and psychogenic causes, they are very hard to separate. It is as hard to separate the potentially somatic cause from the potentially psychogenic cause as it is to bridge the gap between the body and the mind. Dr. Sterne speaks of fear. We do not know what fear is, but we know some of the manifestations of fear. Probably some of the ductless glands have something to do with fear. Dr. William James, in elaborating his theory, points out the fact that we are, so to speak, afraid because we run; that we do not run away from an object, a bear for example, because we are afraid. We first begin to run—we first react—and then afterward we realize that we are afraid. Of course, there is simply an idea or an emotion with a physical expression or manifestation, but we cannot have physical reaction without a cause, and the cause in this instance is a stimulus, probably an optical stimulus—we see a bear and begin to run, and we are afraid. The whole thing has a material and physiologic basis, and how to separate the emotion of fear from its manifestations I do not know.

Dangerous and Harmless Color Blindness.—In a recent investigation made by the United States Public Health Service, an important distinction was made between persons who are only slightly color blind and those who are dangerously color blind, that is, unable to distinguish at all times between red and green. The results of the investigation form a working basis on which examiners may discover members of the latter class and exclude them from all government positions in which the reading of colored signals is a part of the work. It was found by various tests that the latter class includes persons who are able to see three or fewer colors in the spectrum, those who see more than three colors but have the red end of the spectrum so shortened as to prevent the recognition of a red light at a distance of 2 miles, and those with a central scotoma for green and red. In making the tests, the health service officials used the Edridge-Green color lantern in preference to colored yarns. In the course of the tests, 1,000 persons were examined by means of the lantern, in order to determine both its value and the effect of refractive conditions and lesions of the eye on color perception. The examinations also revealed the fact that color blindness occurs in about 8.6 per cent. of men and 2.2 per cent. of women, if we exclude those who are able to distinguish five colors in the spectrum. Among workers in occupations requiring the ability to recognize colored signal lights, dangerous color blindness prevails to the extent of 3.1 per cent. among men and 0.7 per cent. among women. It appears the most frequently in eyes affected with mixed astigmatism, and the least frequently in those that show no refractive error.

SOME VITAL PHASES OF FRACTURES OF THE JAWS*

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The subject of fractures of the jaws is one that has attracted the attention of medicine since the days of Hippocrates. It also is a subject that was of considerable interest to dentistry long before it became a profession. Indeed, many of the principles laid down by Hippocrates can be used today with a moderate degree of success. It was Hippocrates who first originated interdental ligation. It was also Hippocrates who condemned the use of bandages alone as a procedure in the treatment of fractures of the jaws.

In presenting the subject of fractures of the jaws at this time, we shall touch on only two or three vital phases of the subject. The first phase which we shall attempt to discuss will be the process of repair. We use the word "discuss" advisedly, because in our present state of knowledge of the subject, we can only discuss it. We are not in a position to make any dogmatic statements as to just what takes place in the process of repair of bone.

Just what takes place in the behavior of the tissues in the process of repair of bone is a question offering a diversity of opinion. There seems to be an antagonistic state of opinion about the theory of bone growth. There are two schools that are contending for the maintenance of their theories along this line: One contends that the periosteum is a limiting membrane without the property of osteogenesis; the other maintains that the periosteum is an osteogenetic membrane and can go on functioning, developing and nourishing new bone.

Havers, in 1692, gave the first accurate account of osseous structure and described the periosteum as simply a connective tissue, limiting and vascularizing membrane.

Antoine de Heyde, in 1684, made some observations on frogs and determined that callus was formed by calcification of a blood clot extravasated around broken bone ends.

In the middle of the eighteenth century, Duhamel brought out the generally accepted theory of the function of the periosteum. His view was that the periosteum became thickened and succulent around a fracture and by pushing the new tissue in among the fragments it formed a callus. In his experiments, he discovered a layer of cells lying next to the bone. To this layer, he gave the name cambium layer. This layer of cells between the true periosteum and the bone is recognized in the bone work now being done in Europe.

Macewen¹ is emphatic in the statements that the function of the periosteum is simply a limiting membrane and does not have the property of osteogenesis. He made many experiments on dogs. In these he seems to prove that the periosteum does not produce new bone. In many instances, he reports that the whole radius was removed, leaving the periosteum. He finds in these cases that after several weeks no new bone is formed. In his experiments, he finds no place where the periosteal flaps produced new bone. He also finds that where the periosteum was

* Read before the Section on Stomatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Macewen, Sir William: *The Growth of Bone*, New York, The Macmillan Company, 1912.

not intact, there was a marked hypertrophy of the bone, showing that periosteum limits bone growth.

These experiments of Macewen are substantiated by similar experiments by Cohn and Mann. Their experiments included transplanting of bone denuded of periosteum into muscle, into the medullary canal and into newly made bone defects. Some of these transplants were covered with periosteum and others were not. It was found that isolated bone grafts did not act as foreign bodies and were not absorbed after sixty days, but showed a tendency to outgrowth. They also made experiments in which the periosteum per se was transplanted around the carotid artery. This did not show bone proliferation. They came to the conclusion that the periosteum was not at all essential to the healing of a fracture.

Other investigators in this country have made similar experiments with similar results. These investigations, with others, represent the work of the contenders of the theory that the periosteum is simply a limiting membrane. The other class of investigators in bone work contend that these experiments must have been carried out with simply the outer layer of the periosteum, which is a limiting membrane, and that the inner layer, or the cambium layer, the layer which Hey Groves terms the epiostial layer, or the osteogenetic layer of the periosteum, was not considered.

Our experiments at the University of Michigan hospitals do not accord with the theory of Macewen. We have found that periosteum transplanted into the muscle tissue will produce new bone. This new growth seems to have all the properties of true bone; its blood supply, its bone cells and the process of true osteogenesis seem to be normal.

This deposition of bone differs from other calcific deposits which may take place in the body, such as in the spleen, liver, kidney, etc., under certain pathologic conditions, so that we feel quite positive that under suitable conditions, true bone may form from the periosteum.

Hey Groves summarizes as follows:

The periosteum is chiefly a limiting membrane of the bone. The dense bone can live, grow, undergo repair, and produce fresh periosteum after the latter has been removed. In young bones it is possible to remove the periosteum in such a way as to produce an osteogenetic membrane, this being probably due to the lifting up of the epiosteum with the periosteum. In adult bones this is impossible except after trauma or an inflammation.

In the repair of fractures of the jaws, we feel that the retention of the periosteum is highly desirable, because its removal takes away much of the epiosteum, and, also, because it affords a ready means of vascularization.

While there is a wide diversity of opinion regarding the function of the periosteum in bone repair, all investigators seem to agree as to the function of the compact and cancellous bone in the process of repair.

Ollier proved that quite apart from the periosteum and the marrow, compact bone could live and produce new bone and undergo the callus repair of fracture. The deep surfaces of bone, like the superficial surfaces, are capable of osteogenesis under suitable stimulus.

Axhausen has shown that the wide haversian canals contain active osteoblasts and favorable conditions for new bone formation. It has been observed in gunshot fractures in France that when the ends of the frag-

ments have been exposed and laid bare, by stimulating the ends by a drill, in a short time buttons of granulation tissue would be pushed out and would soon cover the entire ends of the bones. These ends could then be put in apposition, and union of fragments would result. In our clinics, we have had to resort to this method in some old ununited fractures, in which we have had the process of repair again started. It is our opinion that compact bone, if it has the proper blood supply, is quite independent of either endosteum or periosteum for bone growth and for bone repair.

The whole process of repair of bone is fundamentally that which takes place in the union of the soft parts. In fractures of the bone we may have primary union, or, we may have secondary union by granulation tissue; this granulation tissue differs from granulation tissue of the soft parts in that it is osseous in character. The injured tissues, infiltrated with blood, soon become invaded by leukocytes and effused blood plasma. Fibrinous coagulation takes place and the ends of the fragments are embedded in a dense, ill defined mass of firm, cellular exudate. The periosteum becomes much thicker, softer and more vascular; a thin layer of gelatinous or viscid liquid is found between it and the bone for a short distance from the edge of the fracture. In about fourteen days, the effused blood is completely absorbed, leaving a firm, dense, cellular, vascularized, partly organized mass of granulation tissue. The bone then undergoes rarefying osteitis, and the fracture becomes fixed. This is known as the "provisional callus."

While this process is going on, similar changes are taking place in the cancellous bone, and the "internal callus" is formed in the same manner. Ossification then takes place, thus completing the process of repair. While the callus is forming, the process of repair is going on in the contiguous soft parts, and they regain their normal condition and function.

Very briefly, the foregoing is what seems to take place in the process of repair of fracture of the jaws. Occasionally there may be an excess of rarefying osteitis, and a lack of production of osteoblasts, so that the callus may not ossify. In these cases, the bone is absorbed for a considerable distance between the ends of the fragments, and we have established a false joint or pseudo-arthritis.

When an open or compound fracture becomes infected, suppuration ensues, and the process of repair is slower, because the suppuration of the wound delays or prevents the formation of the provisional callus, and it has to depend on the formation of the internal callus, which is not so favorable for rapid repair. In these cases, the callus is larger and more irregular than that which we see after simple fractures, when the process of repair takes its normal course.

Another phase of this subject which we shall consider briefly is some of the complications which occur in fracture of the jaws. Fractures of the jaws will differ from fractures in other parts of the body in that they are more liable to infection on account of the close proximity to the bacteria-laden fluids of the oral cavity. We rarely find infection present in simple fractures of the jaws, but it is quite common in compound fractures.

A factor which must be considered in relation to infection in fractures of the jaws is the presence of alveolar abscesses, which may be existing at the time of the fracture or may be superinduced by the injury. These will greatly delay the process of repair and

should be eradicated before repair can be expected to take place.

In fracture of the maxilla, the antrum is frequently involved and may become infected. This makes another serious complication. It means clearing up the infection in the antrum before the process of repair will go on in a normal way.

Another rare complication in fracture of the maxilla is the fracture of the brain case, in which coma or even death may result immediately. Secondary hemorrhage is one of the complicating problems that is quite common in fractures of the jaws on the battle fields of Europe. This comes on after suppuration has been established and is the result of infective inflammation causing a disintegration of the hemostatic thrombosis, or ulceration or sloughing of the walls of the vessels. This secondary hemorrhage may occur any time between the beginning of the process of repair and the complete repair of the fractured blood vessels.

The laceration or severing of sensitive nerve trunks will lead to anesthesia of all of the parts peripheral to the fracture, and neuralgia is a common sequela.

Trismus is an early local complication that is nearly always present. This is usually brought on by the violence that is produced on the soft tissues and the temporomandibular articulation. In extreme cases, where it is not possible to make the reduction at once, the trismus may be so pronounced that a general anesthetic may have to be resorted to in order to obtain sufficient relaxation to make a diagnosis and subsequent reduction.

In gunshot fractures, there are other local complications, such as extensive laceration of the soft parts, which will greatly add to the difficulty of making a diagnosis and prosecuting the treatment. In these cases, there will usually be greater splintering and fissuring of the bone than in the fractures in civil practice. It is reported that in every case of gunshot fracture of the jaws, infection of the wound ensues immediately, which greatly interferes with the process of repair.

In the work at the front on fracture of the jaws, the history shows that many of these cases are not treated until some time after the injury. Here a new complication arises. In these cases, frequently large masses of cicatricial tissue have formed, and a marked deformity is present. Under these conditions, a clear and definite diagnosis may be difficult, and the successful reduction of the fracture made arduous.

Another local complication, which is almost universal in gunshot fractures of the jaw and sometimes met with in civil practice, is loss of substance of the bone. Here again difficulties arise in making a successful reduction and subsequently retaining the fragments in normal relation.

Under the general complications of fractures of the jaws, there are a few factors that must not be overlooked. There are certain diseases which, when present, seem to hinder the process of repair. Such diseases as syphilis, alcoholism, tuberculosis and such chronic diseases as will cause a marked lowering of the vitality of the patient. These conditions will always delay union and may prevent it entirely.

It will not be out of place, perhaps, in this brief paper to say something regarding the prognosis in fractures of the jaw. The prognosis must vary greatly according to the location of the fracture, the character of it, the complications which are present or which

follow and the age and resistance of the patient. The time which elapsed between the injury and the reduction of the fracture will also influence the prognosis. The prognosis should take into account several points: First, the effect of injury in respect to a favorable or unfavorable termination of the case; second, its simple or complicated course; third, the influence of each complication; fourth, the time required for recovery; and, fifth, the result as to normal occlusion of the teeth and normal functions of the jaws: The younger the patient, the more favorable the prognosis, because in the young fractures unite more easily and promptly than in the adult. If the fracture has existed two or three weeks previous to its reduction, and if there is considerable movement of the fragments, consolidation will not take place as rapidly after the parts have been brought into normal relation as it would if reduction were made at the time of the injury.

The presence or absence of infection plays a very important rôle in the duration of the treatment. In a simple fracture of the mandible where the fragments remain or are replaced in perfect contact, repair will take place at once without any untoward symptoms, without deformity or malocclusion, and without detriment to the functions of the jaws. If the fragments are not quite in apposition in simple fracture, but nearly so, the prognosis will be almost as favorable, although it will take somewhat longer for repair to take place and there may be some slight deformity manifested in malocclusion of the teeth.

All compound, comminuted and complicated fractures, which in their very nature present additional obstacles in the way of complete reduction, may not present so favorable a prognosis. In fractures of the superior maxilla, the fragments will not be subjected to muscle strain as those in the lower jaw, and the retention of the fragments in normal position will not be so complicated. Fractures of the condyle with displacement offer less in the way of favorable prognosis than any other fracture of the lower jaw. In these injuries there usually will be produced a traumatism in the temporomandibular joint which may later result in ankylosis.

Gunshot fractures of the jaws, which are necessarily in most cases compound and comminuted, are in a much less degree amenable to treatment than most other fractures. Splints for supporting the fragments must necessarily be more complicated, and infection is always present. All of these factors must be taken into consideration by the operator in forming a judicious prognosis in the treatment of fractures of the jaws.

Time will not permit us to discuss at length the treatment of fractures of the jaws. The treatment of these fractures consists in the fulfilment of three principal indications:

1. Reduce the broken fragments.
2. Retain the parts in normal relation until consolidation has taken place.
3. Prevent or control inflammatory processes.

No hard and fast lines can be drawn relative to the treatment of fractures of the jaws, for each case will present an entirely different problem.

In the treatment, the operator should aim to establish normal forms and normal function. The different forces, such as muscular tension, the force of gravity, movements of the tongue, etc., which tend to displace the fragments, must be taken into consideration in determining the methods of treatment.

Individual ingenuity must ever play an important rôle in the treatment of fractures of the jaws. Equally successful results will be obtained by means and methods that are wholly different. In the construction of splints, the aim should be so to design them that all parts of the mouth may be kept clean, without which normal repair will not take place.

ABSTRACT OF DISCUSSION

DR. THOMAS L. GILMER, Chicago: In war, especially in trench warfare, injuries above the clavicle occur in the majority of cases; therefore, the jaws are involved often. It is almost impossible to have a fracture of the mandible that is not compound. And another complication follows that one—infection. It is frequently seen in cases of fracture in the mouth. It does not delay or prevent union, provided the infection is very slight. If the infection is extensive, make an external opening and drain to prevent destruction of tissues.

I have not seen a single case of traumatism of the temporomandibular joint as a result of fracture in civil practice. In the treatment of these cases the main object is to approximate the fragments. The fracture will unite more quickly if the fragments are not immobilized. There seems to be a greater osteogenetic influence where there is slight movement. I have employed an orthodontist extension arch, fastening it to the teeth on the upper jaw as well as to the lower, and then securing the upper bar to the lower bar by wires. The mouth can be opened every day. If you do not use immobilizing appliances, the patient must be instructed that under no circumstances is he allowed to use food which will require mastication.

DR. TRUMAN W. BROPHY, Chicago: Some years ago I saw in Europe a method of passing a bar on one side which had several wire bands adjusted to the teeth which ran on a slide fixed to the other jaw and also were fixed by bands to the teeth. These bars run in slides, thereby holding the long fragment where it belongs and thereby preserving the occlusion of the teeth. We must never forget that we can hold the teeth in occlusion on the side of the long fragment. In case a great deal of bone has been lost, cicatrization will preserve the lines of the face. When a portion of bone has been lost, there is no better treatment than by following the principles laid down by Dr. Gilmer. If only the third molar is left, let it hold the fragment in its proper position. The teeth on that side will be held in position and the intervening space will be filled in by new bone arising from the periosteum. If we can hold these in approximation very often much bone will form. By employing the method of wiring the teeth together we succeed in getting a good union, though part of it is cartilaginous, or rather fibrous. The proper occlusion of the teeth is preserved.

DR. ARTHUR D. BLACK, Chicago: It might be of interest to know that in the Plastic and Oral Surgery Course of the Army the men are instructed that in every place where there is a fracture they are to make an external incision into the open space between the ends of the bone.

DR. JOHN E. NYMAN, Chicago: In treating these fractures we need some means of mechanical fixation quite apart from that supplied by the teeth. In one case of multiple fracture we used platinum screws and wires because we thought that they could be sterilized more easily. The result was excellent.

DR. ARTHUR ZENTLER, New York: Dr. Depage and his associates use a new nomenclature for jaw fractures, terming them according to location, premolar, retromolar, retro-premolar, and right or left. At LaPanne they have adopted a new method of treatment. For instance, in a case of retromolar fracture of the mandible, they attach a band to a tooth in the part which is not loose. Another band is attached to a tooth in the loose portion. To these bands a heavy expansion arch wire was previously soldered which extends and overlaps a similar wire soldered on the other band. The fracture is reduced with the patient anesthetized, and with soft solder the overlapping ends of the wires are united in the mouth.

DR. A. W. McCULLOUGH, Pittsburgh: The first essential in reducing fractures is to secure apposition. Dr. Gilmer's wiring becomes rather tiresome to the patient after a few days and he wants it removed. I have used Angle's bands on the teeth, together with rubber bands attached to the upper and lower Angle's on teeth. Sometimes it works very nicely and gives the patient an easier condition of the muscles than we get when the jaws are wired together with immobilization. Regarding bands, we have used three or more bands, with bar attachments; bands of the Lukens design, that may be adjusted easily or changed, and which I prefer to cementing.

DR. FREDERICK B. MOOREHEAD, Chicago: Dr. Lyons' experimental work does not tally with the principles of bone regeneration as we understand them. It is understood that regeneration of bone must come from the osteoblasts, and that the periosteum per se has no capacity of bone regeneration. Dr. D. B. Phemister of Chicago has proved that bone transplants without periosteum are quite as vital in their function as those with the periosteum. One may take a section of bone from which the periosteum has been removed and then remove the subperiosteal layer by cutting it away and it will be found that that piece of bone has a certain capacity for regeneration, which must, of course, be found in the osteoblast. It must be true that in transplanting periosteum into muscles, as reported by Dr. Lyons, some of the osteoblasts were retained in the periosteum in its removal from the bone. The French method of treating fractures of the jaw is not to immobilize. Where there is no displacement and no tendency to displacement in muscle movement, a fracture of the jaw is more satisfactorily treated without immobilization than with it. Fixation and immobilization are necessary only where there is displacement, which cannot be controlled except by immobilization. It is doubtless true that the amount of movement occasioned by the muscle only acts as a stimulant and hastens repair.

DR. CHALMERS J. LYONS, Ann Arbor, Mich.: I think we are getting away from fixation of the jaw. We must retain the fragments when there is displacement. In mandibular fractures, where there is little or no displacement, we are getting away from the intradental ligation. The experience in fracture work of the men at the front is going to bring out many new things. Ordinarily, where there is infection of the mouth we can get along much better without fixation. In gunshot fractures I question whether intradental ligation has much of a place on account of infection. The point Dr. Gilmer brought up about external openings is a method we have resorted to in many cases. If an abscess forms you must drain. If pus forms around a fragment, repair is going to be retarded. It is much better to make an external opening at once. Relative to Dr. Gilmer's point of the osteoblasts lying just under the periosteum, we all recognize this fact, and it is to this layer that Hey-Groves has given the name of epio-osteum. It is the osteogenetic portion of the periosteum. Without this layer of cells, the periosteum has not the property of producing new bone.

Improved Approach to Kidney.—Dr. G. Kolischer describes a new incision which he had devised for exposing the kidney (*Interstate Medical Journal*, 1918, **25**, 128) and which reduces the amount of destruction to the soft tissues of the abdominal wall. The patient lies on the operating table in such a way as to make his flank protrude. The skin incision is made half way between the twelfth rib and the crista ilii, and parallel to the rib, beginning at the anterior edge of the latissimus dorsi, and slanting downward the center of an imaginary line running from the umbilicus toward the spina superior ilii. The incision extends down through the fascia. Both lips of the wound are undermined for 2 or 3 inches. Retract the flaps so as to expose the external oblique. Separate the fibers of this muscle bluntly in the center, and also those of the internal oblique, including the transversalis. The fascia transversalis is split vertically with the knife and spread wide open with retractors so as to give a free exposure of the kidney. The wound is closed by reuniting the fasciae and approximating the skin edges. Tension sutures are also inserted.

THE MEDICAL PRACTITIONER AND MENTAL HYGIENE *

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To the average medical practitioner the subject of mental hygiene is more or less a closed book. At the most, its mention probably arouses little more than vague ideas concerning sets of mental tests or insanity. Few physicians appreciate the importance of mental training and its consequences, most being content to think that all that is necessary for healthy mentality is the possession of a healthy body. The fallacy of this view has been very strongly emphasized by the results of examinations and experience in the building up of our new Army.

The exemption boards have rejected something like one third of all drafted men, and one may take it for granted that none of the more obvious defects in construction have been overlooked in this process. And yet of the selected two thirds accepted for service by these boards, over 1 per cent. have been found unfit because of some mental or nervous deficiency. What the proportion of rejections by the exemption boards for such conditions is, I do not know, but, if added in, it is highly probable that not less than 2 or 3 per cent. of the male population are, on nervous grounds, unfit for Army service.

The demands of military service are, it is true, extremely exacting and the stresses and strains to be endured out of all proportion to those of civil life. But it must also be realized that in the Army men are subjected to intensive training, and that in consequence of this training some who would in all probability have failed in civil life will have a greater chance to succeed. Repeatedly, we hear such remarks in reference to enlistment as "It is just what he needs," "It will be the making of him," etc.

It may be urged that military training is essentially physical, that the principal benefits derived from it come from the setting-up exercises, outdoor life and regular habits. But is this all? Is there not even more training in the way of mental adjustments? The discipline and self control, the meeting with others on equal terms and all that this implies in the way of social adjustment, the morale and *esprit de corps* which figure so largely in our estimate of good soldiers, the demands for punctuality and strict performance of even distasteful tasks, and the steady persistence toward the accomplishment of a definite purpose all serve to form, as we say, the character of a man. It is possible that, especially in war time, there is a tendency toward limitation of individual responsibility, which may not be altogether desirable as an element of education.

Mental hygiene is a branch of medical science which deals with the establishment of habits of adjustment similar in kind to those sought in the Army, though designed more especially to fit the individual for civic duties rather than for fighting a human enemy. Just as the rules of bodily hygiene are intended to maintain bodily health, so mental hygiene attempts to lay down principles which will permit the individual to adapt himself, in a manner satisfactory to himself and to

society, to social regulations. This means the control of personal longings and desires which are primeval and inherent in life itself.

Every one receives training in habits of adjustment of one kind or another. This begins in the home, whether that be a palace or the streets, and is also by far the most important part of the school curriculum. It is strange, in the face of this, that more attention has not been given to a study of the methods to be followed, the results desired and the harmful consequences of poor technic. This study is still in its infancy and there is urgent need for assistance from physicians everywhere.

As has been true in the early history of many other branches of medicine, most of what we have so far learned has been gained from the study of the end-results of faulty methods, pathologic behavior in all its varieties, including most of the insanities, the psychoneuroses, crime, delinquency and dependency. It is now essential for further progress that we begin to study the earlier stages when the habits are in process of formation, when the conditions for their establishment are open to investigation and when the prospects of modifying the habits are at a maximum. This implies reaching into the homes and schools.

Let us consider for a moment the factors involved in the consideration of mental adjustments. These may be divided under the two heads of (1) quantity; (2) quality. The former is structural; the latter functional. The one represents the tools with which the individual is endowed and must make his way, the wealth or poverty in nerve centers and associative connections provided by inheritance which we can, at present, do but little to modify. The principles of eugenics are far too little established to permit of any but the most empirical and superficial interference, attempts at which have been compared by Maudsley with those of trying to repair a broken watch by stirring its inside with a stick.

The best that we can do at the present time is to try to estimate the quantity of brain tissue available and then plan so to train it that the most efficient use possible may be made of it. It is this estimation of native ability which is attempted in the various forms of intelligence testing that have been and are being constantly evolved. Their application is a relatively simple procedure and does not require medical training for its performance. The situation with regard to its use is much the same as that of the Wassermann test in relation to diagnosis in somatic disease.

The quality, on the other hand, represents the use which is made of the tools available. To what extent this is inherent in the structure of the brain and in how far it is the result of training and education is not yet known. It is easy to allege and to collect statistics to prove the contention that a faulty mode of reaction, such, for instance, as crime, is inherited. But it must not be forgotten that the offspring of criminals not only inherit their structure, but that they also receive their early, most effective and important training in an environment of criminality. Similar reasoning applies also to hysteria and dementia praecox, in the causation of which heredity has been alleged as a prime factor.

Whatever be the true relation between these two causative factors, there can be no question but that training in habits is far more readily open to interference than is that of heredity. But, in order to accom-

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plish this in a rational manner it is essential that we answer certain questions which may be placed as follows:

1. What constitutes a healthy or satisfactory adjustment?
2. What are the indications of a liability to fail?
3. What measures must be taken to remedy or minimize these faulty tendencies?

The answers to these questions can at present be only roughed in for the reason that, in the main, we have studied only the grosser end-results and have yet to investigate the earlier phases and lesser degrees.

The answer to the first question depends on the following considerations: The struggle for life has led to the adoption by man of a gregarious or social mode of existence by which there is provided a greater strength through the mutual assistance and cooperation of many individuals. But each individual has also an innate and biologic urge for self preservation and reproduction, which must bring him into competition with his fellows within the social group. In order to avoid the disruption of society, which would result in the failure of man to maintain his supremacy in the world, it is obvious that individual desires must be subjected to certain limitations and restrictions.

These make up our laws for the regulation of conduct which have been gradually evolved with the progress of social union.

But with the growing strictness and extent of social regulation, there has been no diminution in the biologic desires of the individual, and we must regard a successful type of adjustment as one which secures individual satisfaction without offending social regulation. To illustrate roughly, a man is not allowed to seize something which especially attracts him, but must either secure its acquisition by fulfilling certain preliminary requirements, or must forego his desires and look for satisfaction in some other way.

The particular method which is adopted of looking for satisfaction "in some other way," represents exactly the problem with which the student of mental hygiene is concerned. This brings us to the second question.

It would take too long to attempt to go into the various faulty habits which have been recognized as types, and I must content myself with merely indicating that they include many of the so-called insanities, psychoneuroses, delinquencies, etc., referred to. As an example might be quoted the individual who develops a war neurosis as the result of finding himself in a situation rendered intolerable because of the conflict between his individual desires (including that to be out of all the horrible conditions of military duty in time of war) and the regulations imposed by the urgent demands of society which have placed him in that position. In developing the neurosis, he adopts a mode of adjustment which, painful as it often is, yet relieves him of his larger difficulties.

It is true that in this illustration I have chosen a case in which the conflict is intense and one which, in all probability, the person would never have had to face in times of peace. But the main value of the example lies in the fact that proper hygienic consideration can prevent the breakdown. This has been conclusively shown by the avoidance of neuroses in certain Army units through the watchful care of competent psychiatrists. It cannot be doubted, however, that some men will show poor adjustment under less strain than others, and that such persons will develop neu-

roses or psychoses even under the apparently simplest conditions of civil life.

It is with this last class that we have to deal more especially in our everyday social work, and it is for evidences of a tendency to react to situations of more or less difficulty in some manner which will place the individual in an extrasocial position that we must look in our efforts toward mental hygiene. These traits of behavior are being gradually more clearly defined in the gross and will become more easy of detection when we become possessed of more complete longitudinal studies of life histories.

The answer to the third question likewise depends on a clear formulation of the meaning and essence of the various types of pathologic behavior. At this point, it is also necessary in reaching conclusions to take into consideration the quantity feature, which has been discussed. The methods of treatment to be followed are similar in kind to those adopted in the Army today for the treatment of war neuroses. They concern education, the development of interests and habits, and have nothing to do with punishments arbitrarily inflicted.

Let us now turn to the question of the function of the medical practitioner in relation to this work. That it is a medical problem, even with regard to those disorders of behavior, such as crime and dependency, which are more generally considered as belonging to the layman, there can today be no question. That expert knowledge and direction of the work is also essential needs no demonstration. For this, unquestionably, as in all matters of public health, the state must provide the means. But the actual detailed work is enormous, as it must be carried even into the most remote communities and homes.

Numerous public and private agencies, dealing with some one or other of the phases of these problems, already exist, but they are often hampered by lack of authority and support, by overzealous or unwise technique, and they frequently overlap in their functions. To overcome these difficulties, state direction would do much, but there is also needed a closer cooperation on the part of the local physicians who must furnish the medical skill required for success.

For this purpose it is obviously necessary for the physician himself to be trained. Our medical colleges teach practically nothing along these lines, even though they devote considerable time to bodily hygiene. Courses in psychiatry are given, but as a rule they are extremely brief and contain little but a formal enumeration of what are described as the symptoms of certain more or less definite diseases. The human mind is not less important in the welfare of society than the body, and it is a far larger subject, embracing, indeed, within its field a consideration of the body and its diseases. Yet four or five times as much of the curriculum is devoted to neurology as to psychiatry.

If it does nothing else, this war will have performed an inestimable benefit to society by bringing prominently forward the importance of mental health to national efficiency. The demand for trained psychiatrists by the Army is far in excess of the supply, and yet the Army must be considered as one of the most sternly practical businesses this country has yet engaged in. The importance attached to mental hygiene in the Army is well shown by the fact that of all the medical specialties this is the only one which has been deemed so essential as to require a special representative on the divisional staff.

The object of this paper is, therefore, a demand for wider recognition in the medical profession of the subject of mental hygiene and the enrolment of medical practitioners for the furtherance of this work in the local community.

ABSTRACT OF DISCUSSION

DR. MEYER SOLOMON, Chicago: This is a big problem. The recent work of many psychopathologists has been wholly an effort to emphasize the psychogenic aspect, making of the individual who has the mental upset more or less of a scapegoat, putting the blame on him; he is responsible for everything. As I see it, the problem is a far broader one than that. Mental health is interrelated with the general problem of education, religion, etc., which develop attributes of mind in the individual, and attributes of mind have a great deal to do with the way we react. Then, also, it is related intimately with the physiologic state of the organism. A man being overworked, underpaid, underfed, etc., is not going to have a stable organism, no matter how stable it was originally. For that reason we find that mental health is closely related to all the sociological and economic problems that confront us. Each individual is an individual problem. If a person has an innate, congenitally feeble nervous apparatus due to syphilis in the mother, contracted from the father, a preventable illness, who is to blame? Is not the remedy a system of education in the control of disease? Fundamentally it is a simple proposition. Instill into the mind of the child and the adult a strong, bold philosophy in life under which the individual can stand all sorts of disappointments, all sorts of trials and tribulations and still fight, without any grudge against anybody; an individual who will take an independent view of life, not running away from the struggle but facing things as they are, trying to reform, to construct, to change circumstances and environment to conform to the ideal whereby he or society shall benefit. Mental hygiene, from the so-called psychogenic point of view, is nothing more than an attitude in life. If the education a man has had in school and in church, or the training he has received at home, or the views thrust on him by the press or the books he has read, give him a wrong philosophy, all this is intimately related to the way he is going to react in life. Education is the big thing.

DR. JOSEPH BYRNE, New York: The question of education is one of the most important and fundamental that the medical profession has to deal with, but we are not "putting it over." We use a nomenclature that people do not understand. Why not get "next" to the people and make education real and not a myth? Education primarily is a superstructure erected on inherited tendencies, on instinctive capacity. Every human being, when young, is afraid of everything; an animal when young is afraid of everything. Try to teach a canary to take a seed off your finger: he is attracted, but repelled by fear. After a long time he is trained to take the seed. Education in the broadest sense is orientation, and orientation means nothing more than the elimination of fear in the child. An individual who has not been orientated up to 22 is afraid to mingle with his fellow men. A man may be well educated along social lines and he may be a wonder esthetically, but he may be no good ethically. In considering those people who have an unfortunate criminality, what kind of philosophy have we as medical men? Rotten materialism oftentimes, narrow minded in not taking into consideration the whole aspect of education in a health sense. Here is a poor fellow who does not understand the conflict between his fundamental sex instincts and society at large. What is the proper education for him? Explain to him that his instinct must be held in check to a certain extent.

DR. HUGH T. PATRICK, Chicago: I have just been having four weeks' experience in examining recruits for the Army. One man seemed to be very nervous, apprehensive and unstable, although he had been living the life of a fairly useful citizen. He had worked steadily, was devoted to his mother, made fair wages, and had no bad habits. He did not save any money. On the whole, he was a fairly useful, peaceable

citizen, useful to society and quite bearable for himself. But when he got to the camp the emotions incident to leaving his home, to changing his environment, the anticipation of what might be ahead of him, the fear of the unknown, made him very nervous, and we thought that probably he was not fit to go. Largely for my own information and education in this matter, I had this man put to regular army work for ten days. At the end of five days he was returned to our ward because he was nervous and could not do the work. The man had become worse; he had become so much worse that we rejected him. But he did not get away from the camp because his people had to be notified and the formalities had to be gone through. Two days later his brother arrived to take him home, but the boy was not in camp. He had slipped away and committed suicide by throwing himself under a train. In other words, he had to get away from an intolerable situation. That was a case in which we tried to operate mental hygiene, but were a little too slow in motion to prevent this catastrophe. Another boy showed that he was very unstable. He was hypersensitive physically and emotionally, and we definitely rejected him on first examination. He was not a very useful member of society, although he was self-sustaining. He did not work steadily; he was more or less hypochondriacal; little things upset him. But he made a living and was on the whole a tolerable citizen. Again the delays in getting him out of the camp were sufficiently prolonged so that after four or five days I found him in the hospital absolutely disabled, shaking like a leaf. How long that disability may last is a matter of guess.

These are two examples which are illustrative of the point that we should get these imperfect organizations early enough to prevent the catastrophe that will be precipitated by a change of surroundings which will be intolerable to the individual. This would seem to be peculiarly applicable to the present time when many of us are of necessity examining drafted men, whether on draft boards or advisory boards or in camp. I would like to urge that we take the chance rather of rejecting too many of these men than of allowing too many of them to get into the Army.

DR. WILLIAM O. KROHN, Chicago: If we can impress on the general practitioner's mind the fact that the child at birth possesses every brain cell it ever will have, and that if these cells are brought into use and activity they will live, but that they will die from inactivity and disuse, then the general practitioner, cooperating with school and home, will through educational forces see to it that all these brain cells are brought into use and activity. Erratic development comes from not recognizing the fact that the child never has a single brain cell added after birth.

DR. EDWARD E. MAYER, Pittsburgh: In connection with a previous paper it was stated that psychiatrists do not remember and utilize their anatomy and physiology. In conditions involving mental conflicts I try to bring about in the attitude I take toward any patient the personal equation. I try to elucidate the psychogenic factors, and I try to think of mental hygiene as much as possible. But, at the same time, I want to keep on studying and to remember what we know of the architecture of the brain, which is so often forgotten. The remark that impressed me was that at birth the child has all the brain cells it will ever have. This is not true. Psychiatrists are starting to talk of biologic education, etc., but they go all around the bush in their discussions and we never hear a word said about the exact technic of brain architecture. Of course, we cannot talk about it in terms of personal equations, and yet back of the reactions in individuals, as Dr. Singer hinted in his paper, are these differences anatomically and physiologically in the individual, and I do not know why psychiatrists always forget that.

DR. C. R. BALL, St. Paul: It is rather interesting to note that without any correlation or prearrangement these subjects have practically dovetailed into one another, and the subject of mental hygiene has been the one that has been uppermost in the minds of the essayists and also of the hearers. The wonder is why this subject, which is of such material importance, should be so long in making an impression. In our social life and civilization mental hygiene is

one of the greatest and best and most practical of subjects, and it holds more for the psychiatrists than anything else within their reach. I have wondered why the school teacher never takes into consideration what the inheritance of a certain child is, what its social environment is, what its particular adaptabilities and talents and characteristics are. They crowd down uniformly the same sort of discipline and the same sort of education and the same standard of grading for all children. There can be nothing less intelligent. We do not do that in the raising of live stock. Another thing that we are just beginning to recognize and apply definitely to this subject is that all these little defects which, so far as the efficiency of the individual is concerned, are very important, have seemed to create a tendency even among ourselves to look on them as something that demanded exceptional ability. We have the tendency still, when we go to a show and see a man who pretends to be drunk to act as if there was something entertaining about seeing a man drunk. We are proud of our lack of control. But we have come to look on these deviations and derivations and mental defects or deficiencies as so many black marks under mental insufficiency, and that is where they belong. How we are going to stop crime and cure criminals is going to have a great deal to do with the wonderful change in our conception of these people and our methods of handling them.

DR. H. DOUGLAS SINGER, Kankakee, Ill.: What I was trying to do in presenting this subject was not to arouse a philosophical discussion, but to stimulate an interest in it from a practical standpoint, for that is what we are working for at this stage. I believe the time is here when mental hygiene will have to be taken in hand practically. The various states are stirring up quite a little interest in it, although the medical schools are lagging behind. What are we trying to do? Educate the people. But we must consider it from the medicopsychiatric point of view. There is a great deal of work yet to be done.

BLOOD PRESSURE STUDIES OF FIVE
HUNDRED MEN

BERTNARD SMITH, M.D.

LOS ANGELES

The studies for this report were made on men who applied for examination for the American Army Aviation Service. It may readily be seen that a long period of study could not be given to each applicant without causing unwarranted delay to the applicant and also to the other examiners. A Tycos instrument, daily tested with a mercurial sphygmomanometer, was used for all blood pressure estimations. All readings were made by one examiner in order to reduce the personal factor to as small an error as possible.

Readings were made with applicants in (1) the recumbent position; (2) standing, before exercise, and (3) standing, after measured exercise. The readings, in the first position, were made after the nervous excitement had become controlled as much as possible. This factor was commonly very prominent and often difficult to control, sometimes requiring the subject to return for a later reading. For the exercise test, a flight of twenty-four steps was used, each step having a 6-inch rise. Since the average weight was 142.6 pounds, the work performed averaged about 1,600 foot-pounds in five seconds. The area of cardiac dulness was estimated by percussion. The systolic and diastolic pressures were obtained by auscultation, and the diastolic pressure was read at the point of change from the third to the fourth phase.¹ After the exercise test, the time required for the blood

pressure to return to the previous standing point was noted in 200 of the men examined and recorded as recovery time.

The range and average of the readings in the recumbent position for the 400 cases that stood all tests as good normals are given in Table 1.

I recognize the danger and, more often, the waste of time in the use of mathematical formulas for the interpretation of clinical findings. But a few such formulas have been so frequently used in blood pressure studies that I have arranged their values in Table 2 as derived from the first table.

TABLE 1.—READINGS FOR FOUR HUNDRED CASES IN RECUMBENT POSITION									
	Age	P. R.	S. P.	D. P.	P. P.	Phase Lengths			
						1	2	3	4
Range.....	19 - 39	78 - 94	119 - 132	80 - 88	39:44	8 - 18	20 - 26	5 - 10	4 - 6
Average...	24.2	85.4	127.7	84.1	42.2	12.1	24.5	6.2	5.1

Tiegerstadt, using Strassburger's blood pressure quotient, measured the cardiac efficiency by dividing the velocity of the arterial flow by the work of the heart, and adopted the formula $\frac{PP \times PR}{SP \times PR}$, with an estimated normal value of from 30 to 35 per cent.² Stone,³ recognizing the value of the diastolic pressure in estimating the heart load, adopted the formula $\frac{PP}{DP}$, with a normal value of 50 per cent. Goodman and Howell,⁴ in their studies of the auscultatory pressure phases, designated the second and third phases as measures of cardiac strength, and the first and fourth as the phases of cardiac weakness. From these studies they concluded that a cardiac strength factor greater than a cardiac weakness factor denotes a competent myocardium, especially if the second phase length equals more than 40 per cent. of the entire pulse pressure length. They determined the normal value of C. S.: C. W. as 55.4:44.4.

TABLE 2.—PERCENTAGE VALUES DERIVED FROM TABLE 1					
	$\frac{P. P.}{S. P.} \%$	$\frac{P. P.}{D. P.} \%$	C. S. %	Second Phase P. P. %	Crampton %
Range.....	29.8 - 36.9	48.9 - 56.7	54.1 - 56.6	46.2 - 62.6	75 - 100
Average.....	33	50.2	55.8	57.4	86.9

Crampton⁵ has worked out an ingenious table for measuring the percentage of vasomotor efficiency through the differences in the pulse rates and systolic pressures in the recumbent and standing positions. This table is based on the fact that the vasomotor tone is increased, normally, on changing from the recumbent to the upright position. Consequently the systolic pressure is increased and the pulse rate is either unchanged or slightly increased. In conditions of lowered vasomotor tone, the systolic pressure remains

1. Warfield, L. M.: Studies in Auscultatory Blood Pressure Phenomena, Arch. Int. Med., September, 1912, p. 258.

2. Muller: Med. Klin., 1908, 1, 47.

3. Stone, W. J.: The Clinical Significance of High and Low Pulse Pressures with Special Reference to Cardiac Load and Overload, THE JOURNAL A. M. A., Oct. 4, 1913, p. 1256.

4. Goodman and Howell: Am. Jour. Med. Sc., 1911, 142, 334.

5. Crampton, C. W.: New York Med. Jour., 1913, 98, No. 19.

the same or is decreased on the change of position, and the pulse rate shows a definite increase.

The results for each person come well within the normal value given for each formula. The percentage ratio of Goodman and Howell's cardiac strength factor was persistently high and showed only the narrow percentage range of 2.5 in the 400 men examined. The ratio of the second phase to the value of the first, second and third phases, or the blood pressure length, shows a wider range and a high average. In several men, still in active training, a very prominent second phase was noticed.⁶ The length of this phase seemed to be at the expense of the first and third, since the fourth phase was always of average length. Tonal arrhythmia, as described by Goodman and

TABLE 3.—READINGS AFTER EXERCISE

	P. R.	S. P.	D. P.	P. P.	Pressure Phases				Recov. Time Min.
					1	2	3	4	
Range	86 - 138	128 - 158	84 - 96	44 - 68	8 - 18	24 - 49	6 - 16	6 - 9	3.1 - 7.6
Average	112	145.4	90.6	54.1	13	33.5	11	7	4.4

Howell, was never noticed in this group. In forty cases, or 10 per cent. of the total, a blurring of one or more of the phase tones was noticed. This was never so marked as to make the phase limit very difficult to recognize. Where this blurring was limited, it was usually found between the first and second phases, and in only two of the forty cases was it found limited to the third and fourth phases. These were cases showing intense excitement, difficult to overcome, in which readings taken two days later showed clear, normal, phase tones.

Table 3 gives the blood pressure findings after measured exercise, and a comparison with Table 1 shows the characteristic increase of both systolic and diastolic pressures after exercise, with the more marked increase in the former, causing an increase of pulse pressure.⁷ In the pressure phases, the most marked increase is in the second phase.⁸ This was true in each of the 400 cases, and it points with considerable emphasis to the importance of this phase in blood pressure interpretations. The least increase in the second phase, after 1,500 foot-pounds of work, was 4 mm. In this series, the third pressure phase showed but little more increase after exercise than did the first and fourth phases.

In no case was the heart area found to be increased after the exercise, so far as could be determined by percussion and by the position of the apex impulse. In 31 per cent. of the cases, no change could be determined. In the remaining cases, there seemed to be a definite decrease in area. One hundred of the patients that showed a decreased area of dulness, after an average of 1,600 foot-pounds of stair-climbing in five seconds, were later given double this amount of exercise with a diminished cardiac dulness again in evidence.

It is to be regretted that the Barringer test⁹ could not have been carried out completely in these studies, and records made of the blood pressure findings.

In 200 cases, blood pressure readings were made immediately at the end of the exercise test and continued until the pressure returned to normal. In these, the apex of the systolic rise was reached in from 30 to 60 seconds after 1,600 foot-pounds of work. In the same group of 200 men, after double this amount of work, the highest point of the systolic rise was reached in 49.7 seconds; and the systolic pressure returned to its normal in from 3.1 to 7.6 minutes after the exercise, with an average recovery time of 4.4 minutes. These results agree with the general conclusions of Graupner,¹⁰ Barringer, Rapport,¹¹ and other investigators, and show the normal increase, after work, in the systolic pressure, associated with lesser rise in the diastolic, with the resulting increase in pulse pressure. Associated with this systolic rise is a delayed return to normal after heavier work.

In the 400 normals, the pulse rate after exercise showed an average increase of 26.6 beats per minute, but returned to the quiet rate in from 2 to 5.5 minutes, with an average of 2.8 minutes. Definite tonal arrhythmia was not noticed in any of this group of normals.

In the following 100 cases which showed some variation from a strict normal, the findings were very complex, and diagnoses were usually impossible on blood pressure readings alone. All these men had had a more or less thorough routine physical examination that was recorded with their application papers. Consequently it is not surprising that very few cases showed some form of heart murmur. Five cases in all were detected, and these I have grouped for comparative study. Cardiac dulness was increased by the stair test in all five cases, and the breathing was objectively labored. Tonal arrhythmia was present in three cases—Cases 27, 84, 231. Table 4 gives the pressure readings in each of these cases.

The ratio of the second phase to the pulse pressure, after exercise, is found here to be low in each case, having a percentage variation of 28 to 46.1 compared with the values, before exercise, of 45.6 to 59.5. The

TABLE 4.—PRESSURE READINGS IN FIVE CASES OF HEART MURMUR

No.	Before Exercise								After Exercise							
	S. P.	D. P.	P. P.	Phases					S. P.	D. P.	P. P.	Phases				
				1	2	3	4					1	2	3	4	
27	126	84	42	12	25	5	6		142	90	52	18	24	10	7	
34	126	84	42	10	22	10	7		132	88	44	18	22	14	9	
84	128	80	48	18	24	6	7		140	100	40	20	14	6	8	
220	148	86	62	21	34	7	10		182	96	86	39	37	10	14	
231	138	70	68	28	31	9	11		146	78	68	26	27	10	14	

C. S.: C. W. values are also slightly reduced after exercise when compared with their previous percentages, but to a less degree. These computations give us some basis for the diagnosis of myocardial weakness, but the same decision can be much more easily reached in noticing the change, in the cardiac area with exercise, in the dyspnea, and especially in the time required in each case for the pulse to drop to its previous rate. In these five cases the pulse rate recovery time was 10, 12, 15, 14 and 13 minutes, respectively. Case 27 at rest showed an indistinct mitral roughening that developed into a systolic murmur transmitted into the axilla after exercise. Case 34 showed the same finding at rest, and, after exercise, the mitral systolic

6. Swan: Internat. Clin., 4, Series 24.
7. Norris: Internat. Clin., 1, Series 17 (bibliography).
8. Fisher: Deutsch. Med. Wchnschr., 1908, 34, 1141.
9. Barringer, T. B.: The Circulatory Reaction to Graduate Work as a Test of the Heart's Functional Capacity, Arch. Int. Med., March, 1916, p. 363.

10. Graupner: Ztschr. f. exper. Path. u. Therap., 1906, 3, 113.
11. Rapport, D. L.: Systolic Blood Pressure Following Exercise, Arch. Int. Med., June, 1917, p. 981.

murmur was transmitted through the left axilla and could be easily heard at the angle of the scapula. In both these cases there was definite accentuation of the pulmonic second sound. Case 84 showed no abnormal sounds at rest, but developed an aortic roughening and a mitral systolic murmur after exercise. Cases 220 and 231 showed an aortic roughening which was more marked after exercise. Cases 84, 220 and 231 were all cases with hypertrophied tonsils and with slight subjective joint signs of absorption.

In five cases the radials were definitely palpable. All of these showed abnormal respiratory embarrassment with exercise and an increased recovery time of pulse rate. A comparison of the findings in these is given in Table 5.

TABLE 5.—COMPARISON OF FINDINGS IN FIVE CASES IN WHICH THE RADIALS WERE PALPABLE

No.	Before Exercise								After Exercise							
	S. P.	D. P.	P. P.	Phases					S. P.	D. P.	P. P.		Phases			
				1	2	3	4						1	2	3	4
8	150	102	48	14	23	11	7		172	104	68		18	36	14	10
34	126	84	42	10	22	10	7		132	88	44		18	22	14	9
44	132	80	52	12	10	30	6		142	92	50		6	20	24	6
58	142	96	46	12	27	7	6		168	104	64		26	28	10	8
291	144	98	46	14	24	6	10		172	110	62		20	32	10	14

P. R. recovery time, 11, 13, 7, 14, 12 minutes, respectively.

Pressure findings in this group also show wide variations. The C. S. factor was increased by exercise in all but one case (Case 58): But the ratio value of the second phase was increased only in Cases 8 and 44. The palpable radials constitute a finding probably of little importance in these men. They all show a limited physical efficiency. Patients 8 and 44 had held office positions for several years, with little physical exercise, and impressed one as being persons to whom systematic exercise would be of real therapeutic value. With the exception of Case 34, the men of this group are now all in other branches of active service and after three months of training are considered as physically fit. I have examined three of these men (8, 44 and 58) after they had had two months of training and they showed a good normal response to exercise in every way.

Eleven applicants showed abnormally high systolic pressure with a high pulse pressure. Rest and quiet for half an hour failed to correct these high values. One of these men had smoked twelve cigarettes in the morning before the examination. Six men had made an all-night automobile trip in order to be able to keep their appointment at the examining station. Four still showed signs of the previous night's dissipations. The pulse recovery time in these ranged from 4.5 to 6.5 minutes. After a twenty-four hour period of rest, these men all showed normal pressure values with normal responses to exercise.

One man (242) showed a systolic reading of 138 mm., with a slightly increased pulse pressure. He had a low second phase ratio value after exercise and a Crampton reading of 52 per cent. The pulse recovery time was 5.5 minutes. Two days later he showed the exanthem of measles. After he had recovered, the pressure findings were normal. Recovery time was three minutes to 1,600 foot-pounds of work, and the Crampton reading was 92 per cent.

Eight men showed acute infections. Of these, three had acute tonsillitis, four had acute bronchitis and one

acute laryngitis. Systolic pressure values ranged from 120 to 128 mm. As the ages ranged from 28 to 36 years, these systolic readings are but little lowered. Pulse pressure readings ranged from 42 to 46—only a little above normal ratios. Second phase ratios to pulse pressure were within normal limits during rest, but were low after exercise. Pulse recovery was delayed in each case, ranging from five to eight minutes after a rapid ascent of twenty-four steps. These men all returned for later examinations and showed normal findings.

Two cases showed hypotension (Cases 239 and 271). The systolic pressures were 98 and 101, with pulse pressures of 30 to 35 mm., respectively. No abnormal heart findings were detected, aside from soft and distant sounds. Response to exercise was very poor in both cases. Case 239 showed a second phase ratio of 34 per cent. before exercise and 30 per cent. after 500 foot-pounds of work, also a pulse recovery time of ten minutes, markedly labored breathing with slight tonal arrhythmia in the first, second and third phases, and a Crampton value of 22 per cent. Hands and feet became markedly cyanosed on standing, but no other objective signs were noticed during the period of rest. This applicant gave a history of frequent fainting attacks after exercise and excitement. Case 271 had a second phase ratio of 38 per cent. after exercise and of 41 per cent. before. The pulse recovery time was 7.5 minutes. Labored breathing was observed after 600 foot-pounds of work, with a Crampton estimation of 42 per cent.

Thirty-eight cases showed some degree of tonal arrhythmia. In seven, this persisted through all the pressure phases. In nineteen, it was found through the first and second phases, and in twelve in the first phase only. Blood pressure findings during the periods of rest were normal in all of the thirty-eight. In all those showing arrhythmia throughout the phases, the response to 1,600 foot-pounds of work was poor. The pulse pressure was increased none, or very little, after

TABLE 6.—PRESSURE RECORDED IN CASE OF PERSISTENT TONAL ARRHYTHMIA

Before Exercise								After Exercise							
S. P.	D. P.	P. P.	Phases					S. P.	D. P.	P. P.		Phases			
			1	2	3	4						1	2	3	4
136	91	45	10	28	7	6		164	116	48		19	17	12	16

the exercise. The C. S. value and the second phase ratio were reduced. One pressure record (Table 6) will illustrate the findings in all the seven cases, as there was marked similarity.

In these seven cases, the Crampton percentage ranged from 52 to 68 per cent. Breathing was labored after the routine amount of exercise in each case, and the pulse recovery time ranged from 4 to 6.5 minutes. Two of the men mentioned slight distress over the mitral area after exercising. Four gave a history of dyspnea and some degree of precordial pain on forced exercise, which had obliged them to give up all athletics in school, except light gymnasium work. When the exercise was reduced to a figure of less than 600 foot-pounds, these men gave normal responses.

Blurring of the phases was present in all seven cases. The rest of the thirty-eight cases arrange

themselves fairly definitely, in groups of varying physical efficiency paralleling the extent of the arrhythmia. There was not sufficient time to test out each of these cases thoroughly with measured graduated exercises, but such tests could easily be made and used in determining the character of service men of this type are best able to give efficiently.

The remaining thirty applicants gave a blood pressure picture of nervous excitement, with increased systolic findings and a high pulse pressure. These cases showed normal physical findings, except for a slightly increased fulness of the pulse and a slightly lowered Crampton percentage of vasomotor efficiency. The systolic and diastolic pressures ranged from 140 to 158 and from 90 to 102, at rest, and gave an increase of pulse pressure, after exercise, of from 6 to 10 mm., slightly less than the normals. No arrhythmia was present and no demonstrable increase in cardiac dulness. There was no blurring of the phase tones. Dyspnea was not marked in any case, and there were no distressing subjective symptoms. The ages of the thirty men ranged from 21 to 32 years. The blood pressure findings were similar to those in the cases of nervous excitement, but the condition could not be controlled by recumbent rest and quiet of more than one hour's duration at the examining station. Twenty-three of the men gave normal pressure findings within one week of daily observations, with general directions regarding sleep and avoidance of tobacco, coffee and other stimulants. Seven men were observed for two weeks, with very little change in the pressure findings and vasomotor percentages. In all these cases, the pulse recovery time was normal and the men responded well to the test of climbing fifty steps at good speed. The seven men have since entered the officers' training camps, and all have stood the work well.

Among the 400 cases reported as normals, twenty-three showed high systolic and pulse pressures on the first reading. The systolic pressure in these cases frequently registered as high as 165 mm., and in three cases it was recorded as high as 175 mm. The diastolic pressure registered from 87 to 92. Consequently, in several instances, the pulse pressure was almost equal to the diastolic. Physical findings were negative and after a short period of quiet, with occasionally some reassurance, the pressure findings dropped to normal. In one college athlete, aged 22, the systolic pressure dropped from 174 to 128 mm. in seventeen minutes. The Crampton estimate in these cases ranged from 75 to 80 per cent. after the systolic pressure had been reduced. Such cases emphasize the error of basing any opinion on single blood pressure readings, especially if unassisted by the exercise test.

Blood pressure findings alone are often of little value; especially is this true if we are trying to determine a man's physical fitness. The added information given through some form of measured exercise is of definite importance. The increase in the pulse rate with exercise is of no importance. In the 500 cases here reported, there was no marked difference noted between the increased rate of the normals and that of the unfit.¹²

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12. In addition to the references already given, the following will be found of interest:

Morris and Lane: *Arch. Diagnosis*, 1917, **10**, 233.

Lewis, T.: *Lancet*, London, 1918, **1**, 181.

RETROPHARYNGEAL ABSCESS *

CALVIN C. RUSH, B.S., M.D.

PHILADELPHIA

The subject of retropharyngeal abscess is so vaguely understood by many general practitioners, and the results of an error in diagnosis may be so disastrous, that the report of a case should be of value.

The case is reported not on account of original material, but because of the lesson that it teaches. We are too prone to adopt the habit of looking for the usual condition in a part affected, and to overlook the unusual condition when it appears. The careless physician commits the sin of assuming the usual condition. In this case the baby's life could have been saved in hardly more time than a physician would consume in putting on his overcoat. One of two conclusions must be drawn, either a physician was not called or, having been called, was negligent. A digital examination would have given him the diagnosis.

No history of the disease can be given. The body of a negro baby, aged 2 years, being unclaimed, became the property of the State anatomical board and was delivered to the Daniel Baugh Institute of Anatomy of the Jefferson Medical College of Philadelphia for scientific purposes. The preservation being poor, the body was valueless for routine study. A midsagittal section was fortunately made by Dr. Schaeffer after first hardening the body in solution of formaldehyd. This disclosed the condition that is well shown in the accompanying illustration. An abscess measuring 3 cm. in length and width was found in the retropharyngeal space. It extended forward 2 cm. to the uvula and epiglottis, completely obstructing the pharynx and larynx. The abscess cavity was much shrunken by the action of the formaldehyd and in the living state was, doubtless, much larger. An examination of the body gave no definite clue as to the cause of the abscess. A prominent pharyngeal tonsil was present.

The development and course of retropharyngeal abscess is better understood if one keeps in view the the different layers of tissue that intervene between the pharynx and the cervical vertebrae.

Dorsal to the mucous membrane of the pharynx is the pharyngeal aponeurosis, a loosely attached fascia permitting of free movement and free swelling. This fascia is followed by the constrictor muscles, which are in turn covered by the thin buccopharyngeal fascia. This fascia is but loosely attached by areolar tissue to the strong prevertebral fascia which follows. The loose areolar tissue space—the retropharyngeal space—permits of free expansion. The strong prevertebral fascia covers the prevertebral muscles which overlie the cervical vertebrae. It is evident, when pus forms dorsal to the prevertebral fascia and is confined there, that extension must be limited, whereas, if present ventral to the fascia, in the loose retropharyngeal fascial space, the freest extension is possible.

The source of infection leading to abscesses posterior to the pharynx are usually classified under four headings:

1. Those due to caries of the upper cervical vertebrae, usually of tuberculous origin. Such an abscess, being dorsal to the prevertebral fascia, is very

* From the Daniel Baugh Institute of Anatomy, Jefferson Medical College.

apt to burrow laterally and appear as a tumor in the neck, dorsal to the sternocleidomastoid muscle where it should be opened under the strictest asepsis to prevent a mixed infection. If unopened, it may follow the brachial plexus into the axilla. Regardless of the prevertebral fascia, it may, however, burrow forward in the midline of the pharynx.

2. Those due to an otitis media. The pus probably burrows downward in the upper part of the eustachian tube along the tensor tympani muscle to terminate behind the prevertebral fascia. It tends to point in the same direction as infection from cervical vertebral caries.

3. Those due to an extension inward of a carotid abscess.

4. Those due to infection of the lymph nodes of the retropharyngeal space. These nodes are one or two in number on either side of the midline opposite the lateral masses of the atlas. They receive lymphatics from the nasopharynx, eustachian tubes, nasal fossae and accessory sinuses.

The abscess accordingly lies in front of the prevertebral fascia and usually, as in the case reported, points into the pharynx. If not opened by the surgeon, it causes dyspnea, dysphagia and dysphonia and probably death from suffocation, or the abscess may rupture and the pus be swallowed or drawn into the larynx. In the latter case death from suffocation or septic pneumonia may result. As the retropharyngeal space is composed of loose connective tissue extending downward behind the esophagus to the posterior mediastinum, failure of evacuation permits the abscess to follow a course of slight resistance downward into the thorax. Abscesses in the pharynx should be opened in the midline, while the baby's head is held sufficiently low to allow the contents to flow out of the mouth.

Food Waste in Meat Production.—It may be roughly estimated that about 24 per cent. of the energy of grain is recovered for human consumption in pork, about 18 per cent. in milk and only about 3.5 per cent. in beef and mutton. In other words, the farmer who feeds bread grains to his stock is burning up 75 to 97 per cent. of them in order to produce for us a small residue of roast pig, and so is diminishing the total stock of human food.—Armsby, quoted by Lusk, Food in War Time.

RATIONAL PREOPERATIVE TREATMENT WITH SPECIAL REFERENCE TO PURGATION

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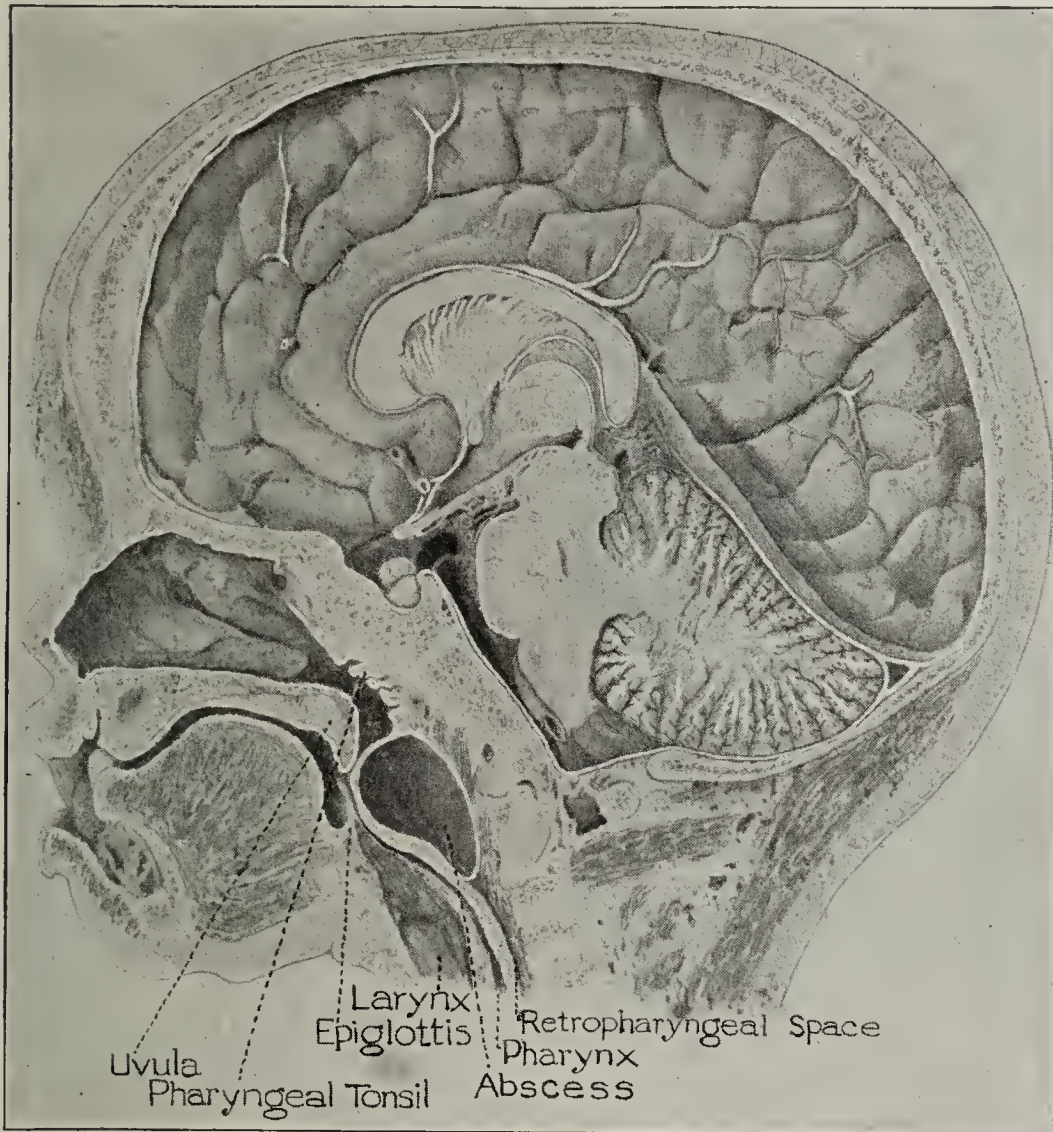
The routine preoperative treatment naturally shows wide variation in the different hospitals. The type of diet, the amount and kind of fluids given, the preparation of the operative field, and the hypodermic medication are subjects representing the greatest divergence of opinion. On only one point are nearly all surgeons in accord, namely, the necessity for the administration of some kind of cathartic the night before a surgical procedure. Viewed collectively, it seems to matter little what type of intestinal evacuant

is prescribed, whether it be a mild laxative, a more efficient cathartic, or a purgative.

This practice is apparently the survival of an old principle, taught when the main treatment for all diseases was purgation, frequently repeated. It was held that the intestinal contents were toxic, and in fact it was even asserted that the disease or its products could thus be entirely eliminated. At present, purgatives are seldom given by internists. The mild cathartics and enemas have replaced the more drastic drugs, the aim being to obtain regular bowel movements of normal consistency.

Many surgeons in their postoperative treatment have likewise substituted enemas or mild laxatives for the more violent cathartics. The majority of surgeons, however, do not follow the same principle in their preoperative medication. It has seemed easier to change the postoperative treatment, which of necessity varies much, than to change the routine preoperative treatment, which remains the same for nearly all cases.

The object of this paper is to point out the advantages to be gained by changing the ordinary preoperative treatment in favor of the use of simple enemas. Like nearly all surgical procedures, no absolutely hard and fast rules should be followed. There are undoubtedly cases in which the administration of a mild cathartic before an operation may be of advantage; on the other hand, however, I consider such cases the exception instead of the rule.



Retropharyngeal abscess.

Every surgeon has noticed that the emergency patient who comes to the hospital in need of immediate operation has as good a postoperative recovery and as uneventful a convalescence as the patient who is, so-called, properly prepared. It makes little difference whether it is a case of acute appendicitis or a crushed limb requiring immediate amputation. The surgeon proceeds with the operation without thought that the patient undoubtedly has fecal material in the small intestine. Again, in such cases as strangulated hernia, intestinal perforations from traumatic or other causes, and acute intestinal obstructions, in which no surgeon would think of giving more than an enema, the patient's progress is as satisfactory after the operation as that of the patient who has had a similar operation after the administration of a preliminary cathartic. It is evident, therefore, if we reason from the experience of emergency surgery, that preoperative catharsis is not necessary and can be eliminated without any appreciable change in the well-being of the patient.

EFFECTS OF PREOPERATIVE EVACUATION

The advantages claimed for preoperative evacuation of the small and the large bowel by drug action are few. The elimination of intestinal products which might lead to putrefaction, the sterilization of the intestine by calomel, and the elimination of disease products are the usual claims advanced. Many surgeons, when asked why they order cathartics, simply reply that the patient is thereby put in a better position to withstand the operation. But does catharsis really do this? The elimination of intestinal products present twenty-four hours or less before operation does not prevent putrefaction, since waste products of the body are constantly passing into the intestine. Further residue after digestion of ordinary food is not prone to putrefaction, and this is the only material that can be definitely eliminated. The whole question of the absorption of toxic bodies from the lower part of the small intestine and the large bowel is still unsettled. It was shown by Frazier and Peet,¹ however, that, in the dog at least, absorption of toxic products of intestinal putrefaction from a partially obstructed colon could not be demonstrated.

The attempt at sterilization by calomel and other drugs has been proved useless. Great numbers of organisms are, of course, carried out, but this process is not really beneficial since it tends to change the bacterial flora, usually in the direction of multiplying the fermentative organisms.

The elimination of disease products is, without question, a valuable and necessary procedure. It is, however, only in the exceptional case requiring operation that a disease exists whose products are eliminated by the intestine in sufficient quantity to warrant any hopes of real improvement by this means.

DISADVANTAGES OF CATHARSIS

The disadvantages that follow preoperative catharsis are numerous. The most important are psychic and physical weakness, the loss of sleep, the loss of body and intestinal fluids, the hypotonicity of the intestinal wall, and the change in the intestinal flora.

Practically every one has noted the depression, both physical and psychic, which many patients show after catharsis. This certainly is not conducive to rapid convalescence or even to an excellent operative con-

dition. Many patients complain of the loss of sleep the night before their operations, caused by the discomfort in the abdomen or the frequent necessity to use the bed pan. Even the exertion necessitated by frequent bowel movements is a source of fatigue.

The loss of body and intestinal fluids by catharsis is a serious drain on the system, and occurs, no matter what type of drug is used. The patient is thirsty long before the operation because his body is in need of the fluids carried out by the purge. The widespread use of the coffee and whisky enema, the "Murphy drip," the subcutaneous saline infusion, and the intravenous administration of fluids are all indications of how thorough is the understanding that the body needs fluids in abundance immediately after an operation. Yet, by the catharsis, we carry away more fluid than will be absorbed by the rectum and colon in several hours. The lower bowel is also more sensitive to irritation after purgation and therefore is not so tolerant of the rectal tube and the saline or tap water. Therefore the patient prepared in the orthodox manner, who is in need of fluids because of loss of blood or other causes, is at a double disadvantage, first, from the loss of fluids before operation, and second, from the inability of his colon to tolerate the easiest and safest methods of their administration. The postoperative thirst after such preparation is naturally greater.

The natural peristalsis of the small intestine is stimulated by the presence of semisolid material within its lumen. The loss of this stimulation, the irritation of the drug, the depletion of fluids and secretions of the intestine, and the increased peristalsis lead to hypotonicity of the intestinal wall. This results in gas distention and postoperative ileus, and is undoubtedly a contributing factor to the more or less prolonged nausea and vomiting so common after operations. The change in the bacterial flora resulting in a preponderance of the fermentative organisms works hand in hand with the hypotonicity in producing the abdominal distress, the severe gas pains, and even interference with respiration and heart action by means of abdominal distention.

ADVANTAGES OF SIMPLE ENEMAS

The clinical evidence in favor of the proposed change in preoperative treatment is quite conclusive. For the past six years there has been a careful comparison of patients receiving catharsis before operation and those receiving only simple enemas. The results have been decidedly in favor of simple enemas as a means of emptying the bowel. Postoperative thirst, nausea and vomiting, abdominal distress and gas pains occur much less frequently. The patients are in better mental and physical condition to withstand the operation and are in far better condition afterward.

Recently additional evidence supporting the theoretical and clinical findings in relation to catharsis has been brought out by Alvarez and Taylor.² Their experiments demonstrate that after catharsis the bowel is filled with gas and fluid, the mesenteric circulation is disturbed, the rhythm of the peristalsis is upset, portions of the intestine beat irregularly and poorly, the response to drugs is feeble, and the muscle becomes fatigued rapidly. They declare that the unevenness in the gradient of muscular forces must interfere with the steady progress of food through the intestine, and

1. Frazier, C. H., and Peet, M. M.: Experimental Colonic Stasis, *Ann. Surg.*, 1916, **33**, 729-731.

2. Alvarez, W. C., and Taylor, F. B.: Changes in Rhythmicity, Irritability and Tone in the Purged Intestine, *Jour. Pharmacol. and Exper. Therap.*, 1917, **10**, 365-377.

probably favors the production of colic and gas pains. The conclusion drawn is that it is not wise to purge shortly before an operation in which the bowel must stand the insults of drying, handling, cutting and sewing.

The weight of theoretical, experimental and clinical evidence is therefore in favor of the abolishment of purgation as a routine preoperative procedure.

CONCLUSIONS

Preoperative catharsis has little to recommend it. The disadvantages are: physical and psychic weakness; loss of sleep; loss of body and intestinal fluids; hypotonicity of the intestinal wall; the change in the bacterial flora of the intestine, and the irritability of the rectum and lower colon.

The patient not subjected to preoperative catharsis is not as prone to suffer from thirst, nausea and vomiting, abdominal distention and gas pains.

NOTE.—Since this paper was submitted for publication, a further paper by Alvarez³ has appeared.

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LOOSE BODIES IN THE ELBOW JOINT*

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It is not generally recognized that mechanical derangement of the elbow joint is occasionally produced by the presence of osteocartilaginous loose bodies. A locking or impediment to motion in the elbow does not cause the same degree of inconvenience and suffering that a like condition would cause in the knee joint. This fact, and the infrequency with which loose bodies occur in the elbow as compared with the knee, account for the general lack of knowledge concerning their presence in the elbow.

Loose bodies in the elbow joint may be classified into two groups: 1. Pieces of joint surfaces that have been knocked off in fractures. Such fragments are definitely due to trauma; they are often quite large and have to be removed in order that function may be reestablished. The condition will not be considered in this article. 2. Bodies not definitely due to trauma, found in numbers varying from one to twenty or more.

During the last three years in the Mayo Clinic, twelve persons were examined who had loose bodies in the elbow joint; in the right elbow in nine, in the left in two, and in both elbows in one. All of these patients were males. Three patients were between 10 and 20 years of age; six were between 20 and 30; two were between 30 and 40, and one was between 40 and 50. Nine of the twelve were operated on. One loose body was removed in three instances; two were removed in two; three were removed in one; and twenty-one, thirty-one and sixty-five, respectively, were removed in three (Figs. 1 and 2).

We have been unable to find any common cause for the formation of these bodies. It is rarely possible at the time of operation sufficiently to expose the joint surface to permit of inspection of the synovial cavity. The surgeon, therefore, cannot determine whether the bodies come from the condylar surfaces, as has been demonstrated in cases of osteochondritis dissecans of

the knee; from marginal osteophytic growths due to osteoarthritis, or from the synovia, as in osteochondromatosis. Roentgenograms have not furnished evidence as to their origin, as they have done in some cases of osteochondritis dissecans of the knee joint. Osteoarthritis of the hypertrophic type has been occasionally demonstrated, and may have been the etiologic factor in the production of the bodies.

Koenig¹ was unable to produce, experimentally, loose bodies in joints. He inclined to the belief that they are all due to a condition of the joint which he calls osteochondritis dissecans. Barth² believed that all loose bodies are due to trauma. Von Bergmann,³ in speaking of loose bodies in the elbow, stated that in his opinion free bodies are referable to an injury, happening usually in youth. In many of our cases there was a history of injury in youth; in others there was no history of either old or recent trauma. Trauma cannot be accepted as the direct cause of these loose bodies; but that it is undoubtedly a factor in many

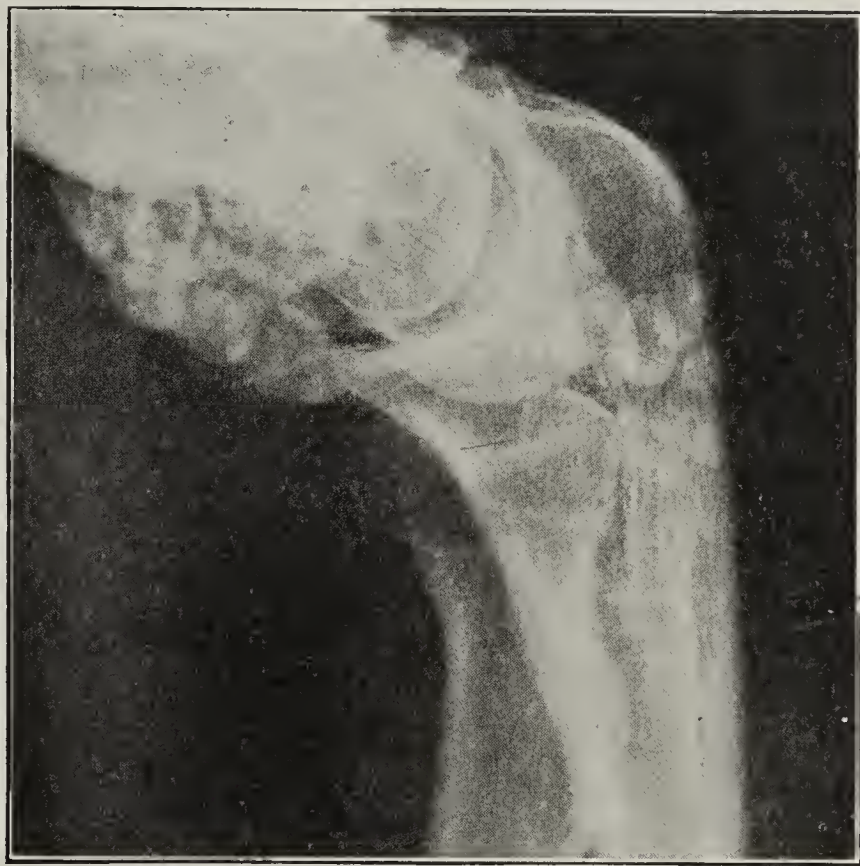


Fig. 1.—Thirty-one loose osteocartilaginous bodies in the left elbow joint.

cases cannot be denied. Bland Sutton⁴ mentions the temporomandibular joint of the skate (*Raja laevis*) as a physiologic example of their presence. In this animal there is a recess communicating with the articular cavity and containing, usually, a collection of smooth, cartilaginous bodies. Rehn⁵ has reported loose bodies in the elbow joint, but most articles on the subject in the literature refer to loose bodies in the knee joint. The number of loose bodies in joints varies greatly, depending, probably, on their mode of origin. They may occur in almost any joint. Many writers have not made it clear as to whether the bodies they describe are osteocartilaginous or fibrous. In

1. Koenig: Ueber freie Körper in den Gelenken, Deutsch. Ztschr. f. Chir., 1887-1888, **27**, 90-109.

2. Barth, quoted by Smith, S. A.: Loose Bodies in the Knee Joint, Canad. Med. Assn. Jour., 1914, **4**, 209-215.

3. Von Bergmann, Ernst: A System of Practical Surgery, New York, Lea & Febiger, 1904, **3**, 213.

4. Sutton, J. B.: Tumors, Innocent and Malignant, London, Cassell & Co., 1901.

5. Rehn, E.: Gelenkchondrome, Beitr. z. klin. Chir., 1911, **71**, 817-831.

3. Alvarez, W. C.: Surg., Gynec. and Obst., 1918, **26**, 651.

* From the Mayo Clinic.

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the dissecting room, Abernethy⁶ found fourteen loose bodies in the hip joint of an old woman. Berry,⁷ at operation, removed 1,047 loose bodies, described as hyaline cartilage, from the knee joint of a woman aged 22 years. Marsh⁸ removed thirty loose bodies from the cavity of a knee joint and five from the



Fig. 2.—Three loose bodies lying in the anterior compartment of the elbow joint; one in the interarticular area.

semimembranous bursa of a man aged 23 years. Most of the bodies in the latter case were detached, but several were still connected with the synovial fringes by slender pedicles. This was evidently a case of osteochondromatosis. Twenty years after, the man had not had a recurrence of symptoms, in spite of the fact that numerous small cartilaginous nodules were left hanging on the synovial membrane. In our series, thus far, there have been no true recurrences; however, sufficient time has not elapsed following operation to make us overconfident on this point. In some cases we could not remove all the bodies, and those remaining may later cause trouble. Shaw⁹ has reported a case in which a loose body, on removal, was found to contain the point of a broken needle. It was thought that the needle, accidentally embedded in the sub-synovial tissue and causing irritation, had led to the formation of the body which subsequently became detached.

The joint surfaces of the elbow are not subject to direct trauma, though indirect trauma, due to muscular violence, is at times undoubtedly inflicted. Some of our patients had had their first symptoms after unusual exertion, such as throwing a baseball; but that such action produced the loose body is doubtful. It is more probable that attention was at that time first drawn to the elbow by the locking or catching due to the body which was already there. In three of our

cases an arthritis was present at the time of examination. Here again it is impossible to decide whether or not the arthritis, hypertrophic and lipping in character, was primary or secondary to the loose bodies, though the latter seems more probable since the ages of the patients were 44, 23 and 25 years, indicating that in two, at least, a primary monarticular hypertrophic arthritis is unlikely to have occurred. The oldest patient had no evidence of arthritis elsewhere in the body.

We know that in the knee joint occasionally the synovia takes on peculiar properties and tends to form multiple loose bodies (osteochondromatosis), and it may be that the same thing occurs in the synovia of the elbow joint; this was demonstrated in one of our cases. The patient, a man aged 26, had sixty-five loose bodies removed from the elbow joint (Fig. 3). The synovial sac was greatly distended and the synovia itself was pouched and pedunculated. Some of the tips of the pedicles were fibrous, and others were becoming cartilaginous. It was evident that these cartilaginous tips could easily drop off, wander about and, as the joint fluid provided their nourishment, grow to considerable size. It is very probable that the bodies may be formed in any one of the various ways mentioned, and that no one cause will explain their presence in all cases.

Syphilis was present in only one of our cases and was contracted two years after the onset of the symptoms in the elbow.

The loose bodies themselves are osteocartilaginous in structure. The outer layer is of cartilage, and the bone is scattered about irregularly as flakes in the remainder of the loose body. There is no distinct center of bone surrounded by cartilage.



Fig. 3.—Multiple loose bodies (sixty-five) in the joint; an example of osteochondromatosis.

The symptoms are variable, depending on the amount of mechanical interference which the bodies cause to the action of the joint. The elbow joint is a true hinge joint, and restriction of motion in such cases is more common than locking, whereas the opposite is true of the knee joint when it contains

6. Abernethy, quoted by Marsh, H., and Watson, C. G.: *Diseases of the Joints and Spine*, Chicago, Chicago Medical Book Company, 1910, p. 259.

7. Berry, J.: *Fifty Loose Bodies Removed from a Knee Joint*, Tr. Path. Soc. London, 1891, **42**, 275-276; *Multiple Loose Cartilages Removed from a Knee Joint*, *ibid.*, 1894, **45**, 138.

8. Marsh, H., and Watson, C. G.: *Diseases of the Joints and Spine*, Chicago, Chicago Medical Book Company, 1910, p. 259.

9. Shaw, A.: *Pendulous Osteocartilaginous Body Excised from the Knee Joint, Having Embedded in Its Cartilaginous Part the Pointed End of a Needle*, Tr. Path. Soc. London, 1855, **6**, 328-331.

loose bodies. Some of our patients complained of limitation of motion, a little catching, perhaps, but no distinct locking of the joint. Others had definite locking, released by manipulation and accompanied by severe pain. All had some limitation of motion. Occasionally the joint locks while the patient is asleep, and he is aroused by the pain.

The condition should be treated surgically. The character of the joint and the importance of the surrounding structures occasionally make it difficult to remove all the bodies. If they are considerable in number it will be found that the majority lie in front of, and to the inner side over the ulnar area. On the anterior aspect this is the safest approach to the joint.

OPERATION

The incision is made to the inner side of the biceps tendon, and usually it is necessary to divide the median basilic veins (Fig. 4). The ulnar nerve is behind the condyle and well out of harm's way. The median nerve and the vessels are to the outer side. The incision is carried down, the pronator radii teres fibers are separated and, later, the brachialis anticus fibers are spread.

The joint capsule is exposed and opened. By flexing the elbow to about 45 degrees, a curved forceps may be introduced and the bodies forced out. If this procedure is not successful, the gloved finger may be introduced into the joint and the bodies palpated. Various maneuvers and manipulations may be used, such as palpating with the other hand while the opening into the joint is held apart, and pressing on the joint from the outside, thus forcing the bodies out through the opening in the capsule. If the bodies are posterior in the olecranon fossa, the incision should be made through the lower fibers of the triceps (Fig. 5). If the bodies to be removed are on the radial side, the incision is made to the outer side of the biceps tendon (Fig. 4). The fibers of the supinator longus must be divided, great care being taken not to injure the musculospiral, the posterior interosseous or the radial nerves. Any one of these incisions may suffice, or it may be necessary to employ two or even all three of them. Exceptional care must be taken to make the operation aseptic.

CONCLUSIONS

1. In my experience, loose bodies in the elbow joint have not been of rare occurrence.

2. The etiology is doubtful. Trauma is a factor but not the sole factor. The synovia may be solely

responsible, such a condition being called osteochondromatosis.

3. If left in the joint, the tendency is for the bodies to increase in number; therefore, their removal is indicated, provided the patient's general condition is satisfactory.

ABSTRACT OF DISCUSSION

DR. WILLIS C. CAMPBELL, Memphis, Tenn.: I have never seen a typical loose body in the elbow joint. I had one instance of a large cartilaginous mass blocking the joint, an unattached enchondroma, the result of a trauma, but not demonstrable with the roentgen ray. I believe trauma to be by far the most frequent etiologic factor in the development of loose bodies in a joint. Ridlon recently reported cases of osteochondritis dissecans, in which loose bodies were thrown off from the articular surface, either from trauma or infarct (endarteritis). I operated on a physician, 30 years of age, who, at the age of 12, sustained a trauma that caused severe pain followed by locking of the knee joint. The symptoms suggested displacement of the internal semilunar cartilage, but on operation two loose bodies were found, with a corresponding cavity on the outer aspect of the inner condyle of the femur.

DR. A. R. COLVIN, St. Paul: I had a case of loose body in the elbow joint that was rather suggestive of osteochondritis dissecans. A year after removal of a loose body in the joint he returned with another loose body of about the same size, requiring removal. In the second instance the loose body was connected with one of the fasciculi of the external lateral ligament; and it might be argued that such a loose body was due to trauma. The young man played baseball and thought the trouble due to his efforts in this game; but it seems to me that it was due to osteochondritis dissecans, which is seen most frequently in the knee joint. As to loose bodies in the knee joint: A young man, with a history extending over six years, at first had only pain; later he had trouble in walking, frequent attacks of arthritis (rheumatism), extending over a period of six years. The roentgenogram disclosed a piece of bone about the size of a nickel, surrounded by a groove separating it from the parent bone, situated on the articular surface of the medial condyle of the femur. A diagnosis of osteochondritis dissecans was

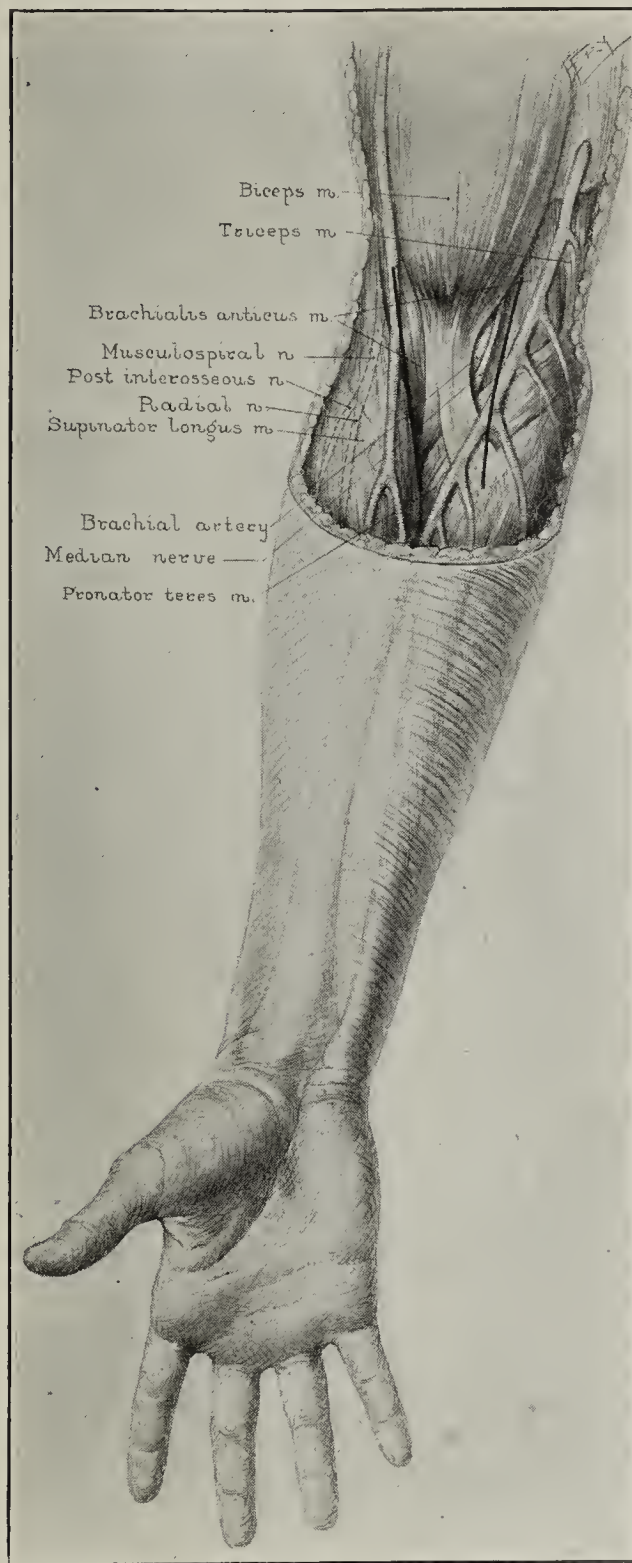


Fig. 4.—Two incisions (internal and external) for the removal of loose bodies from the anterior compartment of the elbow joint.

made. On opening the knee joint, the articular cartilage, of a dull and somewhat yellowish white color, in one area was intact, except for a slight fissure. Cutting around the entire circumference, I lifted out a piece of bone covered on the joint side with articular cartilage and on the superior surface by an irregular layer of fibrocartilage. Earlier writers ascribe the process to trauma; Ludloff suggests that numerous slight traumas transmitted through the attachment of the internal crucial ligament interfere with the blood supply of an area of bone supplied by a terminal artery and it finally becomes loosened.

DR. ALBERT H. FREIBERG, Cincinnati: A few years ago Dr. Woolley and I published the results of a study on the histologic character of material obtained from a particularly interesting case of this kind. Since then I have been able to observe a number of other cases of this same character. It is singular that we should need to look to trauma for an explanation of cases of this type, when in their history we are not able to associate trauma directly with the occurrence of symptoms of this character. To conclude that because a condition looks as if it had been caused by trauma, it must have been caused by trauma, when we are unable to establish a direct connection between the two, seems to me loose reasoning about a loose body. I had the opportunity to observe a case of loose body in the knee—not entirely loose—in a woman of about 50 years of age, who gave no history of trauma. In this case I am able to eliminate trauma altogether, but the histologic examination of this specimen, as in the case of others, disclosed the same condition that Woolley and I reported. In a certain number of these cases—not so often here, perhaps, as in Perthes' disease—the condition is present in both knees. This seems to me very significant in opposition to the theory of traumatic etiology.

DR. ARTHUR STEINDLER, Iowa City, Iowa: I have seen a case of loose body in the ankle joint. The roentgen ray located the body on the upper anterior surface of the astragalus, exactly in the middle. It was removed easily through an anterior incision.

DR. LEO MAYER, New York: I have had no experience with nontraumatic cases of the elbow; but it may be of interest from the point of operative technic to report a case of gunshot wound with foreign body in the elbow. A shell splinter, one-eighth inch long and a quarter inch thick, was situated between the olecranon process of the ulna and the humerus. It was exposed by an incision along the olecranon process. On opening the joint capsule, there was a discharge of slightly turbid fluid. By prying the bones apart it was possible to see the fragment in the depths and gradually pull it out with forceps. I wish to suggest the posterior route in the case of the ankle. Incise directly through the Achilles tendon, open the capsule from behind, and the joint is opened with practically no damage. If the capsule and the tendon are properly sutured, healing will be complete within three weeks after the operation.

DR. CHARLES A. PARKER, Chicago: I have seen one case of foreign body in the elbow joint. There were at least two bodies, as determined by palpation and roentgenogram. The patient would not let me operate. Regarding the formation of these bodies, we again have to recur to the most common place, the knee joint. I removed two from a patient 75 years of age. I did not go into the question of trauma; but she must have had it during her life. One body was free in the joint, and the other, free in a way. It was underneath the cartilage, on the outer side of the median condyle. With an instrument it could be shoved up and down, and the cartilage would move over this. The body was removed. On the margin of the joint were very distinct exostoses, apparently very much like the foreign bodies that I removed. I at first said that they were exostoses from osteoarthritis. Then I reversed myself and

called the condition osteochondritis dissecans. Possibly both conditions were present in the same joint.

DR. J. D. GRIFFITH, Kansas City, Mo.: History is repeating itself. In 1868, when I was at college, we were taught that there was frequently an idiopathic condition in some cases. Then the pendulum swung the other way in regard to essential causes, and it was said that there was no inflammation without a focus of infection. Now we are getting back to idiopathic work again.

DR. MELVIN S. HENDERSON, Rochester, Minn.: The point that Dr. Colvin brought out about this condition in the knee is interesting. I have seen a case similar to the one he described, and I operated. The only difference was that the body removed was completely separated, and was formed by a fibrinous clot. There had been symptoms of locking; but previous to that the patient had had for four or five years indefinite aching and soreness in the joint, evidence that the condition had been coming on for a long time. The question is, Would that body have remained there if I had not removed it? I agree with Dr. Freiberg that trauma will not account for this condition. It is a definite clinical entity, a disease in which the cartilage becomes brittle and breaks off. Dr. Freiberg and Dr. Ridlon called attention to this, and I showed the little end artery coming down to the crucial ligament. That is one of the most frequent causes of block. But will that also account for these cases in the elbow? Another condition is described, termed osteochondromatosis, but I hardly thought that applicable to these cases. The synovia hangs down as a piece of tissue, and some fibers from the tip become cartilaginous and break off, forming a loose body. It is a reversion to type. The synovial membrane is formed, embryologically, from the same layer as the cartilage in joints. Dr. Mayer spoke of loose bodies lying there. I suppose that he had a difficult time in getting them out and sectioning along the olecranon. It could be done, and the olecranon sutured back; but in most cases we have succeeded in getting the loose bodies out by the other method.

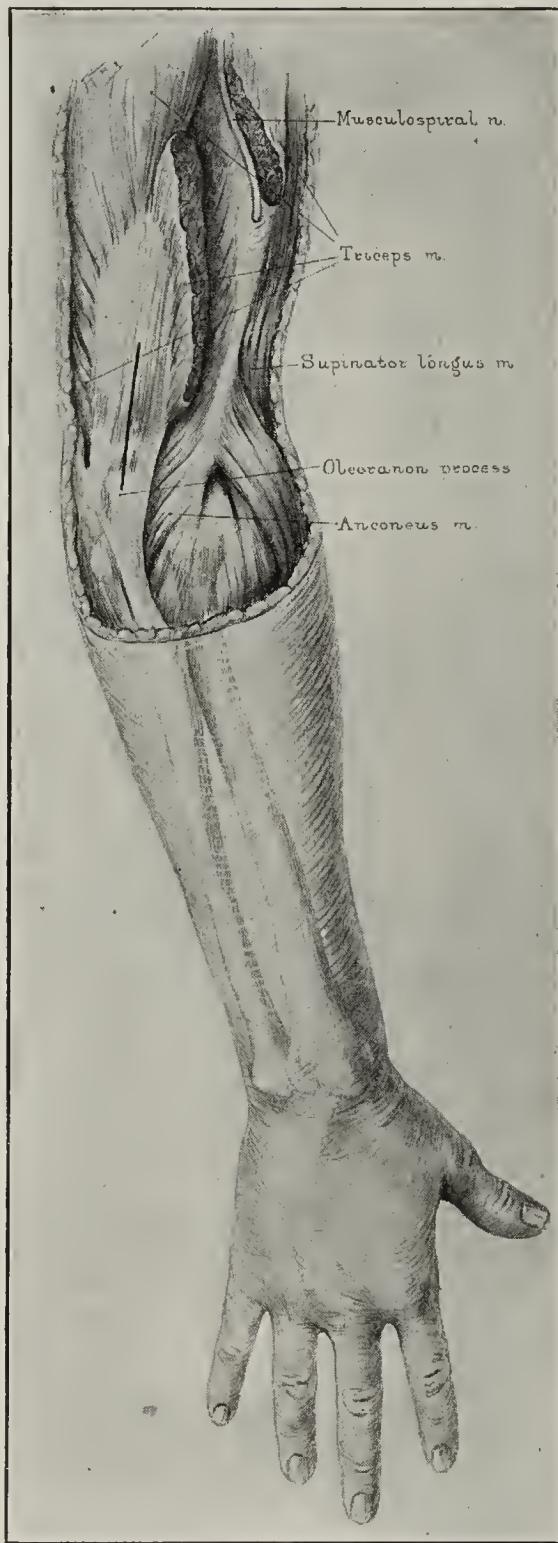


Fig. 5.—Incision for the removal of bodies from the olecranon fossa.

Passing of the Basle Nomenclature.—

The *Medical Press and Circular* says that the B. N. A. for teaching purposes in England is dead. The objections to it are manifold and it has produced chaos in English anatomic teaching, as pointed out by Prof. Arthur Keith. It is said that it was never promoted for the benefit of science, but was another of Germany's underhand methods of peaceful penetration for the purpose of impressing on the world the claim of that country as the leading exponent of scientific advancement. It has made more headway in America than in England, where it was never received with favor. Its death knell has been sounded in that country in an authoritative resolution adopted by the Anatomical Society of Great Britain and Ireland, which says "The committee, after consideration of the matter, unanimously reports that it sees no reason for departing from the use of the old nomenclature as the recognized medium of description for employment in anatomic textbooks and departments, or by medical men in general; on the other hand, it thinks there are very good reasons to be urged against the adoption of any other nomenclature for this purpose."

Military Medicine and Surgery

THE PROBLEM OF THE ARTIFICIAL ARM *

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The problem of the artificial arm presents many difficulties. Some of these have been overcome, and some apparently can be; but others from their very nature appear insurmountable. It seems wise, therefore, to get a clear idea of how much is actually required of an artificial arm and how far this demand can probably be met. The chief difficulty in devising an appliance capable of performing the work done by the lost hand is due to the high degree of differentiation of hand function. This is best appreciated by comparing the conditions in the upper and the lower extremities.

When a leg is lost, the chief requirement to be met is that of support. Standing and walking are relatively simple acts, and hence no complicated mechanism is required. It is necessary merely to supply an apparatus made to conform to the shape of the lost member and provided with some means for overcoming jar. Motion in the foot may be dispensed with, except for a simple joint near the ball; if provided, motion is practically always limited to a small amount of mechanically controlled flexion and extension of the ankle. With such an appliance the gait is often without appreciable defects.

An artificial arm of similar construction would serve little more than a cosmetic purpose. When an arm is lost, the chief requirement to be met is that of motion. The appliance must be so constructed as to make possible the performance of a large part of the work of the lost upper extremity; and since this work is almost entirely dependent on the efficiency of the hand, the value of the artificial arm may be estimated in terms of its hand function. The usefulness of the natural hand depends on rapidity and precision of movement, strength and the sense of touch. Strength is the only one of these for which it is possible to make adequate provision. Touch is gone. Rapidity and precision demand accurate control of a large number of movements, some of which depend on the pull of a single muscle, while others require the coordinated action of several muscles. Since only two pulls are usually practical in the artificial hand, it is evident that its usefulness will be necessarily restricted to grasping movements of simple character.

Orthopedic surgeons will recognize at once in this comparison the marked similarity to the limitations of operative procedures for infantile paralysis in the same regions. Where it is merely a question of securing stability, results are excellent; but restoration of the finer movements is quite a different matter.

THE AUXILIARY HAND

In attempting to answer the question of how much is actually required of an artificial arm, the one-armed and the armless must be considered separately. From what has just been said about the natural limitations

placed on the artificial arm, it is obvious that the one-armed will use an artificial appliance for few and relatively simple acts. Except in the case of the occasional ambidextrous individual, most important acts are done almost entirely with one hand, the other being merely the helper, or, as it has been well called, the "auxiliary hand." If the right hand is lost, the left is trained to take over the function formerly performed by the right. In the one-armed, therefore, it becomes at the most merely a question of replacing the function of the auxiliary hand. Actually, however, it is even less than this, for, with increasing skill, it soon becomes possible to do many things with one hand which formerly required both. Indeed, this skill soon becomes so great that it is by no means uncommon for the one-armed to discard all apparatus.

A study of the functions of the auxiliary hand shows that for most occupations these are largely of three sorts: weighting, carrying and holding. There are a large number of acts in which its function is merely that of a weight or guide to prevent the object which is being worked on by the other hand from moving or from moving in the wrong direction, as in steadying the paper in writing or the board in sawing, or in steadying and helping to guide a plane. The carrying function is frequently used in order to relieve the other hand and in acts of this nature in which both hands are required, as in using a wheelbarrow. The holding of tools and other objects on which the other hand works constitutes a large part of the work of the auxiliary hand.

PRINCIPLES OF THE WORKING APPLIANCE

In providing for these three requirements, the first may be disregarded, as any type of artificial arm or the stump itself, if long enough, serves perfectly well as a weight. Carrying calls for some form of hook and holding for something in the nature of a clamp. This is borne out by practical experience, since the hook and the clamp have proved the most useful of all devices. While it is easy to provide a hook, the clamp offers more difficulty, and a satisfactory combination of the two has not as yet been devised. It does not seem possible to reproduce the movements of the fingers in an artificial hand so as to give sufficient grasping power for efficient work. Only when all attempt to reproduce the shape of the natural hand is given up and the effort made instead to construct a pure working tool can this be done. Hence there is now general agreement as to the necessity for a working appliance as well as for the so-called esthetic hand. Let us now consider briefly the principal points in the construction of these two types.

The number of different types of both the artificial hand and the working appliance now available is very large. Apparently almost every conceivable combination of mechanical principles has been used. It would seem wiser, therefore, to choose those existing types which more nearly meet the requirements which have just been discussed, and to attempt to perfect them, rather than to try to devise entirely new models.

Of the artificial hands, one of the simpler forms is so constructed that the fingers are fixed in flexion and the thumb is made to move through the action of the shoulder. This meets the indications already pointed out, the flexed fingers providing an admirable hook, and the movable thumb and fixed index finger supplying a clamp suitable for holding ordinary objects. Some improvements are possible in this

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

model as it is ordinarily constructed. The thumb and fingers should be so formed as to make a more efficient pincer, so that small objects may be picked up more readily. This requires merely a slight change from the normal in the shape of the tips of the thumb and the opposing fingers. Further, by broadening the thumb a little and opposing it to both the first and second fingers, a firmer grip may be secured. In such a hand the grasping power of the thumb is secured either by spring tension or by positive tension obtained through the use of a locking device. If spring tension is used, the grasping power is equal only to the strength of the spring; this will suffice only for small objects. If large objects are to be held or if a firmer grip is needed, some form of locking device must be employed.

This type of artificial hand seems adapted to meet all the demands that are likely to be made on the auxiliary hand. It has also the very decided advantage of simplicity of construction. The type of hand in which the fingers are made to move may be more impressive to the purchaser, but it is hard to see in what particular it is more useful; its more complicated construction is certainly a disadvantage.

WORKING APPLIANCES

Working appliances vary all the way from a plain hook to a complicated universal tool. One, two or three immovable hooks have been used, either alone or with the addition of straps or other attachments. There are also many different combinations of the hook and clamp, the latter being operated either by the remaining hand in the case of the one-armed, or by the action of the shoulder. In many of these clamps the grasping power depends on spring tension; obviously, however, positive tension is particularly necessary in the working appliance, since it is essential that the grip on tools be a firm one. From a study of these different devices and of the demands made on the auxiliary arm, the most useful device would seem to be one resembling two fingers and a thumb, with the fingers fixed and the thumb moving between, and not against, them. When open, this device forms an excellent hook; when closed, all ordinary tools may be properly held. The difficulty, however, is to find a simple mechanism which will give a sufficiently firm grip. Thus far this has not been accomplished.

A single appliance, however efficient though it may be for ordinary occupations, does not entirely solve our problem. In many instances the adaptation of the appliance to the individual occupation is required. This phase of the subject has already received a good deal of study, and there is no doubt that much can be done in this way to fit men for specialized work.

The question of what type of working appliance to supply is bound up closely with the very fundamental one of how far the one-armed, or the armless, should attempt to engage in manual occupations on a competitive basis. Theoretically, and, I believe, practically, the one safe course is to place them only in those occupations in which they can be 100 per cent. efficient. Too much must not be expected of human nature, and it certainly is this to ask employers to face the constant deficit resulting from the employment of men able to earn only from 60 to 75 per cent. of their daily wages.

THE ARMLESS

The armless individual presents an entirely different problem. Instead of provision for the "few and rel-

atively simple acts" required by the one-armed, the demand now is for provision for every act possible. Yet the means at our disposal are the same. With the necessary turning of the armless for his means of livelihood from a manual to a mental occupation, however, the problem is simplified and it again becomes possible to meet the need and make the individual independent. What has already been said about the working and the esthetic hands applies equally well to the armless. With both types it seems likely that a wider range of usefulness will be secured by attempting to adapt the appliance to the function of whichever hand it is intended to replace, rather than to supply two appliances of similar construction.

VALUE OF SIMPLE APPLIANCES AND THOROUGH TRAINING

In studying the problem of the artificial arm, one is struck again and again by the value of relatively simple appliances and the importance of thorough training in their use. With a simple wrist strap, an armless man is able to dress and feed himself and do most of his ordinary daily acts. A strap over the shoulder, properly provided with a ring, is sufficient to enable the one-armed man to plow, use a wheelbarrow, spade and pitch hay. A single working appliance has enabled a man who suffered a disarticulation of the right shoulder and an amputation of the left forearm to be entirely independent. After all it is a matter of a little brains and much perseverance.

ABSTRACT OF DISCUSSION

DR. JOHN RIDLON, Chicago: Muirhead Little of London, who has had a unique experience in the hospital at Rochampton, presented a paper last year in which he said that they had had furnished 6,316 artificial limbs up to May 31, 1917. The whole problem of the artificial arm over there is confined to the simplest appliances, which are found to be the most useful. Of course, it is interesting to see mechanical appliances that can do almost anything that a live arm can do, and for some men they are certainly a great boon; but for the average man, who has only to do certain simple things, simple appliances are all that are required, and the men are better satisfied with them.

DR. JOHN P. LORD, Omaha, Neb.: Doctors know very little about artificial limbs. It is common for them to refer these patients to the artificial limb maker, and then dismiss them from consideration. That is wrong. In order to know how to make stumps, treat stumps and manage stumps, so as to get the best functional results, it is absolutely necessary for the surgeons to give attention to prostheses.

DR. ARTHUR STEINDLER, Iowa City, Iowa: It is a necessity to take care of the position of the thumb in such a way that it shall not meet the first but the second finger of the hand. I understand that Dr. Silver has given thought to the same idea in the manufacture of the artificial hand, that the direction of the thumb shall not be one of adduction, but one of opposition.

DR. S. C. BALDWIN, Salt Lake City, Utah: One of the most important things in connection with this matter is the treatment of the stump. Dr. Silver has called attention to the necessity for keeping the muscles and tissues in good condition. This is important. Another thing to take into consideration is the hospitalization of the men coming back from the front. A great deal of that has to be overcome before they can have the limbs fitted, for this reason: We do not get a great many of them right away. They come after having been in from three to eight different hospitals, and having had different treatments at these different places; so that it is very necessary that something of that sort should be taken up at once and the men taught early about the use of these appliances and what they are going to be able to do with them. It

is important to get these men ready for artificial limbs as early as possible.

DR. DAVID SILVER, Pittsburgh, Pa.: I should like to emphasize our relation to the artificial limb manufacturer. Our relation to them should be one of the fullest cooperation. They have done an immense amount of work on the problem and have solved it in the most satisfactory way; it is now necessary for us to do our part, and this we have not yet done. By our cooperation with them we may be able to secure still further improvement.

ANESTHESIA AND ANTISEPTICS IN PLASTIC RESTORATION OF THE FACE AND MOUTH

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Plastic restoration of war wounds has made a new requirement of operative surgery. Sliding and turning flaps, bone transplants, secondary flaps, and even skin grafts open tissues that are not infected. The mouth, and particularly war wounds of the mouth, always contain infective organisms. Newly opened tissues should, if possible, be protected from infection in these operations.

The anesthetic devices in general use have in the main proved satisfactory. In addition to conductive and local anesthesia, the chief reliance for general anesthesia has been the ordinary mask and pumps and blowers of various types and combinations.

By none of them, however, may one secure even an approximately aseptic field for operations about the mouth. None of them protect the field from mouth secretions, and none of them permit the use of efficient antiseptics, for the reason

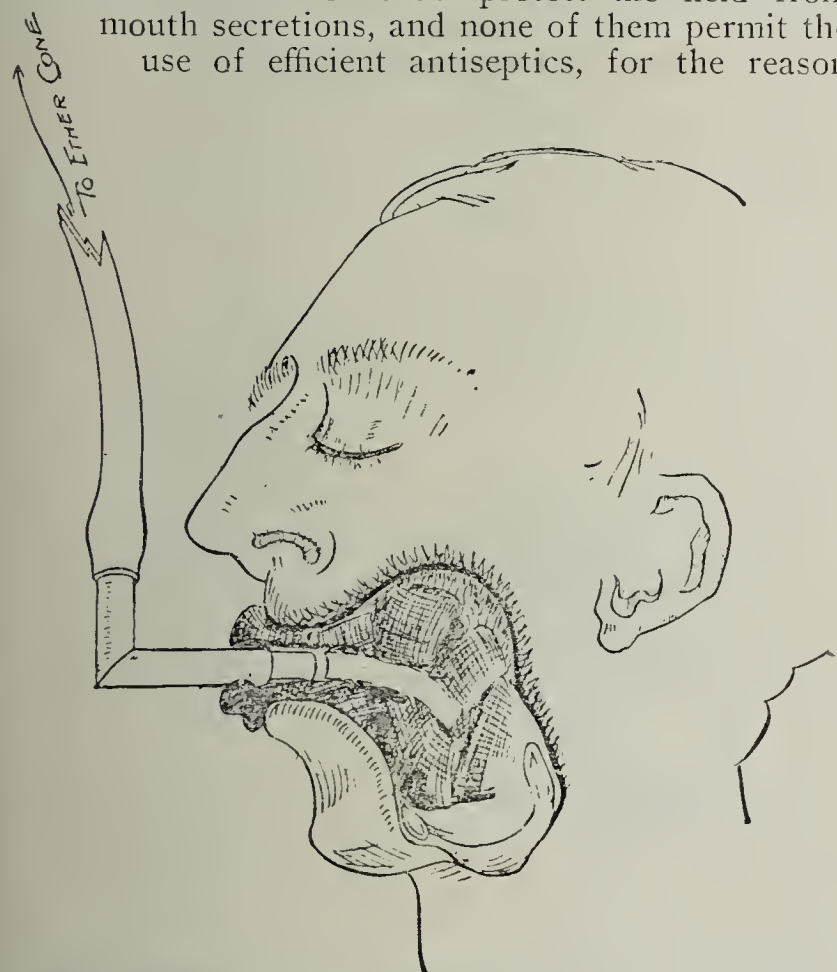


Fig. 1.—Ether inhalation by mouth through a pharyngeal tube and gauze packing.

that the respiratory tract is only relatively protected. An efficient antiseptic, like tincture of iodine, is highly irritative and dangerous in the larynx and trachea, and the exhaust pump—no matter how good—cannot be depended on absolutely to remove every drop of

fluid from the pharynx. It has been the custom, consequently, to regard the mouth as a region that could not be sterilized, and to give the well vascularized tissues such credit for resistance to infection that

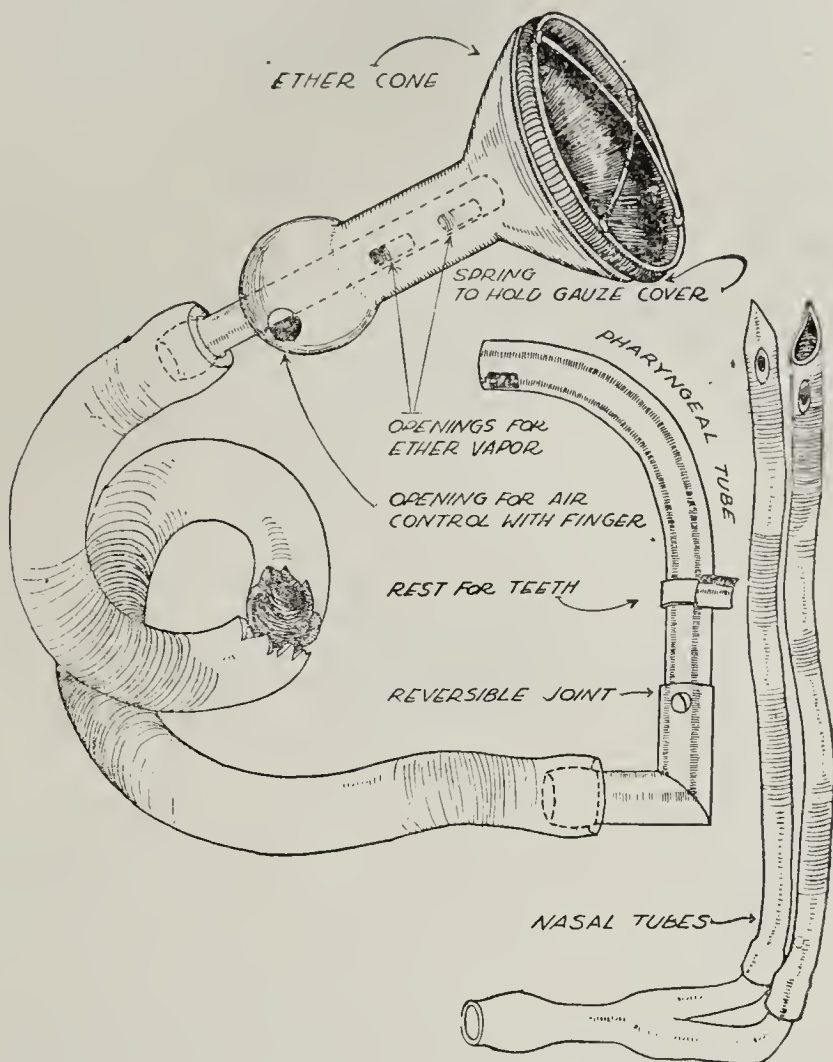


Fig. 2.—Anesthesia air ways for aseptic operations on the face and mouth.

aseptic operations were not only not possible but not necessary. In a measure the reasons might apply to the vagina or anal region. Before operating on these parts, thorough cleansing and sterilization of the surface with strong antiseptics is the rule, and operations without such precautions would not be considered standard procedure. The failure of surgeons to adopt the same method in oral operations is due to the inappropriate methods of anesthesia in general use. The same advantage may be obtained by providing a safe air way for respiration through which the anesthetic may be given and which will securely block the larynx from blood, or antiseptics strong enough to sterilize the surface, and which will, after the site of operation has been cleaned, protect it from reinfection by the mouth secretions.

Ether inhalation by mouth through a large pharyngeal tube and a coffer dam of gauze packing, when properly placed, is superior to any other method in a very large class of these cases. It furnishes that efficient block between the operative field and the respiratory tract so necessary for the performance of ideal operations in this region, and makes possible a degree of asepsis in the operation not possible by any other method (Fig. 1). It is now more than twelve years since I first adapted a curved metal tube and gauze pack to pharyngeal anesthesia by drop ether.¹

The inhaler that I have devised for these operations is shown in Figure 2. It consists of a curved air way adapted to the mouth and pharynx. The open and

1. Rockey, A. E.: Med. Rec., New York, June, 1906.

slotted end should be so placed that it rests just above the larynx back of the epiglottis. It is provided with a movable joint as indicated. This permits the tube

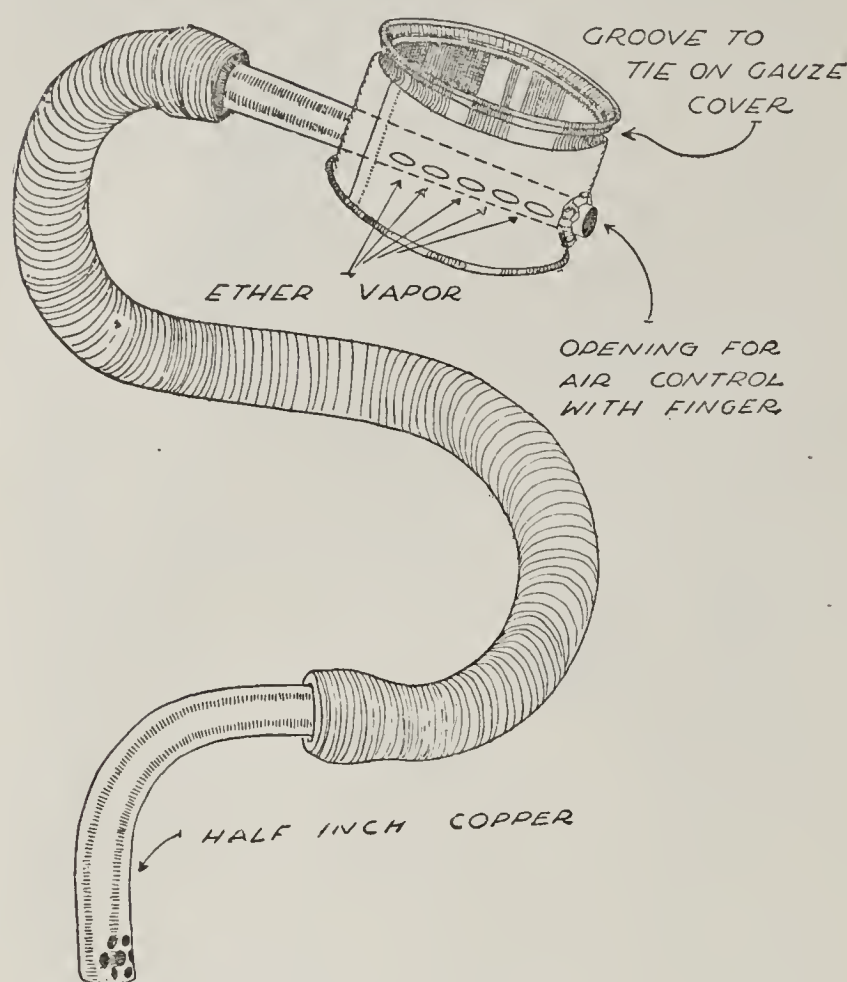


Fig. 3.—Tin cup war model.

to be turned upward for operations involving the mouth and neck, and downward for the face and head. The nasal tubes are adapted from Crile, but are attached to a Y tube so curved that the stem may be firmly fixed over the nose by a strip of adhesive plaster, which insures stability and prevents obstruction in kinking. The pharyngeal tube has an inside diameter of half an inch, and the connecting rubber tube an inside diameter of three-fourths inch. A practical working length for this tube is 30 inches. The funnel is of spun metal. It is provided at the top with crossed curved wires to support the gauze cover, and is surrounded by a groove in which fits a coiled spring to hold the gauze in place. The inhalation tube is so arranged that it is not possible to pour liquid ether into it. The opening to admit air directly into the inhalation tube is placed in the bulb of the handle at a convenient place for finger control.

The demands of war surgery have so taxed the manufacturing resources of instrument makers that it is difficult and expensive at this time to obtain this well finished instrument. For this reason I have designed a war model shown in Figure 3, which is a most efficient substitute. It is made by removing the handle from a common tin cup, and running a groove around the top, on which to tie the gauze. The ether vapor way is made by constructing a half inch tin tube with five one-fourth inch holes punched into the lower side. This is passed through holes in opposite sides of the cup near the bottom, leaving one end projecting about one-eighth inch to serve as a finger air control, and the other end projecting about $2\frac{1}{2}$ inches on the other side. This end may be expanded to three-fourths inch to fit the rubber tube. An air way may be made by bending a half inch soft copper tube, in the form of the original pharyngeal tube, or

using the rubber tube alone. If a rubber tube is used, it must be protected from compression by a wooden block between the teeth or by a mouth gag. A Connell or other solid air way, such as is used by anesthetists, is a very suitable substitute. The large size of the tubes gives free movement to the air or other vapor current, and provides also a moderate volume of rebreathed ether and air.

Year by year, as experience has accumulated, my satisfaction with the method has increased. Success may be attained only by minute attention to details. The extension of the respiratory tract across the operative field from the larynx to the ether cone requires first proper adjustment.

A sufficient preliminary hypodermic of morphin and atropin should be given one hour before ether is to be administered. Complete third stage anesthesia must then be produced with the ordinary mask. The pharyngeal tube is then introduced, or in the comparatively few, in which deeper access to the mouth is required, the nasal tubes are placed. The posterior part of the mouth is then well packed with gauze. Much depends on the thoroughness and care with which this is done. The gauze pack forms the necessary dam of protection, both for the respiratory tract and for the field of operation. The inhalation tubes, either pharyngeal or nasal, may be further held in place by an adhesive strip around or over, and then attached to the forehead or face as the character of the operation permits. If this is carefully done, a satisfactory anesthesia may be maintained without interference.

It is essential that the ether be given by some one competent to maintain safely such a degree of anesthesia as will prevent any attempt at vomiting, which



Fig. 4.—A war wound calling for a reconstructive operation (after Blair, V. P.: *Surgery and Diseases of the Mouth and Jaws*, St. Louis, C. V. Mosby Company, 1917).

might clog or displace the tube, and break the asepsis of the operating field.

These requirements, while not difficult of accomplishment, demand careful attention; but the result

is certainly worth while. We may expect safety in anesthesia, facility in operation, and a degree of protection from infection that cannot be obtained by any other method.

In safety the supremacy of drop ether in many thousands of cases stands unchallenged. The inhaler



Fig. 5.—Operation proposed for condition illustrated in Figure 4 (after Blair).

here shown gives drop ether from what is practically an open mask, as the finger of the anesthetist at all times gives an instant touch control to the air admission or admixture. This is by no means true of an ordinary funnel.

The character of the respiration, which is the great safety indicator in any narcosis, is at all times apparent to the anesthetist by the sound of conduction in the tube.

ASEPSIS

When this method was first used the principal idea was to obtain a satisfactory anesthesia in these operations. The gauze pack in the mouth soon demonstrated the possibility of securing a degree of asepsis not possible without it.

A necessary preliminary is a careful cleaning of the mouth by a dental surgeon. Tartar should be scraped from the roots, and decayed, loose and abscessed teeth should be extracted, as should teeth within or about the diseased area. The greatest use for asepsis in these operations will be found in the reconstructive plastics that are required by war wounds of the face and jaw.

Take, as an example, the condition illustrated in Figure 4, and the proposed operation in Figure 5. It will be admitted without argument that asepsis is of great importance in the success of any plastic procedure, but particularly when bone transplant, such as is here proposed, is required. If this operation is done under any ordinary procedure of anesthesia now in use, infection cannot be avoided. After preparing the patient as described, let us introduce the pharyngeal tube of the inhaler as shown in Figure 1. The gauze pack is then carefully placed, and we may proceed with the cleansing and sterilization of the opera-

tive field exactly as in any other part of the body. The operation may be then finished without fear of contaminating large raw surfaces.

After the wound is closed the edges soon have an efficient protection in the film of blood clot between the edges, and primary healing may proceed without the delay and danger of suppuration and sepsis.

Figures 1, 4 and 5 are shown as examples of reconstructive operations that war wounds of the face will make necessary. The introduction of an efficient method of sterilization will enable the operator to avoid the deformities made more difficult of correction by the excess of scar tissue, so common after long suppuration. He may proceed early with the reconstructive work, treating wounds of this region by the necessary excisions and plastics in the same way that experience has shown most advisable in other parts of the body.

THE WORK OF THE TRAINING CAMP AT FORT RILEY*

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After one year of war, it is not necessary to show the reasons for the establishment of training camps for the Medical Department. The need for such training camps was well understood in the Surgeon-General's Office in the beginning, and steps were at once taken which resulted in the formation of three training camps, of which the Fort Riley camp is one.

From its inception, it was thought that the proper principle to go on was to make medical officers 100 per cent. military men, and as a result it was considered that the value of their professional ability would be increased materially and that they would be of more value to our government in whatever position they were placed. There has been nothing in the course of months of experience to disabuse our minds of that primary conclusion. The officers leaving these camps after completing their courses have taken stand second to none, and have been so efficient that time and again high officers of both the line and the staff have stated that those men who have had this training have given services absolutely satisfactory and far superior to men of equal ability who have gone direct from civil life to the divisions and hospitals.

In the beginning, the course as outlined was, as has been intimated, distinctly military with, of course, a considerable amount of professional instruction along medicomilitary lines. The keynote of the basic course has always been discipline, and every effort was made to perfect the discipline of the medical officers who were assigned to the camp. This discipline has nothing of a servile character, but it was distinctly taught and impressed on the physician from his arrival that in doing any work with an army in the field, the prompt and willing obedience to those in authority was not only called for by regulations, but was also an absolute essential to the proper performance of his duties.

Furthermore, it is well understood that the physical condition of a soldier today, whether in the line or in

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the Medical Department, must be as perfect as it can be made. The demand on the strength and the endurance of every one in the active theaters of this war has been stupendous, and so a carefully thought out plan for the physical instruction of the new medical officer was started immediately on his arrival. This physical instruction gets progressively more strenuous, and the results have shown that the officer leaving the camp after a three months' intensive course is physically capable of performing his duties and can stand up to the terrific exertion that is necessary.

The medical officer in all his work in the Army comes in very close contact with the enlisted man; and unless he understands the point of view of the enlisted man, he is incapable of handling his work as satisfactorily as the government requires him to handle it. Therefore, at this training camp, he is put in the position of the enlisted man by being accommodated in barracks, placed in a company in which his rank, whether he is a lieutenant, captain or major, is not considered, and where he can see plainly placed before him the reasons for all of the numerous regulations put forth for the governing of the armies in the field.

The basic course is continued under the principles outlined above for three months, and in that time the officer, in addition to his training, discipline and physical development, receives instruction in Army regulations, the manual of the Medical Department, and all of the medicomilitary work that a medical officer should know. The last half of the course is taken up with actual field instruction with regimental detachments, etc., giving the officer maneuvers and field services in which he takes an active part. The intention is not to perfect the medical officer in the duties of his office in the time allotted, but to give him a ground work on which can be built the instruction and experience that he receives when he leaves the camp and takes up his duties with a division or hospital. He is more capable of quickly adapting himself to the conditions as he finds them and of giving his very best work to the country.

During the first months of the existence of this camp, many men were sent out to the different divisions and hospitals, and the results were good. It was seen early, however, that something more than the strictly military instruction could be instituted with profit to all concerned. This conclusion was arrived at early, and efforts were made to impress the authorities in Washington with the importance of establishing schools at this training camp for the professional instruction of medical officers. Not that it was considered necessary to give the physician from civil life a general medical education; we knew he had that, and in most cases this education was of a first-class character. But certain special branches of medicine require more attention in military work than in civil life. Of these, receiving the first consideration from that standpoint, were general surgery, internal medicine, roentgenology and orthopedics. In November of last year, it had become so impressed on the heads of those departments in the Surgeon-General's Office that this work could be done most successfully at the training camps that it was so ordered, and separate schools were established at the camp for this instruction. An instructor force composed of some of the most prominent men in those lines in the country was provided, and by using the clinical material always present at the base hospital at Fort Riley, instruction

of a very high character was given, and the men turned out from these courses were as well trained as could possibly be expected from the time allowed. And it must be emphasized that these officers, by being at the camp and receiving a certain amount of the basic instruction as well as the professional side, were as well drilled in their military duties as in their professional specialties.

In the Army, the preventive side of medicine receives more attention, and properly so, than the curative side. This, unfortunately, is opposed to the principle underlying the government of the civil communities and, therefore, well trained sanitarians and epidemiologists are few in civil life. This necessitated the instruction of bright, well balanced men in such lines, so as an important adjunct to the training camp activities were established special schools for sanitation and epidemiology. These schools were under the direction of trained men in those specialties, and the medical officer who was selected to take up this work was given not only didactic instruction, but also a large amount of practical work in the way of sanitary inspection, control of epidemic diseases and the construction of sanitary appliances. For this instruction, we have at our door the large cantonment at Camp Funston in which our sanitary inspectors in training were given a free hand; and a great many of the problems of the cantonment, many of which were large, were handled entirely by these departments in our camp. The camp itself, from the standpoint of sanitation and epidemiology, was handled by those departments, and the results in the way of communicable diseases show what should be and could be accomplished by the Medical Department if they had a free hand. From the beginning, the noneffective rate at Camp Funston—on the same reservation—was 20 or more per thousand larger than at the training camp, and whereas we had a comparatively small number of cases of pneumonia during the last winter, Camp Funston had several times the number in proportion to the size.

Attached to the department of sanitation at the camp is a sanitary laboratory in which not only is the medical officer in training enabled to study, under practical demonstration, the sanitary appliances used by the Army in the field, but also constant experimentation with new apparatus is being made.

The sanitary laboratory, though a distinctive institution, is not the only department in this camp in which practical instruction is given. The practical method is carried out in every department, and as far as possible actual demonstration of the methods of the Army and of the material of the Medical Department units, with their practical application, is given in every department, the effort being always to subordinate, as much as possible, the didactic to the practical method of teaching.

If the training of the officer was carried out at a camp distinct from that used for the training of the enlisted men, the officer would not have any idea, or a very imperfect idea, of the handling of the enlisted force. Therefore, as a part of this training camp, the enlisted men of the Medical Department are trained both generally and in special organizations, such as ambulance companies, field hospitals, evacuation hospitals and base hospitals. The officer in training comes in close contact with these units, he is detailed for service with such units, and finally at the end of his training, if we are able to keep him for his full three months, a great many of them are assigned to organ-

izations here at the camp for permanent duty to go overseas with these organizations.

The results have been excellent. Individual officers have been sent all over the country for duty with divisions, base hospitals, depots, etc., and as a rule they have been successful and you will find our graduates holding the most responsible positions in the Medical Department, both here and abroad.

I appreciate that there has been in times past a feeling among certain members of the profession that the training camp was not necessary or proper. But one has only to interview the hundreds and thousands of officers who have passed through these camps to appreciate the strong feeling that the camp was not only worth while, but a decidedly essential part in the organization of our Army. The *esprit de corps* engendered is such that the officer going out into the world, so to speak, though feeling strongly his duty toward the country, his feeling toward the camp is so marked that he hesitates to do anything that would bring the least discredit on the instruction received here. This attitude is expressed most clearly in an article written by a reserve officer at the camp for the Year Book:

It is a great game and we love it. Future peoples may see a greater, but none should miss his share in this. 'Varsity, scrub or substitute, we have been ready and willing to carry the ball or coach the players. Oh, yes, there has been adverse criticism; castles of gloom have been erected, only to be razed by intelligent accomplishment. Let none conclude there may have been any underestimation of the mammoth task allotted. We know that thousands of our strongest and best manhood must unflinchingly face engines of mutilation and destruction, so effective and so terrible that one can well conceive diabolical ingenuity in their construction. The formation of a medical department adequately to care for so immense an army as is necessary might well stagger the most capable and efficient officers and students of the art of war. But could all see the well formulated plans; the carefully drawn calculations; the many times threshed over methods; the massing of resources; the grasping of benefits from allied experience, then would they realize that the Medical Department is playing the game, hitting the line, and advancing the ball. Adverse criticism, yes, from outsiders, slackers and failures. It is no disgrace to enter the game and fail; the disgrace lies in not entering at all, or, having entered, in blaming the game for the failure. The humiliating part, the discouraging part, the pitiful part of it all is that one can enter one of these camps; take the training; be thrown in contact with this splendid spirit of patriotic devotion and sacrifice, and yet never comprehend nor grasp the soul of the reason why the stupendous effort is made. He has lost—no, he has never known, the divine inspiration of the magnificent sacrifice.

Birth and Death Registration.—Hawaii has recently been included in the registration area for deaths, which now comprises twenty-seven states, forty-three cities in other states, the District of Columbia and the territory of Hawaii, covering 73 per cent. of the total population of the United States and Hawaii. The collection of death statistics was begun by the census bureau in 1902, and the first report covered the years 1900 to 1904. Reports have been published yearly since. Birth registration is not as complete as that of deaths, only nineteen states so far having come within the requirements of birth registration, containing 51 per cent. of the total population as against 31 per cent. two years ago, when the collection of birth statistics was begun. Since the recent military registration, the importance of birth registration has become more apparent, but until the matter is placed under federal control or supervision, complete registration of births and deaths will not be secured. Up to the present, it has depended on state or municipal legislation and enforcement.

SYSTEM FOR RAPID BUT THOROUGH EXAMINATION FOR PULMONARY TUBERCULOSIS *

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Standardization of all war measures makes for efficiency, and the elimination of every unnecessary motion, be it in making a piece of machinery or in examining a recruit for tuberculosis, helps win the war. As a rule, in the examination of the lungs, from five to ten minutes is wasted because the examiner has given no thought to the development of a system calculated to save time, while yet being thorough.

If the routine here given be followed, examinations may be made rapidly, and yet with a considerable degree of accuracy.

The subject sits on a stool and squarely faces the light, erect but with shoulders relaxed.

1. The examiner, standing in front, notes the configuration of the chest, especially retractions above or below the clavicles, and the motion with quiet breathing; also the location of the cardiac impulse.

2. The examiner, standing behind, looking downward on the anterior aspect of the chest, notes retraction above or below the clavicles, and the motion with (a) quiet and (b) deep breathing, noting lagging and limited expansion.

3. The examiner, standing behind (close up against subject), by palpation tests the motion ("lifting power") of the thorax by placing the hands on the front of the chest. Then with hands in the same position but with much lighter pressure, he observes the tactile fremitus.

4. The examiner, standing in the same position, divides the supraclavicular spaces into three segments by two antero-posterior lines. The corresponding segments are then percussed with a very light stroke. (To bring out slight dulness, the subject faces into a corner of the room.)

5. The examiner sits squarely in front of the subject. One may from this position again test the motion of the upper part of the chest. By percussion determine the lower border of the lungs at the anterior axillary line, on quiet breathing and deep inspiration. Then percuss upward, comparing corresponding areas, including the axillae and direct percussion of the clavicle.

6. The heart is auscultated, especially for mitral stenosis, which may cause symptoms suggestive of tuberculosis.

7. The breath sounds (on moderately full, slightly rapid but quiet respiration) are noted from below upward, four areas on each side, the last being above the clavicles.

8. Without changing the position of the stethoscope from the last position of No. 7, the examiner begins auscultation for râles (forced expiration and cough), searching with especial care the inner and outer parts of the supraclavicular fossae and the upper three interspaces and the apex of the axillae, but disregarding the crepitations in the lower axilla and over the sternum, which come late in inspiration and disappear with deep breathing (marginal râles).

9. The subject is turned with his back toward the examiner, who observes the fremitus, determines the expansion at the base, and percusses the lungs from below upward.

10. The breath sounds are noted from below upward, four areas on each side, the last being the suprascapular fossae.

11. Without changing the position of the stethoscope from the last position of No. 10, the examiner auscults downward for râles (expiration and cough), examining with special care

*A description of the system referred to by Stoll, H. F.: Simplified Rules for Tuberculosis Examinations, THE JOURNAL A. M. A., March 2, 1918, p. 605.

the apexes and region adjacent to the second and third thoracic vertebrae. Do not neglect to listen over the scapula.

12. When rapidity is necessary, special study of the vocal resonance and the whispered voice need not be made, unless percussion or breath sounds reveal an abnormality.

13. When great rapidity must be practiced, inspection and auscultation with cough (1, 2, 8, 11) give the most information.

14. At least half the time taken by the examination should always be spent in the search for râles (expiration and cough).

TRENCH FEVER*

A REPORT OF CLINICAL OBSERVATIONS AND RESEARCH AS TO THE ETIOLOGY, PATHOLOGY, PROPHYLAXIS AND TREATMENT OF TRENCH FEVER AMONG TROOPS

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HAMPSTEAD, ENGLAND

(Concluded from page 113)

EXPERIMENTAL WORK

We now turn to our experimental work, undertaken, first, to determine the mode of transmission of trench fever.

MODE OF TRANSMISSION

That the disease was transmissible from man to man was shown by McNee and his fellow workers when they passed on the infection by means of the syringe, injecting the blood from a trench fever patient into a healthy man. We have confirmed this observation on two occasions. The incubation period in the two cases varied considerably, apparently with the stage of the disease at which the patient had arrived from whom the infected blood was obtained.

McNee further adduced evidence that the infective agent was to be found in the blood corpuscles themselves, and that, even when the blood was laked, the virus would not pass through a filter. Our attempts to confirm or refute this have so far proved inconclusive, for the laked blood used in Experiment 5 failed to infect, though unfiltered, and therefore Experiment 6 with the same after-filtration is of no value. That the blood used was originally infective is proved by the success of Experiment 4, in which the untreated whole blood from the same patient gave rise, after injection intravenously, to an acute and typical attack of trench fever. We can only suppose that the distilled water employed to lake the blood was sufficient to destroy the virus—a point in support of the supposition that trench fever is not a bacterial infection.

The evidence for suspecting the body louse as the transmitter of the disease has been very conflicting in the past. We would instance the statements of Grieveson, Hurst, Weldon and Davies, Dyke and recently Sundell and Nankivell.

Our own attempts to transmit the disease by means of the bites alone of infected lice have proved entirely unsuccessful:

ATTEMPTS TO INFECT WITH BITES ALONE

In Experiment 1 an attempt was made to infect by bites alone, the possibility of mechanical transmission being excluded, as the lice were never transferred from the trench fever patient to the healthy man until after the lapse of a period of three hours, and on only two occasions in less than six hours. Altogether the experimental subject received not less than 9,518 louse bites; the chances of infection when the various feeds, on numerous trench fever patients, are

taken into consideration, amounted to at least 33,965. No signs of trench fever have been detected in the man experimented on during a period of more than two months' observation.

Experiment 2 was similar to Experiment 1 in all respects during the first twenty-nine days of louse feeding. Thereafter no attempt was made to exclude mechanical transmission, and lice were frequently transferred from numerous febrile trench fever patients to the healthy man at short intervals and on several occasions before the feed on the trench fever patient was complete, in the hope that the lice would continue feeding at once. Such attempts to infect were continued almost daily for fifteen days. The louse bites totaled 13,224, and the chances of infection, 52,081. This experiment gave equally negative results, though the subject has been observed for more than a month since louse feeding ceased, or during a period of nearly three months in all.

INOCULATION BY SCARIFICATION

While carrying out the last two experiments we were struck by the fact that neither of the experimental subjects was ever seen to scratch himself or to show evidence of having done so. It was determined, therefore, to try to discover whether the failure to infect was attributable to this cause. Experiment 8 was therefore devised.

Excreta were collected from entomological boxes containing 576 lice, all of which had been fed on many recent trench fever patients during the previous twenty-seven days, their last feed being six hours prior to the time of collection. The excreta were obtained by tapping the boxes containing the lice so that the powder, in which the excrement results fell through the fine mesh gauze cover of the boxes and was collected in a sterile watch glass. For this reason the excreta obtained were thoroughly dry as far as could be observed with the naked eye. Feb. 5, 1918, a suitable volunteer having been obtained, a small surface of skin on the outer side of the upper arm was lightly scarified so that blood was just drawn. A portion of the collected excreta was dusted into this blood and rubbed up into a paste by means of a previously sterilized needle. The scarified area was allowed to dry in the air and the shirt sleeve then pulled down over it without the application of any dressing. The skin before scarification had not been treated in any way, nor had the volunteer ever been verminous or bitten experimentally by lice to our knowledge. Eight days later, February 14, a febrile illness commenced which we believed was undoubtedly trench fever; a relapse followed on the sixth, seventh and eighth days of the disease, with recurrence of symptoms, though the highest temperature recorded was only 99.6. On the evening before the development of the disease a similar scarification and inoculation to that of February 5 was performed, and later the same evening the patient's temperature was found to be 99.4 though he appeared to be otherwise in his usual health. The lice from which excreta were collected for this experiment had all fed on the two volunteers used for Experiments 1 and 2, having continued to feed on them up to the day Experiment 8 was performed. The lice used for our biting experiments are therefore known to have been certainly infective.

On the same day another volunteer was scarified in like manner, and two lice, recently fed on a trench fever patient, were squashed over the scarified area. It seemed that such an inoculation might often take place under natural circumstances. From hatching, these two lice had fed daily for thirteen days (from the eleventh to the twenty-third day of trench fever attack) on the patient whose blood had proved to be infective in Experiment 4. During this period the trench fever patient's temperature was only once above normal (99 F.), six days before the lice were taken for this experiment. In addition, the lice received a feed on a febrile trench fever patient, whose nineteenth day of disease this was, fifteen minutes before their use for inoculation. No local sepsis or glandular enlargement resulted in either of these scarification experiments. After an incubation period of ten days, the volunteer developed trench fever. The onset was somewhat gradual, though the fully developed disease was typical, with frontal headache, pain in the lumbar region, and conjunctival congestion. No definite relapse occurred, though the temperature was just above normal on the evenings of the seventh and eighth days. Cardiac arrhythmia was detected for the first time on the fourteenth day of the disease, and then only for a few hours. As in the previous experiment, scarification was repeated before the onset of trench fever. Convalescence was rapid and recovery apparently complete. On the second occasion, three days before the onset of trench fever, sixty lice were emulsified in 1 c.c. of physiologic sodium chlorid solution and applied to the scarified area. These lice had fed twenty minutes previously, for thirty minutes, on two febrile trench fever patients, and all contained fresh blood when squashed.

In estimating the incubation periods in these two experiments, we have disregarded the second scarification and inoculation in each case, our justification being the evidence obtained as to the incubation period in similar scarification experiments performed subsequently. We have shown lately that 10 c.mm. of active trench fever blood when rubbed into the scarified skin will not produce trench fever—10 c.mm. is about the amount of blood contained by the eleven lice used in the last experiment.

With as little delay as possible three further volunteers were obtained and inoculated with excreta from lice previously fed on various trench fever patients (Experiments 10, 11 and 12). These experiments were simply a repetition of Experiment 8, and all proved equally successful.

In Experiments 10 and 11, the excreta were used fifteen minutes after collection. In Experiment 12 the excreta were kept in a watch glass for one hour and fifteen minutes before use.

Some of the lice from which the excreta were obtained had fed daily for the previous thirty-five days on various febrile and afebrile trench fever patients.

Of the three volunteers, the first commenced his trench fever attack, after an incubation period of six days, by rolling out of his chair at breakfast. When placed in bed he complained of frontal headache, but was in such a state of mental confusion that his statements were unreliable, and his memory of this period has since remained a blank. The attack proved typical and severe, though without bone pain, and was followed by characteristic relapses with a return of symptoms. The second volunteer showed an entirely different onset. He became gradually ill and took to his bed complaining of headache and vague pains in the limbs two days before his temperature rose. The incubation period in this case was seven days if the first rise of temperature is considered as the onset of the disease. The fully developed attack was characteristic, with frontal headache, anorexia, slight tenderness of the shins, lumbar pain, and tenderness below the right costal margin. On the following day, after a very restless night, the patient was complaining of pain below the left costal margin, and the shins were more tender. A white blood count gave 12,500 leukocytes per cubic millimeter. By the fifth day of the disease the patient was up and feeling quite recovered. No febrile relapse has followed, but the patient has begun to feel weak and depressed and has complained of pain in the legs and the region of the spleen.

The third volunteer developed trench fever after an incubation period of eight days. On the day of onset he was seen by one of us at noon. At that time he appeared quite fit, and his temperature was normal. After eating his midday meal he went out for a walk, and while out his "legs gave way under him." He returned home with difficulty; feeling cold and drowsy, he lay down and went to sleep. He states that on waking he micturated freely, was nauseated, and

was suffering from frontal headache. When seen at 2 p. m. his temperature was already 102.6, and he was obviously ill.

The following day the spleen was easily palpable but not tender. No bone, skin or tendon tenderness could be elicited. This fever wave lasted sixty-two hours. After a period of apparently normal health an acute febrile relapse took place on the sixth, seventh and eighth days of the disease. At this time the calf muscles and Achilles tendons of both legs were very tender. On the twenty-eighth day of the disease, definite shin bone pain and tenderness were complained of.

From these results it appeared obvious that the excreta of lice fed on trench fever patients were capable, when applied to an abraded skin area, of producing a febrile illness similar in its relapsing character and general clinical picture to the disease at present known as trench fever.

Experiment 15 did much to confirm the view that we were actually producing trench fever.

Five c.c. of whole blood from the volunteer infected by scarification with louse excreta in Experiment 10 were injected intravenously into a healthy man. After an incubation period of five days, an attack of fever developed with frontal headache, conjunctival congestion, lumbar pain, shivering, sweating and later pain in the shins with tenderness of the calf muscles and Achilles tendon, in fact, typical trench fever. The onset of this disease corresponded exactly in point of time with the commencement of the first relapse of the man whose blood had produced the infection. Typical relapses followed. On the same day as this whole blood transmission was performed, unfiltered serum from the same volunteer (Experiment 10) was inoculated intravenously into a healthy man (Experiment 16). The serum was obtained as follows: Twenty-one c.c. of venous blood were withdrawn and transferred to two centrifuge tubes, no citrate being added. The blood was allowed to clot at room temperature. Three hours later the clots had fully contracted, but the serum remained tinted, and microscopic examination of a small quantity showed it still to contain blood cells. The tubes were therefore centrifugalized for fifteen minutes. One tube remained slightly hemoglobin tinted throughout, and so was rejected. From the second, 4.5 c.c. of clear straw-colored serum were obtained, and this, three hours and twenty-five minutes after withdrawal, was injected intravenously. The volunteer remained healthy during the following thirty-six days' observation, and the result must therefore be considered to be negative. It seems possible that the unfiltrable virus we are dealing with may be capable of being thrown down by the centrifugalization employed, so that this serum transmission experiment awaits repetition.

NORMAL LICE

The foregoing experiments give rise to the question: Is trench fever a disease of normal lice; are excreta from them ordinarily infective?

Fresh lice were therefore obtained from Bacot's stock at the Lister Institute, and the excreta collected from 500 of these during five days' feeding on a healthy man. The excreta were well mixed and rubbed into scarified skin areas of two healthy volunteers (Experiments 17 and 18). Both men remained perfectly healthy for twenty-five days, and were then considered to be available for further experimental work. Our question seemed, therefore, to have been answered. Trench fever is not a disease caused by normal lice, and Bacot's stock with which we are working may be considered to be not infected. Cultures of the excreta used in these normal lice experiments showed what we take to be the organism of trench fever described by Jungmann. This diplobacillus would therefore appear not to be the cause of trench fever.

That excreta of lice fed on trench fever patients could infect when recently passed was therefore accepted.

DURATION OF INFECTIVITY OF EXCRETA.

Our next problem to determine was, Would such excreta retain their virulence for long periods?

For this purpose the remainder of the excreta proved to be infective in Experiments 10, 11 and 12 was added to excreta collected from many other supposed infective lice.

The whole of these excreta had been kept in glass tubes at room temperature and frequently in sunlight, for sixteen days. The excreta were inoculated into a scarified skin area of a healthy volunteer (Experiment 21). After a seven days' incubation period, trench fever developed. The onset was sudden with headache, conjunctival congestion and the usual anorexia and thirst of fever. This fever wave lasted ten days and was certainly suggestive of a modified typhoid attack. On the third day three loose brown stools containing blood and mucus were passed, but cultural and microscopic examinations of the stools for enterica and dysentery were negative. Mr. Dobell has very kindly examined six stools from this patient and reports they were all negative for *Endameba histolytica*. He adds that "the only protozoa present are the encysted forms of the common colon ameba (*E. coli*) with which the patient is very heavily infected," and gives as his opinion that "the patient is not infected with *Endameba histolytica*; and therefore that his attacks of 'dysentery' accompanying his trench fever were almost certainly not connected in any way with this parasite." On the fifteenth day of illness an acute febrile relapse commenced. The patient vomited once on the fifteenth day and suffered from the same symptoms as during the first days of illness, with the exception of the diarrhea. No pains in the back or limbs and no splenic change could be detected during either initial attack or relapse. Further blood tests for enterica proved negative, and on the clinical course and temperature chart of the case we based our diagnosis of trench fever. This patient has had further intermittent fever and has developed disordered action of the heart.

How much longer such excreta are infective remains to be proved, but that old louse excreta may be virulent without the presence of lice must be accepted, and has an important bearing on prophylaxis. Such excreta are very light when dry and can easily be blown about, so falling on abraded surfaces and wounds or into food and drink.

EXCLUSION OF INFECTION BY MOUTH

Could infection take place by the mouth? at once became an important question.

Two volunteers were therefore fed once daily, for fifteen and nine days, respectfully, with bread containing louse excreta which were known to be infective. At the same time some of the fine dry excreta were snuffed up the nostrils of each man (Experiments 13 and 14). Forty-five days later both men appeared in their usual health; this was twenty-five days since the last contaminated meal. In the interval one of the men had had an acute exacerbation of chronic bronchitis, but both men had remained free of trench fever.

We believe, therefore, that trench fever is not communicable by the mouth, though further experiments are being undertaken.

HEREDITARY TRANSMISSION IN THE LOUSE

A test for hereditary transmission of trench fever in the louse was next made (Experiment 22).

Eggs were collected from boxes of trench fever infected lice. The larvæ as they hatched were placed in a clean new box and fed on healthy men. Nineteen days later, the lice being then adults, the excreta passed by them during a period of three days were collected and rubbed into a scarified skin area of a healthy man. No trench fever symptoms resulted during twenty-six days' observation.

We may therefore conclude that trench fever infected lice do not transmit the virus to their offspring.

TIME WHEN EXCRETA BECOME EFFECTIVE

Is the louse simply a mechanical transmitter of trench fever, or does a developmental stage of the virus take place? were the next questions to be answered.

Five hundred fresh lice were obtained from Bacot's stock and placed in two clean boxes. For two days these lice were fed on healthy men, and their excreta collected and retained,

in order that they might be used later for control experiments if necessary. The lice were then fed five times during twenty-four hours on a patient with an active febrile case of trench fever whose temperature fell from 101.2 to 98 and then rose again to 98.6 during the period of feeding. The patient at the time was suffering from frontal headache and pains all over the body, especially in the loins and shin bones, with later tenderness of the calf and thigh muscles. This was the seventy-ninth day of this patient's disease, he having been previously afebrile for thirty-eight days while under observation by us. Thereafter during a period of thirty days the lice were fed only on healthy men, receiving two feeds daily and being kept in an incubator at 30 C. (86 F.) during the intervals between feeds. At the end of each twenty-four hours the lice were transferred to a new clean box, care being taken that, as far as possible, their excreta were not transferred with them.

Daily, during the same time, the excreta passed by the lice during the previous twenty-four hours were collected and placed in a sterile glass tube.

Owing to lack of sufficient volunteers, it was not possible to inoculate men daily with the excreta so obtained. In order to cover as long a period as possible, the excreta passed during the first, third, fifth, eighth, twelfth and twenty-third days were tested by inoculation into scarified skin of successive volunteers (Experiments 23, 24, 25, 26, 27 and 30). The excreta were inoculated each time on the day of collection, with the exception of the excreta collected on the twenty-third day, which were kept for twenty-four hours before being used. The first four men remained healthy, after inoculation, for twenty-five days or longer.

The man inoculated with excreta collected at the end of the twelfth day was the first of the series to develop trench fever. In this case the onset was sudden after an incubation period of eight days. The first wave of fever lasted seventy-two hours, the maximum temperature attained being 103.8 on the second day. The symptoms were general malaise, frontal headache and pink eye, with later backache and tenderness of the muscles and tendons of the legs. With the fall of temperature on the third day, profuse sweating occurred, and pain below the left costal arch was complained of. The pulse remained below 80 throughout the initial attack. Relapses followed.

The man inoculated with excreta passed by the lice during the twenty-third day developed trench fever after eight days' incubation. The onset was sudden with frontal headache, pink eye, and pain in the lumbar region, hips and knees. The painful areas were not tender, though the patient complained of feeling so sore that he could not lie still. The temperature chart was that described as "saddle-back." A similar series of experiments has lately given positive results for the seventh, ninth, tenth and eleventh days, with negatives for the first, sixth and eighth.

It appears from these results that the excreta from lice do not become infective for some days after the lice have fed on a trench fever patient. The exact number of days lies between eight and twelve. Such lice continue to pass infective excreta up to the twenty-third day, at least, while feeding only on healthy men.

RESISTING POWER OF THE VIRUS

To test further the resisting powers of the virus of trench fever, as it exists in the excreta of lice, a series of three experiments (32, 33 and 34) was carried out.

A large quantity of louse excreta was collected from various sources and well mixed. Some of this excreta had been proved to be infective in Experiment 21; all was believed to be infective. This mass of excreta was divided into four parts.

The first part was bottled and kept for future work.

The second part was rubbed into the scarified skin of a volunteer in equal portions on three successive days. This was a control experiment to prove the infectivity of the material dealt with (Experiment 32).

The third part was placed in a glass tube, previously warmed, the mouth of which was then closed with a plug of dry absorbent cotton. The tube was immediately placed in a hot-air bath registering a temperature of 55.7 C. and kept there for twenty minutes, by which time the temperature of the bath had risen to 56 C. The excreta remained thoroughly dry throughout. A portion of it was then rubbed

into the scarified skin of a healthy man. The following day the balance of the excreta was reheated to 55 C. for twenty minutes, as there seemed some chance that the excreta had become contaminated in the interval. This reheated excreta was divided into two portions and one rubbed into the scarified skin of the same man on that day and the other on the next (Experiment 33).

The fourth part was placed in a glass tube, the mouth of which was then closed with absorbent cotton and the tube placed in a vapor bath registering 80.5 C. and kept there for ten minutes. The excreta became slightly moistened during the process. On removal it was divided into three portions and these were rubbed into the scarified skin of one healthy man on each of three successive days (Experiment 34). This degree of heat was employed as sufficient to destroy a virus other than a spore-bearing organism.

A temperature of 56 C. for twenty minutes was employed in the previous experiment as being the temperature of dry heat necessary to disinfect clothing.

The man inoculated with the unheated excreta developed trench fever after an incubation period of eight days. The onset of the attack was sudden with frontal headache, pain in the muscles of the thighs and left arm, shivering, sweating, a marked leukocytosis and later lumbar pain. A febrile relapse followed on the sixth, seventh and eighth days, during which definite shin bone pain was complained of in both legs. No tenderness, however, was elicited.

Vertigo was complained of in the interval between these two febrile waves.

The repetition of the inoculation in this case made no apparent difference in the course of the disease or the temperature curve. The chart with the two-hourly observations that we are in the habit of making, illustrated the rapid fluctuations of temperature, pulse rate and leukocytosis which are so characteristic of the febrile stages of the disease. The gradually mounting leukocyte count during the last four days of incubation was well brought out.

The excreta heated to 56 C. proved equally virulent. After an incubation period of eight days the volunteer developed trench fever. The onset of the attack was sudden with frontal headache, slight pink eye and a moderate leukocytosis. A febrile relapse with the same symptoms followed on the sixth, seventh and eighth days, with the second relapse commencing on the thirteenth day. The whole attack was mild, without limb pains, but otherwise characteristic. The patient's disease has been passed on to others both by the syringe and by lice.

The man inoculated with the excreta heated to 80.5 C. remained healthy.

A temperature of 80.5 C. must therefore be considered as sufficient to destroy the trench fever virus, which is, in consequence, not a spore-bearing organism. The lowest temperature required to disinfect as well as disinfest the clothing of trench fever patients is still being investigated.

TESTS FOR IMMUNITY

Many patients reaching us from France gave a history of repeated attacks of trench fever. Were such attacks reinfections or relapses?

We have attempted to reinfect five men with the following results:

The first patient has passed through a typical trench fever attack with a roughly seven day periodic fever, shin pains, frontal headache, pain in the loins, shivering and sweating. This illness was contracted in France. The onset of the attack was sudden, Nov. 24, 1917. Five definite waves of fever occurred between that date and December 21. Thereafter the temperature showed considerable daily variations, though only once reaching 101, Jan. 22, 1918, or on the sixtieth day of the disease. March 5, 1918, 102 days from the original onset the man appeared to be in good health. He was then scarified and inoculated with excreta from lice fed on many trench fever patients (Experiment 20).

March 14, after an incubation period of eight days, there was a sudden onset of fever with frontal headache, and pain in the right temporal region and in the loins. The right side of the face became swollen, owing to periostitis of dental origin. The following day the offending molar was extracted and the swelling quickly subsided.

With the fall of temperature on the third day there were sweating and polyuria, and all symptoms abated. On the sixth, seventh and eighth days an acute febrile relapse occurred, and the splenic area became tender, though the spleen could not be felt. On the twenty-eighth, twenty-ninth and thirtieth days a second febrile relapse followed, during which shin bone pain was complained of for the first time.

It would appear that in 102 days this man had made a complete recovery from his first attack of trench fever, and was, in consequence, susceptible to reinfection.

The second and third patients had contracted trench fever at our hands (Experiments 11 and 12), the disease having been produced by scarification with excreta from infected lice. They had reached the thirtieth and thirty-first days of disease, respectively.

Both men showed evidence of persistent infection. In one case, pains in the head and limbs were complained of; in the other, headaches. The spleen in the latter was palpable. Both men were scarified and inoculated with the excreta of lice known to be infected, in the manner which originally produced their disease.

Neither showed any symptoms as a result, though observed for another twenty-five days. They must therefore be considered to be immune to reinfection and also possibly to be still infected. We may suppose that such men are liable to relapse, in which case they may be considered as potential carriers of trench fever.

The fourth patient contracted trench fever in France, giving a history of one attack in October, 1917, and a second commencing in January, 1918. The second attack was acute and witnessed by ourselves. We regard it as a relapse of the original infection. There were three "spikes" of temperature with pains in the head, back and limbs, and in the bones, muscles and joints. The spleen became palpable and tender. On the sixty-second day of the second attack there was still some pain in the thighs and shins, particularly at night and after exercise. There had been no fever, other than a temperature of 99.2 one evening, for forty-six days. On this day 5 c.c. of whole blood, from an active case of trench fever, were injected into him intravenously.

The patient from whom the blood was obtained had reached the sixty-third day of his attack, his disease also having been contracted in France. The day previously his temperature had reached 104. When blood was withdrawn the temperature was falling, but the disease remained acute. There was pain in the legs and arms, and in the muscles, bones and joint cartilages, with marked hyperalgesia of the skin of the legs. The fingers and toes ached. The tibiae were tender as well as painful. The spleen was palpable but not tender, and there was headache and backache. Sweating had begun. These details are given, as no control injection was made with this blood. No change occurred in the patient who received the blood intravenously, and after thirty-one days he still complained of pains in his legs, and general debility. He would appear to be immune to reinfection for the present. Is he also a carrier and liable to relapse?

The fifth patient was admitted to Hampstead from France for a typical attack of trench fever, his symptoms being headache, dizziness, shin bone pain and tachycardia. His records showed that he had suffered from diarrhea, with blood and mucus in the stools, during the early days of the attack. The temperature records for the first nine days of disease were missing, but thereafter his chart showed seven typical spikes of fever on the tenth, fourteenth, seventeenth, twenty-second, twenty-ninth, thirty-fifth and forty-second days of disease.

On the ninety-eighth day of disease the patient was complaining of pain in the bones of his legs, with tenderness and of general weakness. There was evidence of disordered action of the heart, with a history of heart trouble resulting from rheumatism before infection with trench fever. During the previous sixty-nine days the temperature never exceeded 100, though it had been frequently above normal. On this day 5 cc. of venous blood were injected into him intravenously. This blood had been obtained from the volunteer infected in Experiment 33 by means of louse excreta heated to 56 C. The blood was proved to be infective by Experiment 36. The last was simply a control experiment, 5 c.c. of venous blood being injected intravenously. After six days' incubation, trench fever developed, the only sign of the disease, when the temperature was discovered to be raised, being slight lumbar pain.

This fifth patient has shown no signs of reinfection during a period of twenty-five days.

A FURTHER TEST

In connection with these tests for immunity may be described two experiments (7 and 19) performed on a volunteer.

The subject came to us, Feb. 2, 1918, and careful examination revealed him to be thoroughly fit. He gave a history of smallpox in youth and of having been lousy each year while hop-picking, but no history of any illness suggestive of trench fever. February 4, 5 c.c. of venous blood were withdrawn from the volunteer infected by intravenous blood inoculation in Experiment 3 whose temperature at the time was 100.4, this day being the third of his initial attack. The blood was drawn up into a syringe containing 3 c.c. of a 1.8 per cent. solution of sodium citrate. Half a minute later the total fluid contained in the syringe was injected deeply into the muscles of the right buttock. For thirty-eight days after this the man remained in good health.

Before this experiment could be accepted as evidence that trench fever cannot be passed through two successive generations by means of the syringe alone, it was necessary to infect the man in some other way. Experiment 19 was therefore performed.

March 13, 5 c.c. of venous blood were obtained from an active case of trench fever, the syringe into which it was drawn containing 1 c.c. of 1.8 per cent. sodium citrate solution, and the whole injected deeply into the right buttock as before. The patient from whom the blood was obtained had contracted his disease in France and had reached the fifty-first day of his illness. His temperature was 101.6 at the time, and he was complaining of aching pains in the back and legs, with painful shins. The spleen was both palpable and tender, and the skin was acting freely. He has since had acute febrile relapses on the fifty-eighth and sixty-seventh days of his disease.

Eight days after receiving the injection, the subject complained of slight tingling sensations in the back. The following day he was feeling generally unwell, and his right thigh ached while out walking before breakfast. That night he slept badly, owing to aching in both thighs. There was no shivering or frequency of micturition. In the morning he complained of feeling hot at intervals, and at 11 a. m. was noted to be sweating slightly. At this time two hourly observations of his temperature were being made and no fever could be detected. He complained however, of dull frontal and occipital headache with impaired vision, pain in both arms from shoulders to finger tips, and pain in both thighs from hips to knees. The thighs and gluteal muscles were tender on pressure, and the skin over these areas was exquisitely tender to touch. There was, however, no evidence of local inflammation at the site of injection. There was no backache at this time and no tenderness or enlargement of liver or spleen. All the joints were normal and the tongue clean.

By the next day there was a great decrease of all symptoms. On the fifteenth day after the injection he was up and in his usual good health.

On the nineteenth day he took to his bed again with frontal headache, pink eye, pain and tenderness in the lumbar muscles, and slight muscle pain and tenderness in both thighs. Tenderness was well marked in the splenic area, but the spleen could not be felt.

After forty-eight hours he was quite fit again and has remained so since. At no time throughout his illness was he detected to have a raised temperature.

This attack so strongly suggests trench fever that we are inclined to believe that it is an afebrile form of the disease. Lice were fed on the subject while his symptoms were acute, and excreta from them have produced a febrile illness in another man. The subject has proved himself to be refractory to infection and might at one time have been thought to be naturally immune. We may therefore say that one attack of trench fever confers immunity while symptoms of the disease persist, though we can say nothing further. From observation of our cases from abroad we are convinced that active febrile relapses may occur many months after the original infection. Second infection in such cases can be excluded, as

the patients have been under our observation throughout the whole interval. Many of our patients give histories of two or more attacks of trench fever, but we are by no means convinced, as yet, that these are all reinfections, as it is not uncommon to find that since the first attack normal health has never been regained.

CLINICAL FEATURES OF EXPERIMENTAL INFECTIONS

A comparison of the clinical features of these experimental infections is of some interest. Of the seventeen attacks of trench fever produced by us, thirteen have shown a sudden and four a gradual onset—76.5 and 23.5 per cent., respectively. Eight men remain in hospital, and of these, three show evidence of developing the chronic form of trench fever. Six after discharge from hospital have returned to some form of useful work. One had symptoms of disordered action of the heart when he left us.

The two outstanding features are:

1. One sample of louse excreta in Experiments 10, 11, and 12 produced three different clinical attacks of trench fever. Two were sudden in onset and one gradual. One case showed splenic enlargement without pain, one splenic pain without enlargement, and one no splenic involvement. The last man had no pain in his limbs at any time. The other two had recurrent pains in the shin bones. One of these had a single wave of pyrexia; the other two had definite febrile relapses. The only features common to all three were an initial fever of roughly three days' duration with frontal headache and conjunctival congestion.

2. The blood from the patient without limb pains, just noted, when injected intravenously into another man, produced an attack of relapsing trench fever with marked shin bone pain.

The majority of the attacks can only be described as mild, the patients making an uninterrupted recovery in about three weeks. Such a course is that probably followed by the majority of natural infections in France and elsewhere, and the patients invalided to this country must be considered as only a small percentage of the whole.

SUMMARY OF EVIDENCE FROM EXPERIMENTAL WORK

1. The whole blood from febrile trench fever cases, up to the fifty-first day of disease, when injected intravenously, is capable of reproducing the disease. The incubation period in such infections varies greatly—from five to twenty days.

2. The virus as contained in the circulating blood is destroyed by the addition of distilled water in large quantities.

3. The bites alone of infective lice do not produce trench fever.

4. The excreta of infective lice when applied to a broken surface of skin do readily produce trench fever. The incubation period of such infections is remarkably constant, and averages eight days.

5. The excreta passed by lice fed on trench fever patients are not infective till the expiration of not less than seven days from the commencement of the feeding on trench fever blood, thus indicating a developmental cycle in the louse or a period during which the organism multiplies.

6. Once lice are infective they remain so till at least the twenty-third day from the date of their infection.

7. The virus of trench fever, as contained in infected louse excreta, is capable of withstanding drying at room temperature, exposure to sunlight, keeping for not less than sixteen days and heating to 56 C. for twenty minutes.

8. A temperature of 80 C. for ten minutes destroys the virus, which is therefore not a spore-bearing organism.

9. The bodies of infected lice when crushed on the broken skin are capable of producing trench fever. When lice become so infective remains to be determined.

10. Active trench fever blood equivalent to the content of eleven lice does not produce trench fever when rubbed into the broken skin.

11. Infection probably does not take place by the mouth or by inhalation.

12. The excreta of lice are not normally capable of producing trench fever.

13. Trench fever infected lice do not transmit the disease to their offspring.

14. Some attack of trench fever may be afebrile throughout.

15. The percentage of individuals naturally immune to trench fever is exceedingly small.

16. Old age is no bar to infection.

17. Such immunity as results from an attack of trench fever is not permanent and may persist only for so long as the individual shows evidence of the disease.

18. Even as late as the seventy-ninth day of disease a patient's blood may remain infective and be capable of infecting lice fed on such a patient while febrile.

19. The different varieties of trench fever result from differences in the persons infected rather than in the source of infection.

THE VOLUNTEERS

As our experiments have been but few, some of these findings may be modified by future work.

The men on whom these experiments have been performed were all volunteers for the purpose. They were in most cases beyond the age of military service, and in no instance had they been in France or subject to infection with trench fever in the usual way. They have been kept strictly apart from all trench fever patients while with us, having been housed in buildings at some distance from the hospital.

Every man was observed for some days before any experiment was performed on him. In addition to the ordinary physical examinations, with pulse and temperature records, polygraph tracings were made, also thorough laboratory examinations of blood, stools, urine and sputum, for the purpose of excluding all forms of dysentery and typhoid, Malta fever, tuberculosis and malaria.

These men all volunteered from patriotic motives and are deserving of the highest praise in consequence. We owe a deep debt of gratitude to them and to Dr. Wiggins of Greenwich, who brought us in touch with them. The expenses connected with this experimental work have been met entirely by the Lister Institute of Preventive Medicine.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

DEXTRI-MALTOSE NO. 2, MEAD'S.—A mixture containing approximately maltose, 53.1 per cent.; dextrin, 42.6 per cent., and moisture, 4.3 per cent.

Actions and Uses.—On the claim that maltose is more readily assimilable than other forms of sugar, Mead's dextri-maltose No. 2 is proposed for use in the diet of adult invalids. The nutritive value of 500 gm. of Mead's dextri-maltose No. 2 corresponds to approximately 1,960 calories. The same quantity of milk represents 360 calories.

Dosage.—Mead's dextri-maltose No. 2 may be used in amounts to meet the carbohydrate requirements of the invalid in place of other carbohydrates.

Manufactured by Mead Johnson and Co., Evansville, Ind. No U. S. patent or trademark.

DEXTRI-MALTOSE NO. 3, MEAD'S.—A mixture containing, approximately, maltose, 52 per cent.; dextrin, 41.7 per cent.; potassium carbonate, anhydrous, 2 per cent., and moisture, 4.3 per cent.

Actions and Uses.—On the claim that maltose is more readily assimilable than other forms of sugar, Mead's dextri-maltose No. 3 is proposed to supplement the carbohydrate of cow's milk. In the belief that an addition of potassium salts counteracts a tendency to constipation, it is said to be particularly adapted in the feeding of constipated infants. The nutritive value of 500 gm. of Mead's dextri-maltose No. 3 corresponds to approximately 1,920 calories. The same quantity of milk represents 360 calories.

Dosage.—Mead's dextri-maltose No. 3 may be used in amounts to meet the carbohydrate requirements of infants in place of other carbohydrates.

Manufactured by Mead Johnson and Co., Evansville, Ind. No U. S. patent or trademark.

Increase of Tuberculosis in France.—In order to check the appalling growth of tuberculosis in France, for which the war is largely responsible, the American Red Cross has undertaken widespread and thorough measures of relief. Since the French department of the interior assumes the care of tuberculous soldiers, the work of the Red Cross is confined to the refugees and repatriates who were caught in the German invasion of France and Belgium. Many of them were cared for in the tuberculosis barracks which had been provided in connection with the large hospitals and almshouses of Paris, where 1,052 beds were available. The Red Cross instituted many improvements in the barracks, increasing the nursing force, establishing diet kitchens and recreation rooms, providing additional clothing and bedding, and erecting new cure halls and dining rooms. Because of the fact that the wretched housing conditions under which many of the refugees were forced to live made them peculiarly susceptible to tuberculosis, a plan similar to the home hospital system prevalent in New York City has also been put into use. Small houses are now being constructed for families having one or more tuberculous members. Each house consists of two sleeping rooms and a living room, with a small porch for the patient, in order to minimize the danger of infection. The children are to be placed in open-air schools and to be given vocational training in such trades as gardening, tailoring and carpentry. The Red Cross is also planning to aid the American Army in France by caring for the soldiers who develop tuberculosis. For this purpose a hospital is to be erected near the shipping ports, where patients in need of attention before their return home will receive special treatment. The organization at present maintains and conducts four tuberculosis hospitals in France and, in addition, contributes funds and supplies to ninety-six French hospitals.

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SATURDAY, JULY 20, 1918

THE RACE FOR LIFE IN CHILDHOOD

When the announcement was made a few months ago by the Bureau of Child Hygiene of our largest American city that between 12 and 15 per cent. of its schoolchildren are underfed, it was received with skepticism by some and with surprise by others. The statement appears even more disconcerting when it is expressed in the terms selected by an expert in the sociological conditions prevailing among the less well-to-do. Thus Manny¹ of the New York Association for Improving the Condition of the Poor frankly states, as the result of the studies made in New York, that at least one third of the schoolchildren are so much below normal standards of growth as to call for special nutritional care. Of this group, at least one third require medical treatment, while two thirds may be expected to respond to improved living conditions, especially as regards feeding. There are now in the public and parochial schools of New York City more than a million children. Of other children between 2 and 6—the "preschool" age—and between 6 and 16 but out of school and either at home or at work, there are nearly as many again. This, if the conditions found by our study are at all typical, means that at a moderate estimate there are more than half a million children in need of nutritional attention; more than half a million children requiring an additional investment on the part of society if they are to be placed on a plane of reasonable efficiency. These are not merely American problems. The chief medical officer of a large English Board of Education stated as recently as 1910 that defective nutrition stands in the forefront as the most important of all the physical defects from which schoolchildren suffer. Subsequently an English writer, C. J. Thomas,² estimated the amount of undernourishment in the English school population at between 10 and 15 per cent.

Statements like the foregoing may be made on the basis of a superficial observation of the appearance

of children, who may be put into the category of underdevelopment because they "look delicate." Indefinite considerations of this sort are, of course, not without some value; but the modern sociological worker and physician are not content with such somewhat intangible criteria of nutrition. Hence has arisen the recent plan of accurate measurement of such phenomena and conditions as permit quantitative evaluation. Weight and height are carefully determined, the results being compared with statistical standards or averages for comparable ages or sizes.³ The significance of the ratios thus obtained is further enhanced through a careful medical examination and gradation of the children by an experienced physician. The result has been the establishment of scales for grading nutrition in the adolescent; thus the Dunfermline scale takes account, among other things, of weight and height measurements, muscular development, the condition of the circulation, and other features, with a resultant classification into four grades.⁴

Thus far we have made the tacit assumption that the defects represented by the "delicate" child are remediable by nutritional and environmental changes. So far as backwardness and inferiority are the expression of hereditary "constitutions," the prospect of a remedy by hygienic devices is not promising. Experiences gathered during the past ten years seem to indicate quite clearly that many if not most of the deficiencies represented by physical inferiority in the great masses of children are not irremediable inheritances, but the outcome of inadequate opportunity to enjoy a proper dietary regimen and hygienic surroundings. Poor nutrition may be corrected; inherited defects of physique rarely are so readily corrected.

Among the newer methods of remedying the results of defective nutrition are the nutrition clinics and classes. For many of their features the "tuberculosis classes" have afforded a model. The details of the history of the class method need not be given here, though the pioneers in this work deserve prominent recognition for what they brought about. In 1908, Emerson⁵ collected into a class a number of the weakest and most poorly nourished children from several thousands of patients coming to the children's department of the Boston Dispensary. The past record of the child, its physical condition, diet and home life, including the time spent in sleep, outdoors, etc., were carefully considered. A social visitor was sent to the home to ascertain further details. On the basis of all the data obtained in such ways, a talk was given to the class as a whole on Saturday mornings, explaining hygiene and diet and open air life. A few instructions in food values were issued. Bread and butter

3. Manny, F. A.: A Comparison of Three Methods of Determining Defective Nutrition, *Arch. Pediat.*, 1918, **35**, 88.

4. Manny, F. A.: A Scale for Grading Nutrition, *School and Society*, Jan. 22, 1916.

5. Emerson, W. R. P.: The Hygienic and Dietetic Treatment of Delicate Children by the Class Method, *Boston Med. and Surg. Jour.*, 1910, **163**, 326.

1. Manny, F. A.: Defective Nutrition and the Standard of Living, *Survey*, March 20, 1918.

2. Thomas, C. J., in *The Care of the School Child*, Edited by James Kerr, London, 1916, p. 109.

or cereal and milk were urged in place of tea and coffee. Other children and parents became sympathetic listeners; and at the weekly conferences the successes recorded, as well as the reasons for failures to gain, aroused not only respectful attention but active interest and wholesome speculation as to the outcome. The results were indisputable. If a child did not gain, a careful study of the case was made; the reason was usually found easily and the failure remedied. As Emerson has reported, the class method arouses a spirit of competition, the "game" in it, which has a powerful attraction to the child as an aid to its management. The evident measurable gains furnish a strong incentive alike to children and parents, making the necessary instruction to the latter easy and effective. The results obtained each week remove the prejudices and fears, and convince in a moment, as if by magic, where hours spent in argument fail.

This pioneer attempt has been duplicated on a much larger scale by Smith⁶ in New York, in connection with Bellevue Hospital. Every child who has applied for admission to this class has been accepted if he has been 5 pounds or more underweight for his age. A parent or some adult member of the family has been expected to attend the class for the first few visits so that advice and instruction could be given to a responsible person. The general plan was to make a careful diagnosis, to correct remediable physical defects, to determine and correct any economic factors that had a bearing on the case, and to try to improve the hygiene and diet of the child by every means possible. It will repay workers for child welfare to study in the original the details of the plans pursued. When wasting diseases, such as diabetes, syphilis and nephritis, are ruled out, and when less conspicuous disease, such as tuberculosis, local foci of infection, such as the tonsils afford, enlarged adenoids, prematurity and hereditary defects are allowed for, there remains a possible sequence of malnutrition due to faulty hygiene and diet. In this connection it is possible to correct improper or insufficient food, irregular and other bad habits of eating, constipation, insufficient sleep, insufficient fresh air day and night, insufficient or perhaps excessive exercise, and uncleanness of body and clothing.

What tangible good has actually been accomplished? The answer to this is the final test. By the use of class methods, Smith reports, it has been possible to make 57 per cent. of the children gain at 1.7 times the average rate for their ages, and 22 per cent. at about the average rate, or a total of 79 per cent. who have gained at or better than the average rate. Of the remaining 21 per cent., one or more reasons for the failure may be easily ascertained in every case. These results have been obtained under the most adverse

circumstances. It seems fair to conclude that the class method is of value in the treatment of undernourished children, even when they must be handled in large numbers. The establishment of such classes in all outpatient departments, and perhaps in many of the schools, Smith adds, would be of great service to every community, not only by the good done the children treated, but also by the education of the public in matters of hygiene. Parents must be made to realize that a thin child is not a healthy child, and that he needs medical supervision.

A BALANCED DIET

The expression "balanced ration" and the principles that it is intended to convey have been developed largely in the domain of animal feeding. To the animal husbandman the prevailing theory of a balanced ration has postulated that the requirements for the successful growth and reproduction of an animal have been met when the supply of digestible protein and available energy is adequate. A somewhat similar idea of "balancing the diet" by securing a suitable intake of protein and calories has become current in popular literature on human nutrition.¹ Even in the planning of individual meals, some consideration of the distribution and quantities of the familiar nutrients has been urged. Thus, in her book on feeding the family, Mrs. Rose² has written:

To see that these three foodstuffs are represented in good proportions in each meal is what is usually meant by serving a "balanced" meal. We should go a step further and see that some foods furnishing iron, phosphorus, and calcium and some giving "ballast" in the form of cellulose are also included, and that the fuel value of the meal is approximately the same each day; or, in other words, that we do not have a feast and upset our digestions by overeating today, and have a famine tomorrow, but stoke the furnace regularly, according to its needs. Herein lies the advantage of knowing the relative fuel value of different foods and different dishes.

The science of nutrition has emerged from its simpler beginnings into a complex of problems of great intricacy. The theory that protein and energy are the only necessary factors to be considered in formulating a ration had to be abandoned. It is not intended to imply that these aspects are negligible or even not highly important. But, so far as they are essentially quantitative rather than also qualitative in their bearing, they are not infrequently liable to exhibit serious shortcomings. Not all proteins in foods are adequate for nutrition; but even if they were, the problem of the perfect ration would be far from solved. Physiologic well-being demands a multiplicity of contributory dietary essentials.

A recent contribution from the Wisconsin Agricultural Experiment Station³ at Madison brings a new

6. Smith, C. H.: Methods Used in a Class for 'Undernourished Children, *Am. Jour. Dis. Child.*, June, 1918, p. 373.

1. Fisher, Irving, and Fisk, E. L.: *How to Live*, 1915, p. 171.
2. Rose, Mary Swartz: *Feeding the Family*, New York, 1916, p. 202.
3. Hart, E. B.; Steenbock, H., and Humphrey, G. C.: *New Facts on Feeding Cattle for Successful Growth and Reproduction*, Bull. 287, Wisconsin Agric. Exper. Station, 1918.

formulation of older experiments from this institution demonstrating that balanced rations, in the long accepted interpretation of the term, are sometimes deficient in components that make for the best growth of the animals. Several years ago the station began a series of observations with cattle on the effect of "balanced" rations on growth and reproduction. The rations were, however, restricted in their makeup to a number of plants to test the adequacy of the prevailing theory that protein and energy are the only necessary factors to consider in formulating a ration. Each ration was balanced—that is, so made up as to contain the foodstuffs in sufficient amounts and suitable proportions to supply adequate energy and adequate digestible protein—but in one case it was made up entirely of feeds obtained from the corn plant, in another from the wheat plant, in a third from the oat plant, and in a fourth from a mixture of the three. The outcome was somewhat surprising from the standpoint of the older physiologic conceptions. It was found that for cattle a complete ration can be made from the corn plant. It will permit normal growth and reproduction. The same satisfactory result cannot be obtained, however, with the products of the oat plant. Furthermore, an exclusive ration of wheat grain and wheat straw, even though abundant in calories and rich in digestible protein, is in most cases fatal to both growth and reproduction. It will also produce weak or dead calves. So far as reproduction is concerned, the same statement is true with a corn grain and wheat straw ration.

What is the meaning of this unexpected unlikeness in seemingly similar rations? In some cases a supplement of suitable salts remedies most of the defect and thus indicates wherein the shortcoming lies. This is true of the wheat plant. Another occasional deficiency is found in a lack of sufficient vitamins, those as yet unidentified chemical food substances that are needed for growth and reproduction. A further danger, little likely to play a part in human nutrition, is the alleged toxicity of certain plant parts when they are used in too large abundance in the ration. Thus the Wisconsin experimenters believe that in the wheat experiments cited the essential disturbing factor is a toxic substance that interferes with the utilization of materials necessary for the normal development of the nervous system of the animal, or acts on the nerves directly. It is possible, of course, that it may induce degeneration of the nerve tissue of young or mature animals. This would account for the blindness observed in the heifers and also for the failure of muscular coordination apparent in the new-born calves of wheat-fed mothers. The defects are not seen when certain foods supplement the wheat. We have here the suggestion that certain natural foods may act as correctives to others.

The lesson from these carefully planned experiments is not an indictment against any familiar cereal, any more than the occurrence of beriberi is an indictment

against the use of rice. It merely emphasizes anew what has often been set forth of late in these columns, namely, that a factor of safety lies in a wide variety of diet whenever this is possible. There should be a sufficient excess of the recognized essentials to provide a safe margin of them, so long as their quantitative relations are not established. The necessity, Hart, Steenbock and Humphrey remind us, of considering such factors as toxicity, suitable proteins, growth-promoting substances or vitamins, and a proper balance of salts, indicates how complex the problem of nutrition really is and how necessary it is that the relative importance of the factors be clearly exposed in order that we may place the various feeds in their proper category. Much of this comment can profitably be translated into the problems of human nutrition, even if the details concerned in animal husbandry have no immediate bearing.

THE NEW GENUS OF SPIROCHETE— LEPTOSPIRA

Only a few years have elapsed since the word "spirochete" was practically unknown in medical circles, or suggested few associations with the genesis of disease. The description of spirochetes and the invention of the name date back to the days of Ehrenberg, 1838. Schaudinn's classic studies on what is now termed *Spirochaeta pallida* and its relation to a worldwide malady gave a new impetus to interest in this field of microbiology. Recently the identification of a spirochete as the cause of infectious jaundice¹ has served to reduplicate the efforts to learn the details and distinctions that lend accuracy to bacteriologic diagnosis. The establishment of a new genus of spirochetes, as has recently been proposed for *Leptospira* by Noguchi,² marks an important event.

The type organism that led to the assignment of this independent generic name to a group of spirochetes was the causative agent of infectious jaundice described as *Spirochaeta icterohaemorrhagiae* by Inada and his associates in 1914, and found to be identical with the strain isolated in cases of infectious jaundice among British soldiers in Flanders. It thus becomes one of at least six large genera of spiral micro-organisms, the *Leptospira* being characterized in distinction from *Spirochaeta*, *Saprosira*, *Cristispira*, *Spironema* and *Treponema* by peculiar minute elementary spirals running throughout the body, by the absence of flagella, and by the remarkable flexibility of the terminal portion of the organism. No differential features have been discovered among the strains of *Leptospira icterohaemorrhagiae* derived from American, Asiatic and European sources.³

1. Some Lessons from Trench Jaundice, editorial, THE JOURNAL A. M. A., June 1, 1918, p. 1602.

2. Noguchi, Hideyo: Jour. Exper. Med., 1917, 25, 755.

3. Noguchi, Hideyo: Morphological Characteristics and Nomenclature of *Leptospira* (*Spirochaeta*) *icterohaemorrhagiae* (Inada and Ido), Jour. Exper. Med., 1918, 27, 575.

Thanks to the painstaking investigations of Noguchi⁴ at the Rockefeller Institute for Medical Research, further advances have been made toward ascertaining the mode of survival and transmission of these organisms in nature. They are unable to grow in normal urine, the acidity of this secretion being detrimental to them. Under natural conditions *Leptospira icterohaemorrhagiae* cast off in the feces cannot survive longer than one day. Neither polluted water, sewage nor soil will serve to keep the organisms alive for more than a very few days; in fact, most of the aerobic bacteria found in these mediums inhibit the growth of the spirochetes. *Leptospira* is highly sensitive to the destructive action of bile. Noguchi has found that the larvae and adults of the *Culex* mosquito, the larvae of the housefly and bluebottle fly, wood ticks and leeches cannot play the part of an intermediate host to the organism of infectious jaundice.

The discovery of the *Leptospira* in the urine of convalescents from infectious jaundice, among other related facts, has made it imperative to learn accurately what varieties of spirochetal organisms may normally find their way into the urine. One thinks quite naturally of the inhabitants of the genitalia. Noguchi⁵ believes, as the result of extensive observations on men, that *Spirochaeta refringens*, *Treponema calligyrum* and *Treponema minutum* represent practically all the spirochetal forms observed in the male smegma flora. A leptospira has never conclusively been shown to be present in specimens of normal urine or smegma. This fact, if further established, will facilitate diagnosis when foreign forms are observed.

Current Comment

OASES IN THE NATIONAL DESERT

Present indications are that Congress will pass legislation that will make the nation "dry." One point that does not seem to have occurred to our statesmen at Washington, in their admirable attempts to conserve the nation's resources, is the monstrous waste going on through the sale of highly alcoholized "patent medicines." There are on the market today a number of "patent medicines" containing from 15 to 25 per cent. of alcohol whose combined sales could only be expressed in millions of gallons. None of these products is admittedly sold for its alcohol content, and in most instances the manufacturers expressly deny that the alcohol is present for its drug effect. It is present as a "solvent," or is a "preservative" or "to prevent freezing"—anything but for its physiologic action. As an evidence of its marvelously potent medicinal qualities the manufacturer of one especially

widely advertised product of this type has pointed to the number of carloads of his preparation that have been shipped into certain specific territories. Every pharmacist and every physician knows that the alleged medicinal virtues of these nostrums could, after their "extraction" by alcohol, be put up in solid form and the alcohol saved. Every retail druggist knows, however, that the vast majority of these preparations, were they put up in such form, would lose their power as "repeaters" and could be kept alive only by tremendously expensive advertising campaigns. The point of the whole question is that the impending legislation by Congress, while it will prohibit the manufacture and sale of alcoholic beverages, will not prevent the use of alcohol as a beverage, so long as nostrums whose most potent drug is alcohol are permitted to be sold unrestrictedly. As a prohibition measure the law may be a complete success; as a conservation measure it will leave much to be desired.

COCCIDIAL INFECTION IN MAN

Although coccidial infections in animals have been known for some time, little emphasis has ever been placed on the possible significance of a similar parasitic invasion of mankind. Latterly the publication of reports from various localities regarding the probable existence of human coccidiosis cannot fail to focus attention on the subject. The coccidia are a group of sporozoa which, during their trophic phases, are typically parasites of epithelial cells. The intracellular parasites have an asexual cycle within these cells in which reproduction is described to take place "by the process known as schizogony, and a succeeding sexual process involving the union of sexually differentiated gametes and spore formation within a cyst." Infection takes place through the ingestion of matter contaminated with the spores of the parasites, as happens in other instances of intestinal parasitism. The sporozoites are liberated from the sporocysts by the action of the digestive juices in the alimentary tract. Thereupon the sporozoites penetrate the membranes of the epithelium and come to rest in the cytoplasm of the cells, where they proceed to feed. Haughwout,¹ of the Department of Medical Zoology at the University of the Philippines, has thought it worth while to warn against the possible menace of coccidia. Several species of them have been found to infest the domestic and laboratory animals. Where hygienic conditions are not all that could be desired, it will thus be easy for infection to occur in man. The fear of this danger seems to be justified if we may trust new reports cited by Haughwout. They include what purport to be thirty-four well authenticated cases of human coccidiosis of recent occurrence. To this may be added the allegation of Castellani² that coccidiosis is comparatively common in the Balkans, numerous cases having been seen in the hospitals at Saloniki and in Macedonia, where conditions for transmission are doubtless highly

4. Noguchi, Hideyo: The Survival of *Leptospira* (*Spirochaeta*) *Icterohaemorrhagiae* in Nature: Observations Concerning Microchemical Reactions and Intermediate Hosts, *Jour. Exper. Med.*, 1918, **27**, 609.

5. Noguchi, Hideyo: The Spirochetal Flora of the Normal Male Genitalia, *Jour. Exper. Med.*, 1918, **27**, 667.

1. Haughwout, F. G.: Infections with *Coccidium* and *Isospora* in Animals in the Philippine Islands and Their Possible Clinical Significance, *Philippine Jour. Sc. (B)*, 1918, **13**, 79.

2. Castellani: *Jour. Trop. Med. and Hyg.*, 1917, **20**, 202.

favorable at the present period. Details of the various phases of the life cycle of these human protozoon parasites remain to be furnished by the pathologist and protozoologist. Haughwout states that the main thing the observer must be on his guard against is confusion of the cysts of helminths, particularly the eggs of trematodes and of hookworms, with coccidial cysts, and vice versa. From the few instances observed, it seems unlikely that ipecac and emetin compounds, on which reliance has been placed in infections with *Endameba histolytica*, will prove of any therapeutic value. In some cases at least the parasites seem to disappear from the stools without special treatment. Lime is said to exert the most destructive action on the cysts of any of the commonly used disinfectants. There is enough uncertainty in all these meager data to stimulate suitably situated investigators to a study of the diagnosis, treatment and prophylactic hygiene of an uncertain menace to human health.

EFFECT OF THE WAR ON FOREIGN MEDICAL JOURNALS

We have heretofore noted the effect of the war on our foreign exchanges, especially in the curtailment of space devoted to reading matter. We have also referred to the fact that the Italian journals were coming minus their advertising pages; those Italian journals which carried advertising matter on their covers are now omitting the covers. Our French exchanges received this week, however, are startling in their appearance. It seems that the French government has ordered that no advertising shall appear in any periodical to be sent out of the country. The *Nourrisson* and the *Paris médical* comply with the order by entirely blotting out all their advertising, so that the space hitherto devoted to advertising is simply stippled black. The *Presse médicale* complies with the order by leaving the space blank. As a result of this, the *Presse médicale* for June 20 carried nine and one-half pages of reading matter, and five and one-half pages blank. The object of the order is not stated. It certainly is not to save paper, or these French journals, while complying with the letter, would be violating the spirit of the order. It has been suggested that advertising space has been bought and used by the enemy for code messages.

BERIBERI AND CARBOHYDRATES

The demonstration of the particular physiologic significance of those properties of foods to which the word "vitamin" has been assigned has naturally led to several hypotheses regarding their rôle. Soon after the word "vitamin" was coined, it became something to conjure with. Some of the phenomena for which it was made responsible were little more than figments of the imagination. Others were established on a more probable basis of experimental observation. Among the views thus propounded was the thesis that a vitamin plays an active part in the metabolism of carbohydrates. It was based on the supposedly substan-

tial observations of Braddon and Cooper¹ and of Funk² which they thought demonstrated that when birds were fed on polished rice or starch, with or without a fixed amount of antineuritic vitamin, the greater the proportion of carbohydrate in the food, the quicker was the onset of polyneuritis. Vedder³ has clearly pointed out, in relation to a specific instance, how important it is from a practical as well as a purely scientific standpoint to ascertain the precise relation of the vitamins to metabolism. The dietotherapeutist engaged in the treatment or prevention of beriberi needs dependable information regarding the quantity of vitamin-yielding material to be supplied. Obviously, if the requisite proportion depends on the character of the diet and other incidental metabolic factors, a variable difficult to reckon with is thereby introduced. The latest experiments carried out by Vedder indicate that the antineuritic vitamin is not concerned in carbohydrate metabolism. Accordingly, in prescribing a diet to prevent beriberi, Vedder believes that it is sufficient to insure the consumption of such quantities of antineuritic foods—beans, rice polishings, barley, etc.—as experience has indicated will prevent the disease, without any reference to variations in the amount of carbohydrate consumed.

BASAL METABOLISM

The study of what is called the "basal metabolism" of persons under various conditions of age and in relation to different diseases has received considerable attention in recent years. The basal metabolism or, more strictly, the basal catabolism, is the exchange of matter that proceeds in the organism in a state of complete muscular rest and while the processes of digestion and absorption from the alimentary tract are completely suspended. Why this aspect of the energy transformations of the body should be important becomes clearer when one realizes that it represents the minimum of energy compatible with cell life under normal conditions. In a sense, it becomes an expression of the minimum food requirement of the organism; a surplus above this minimum may be utilized for muscular activity or give rise to a storage of matter and energy. As a unit for measuring the metabolism, the square meter of body surface, a dimension that can readily be calculated, is taken since it has been demonstrated that the heat output is essentially proportional to the superficial area of the individual. It has been shown in numerous experiments that the unit of surface area eliminates the same amount of heat in the normal adult, within 10 per cent. of a determined average. Armsby, Fries and Braman⁴ of the Institute of Animal Nutrition at the Pennsylvania State College, who have recently calculated the mean daily basal metabolism per square

1. Braddon and Cooper: The Influence of the Metabolic Factors in Beriberi, Part I, The Effect of Increasing the Carbohydrate Ration on the Development of Polyneuritis in Birds Fed on Polished Rice, *Jour. Hyg.*, 1914, **14**, 331.

2. Funk, Casimir: Die Rolle der Vitamine beim Kohlenhydratstoffwechsel, *Ztschr. f. physiol. Chem.*, 1914, **89**, 378.

3. Vedder, E. B.: Is the Neuritis-Preventing Vitamine Concerned in Carbohydrate Metabolism? *Jour. Hyg.*, 1918, **17**, 1.

4. Armsby, H. P.; Fries, J. A., and Braman, W. W.: Basal Katabolism of Cattle and Other Species, *Jour. Agricultural Research*, 1918, **13**, 43.

meter of body surface, find that it appears not to differ greatly in man, cattle, swine and horses under comparable conditions. This surprising uniformity argues for the similarity of the fundamental metabolic processes in the higher animals. The unlike conditions of muscular activity and digestive performance introduce variable factors that make the total metabolism of the different species less easily compared under the conditions of ordinary active life.

Medical Mobilization and the War

Uniform for Contract Surgeons

A new uniform for contract surgeons will be the same as that worn by commissioned officers, excepting that there will be no shoulder device, and the insignia to be worn on the collar will be the caduceus with the letters "CS" superimposed.

Increase in the Navy

On account of the increase of the strength of the Navy to 131,485 the Naval Medical Corps will be allowed two additional medical directors with the rank of captain and forty additional medical inspectors with the rank of commander. This will increase the allowance of officers of the Navy from 843 to 1,120.

Hospital in England for American Nurses

The War Council of the American Red Cross has appropriated \$54,855 for the leasing, equipment and maintenance of a Red Cross hospital for American nurses in Great Britain on leave from France. The hospital will have a capacity of about fifty-five beds.

Army Surgeons to Meet

The Association of Military Surgeons of the United States will hold its annual meeting for 1918 at Camp Greenleaf, Fort Oglethorpe, Ga., October 13 and 15, under the presidency of Med. Dir. George A. Lung, U. S. Navy.

American Military Hospital Started

Work was commenced, June 27, on a large American military hospital near Salisbury, England, the site being a country estate of 200 acres purchased by the Red Cross. The contracts provide that the hospital shall be ready in six weeks with accommodations for 400 patients, but it is planned that the institution will eventually accommodate 3,000 patients.

Care of American Wounded

Almost the last of the American wounded of the recent German offensive who are to be moved from base hospitals in Paris to United States or to other hospitals in France for further treatment during convalescence left Paris, June 27, on an American hospital train. There are at present sixteen of these trains in service on the western front, each of which consists of sixteen large cars, built according to specifications drawn by Col. Percy L. Jones, M. C., U. S. Army, head of the American Ambulance Service. Each train has a maximum emergency capacity of 641 wounded, or of 340 if all are lying cases.

Another Base Hospital Publication

THE JOURNAL has just received number 7 of volume 1 of a publication issued by the base hospital at Camp Greene, N. C. It is entitled *The Caduceus* and is dedicated to the cause of world-wide justice. It is published every Saturday by the enlisted personnel of the base hospital, costing 5 cents per copy. The present issue contains eighteen pages, well illustrated. Such a publication is invaluable for its effect on the morale of the organization and for preservation as a permanent stimulus to memory of great periods in the lives of the men issuing it.

Budget Submitted

The American Red Cross Commission to Great Britain submitted a budget of its expenditures, from April 30 to June 30, amounting to \$974,630.25. The largest single items were one of \$238,500 for a hospital at an English port with an immediate capacity of 200 beds, and one of \$100,700 for the purpose of establishing emergency depots in Ireland to meet relief needs in the case of disaster similar to the sinking of the *Tuscania*. Other items of importance are \$109,710 for a line of communication camps covering the care of United States troops, \$95,411 for rest camps and a hospital for American troops passing through England, \$52,470 for convalescent homes for officers, with a capacity of 100 beds, and \$47,700 for the installation and maintenance of a naval hospital for officers and men in London, with a capacity of fifty beds.

"Carry On"

The first number of *Carry On*—"a Magazine on the Reconstruction of Disabled Soldiers and Sailors"—is a well printed, well illustrated magazine of thirty-two pages. All of the signed articles are by nonmedical men and women, and are mainly devoted to telling what the disabled soldier and sailor—whether the disability is the loss of sight, limb or what not—may be able to do in spite of his condition. These articles give the optimistic side of what the future holds in store for the disabled, and what has been and is being done to make this optimism well founded. The illustrations show what has already been accomplished in making the disabled warriors of use in the world. The object of the Surgeon-General in publishing this magazine evidently is to awaken interest in the plans that are being outlined looking to the care of these men. Undoubtedly future numbers of the magazine will outline this work, and thus secure the interest, support and sympathy of the public in it. The magazine is circulated free, but the circulation will be confined to those who are sufficiently interested to write specifically and ask that they be put on the subscription list. Such requests should be addressed to "The Editor, *Carry On*, Surgeon-General's Office, U. S. Army, Washington, D. C."

Personnel of the Medical Department

For the week ending July 12, 1918, the personnel of the Medical Department of the Army included:

- MEDICAL CORPS: 877, including 1 major-general, 65 colonels, 110 lieutenant-colonels, 298 majors and 403 lieutenants.
- MEDICAL RESERVE CORPS: 21,370, including 1,481 majors, 6,102 captains and 13,787 lieutenants. On active duty: 19,489, including 1,403 majors, 5,598 captains and 12,488 lieutenants.
- MEDICAL CORPS, NATIONAL GUARD: 1,195, including 22 lieutenant-colonels, 264 majors, 255 captains and 654 lieutenants.
- MEDICAL CORPS, NATIONAL ARMY: 354, including 6 brigadier-generals, 85 colonels, 254 lieutenant-colonels, 8 majors and 1 captain.

THE DISCHARGES to date are:

Causes	M.C.N.A.	Number M.R.C.	M.C.N.G.
Physical disability	0	718	54
Inaptitude	0	274	21
Other branches of service.....	2	584	72
Resignations	0	182	34
Domestic troubles	0	60	0
Needed by community	1	50	0
Deaths	1	91	6
Dismissals	0	14	0
Duty completed	0	1	0
No reasons given	0	14	0
	4	1,988	190

Increased Rank for Medical Officers

The "rider" on the appropriation bill as finally passed states:

"Increase in Medical Department: That the Medical Department of the Regular Army be, and is hereby, increased by one assistant surgeon general, for service abroad during the present war, who shall have the rank of major general, and two assistant surgeon generals, who shall have the rank of brigadier general all of whom shall be appointed from the Medical Corps of the Regular Army.

"That the President may nominate and appoint in the Medical Department of the National Army, by and with the advice and consent of the Senate, from the Medical Reserve Corps of the Regular Army not to exceed two major generals and four brigadier generals.

"That the commissioned officers of the Medical Corps of the Regular Army, none of whom shall have rank above that of colonel, shall be proportionately distributed in the several grades as now provided by law.

"That the commissioned officers of the Medical Reserve Corps of the Regular Army, none of whom shall have rank above that of colonel, shall be proportionately distributed in the several grades as now provided by law for the Medical Corps of the Regular Army: Provided, That nothing in this act shall be held or construed so as to discharge any officer of the Regular Army or deprive him of a commission which he now holds therein."

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, and July 13.

ALABAMA

J. C. Bragg, Birmingham
L. M. Winn, Birmingham
C. W. Hilliard, Dothan
E. L. Gibson, Enterprise
H. D. Westmoreland, Huntsville
W. A. Sellers, Montgomery
W. F. Hamilton, Pell City
W. A. Gresham, Russellville

ARIZONA

E. Darragh, Bisbee
E. R. McPheeters, Clifton
W. O. Sweek, Phoenix

ARKANSAS

A. C. Torrence, Hot Springs
H. W. Browning, Little Rock
C. N. Pate, Little Rock
O. C. Struthers, Siloam Springs
L. J. Kosminsky, Texarkana

CALIFORNIA

J. F. Hull, Alhambra
I. W. Keith, Beaumont
S. W. Cartwright, Ceres
F. L. R. Burks, Fresno
H. W. Nielsen, Fresno
A. E. Skoonberg, Fresno
C. D. Sweet, Fresno
R. Motheral, Hanford
J. H. Mallery, La Mesa
T. L. Rogers, Long Beach
G. T. Boyd, Los Angeles
E. L. Commons, Los Angeles
C. W. Craik, Los Angeles
W. F. Kittle, Los Angeles
W. H. Mayne, Los Angeles
A. A. McClurkin, Los Angeles
C. Mellman, Los Angeles
J. H. Schacfer, Los Angeles
T. C. Schneerer, Los Angeles
D. E. Shea, Los Angeles
H. L. Thorpe, Los Angeles
M. M'Cauley, Monterey
C. E. Curdts, Oakland
F. L. Chapline, Orange
J. B. Thomas, Palo Alto
E. W. Burke, Redlands
G. A. Briggs, Sacramento
G. Parker, Salinas
F. B. Kell, San Bernardino
P. M. Savage, San Bernardino
T. O. Burger, San Diego
J. S. Cochran, San Diego
L. Deville, San Diego
B. B. Ward, San Fernando
A. L. Cohn, San Francisco
H. C. Moffitt, San Francisco
C. C. Ross, San Francisco
J. H. Shaw, Santa Rosa
G. S. Leroy, South Pasadena
F. J. Conzelmann, Stockton
L. R. Johnson, Stockton
W. T. McNeil, Stockton
D. R. Powell, Stockton
H. E. Price, Stockton
W. C. Mabry, Tropic
I. H. Betts, Visalta

COLORADO

C. E. Condon, Breckenridge
C. S. Morrison, Colorado Springs
J. A. Dunwoody, Cripple Creek
E. G. Griffin, Denver
H. J. Hollison, Denver
R. W. Johnson, Denver
R. A. Paine, Denver
J. A. Philpott, Denver
T. C. Taylor, Fort Collins
W. G. Benawa, Fort Morgan
J. M. Braden, Lafayette
A. L. Stubbs, La Junta
W. T. Bronson, Pueblo
W. J. Lerossignol, Rile
B. B. Blotz, Rocky Ford
T. L. A. Shaffer, Salida
C. H. Bensinger, Seibert
B. B. Beshoar, Trinidad
E. D. Downing, Woodman
J. F. Wallace, Woodman

CONNECTICUT

E. F. McGovern, Bridgeport
G. J. Schuele, Bridgeport

J. M. Hefferan, Danbury
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C. O. Rogne, Sawyer

ORDERS TO OFFICERS OF THE MEDICAL CORPS
AND OF THE MEDICAL CORPS OF
THE NATIONAL ARMY

To Camp Beauregard, Alexandria, La., base hospital, from the Surgeon-General's Office, Major EDGAR E. HUME.

To Camp Shelby, Hattiesburg, Miss., as assistant to camp surgeon, from Camp Zachary Taylor, Major HARRY L. ARNOLD. For duty, from New Orleans, Capt. DAVID L. HILL, DON C. McCLELLAND, OTIS McQUOWN, Lieuts. FRED B. HICKSON, DORSEY M. HINES, RODNEY E. TROUTMAN, ALLEN H. WALKER, ADRIAL C. WEAKLEY.

To Camp Travis, Fort Sam Houston, Texas, as assistant to camp surgeon, from Southern Department, Lieut. ABRAM L. VAN METER.

To Fort Thomas, and Camp Zachary Taylor, Louisville, Ky., Camp Wadsworth, Spartanburg, S. C., and Camp Greene, Charlotte, N. C., for conference, and on completion to his proper station, Lieut.-Col. MAJOR G. SEELIG.

To Hoboken, N. J., for duty, from Camp Greene, Lieut.-Col. WILLIAM L. SHEEP.

To Philadelphia, Pa., and New York City, for duty, and on completion to his proper station, Lieut.-Col. WILLIAM L. HART.

To Rochester, Minn., Mayo Clinic, as instructor, from Washington, Col. WILLIAM J. MAYO.

Resignation of Lieut. FLOYD A. THOMAS accepted.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Beauregard, Alexandria, La., base hospital, Capt. EDWIN V. CALDWELL, Huntsville.

To Camp Dix, Wrightstown, N. J., for duty, from New Orleans, Lieut. SOLON W. WRIGHT, Bessemer.

To Camp Wheeler, Macon, Ga., base hospital, Capt. ENOCH M. MASON, Birmingham.

To Fort Oglethorpe for instruction, Capt. WALTER A. GRESHAM, Russellville.

Arkansas

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. FELTON W. LANDRUM, Duggs.

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Beauregard, Major LOYD THOMPSON, Hot Springs.

To Fort Oglethorpe for instruction, Lieut. WALTER K. GRAY, Little Rock.

California

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. ERNEST C. GRINER, San Francisco.

To Camp Dodge, Des Moines, Iowa, base hospital, from New York City, Lieut. ROBERT A. POWERS, San Francisco.

To Camp Lewis, American Lake, Wash., for duty, Capt. ALEXANDER H. MCLEISH, Stockton; Lieuts. THEODORE C. SHNEERER, Los Angeles; FRANK C. PEIRSOL, Mendocino City; JOSEPH A. THIBODEAU, ROBERT W. WILCOX, San Francisco.

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Camp Custer, Major PERCIVAL G. WHITE, Los Angeles.

To report by wire to the commanding general, Western Department, for assignment to duty, Capt. EDWARD W. TWICHELL, Sacramento.

To San Francisco, Cal., Letterman General Hospital, for temporary duty, Capt. THOMAS C. BURGER, San Diego.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. BRUCE McV. MAKCALL, San Francisco.

Colorado

To Camp Crane, Allentown, Pa., base hospital, Lieut. ROSS W. JOHNSON, Denver; from Camp Kearney, Capt. LEWIS M. VAN METER, Denver.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. JULIAN C. KENNEDY, GEORGE B. LEWIS, Denver.

Connecticut

To Camp Custer, Battle Creek, Mich., base hospital, Capt. ALBERT E. AUSTIN, Sound Beach.

Resignation of Capt. CARL W. HENSE, New Haven, accepted.

District of Columbia

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, from the Surgeon-General's Office, Major WILLIAM G. ERVING, Washington.

Florida

To Fort Oglethorpe for instruction, Lieut. FREDERICK J. AUWERS, Oakland.

Georgia

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. CHARLES M. MASHBURN, Atlanta.

To Fort Oglethorpe for instruction, Lieuts. LEROY C. PARHAM, Chipley; MARCUS L. HICKSON, Fort Valley.

Idaho

To Fort Oglethorpe for instruction, Capt. FRANCIS L. QUIGLEY, Wallace.

To Fort Riley for duty, from Prairie View, Texas, Lieut. VONANDO G. LOGAN, Rockland.

Illinois

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. DONET F. MONACO, Chicago.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieuts. FRANK DEASON, Bush; ANTHONY B. ZWASKA, Rockton; CHRISTOPHER B. STUART, Springfield; from New Orleans, Lieut. JOHN W. MCGUIRE, Chicago.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. MAYER S. COFFLER, Chicago.

To Camp Grant, Rockford, Ill., base hospital, Lieut. LEONARD J. MURPHY, Fairland.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. ADOLPH D. TOLLEFSEN, Chicago.

To Camp McClellan, Anniston, Ala., base hospital, Capt. LEON M. BOWES, Norwood Park; Lieuts. ALBERT H. CARTER, Chicago; JESSE A. DE FREITAS, Springfield.

To Camp Meade, Admiral, Md., base hospital, from Camp Beauregard, Major THOMAS A. WOODRUFF, Chicago.

To Camp Pike, Little Rock, Ark., base hospital, Lieut. JOSEPH L. NORTELL, Chicago.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. ALVIN THOMPSON, Chicago.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. WILLIAM A. O'CONNOR, Chicago.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. NORMAN C. WADDELL, Cooks Mills.

To Chicago, Ill., for instruction, Lieut. JOHN MITCHELL, Chicago.

To Fort Des Moines, Iowa, base hospital, Capt. RUFUS W. BISHOP, Chicago.

To Fort Logan H. Roots, Ark., base hospital, Lieut. HARRY A. SULIVAN, Rockford.

To Fort Oglethorpe for instruction, Capt. WILLIAM E. SHACKLETON, Lieuts. CLARENCE R. CHOUINARD, ALBERT G. GRAN, Chicago.

To Fort Snelling, Minn., for duty, from Camp Grant, Capt. LOUIS J. PRITZKER, Chicago.

To Fort Worth, Texas, Signal Corps Aviation School, from Camp Sevier, Major ARTHUR F. STOTTS, Galesburg.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. JOHN R. BRYAN, West Point.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Dodge, Capt. WILLIAM K. MURRAY, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EDWARD T. ROBINSON, Chicago.

Resignation of Lieuts. THOMAS P. RANNEY, Chicago, and JOHN E. BURNS, New Dennison, accepted.

The following order has been revoked: To Camp Pike, Little Rock, Ark., for duty, Lieut. EDWARD H. WARZEWSKI, Chicago.

Indiana

To Camp Custer, Battle Creek, Mich., base hospital, Capt. WILLIAM J. NORTON, Hope.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. REUBEN A. SOLOMON, Indianapolis.

To Camp Hancock, Augusta, Ga., for duty, Lieuts. ARTHUR L. OILAR, Russiaville; LEONARD P. COLLINS, Winamac.

To Camp MacArthur, Waco, Texas, for duty, from Camp Travis, Capt. ETHAN A. ISH, Waterloo.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. EDWIN R. CHURCHELL, Richmond.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Capt. LINLEY M. REAGAN, Tipton.

To Fort Oglethorpe for instruction, Capt. WILLIAM E. NICHOLS, Hammond; Lieuts. FRED H. FINLAW, Arlington; FRANCIS M. DICKASON, Bluffton; BYRON J. WYLAND, Mishawaka.

To Fort Sam Houston, Texas, base hospital, Capt. HARRY ELLIOTT, Brazil.

To Washington, D. C., for duty, Lieut. WILLIAM A. HOLLIS, Hartford City.

Iowa

To Allesandro, Calif., as flight surgeon, from Mineola, Capt. MURDOCH BANNISTER, Ottumwa.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. ALBERT H. MYERDICK, Mt. Pleasant; Lieuts. ALBERT A. SCHULTZ, Fort Dodge; AUSTIN C. DAVIS, Iowa City; GUY A. LOTT, St. Ansger.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. LORAN M. MARIN, Fort Dodge.

To Camp McClellan, Anniston, Ala., base hospital, Lieut. CHARLES W. TIDBALL, Independence.

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. WILLIAM C. NEWELL, Ottumwa.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. CHARLES D. MARTIN, Davenport.

To Fort Oglethorpe for temporary duty, Lieut. WALTER H. GRIMWOOD, Fort Madison.

To Fort Riley for instruction, Lieut. HAROLD A. HOUSEHOLDER, Winthrop.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Sevier, Lieut. OTTO J. BLESSIN, Postville.

Honorably discharged on account of physical disability not incident to the service, Lieut. CYRIL G. FIELD, Humboldt. On account of physical disability existing prior to entrance into the service, Lieut. WALTER G. FINLEY, Mondamin.

Kansas

To Camp Dix, Wrightstown, N. J., for duty, from New Orleans, Lieut. ALBERT M. DAWSON, Topeka.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOHN L. WORK, Topeka.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. WILLIAM W. REED, Blue Rapids.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. WILLIAM R. BRADY, Parsons.

To Fort Oglethorpe for instruction, Lieut. JOSEPH H. MARKS, Valley Falls.

To Fort Riley for instruction, Lieut. ANSON B. INGELS, Larned.

To the inactive list, from Fort Lawton, Wash., Capt. CHARLES E. BROWN, Leavenworth.

Resignation of Lieut. HENRY D. BRUNIG, Hillsboro, accepted.

Kentucky

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. ROBERT L. WOODARD, Hopkinsville; HARRY C. WOODARD, Louisville; from Camp Cody, Lieut. HARRY E. MCCORD, Ludlow; from Camp Gordon, Lieut. JOHN B. FLOYD, Louisville; from Camp Zachary Taylor, Major SIDNEY J. MEYERS, Louisville.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Capt. OSCAR E. BLOCH, Louisville.

To Fort Oglethorpe for instruction, Lieut. PETER MEIER, Covington.

Louisiana

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. WILLIAM L. STEWART, Collock.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. ARTHUR L. WHITMIRE, New Orleans.

To Camp Joseph E. Johnston, Jacksonville, Fla., as a member of the tuberculosis examining board, from New Haven, Lieut. BEN R. HENINGER, New Orleans.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. DAWSON T. MARTIN, Acy.

Maine

To Camp Sherman, Chillicothe, Ohio; Camp Custer, Battle Creek, Mich.; Camp Grant, Rockford, Ill., and Camp Zachary Taylor, Louisville, Ky., for conference, and on completion to his proper station, from Camp Gordon, Major WILLIAM L. COUSINS, Portland.

Maryland

To Army Medical School for duty, from Camp Meade, Lieut. RALPH S. STAUFFER, Hagerstown.

To Camp Meade, Admiral, Md., with the board examining the command for nervous and mental diseases, Capt. ANDREW C. GILLIS, Baltimore.

To Fort McHenry, Md., for temporary duty, from Washington, Lieut. FRANK N. OGDEN, Sykesville.

Massachusetts

To Boston, Mass., for duty, Capt. HUBERT T. HOLLAND, Boston.
To Camp Devens, Ayer, Mass., base hospital, Lieut. FRANCIS G. BRIGHAM, Boston. With the board examining the command for nervous and mental diseases, from Camp Upton, Capt. RANSOM A. GREENE, Palmer.
To Fort Oglethorpe for instruction, Lieuts. ARTHUR B. HOLMES, Kingston; ARCHIBALD P. GARDNER, Lowell; WILLIAM L. FRASES, Lynn.
To the inactive list, from Camp Meade, Major SAMUEL J. MIXTER, Boston.
Honorably discharged, Lieut. WILLIAM T. McMAHON, Pittsfield.

Michigan

To Camp Dix, Wrightstown, N. J., for duty, from Camp Pike, Lieut. LEON J. GIBSON, Bay City.
To Camp Gordon, Atlanta, Ga., base hospital, Capt. OTTO L. RICKER, Cadillac.
To Camp McClellan, Anniston, Ala., base hospital, Capt. WILLIAM F. ACKER, Monroe.
To Camp Zachary Taylor, Louisville, Ky., with the board examining the command for nervous and mental diseases, from Camp Wadsworth, Lieut. HEINRICH A. REYE, Detroit.
To Fort Oglethorpe for instruction, Lieuts. MOSE M. HYMAN, Detroit; WILLIAM L. MACCANI, Ironwood.
To Rockefeller Institute for instruction in the treatment of infected wounds, from New York City, Lieut. GLENN B. CARPENTER, Detroit.
Resignation of Capt. BEVERLEY D. HARISON, Detroit, and Lieut. FREDERICK C. THIEDE, Monroe, accepted.

Minnesota

To Army Medical School for duty, from Camp A. A. Humphreys, Lieut. RALPH R. SIMMONS, Rochester.
To Camp Dix, Wrightstown, N. J., for duty, from New Orleans, Lieut. FREDERICK N. BJERKEN, Red Wing.
To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. MONTO C. PIPER, Sanborn.
To Camp Grant, Rockford, Ill., base hospital, from New York City, Lieut. EDWARD V. E. MASTIN, Rochester.
To Camp Jackson, Columbia, S. C., for duty, from Chicago, Lieut. ADOLPH E. DETUNCO, Preston.
To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. GEORGE L. JOHNSON, Newfolden.
To Camp Wheeler, Macon, Ga., base hospital, Lieut. EARL W. GILREY, Minneapolis.

Mississippi

To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. JAMES McE. GUTHRIE, Meridian.

Missouri

To Brownsville, Texas, base hospital, from McAllen, Texas, Lieut. MICHAEL J. OWENS, Kansas City.
To Camp Beauregard, Alexandria, La., base hospital, Capt. GUY TITSWORTH, Sedalia; GEORGE McC. BOTELER, St. Joseph.
To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. ERNEST MITCHELL, La Monte.
To Camp Dodge, Des Moines, Ia., base hospital, Capt. JACOB M. EPSTEIN, FRANK J. KREBS, St. Louis; BUNN A. DUNBAULD, Webb City.
To Camp Greene, Charlotte, N. C., base hospital, from Fort Snelling, Major ROBERT BURNS, Jr., St. Louis.
To Camp Lee, Petersburg, Va., for duty, from Hoboken, Capt. JOHN P. BEESON, South West City.
To Camp Lewis, American Lake, Wash., for duty, Lieut. WALTER C. KLEIN, Kansas City; from Fort Riley, Lieuts. REGINALD C. McD. MILLER, Foristell; FRANK B. HILLER, ARTHUR C. LEONARD, Kansas City; WALDO H. WILL, Mehlville.
To Camp Logan, Houston, Texas, base hospital, Lieut. LUTHER S. JAMES, Blackburn.
To Camp MacArthur, Waco, Texas, base hospital, Lieut. LESLIE E. DEAN, Marysville.
To Camp McClellan, Anniston, Ala., base hospital, Capt. AUGUST G. WICHMANN, St. Louis.
To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. NATHANIEL SAENGER, St. Louis.
To Fort Oglethorpe, base hospital, from Camp Jackson, Lieut. HARRY W. SCHUMACHER, St. Louis. For instruction, Lieut. ELIJAH A. SCOTT, St. Louis.
To Fort Riley for instruction, Lieut. ELMER F. KEARNEY, Oregon.
To Houston, Texas, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. THEODORE S. BLAKESLEY, Kansas City.
To Newport News, Va., for temporary duty, Capt. HENRY H. LOOK, Kansas City.
To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School, for duty, Capt. RUDOLPH BUHMAN, St. Louis.
Resignation of Lieut. GEORGE W. H. PRESNELL, Sikeston, accepted.

Montana

To Camp Grant, Rockford, Ill., base hospital, Capt. FREDERICK M. POINDEXTER, Dillon.
To Camp Lewis, American Lake, Wash., for duty, Lieut. ARTHUR S. NEEDLES, Scobery.
To Fort Riley for instruction, Lieut. GEORGE A. WINDSOR, Livingston.

Nebraska

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. NEILL J. EVERITT, Omaha.
To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. GEORGE H. DEMAY, Wilsonville.
To Fort Oglethorpe for instruction, Capt. ISAAC L. BOGEN, Lincoln.
To Fort Riley for instruction, Capt. JOHN G. W. WESTERHOFF, Carleton.
To Fort Sill, Okla., base hospital, Lieut. JAMES S. McAVIN, Omaha.
To Hoboken, N. J., base hospital, Capt. JUSTUS E. OLSSON, Lexington; Lieut. GEORGE H. WALKER, Lincoln.

Nevada

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. HALLE L. HEWETSON, Las Vegas.

New Jersey

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. RALPH J. VREELAND, Clifton.
To Camp Jackson, Columbia, S. C., base hospital, Lieut. BENJAMIN F. SEAMAN, Raritan.
To Camp Joseph E. Johnston, Jacksonville, Fla., as a member of the tuberculosis examining board, Lieut. SAMUEL BARISHAW, Jersey City.
To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Capt. WILLIAM H. SLOCUM, Long Branch.
To Fort Oglethorpe for instruction, Capt. EDWARD W. MARKENS, Newark.
To Hoboken, N. J., for temporary duty, from Camp Meade, Capt. ROBERT E. SOULE, Newark.
To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Princeton, Capt. ANTHONY C. ZEINDER, Newark.
To report by wire to the commanding general, Eastern Department, for assignment to duty, Capt. CHARLES H. PURDY, Jersey City.
Resignation of Lieut. ERNESTO CASINI, Garfield, accepted.

New Mexico

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. WILLIAM G. BASSETT, Des Moines.

New York

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from Army Medical School, Lieuts. ANTHONY MANGIARCINA, Brooklyn; ABRAHAM B. PEMSLER, New York.
To Camp Custer, Battle Creek, Mich., Camp Grant, Rockford, Ill., Camp Dodge, Des Moines, Ia., Camp Zachary Taylor, Louisville, Ky., and Camp Meade, Admiral, Md., for conference, and on completion to his proper station, from Williamsbridge, Major JOHN E. JENNINGS, Brooklyn.
To Camp Gordon, Atlanta, Ga., base hospital, Lieut. LOUIS F. KNOLL, Brooklyn.
To Camp Jackson, Columbia, S. C., base hospital, Lieut. EDWARD L. FROST, Buffalo.
To Camp MacArthur, Waco, Tex., for duty, from Camp Travis, Major JOHN T. SPRAGUE, Staten Island.
To Camp Meade, Admiral, Md., base hospital, from Hoboken, Capt. MARK L. FLEMING, New York.
To Camp Pike, Little Rock, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. HERBERT ADLER, New York.
To Camp Upton, L. I., N. Y., base hospital, Capt. EDWARD W. JONES, Watertown; Lieuts. JAMES F. CROCE, ARMIN V. ST. GEORGE, New York.
To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. JOSEPH E. NOLL, New York.
To Camp Wheeler, Macon, Ga., base hospital, Lieut. CARL G. ZIMMERMAN, Elmira.
To Cape May, N. J., base hospital, from Camp Upton, Capt. HENRY A. FISHER, Brooklyn.
To Colonia, N. J., for temporary duty, from Fort Oglethorpe, Lieut. ELMER P. WEIGEL, New York.
To Fort Jay, N. Y., for duty, Lieut. MAX J. FEIN, Brooklyn.
To Fort Oglethorpe for instruction, Capt. THOMAS H. ORSER, Cold Brook; Lieut. ROBERT J. SHEA, New York.
To Hoboken, N. J., base hospital, from Camp Hancock, Lieut. BENJAMIN E. CARMEL, Brooklyn; from Camp Upton, Lieut. WILLIAM H. SEWARD, Amsterdam.
To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fort Sill, Lieut. HARRY FRIED, New York.
To New Haven, Conn., for duty, Capt. FREDERICK J. BOWEN, Mount Morris; EDGAR C. JOYCE, New York.
To Plattsburg Barracks for temporary duty, and on completion to his proper station, from Fort Porter, Capt. JOHN GURNEY STOWE, Buffalo.
To report by wire to the commanding general, Eastern Department, for assignment to duty, Capt. CHARLES L. RANDALL, Franklinville; DAVID T. MARSHALL, Hollis.
To Williamsbridge, N. Y., for duty, Capt. CLARENCE C. COR-YELL, New York; NORRIS Z. ORCHARD, Rochester; from Camp A. A. Humphreys, Lieut. JACOB J. STEINFELDER, New York.
Resignation of Capt. JOHN E. VIRDEN, New York, accepted.
The following order has been revoked: To Lakewood, N. J., for duty, Lieut. RANDOLPH WEST, New York.

North Carolina

To Army Medical School for instruction, Lieut. JOHN H. BULLOCK, Oxford.
To Fort Oglethorpe for duty, from Camp Upton, Lieut. JACOB H. ROSZELLE, Salisbury. For instruction, Lieut. RICHARD F. YARBOROUGH, Louisburg.
To New Haven, Conn., for duty, from Camp Lee, Capt. BENJAMIN K. HAYS, Oxford.
To West Point, Miss., Signal Corps Aviation School, for duty, from Camp Sevier, Lieut. JULIUS J. BAREFOOT, Graham.

North Dakota

To Camp Grant, Rockford, Ill., base hospital, Lieut. WILLIAM H. WITHERSTINE, Grand Forks.
To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieut. JOHN A. JOHNSON, Grand Forks.
To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. LESLIE G. EASTMAN, Hazen.
To Fort Riley for instruction, Lieut. CHARLES A. SWANSON, Jamestown.

Ohio

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. EVERETT C. ROBBINS, Cincinnati.
To Camp Crane, Allentown, Pa., for duty, from Fort Riley, Lieut. GALE G. GUTHRIE, Uhrichsville.
To Camp Custer, Battle Creek, Mich., base hospital, Lieut. CLARENCE T. BAHLE, Walnut Creek.
To Camp Devens, Ayer, Mass., base hospital, Lieut. EDGAR C. STEINHARTER, Cincinnati.
To Camp Gordon, Atlanta, Ga., base hospital, Lieut. GEO. M. KRIEGER, Cincinnati.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. CAMERON A. LEATHERMAN, Dayton.

To Camp Kearney, Linda Vista, Calif., base hospital, from New York, Lieut. HENRY SNOW, Jr., Norwood.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieuts. OTTO J. OWENS, Ottawa; CHARLES FABER, Toledo.

To Camp McClellan, Anniston, Ala., base hospital, Capt. FREDERICK W. HITCHINGS, Cleveland; Lieuts. DENEVIN SANDOE, Columbus; ALFRED H. POTTER, Springfield.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. ROBERT G. NOBLE, Columbus; Lieut. WILLIAM H. STEELE, Montpelier.

To Fort Oglethorpe for instruction, Lieut. HORACE D. PRICHARD, Cleveland.

To Fort Sill, Okla., for duty, from Mineola, Lieut. FRANK S. VAN DYKE, Columbus.

To Hot Springs, N. C., for temporary duty, and on completion to Fort Oglethorpe for duty, from Fort Oglethorpe, Capt. HIRAM P. H. ROBINSON, Medina.

The following order has been revoked: To Camp Sherman, Chillicothe, base hospital, Lieut. DAVID H. COLEMAN, Cincinnati.

Oklahoma

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. EDWARD S. WEAVER, Dill.

To Camp Devens, Ayer, Mass., base hospital, Lieut. WANN LANGSTON, Oklahoma City.

To Camp Logan, Houston, Texas, base hospital, Lieut. JOHN B. LEISURE, Watonga.

To Fort Bliss, Texas, as orthopedic surgeon, from Fort Sam Houston, Lieut. JOHN A. WALKER, Shawnee.

To Fort Riley for instruction, Lieuts. ELMER J. REICHLEY, Helena; ISAAC W. BALLINGER, Henryetta; CHARLES B. SEXTON, Stillwater.

To Lonoke, Ark., Signal Corps Aviation School, for duty, from Camp Greene, Lieut. CHARLES D. BLACHLY, Drumright.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. RANDOLPH L. MONTGOMERY, Marlow.

Honorably discharged, Lieut. ROBERT S. RILEY, Hartshorne. On account of physical disability existing prior to entrance into the service, Lieut. WILLIAM J. OMER, Thomas.

Oregon

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Lieuts. ARTHUR W. BOSLOUGH, Ashland; WILLIAM H. POLLARD, Springfield.

Pennsylvania

To Army Medical School for duty, from Camp A. A. Humphreys, Lieut. FRED B. HARRINGTON, Pittsburgh; from Camp Meade, Capt. WILLIAM H. BAILEY, Philadelphia. For instructions, Lieut. JOHN R. DAVIES, Jr., Philadelphia.

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from Army Medical School, Lieut. EDGAR B. SLOTERBECK, Monessen.

To Camp Alfred Vale, Little Silver, N. J., to make nervous and mental examinations, and on completion to his proper station, from Camp Dix, Capt. PERCY DE LONG, Philadelphia.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. CHARLES M. ADAMS, Pittsburgh; Lieut. CLYDE B. LAMP, McKeesport.

To Camp Dix, Wrightstown, N. J., base hospital, Lieuts. HAROLD H. LAMB, Braddock; GEORGE P. MEYER, Philadelphia. For duty, from New Orleans, Lieut. JAMES W. SILLIMAN, Bradenville.

To Camp Gordon, Atlanta, Ga., base hospital, from New Haven, Capt. ISAAC H. ALEXANDER, Philadelphia.

To Camp Sevier, Greenville, S. C., for duty, from Camp Custer, Major THOMAS W. JACKSON, Philadelphia.

To Camp Wheeler, Macon, Ga., base hospital, Lieuts. RALPH E. LEIDY, Boyertown; ERLE G. HAWMAN, Reading; FRANKLIN F. MASSEY, Wernersville. For duty, from Fort Oglethorpe, Lieuts. GUY E. DUTTER, JOHN H. WOOLRIDGE, Philadelphia.

To Fort Oglethorpe for instruction, Capt. ABRAHAM K. WANNER, Reading; Lieuts. RALSTON O. GETTEMY, Keffer; WILLIAM H. KOHLER, Milroy; PERCY A. BAY, Muncy Valley.

To New Haven, Conn., for duty, Capt. JAMES S. CRAWFORD, Pittsburgh.

To Rockefeller Institute for instruction in bacteriology, and on completion to his proper station, from Camp Dix, Lieut. CHARLES W. LUDERS, Cynwyd.

To Williamsbridge, N. Y., for duty, Capt. HARRY H. PENROD, Johnstown.

Resignations of Major HIRAM R. LOUX, Philadelphia; Capt. DAVID C. VOSLER, Ellwood City, and Lieut. ABRAHAM E. OLIENSIS, Philadelphia, accepted.

Rhode Island

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. JAMES M. MCCARTHY, Woonsocket.

South Carolina

To Fort Oglethorpe for instruction, Capt. JAMES L. BOLT, Easley; Lieuts. JOHN S. WIMBERLY, Branchville; LAWRENCE S. FULLER, Jr., Laurens; ALLEN S. BEHLING, WILLIAM S. JUDY, St. George.

Resignation of Lieut. JOHN M. BEARDEN, Laurens, accepted.

South Dakota

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. LYLE HARE, Spearfish.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Capt. JOHN W. BRACKETT, Sturgis; Lieut. DEWEY SUTTON, Redfield.

To Fort Riley for instruction, Lieut. JOHN S. TSCHETTER, Huron.

Tennessee

To Camp McClellan, Anniston, Ala., base hospital, Capt. MATTHEW G. BUCKNER, Nashville.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp Beauregard, Capt. WILLIAM A. CARNES, Memphis.

To Fort L. H. Roots, Ark., base hospital, Lieut. WILLIAM H. NILES, Tellico Plains.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. THOMAS F. MILLER, Knoxville.

Resignation of Capt. WILLIAM P. ATCHLEY, Knoxville, accepted. The following order has been revoked: To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. LEROY S. McMULLEN, Knoxville.

Texas

To Camp Beauregard, Alexandria, La., base hospital, Capt. THOMAS N. GOODSON, San Antonio; Lieut. THOMAS M. JARMON, Terrell.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. WILLIAM C. KIDWELL, Bryan's Mill.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Riley, Lieut. LAWRENCE W. HOLLIS, Abilene.

To Camp MacArthur, Waco, Texas, as assistant to camp surgeon, from Fort Sam Houston, Capt. LYTTON G. AMENT, Victoria. For duty, from Fort Oglethorpe, Lieut. CHARLES M. McMILLAN, Plantersville.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. EMORY W. REEVES, Houston.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. FREDERICK W. FRANCIS, Fort Worth.

To Fort Riley for instruction, Lieuts. BENJAMIN F. RHOADES, Brackenridge; JAMES W. STEVENS, Trenton.

To Prairie View, Texas, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, from Fort Riley, Lieut. ALLEN M. BAKER, Carthage.

To Rockefeller Institute for instruction in bacteriology, and on completion to his proper station, from Camp Hancock, Capt. CHARLES B. McGLUMPHY, Galveston.

Resignation of Lieut. NICHOLAS C. BOETHEL, Leroy, accepted.

Utah

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. GEORGE W. HANKS, Lehi; from New Orleans, Capt. WALTER E. WHALEN, Ogden.

Vermont

To Fort Oglethorpe for instruction, Capt. SIMON G. START, Cambridge; Lieut. HAROLD L. WILLIAMSON, Bristol.

Virginia

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from Army Medical School, Lieut. MARSHALL L. BOYLE, Jr., Richmond.

To Camp Dix, Wrightstown, N. J., for duty, Major SAMUEL B. MOORE, Alexandria.

Washington

To Camp Grant, Rockford, Ill., base hospital, from Vancouver Barracks, Capt. WALLACE A. PRATT, Walla Walla.

To San Francisco, Calif., for duty, from Alcatraz, Calif., Capt. FRANK H. COLLINS, Goldendale.

West Virginia

To Camp Dix, Wrightstown, N. J., for duty, from New Orleans, Lieut. RECE M. PEDICORD, Elm Grove.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. HARRY H. YOUNG, Charleston.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ARTHUR E. BAYS, Barboursville.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. JAMES M. FONTAINE, Charlestown.

To Fort Oglethorpe for instruction, Lieut. BENJAMIN H. HILDRETH, Worthington.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. JAMES W. HARTIGAN, Morgantown.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Fort McPherson, Ga., for duty, Lieut. BOAZ B. COX, Morgantown.

Wisconsin

To Camp A. A. Humphreys, Accotink, Va., with the board examining the troops for tuberculosis, from Camp Laurel, Capt. LEON H. FLANCHER, Milwaukee.

To Camp Grant, Rockford, Ill., base hospital, Capt. HARRY M. KAY, Madison; PHILIP A. FOX, Milwaukee; GIDEON BENSON, Richland Center; Lieut. HUGH C. RUSSELL, Milwaukee.

To Camp Lewis, American Lake, Wash., for duty, from Fort Riley, Capt. ARTHUR E. WINTER, Tomah; Lieut. LOUIS M. PEARSON, Tomahawk.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Capt. CHRISTIAN U. SENN, Ripon. For duty, from Fort Riley, Major WILLIAM W. PRETTS, Platteville.

To Fort Riley for instruction, Lieut. WAYNE A. MUNN, Janesville.

To New Haven, Conn., for duty, Lieut. EDWARD P. ALLEN, Waukesha.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EMMETT W. BOWEN, Watertown.

Danger from Thymol with Thyroid Disease.—A recent article by E. Edens in the *Medizinische Klinik*, 1917, No. 30, is summarized by the *Correspondenz-Blatt* to the effect that severe clinical symptoms from thymol were observed in two cases of thyroid disease. In one woman the thyroid had atrophied, and after taking thymol she developed severe spasms of the esophagus and stomach, with exhaustion and anemia. In the other case a woman of 48 had been growing thin for several years, with lassitude, palpitations, tremor and subfebrile temperature. No benefit was obtained from arsenic, calcium or sodium phosphate. She never had had actual goiter, but her neck had grown smaller in the last year or two. It was found that she had been using regularly for years a thymol mouth wash. After this had been discarded, her symptoms rapidly subsided, while her neck increased to its former size. McCarrison has reported the subsidence of goiter under thymol and Leichtenstern a death after 6 gm. of thymol. But with smaller doses than these, no untoward by-effects have been reported previously, to Eden's knowledge.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. David E. Stafford, San Francisco, has been placed in charge of medical affairs for the United States Shipping Board on the Pacific Coast.—Dr. Susan B. Tallmon Sargent, for several years medical missionary of the Congregational Church of San Jose, has returned after several years' of service in Lint Sing, China.

In the Hands of the Law.—A sentence of ten years' imprisonment in the federal prison at McNeill Island, Wash., and a fine of \$5,000 was imposed by the United States District Court at Los Angeles, July 3, on "Dr." Frank Howenstein, for conspiracy to obstruct the selective draft law. The defendant was alleged to have induced draft registrants to undergo treatment for their eyes which would cause them to be rejected as unfit for military service.—The licenses of the following San Francisco physicians were said to have been revoked by the state board of medical examination and registration: Dr. George W. O'Donnell, convicted of illegal advertising; Dr. William L. Owen, convicted in New York courts of crime involving moral turpitude for which he served in the federal prison, Atlanta; Dr. James Hegyessy, for advertising with intent to deceive, and Dr. Marion Thrasher and Fischer R. Jordan, convicted of aiding, abetting or offering to procure an illegal operation. Dr. Frederick W. F. Riehl, Alameda, is said to have been found guilty of advertising to cure sexual diseases and to have been granted probation for two years. Dr. Frank Duncan was convicted on the charge of malpractice, Dr. Robert D. Shoults of using prefix or suffix tending to show holder to be entitled to practice along other principles, granted probation for two years. Drs. J. E. Thompson and Robert J. G. O'Connell were dismissed, and Drs. Albert P. Woodward and Ephrin Northcott are convicted for aiding, abetting or offering to procure an illegal operation. In these cases adjudgment was suspended until 1920. The board also refused to restore the license, which was revoked some time ago, of Samuel R. Chamley, a so-called "cancer specialist."

COLORADO

New County Society.—Physicians of Otero County met at La Junta recently and organized the Otero County Medical Society, electing Dr. G. W. Phillips, president; Dr. Ward E. Fenton, Rocky Ford, vice president, and Dr. H. G. Sigman, Rocky Ford, secretary-treasurer.

Personal.—The suit of Mary Riccott for \$5,000 damages against Dr. Clement V. Marmaduke, Pueblo, was decided in favor of Dr. Marmaduke, June 20.—Dr. Edward J. Murray, Alamosa, has resigned to accept the position of medical superintendent of the Bluegrass Sanatorium, Lexington.

ILLINOIS

Hospital Dedicated.—The new hospital at Highland Park, erected at a cost of \$100,000, was dedicated with formal ceremonies, July 12. The mayor of Highland Park acted as chairman of the meeting.

Negro Postgraduate Medical School.—It is reported that the Provident Hospital of Chicago, which is a hospital for colored persons, has obtained a charter for a postgraduate medical school for negro physicians.

Healer Found Guilty.—William B. Graves of East St. Louis was found guilty by a jury in St. Clair County for treating human ailments without a state license. The complaint was filed by the department of registration and education.

Personal.—Major Albert E. Halstead, Chicago, M. R. C., U. S. Army, has been promoted to the rank of lieutenant-colonel, National Army, and has been placed in command of Base Hospital No. 53, France.—Dr. Albert I. Bouffleur, Chicago, chief surgeon of the Chicago, Milwaukee and St. Paul system, was seriously injured by the overturning of his automobile near Orick, Calif., July 3.

INDIANA

State Hospital Overcrowded.—The Central Indiana Hospital for the insane has been forced to place on the waiting list all applications for the admittance of new patients within the last month because of the overcrowded condition and the scarcity of labor. There are now more than 1,500 patients in the hospital.

Sanatorium Capstone Unveiled.—The capstone of the new \$150,000 tuberculosis sanatorium, which is being erected by the Allen County Anti-Tuberculosis Society at Fort Wayne, was unveiled, June 30, with impressive ceremonies. The hospital is to be named in honor of Irene Byron, a nurse who lost her life from tuberculosis, contracted while nursing patients suffering from the disease.

Personal.—Major David C. Peyton, Jeffersonville, who has been general superintendent of the Indiana Reformatory for nine years, has resigned to enter the service. He was a medical officer in the Spanish-American War.—Dr. Angus C. McDonald, Warsaw, is said to have had a narrow escape from drowning in Fox Lake, Ill., recently.—Dr. Calvin W. Burket, Warsaw, has accepted the position of chief surgeon of the Soldiers' Home, Lafayette.—Dr. G. H. Wisner, formerly connected with the Methodist Hospital, Indianapolis, has been appointed by the city board of health as medical resident at the City Hospital.

IOWA

Personal.—Dr. Henrietta A. Calhoun has been appointed assistant professor of otology and bacteriology, and Dr. Sarah R. Kelman has been appointed instructor in the same subject, on the medical faculty of the University of Iowa, Iowa City.

Hospital Internship Required for License.—At a recent meeting, the Iowa State Board of Medical Examiners voted that all applicants seeking a license to practice in Iowa after July 1, 1923, shall be required to have completed an intern service of not less than one year after graduation from a medical school in a hospital approved by the Iowa board. This requirement applies to all students beginning the study of medicine after July 1, 1918.

Des Moines Valley Society Meeting.—At the forty-seventh annual meeting of the Des Moines Valley Medical Society, held at Ottumwa, June 27, presided over by Dr. Martin F. Moore, Martinsburg, vice president, in the absence of Dr. Charles H. Magee, who is in the military service, the following officers were elected: president, Dr. Samuel K. Davis, Libertyville, and vice presidents, Drs. Martin F. Moore, Ottumwa, and Taylor R. Jackson, Albia.

Infantile Paralysis in Dubuque.—In an effort to stop the spread of infantile paralysis in Dubuque, the authorities have ordered all the theaters, Sunday schools, playgrounds and other places where children gather to be closed. Since July 4 there have been forty-two cases reported with ten deaths. Dr. Edward C. Rosenow arrived at Dubuque, July 9, with laboratory equipment from the Mayo Foundation, Rochester, Minn., and has started work to check the epidemic.

KENTUCKY

Health Board Troubles.—There are two state boards of health in existence in the state of Kentucky at present. The new board named by Governor Stanley consists of Drs. Carlos A. Fish, Frankfort; George T. Fuller, Mayfield; Josiah G. Furnish, Covington, and H. Harvey Carter, Shelbyville, who are members of the old board, Dr. Argus D. Willmoth, Louisville, and Elijah H. Maggard, Wayland, who are members of the state tuberculosis commission, Dr. Oscar C. Dilly, Louisville, whose name was submitted by the Kentucky Pharmaceutical Commission and the state board of pharmacy, and Dr. Carl Lewis Wheeler, Lexington, and John D. Williams, Ashland, members from the state at large. The tenth member elected by the appointed members is Dr. William L. Heizer, Bowling Green, formerly secretary of the state tuberculosis commission, who by virtue of his office becomes executive officer and secretary of the board. At the first meeting of the board, Dr. Willmoth was elected president, and Dr. Wheeler, vice president. After hearing arguments on July 12 on a motion to dissolve the injunction granted by Judge Stout of the Franklin Circuit Court, enjoining the newly named board of health from performing the duties imposed on it by the legislative act of March 4 last, the Court of Appeals of Kentucky, sitting in special session

in Louisville, took the question under submission, and announced that the injunction would prevail until the matters involved are finally determined by the court. As a constitutional question is involved and the briefs submitted contain numerous references, further time was needed by the court. Under the ruling the new board of health appointed by Governor Stanley is without jurisdiction and the old board of health, of which Dr. J. N. McCormack is secretary, is acting.

MARYLAND

Personal.—The University of Maryland Hospital Unit, which was mobilized at Camp Meade, and is commanded by Major Archibald C. Harrison of Baltimore, has arrived in France.—Dr. Howard Bratton, Elkton, has been appointed physician to the Cecil county jail.—Dr. William S. Thayer, Baltimore, has been made a foreign member of the French Academy of Medicine.

Typhus in Gypsy Camp.—Typhus fever has broken out in a gypsy camp on the outskirts of North East, Cecil County, and three deaths from it have been reported to the state board of health. The malady so far has been confined to one family. Dr. C. Hampson Jones, Baltimore, chief the State Bureau of Communicable Diseases, has placed the entire camp under rigid quarantine.

New Surgical Wards Opened.—Two new surgical wards at U. S. Army General Hospital No. 2, Fort McHenry, were opened, July 12. The wards are for orthopedic patients, and are in charge of Major Samuel C. Baldwin, M. R. C., U. S. Army. Each of the wards will accommodate thirty-six patients and only men with diseases of bones or fractures will be treated. Shops have been erected near the wards in which artificial limbs and braces will be made. Most of the intricate work in the manufacture of these articles will be done by instructors and enlisted men, but patients are being taught much of it.

Paralysis on Increase.—More infantile paralysis appears to be in Baltimore than was supposed from the sporadic cases announced by the health department. Sixteen cases have been recorded at the state department of health since the latter part of April and two deaths have been reported. Eight cases have been reported from the counties. Dr. C. Hampson Jones, Baltimore, chief of the State Bureau of Communicable Diseases, and Dr. John F. Hogan, Baltimore, head of the City Bureau of Communicable Diseases, agree that there is no necessity for taking any drastic measures other than quarantining the infected households.

Intensive Courses in Nursing at Hospitals.—Since the South Baltimore Eye, Ear and Throat Hospital opened limited courses to young women desiring to qualify as hospital aides, the James Lawrence Kernan Hospital for Crippled Children and the Union Protestant Infirmary have opened their doors to a certain number of volunteers who will take a course of training extending over varying periods. The pupils at the Kernan Hospital will be given an intensive training course under the direction of the superintendent and will also serve as nurse maids, learning how to feed, dress and properly handle the little patients, how to put on and adjust their braces and other surgical apparatus. The pupils at the Union Protestant Infirmary will act as aides to the nurses and will assist with convalescent patients. After a month at the Union Protestant Infirmary, they will go to the Children's Hospital School, where they will spend another month. They are subject to the same rules and regulations as pupil nurses. After they have completed their training period they will be subject to call by the Union Protestant Infirmary in any nursing emergency that may arise.

MASSACHUSETTS

Edsall Succeeds Bradford.—Dr. Edward H. Bradford, Boston, for nine years dean of Harvard Medical School and for thirty-eight years a member of its faculty, has resigned to take effect, September 1. He will be succeeded by Dr. David Lynn Edsall, Boston, professor of clinical medicine.

Organize to Solve Public Health Problems.—Representatives of the Health Conservation Association met in the State House, Boston, July 9, and organized the Massachusetts Health Committee, with the following officers: chairman, Dr. Eugene R. Kelley, Boston, state commissioner of health; treasurer, Miss Gertrude Keiberly, vice chairman of the child welfare department of the National Council of Defense, and director, Prof. Charles E. Bellaty, Boston University.

Personal.—Dr. Merrill E. Champion, Wollaston, state district health officer for the eastern district, has been appointed director of the department of hygiene of the state department of health.—Capt. Alec N. Thomson, M. R. C., U. S. Army, Office of the Surgeon-General, Washington, D. C., has been detailed to the state department of health for three months as temporary chief of the subdivision of venereal diseases.—Dr. Mary R. Lakeman has been appointed epidemiologist of the subdivision of venereal diseases.—Dr. Francis X. Mahoney, health commissioner of Boston for eight years, will resume private practice.—Dr. Samuel E. Fletcher, Chicopee, has been appointed medical examiner (coroner) of Hampden County.—Dr. Philip P. Moore, Gloucester, has been appointed medical examiner (coroner) of Essex County.—Dr. Nathaniel R. Perkins, Boston, has been appointed a member of the board of registration in medicine.—Dr. Henry E. Doonan, South Hadley Falls, has been appointed associate medical examiner (coroner) of Hampshire County.

Instruction and Research in Industrial Hygiene, Harvard Medical School.—The Harvard Medical School is prepared to offer courses of instruction in industrial hygiene and facilities to investigate the problems of industry. The school has assurance of sympathetic cooperation through an advisory board of business men consisting of: W. E. McKay, Massachusetts Gas Co., and New England Manufacturing Co., S. Harold Green, Lockwood, Greene Co., and Frank J. Hale, Saco-Lowell Shops. The president of Harvard University has appointed a committee on industrial hygiene which is organized as follows: Dr. David L. Edsall, Boston, professor of clinical medicine; Dr. Reid Hunt, Boston, professor of pharmacology; Dr. Milton J. Rosenau, Boston (chairman), professor of preventive medicine and hygiene, and Dr. Cecil K. Drinker, Woods Hole (secretary), assistant professor of physiology. Under present conditions instruction and research in industrial hygiene will center about chemistry, physiology and medicine, and in these subjects new departments will be created. Courses will also be developed in the pharmacologic, sanitary and social phases of industry, supplementing the work of the school of public health. Fellowships and scholarships are available for those properly qualified. Opportunities will be open to three separate groups as follows: (1) research workers, (2) medical officers for large industries, and (3) inspectors of industries. In view of the war conditions alterations in the above plans may become necessary. For information apply to Dr. C. K. Drinker, Harvard Medical School, Boston.

MICHIGAN

Sanitary Train Hike.—Under command of Lieut.-Col. Lewis W. Bremerman, formerly of Chicago, the 310th Sanitary Train moved out of Camp Custer for a two-day hike. The party consisted of four fully equipped ambulance companies and four field hospital companies.

Personal.—Dr. William R. Vis, Detroit, has been appointed head of the Grand Rapids Municipal Tuberculosis Sanatorium and will be in charge of the tuberculosis work in that city.—Asst. Police Surg. Floyd W. Clements, Detroit, resigned, June 1, to accept a commission in the Medical Reserve Corps.

Ford Hospital Closed.—It is announced that the Henry Ford Hospital, Detroit, was closed, June 15, and that at present ninety employees of the institution are enlisted in various plants of the United States service and of these, forty-two are already active. The hospital has accommodation for 400 patients and will, it is believed, be utilized for the care of wounded and convalescent soldiers.

MINNESOTA

Control of Venereal Diseases.—The state board of health of Minnesota has formed a division of venereal diseases of which Dr. Henry M. Bracken, St. Paul, is secretary and executive officer; Dr. Charles E. Smith, Jr., St. Paul, assistant secretary; Dr. Harry G. Irvine, Minneapolis, director; Mr. L. W. Feezer, assistant director; Dr. Mabel S. Ulrich, Minneapolis, supervisor of social hygiene, and Dr. Charlotte G. Ashbrook, chief social worker. Funds for the administration of this division have been secured. The division will work on the following lines: The passage of laws or regulations and the enforcement of existing laws to make it possible adequately to control all classes of infected persons; the care and control of diseased patients, and the control of the prostitute. The division desires the cooperation of the medical profession in these important matters. Syphilis, gonorrhea and chancroid have been added to the list of reportable dis-

eases, but the names and addresses of the patient need not be reported, providing the physician who is to assume the responsibility of the patient, renders the entire treatment. Each physician has been supplied with pamphlets regarding venereal disease for distribution. Druggists are to be required to report the names and addresses of all persons who apply to drug stores for treatment and the state board is planning to furnish full laboratory facilities both for the Wassermann test and for the examination for the gonococcus, to all physicians who desire them.

MISSOURI

College Not Recognized.—An official report states that at the meeting of the Missouri State Board of Health, held, July 8, recognition was withdrawn from the St. Louis College of Physicians and Surgeons.

State Board Appointments.—The governor, July 9, reappointed Dr. T. Hurly Wilcoxon, Bowling Green; Thomas A. Son, Bonne Terre, and Emmett P. North, St. Louis, members of the state board of health for a period of four years.

NEBRASKA

Personal.—Dr. George H. Brash, Beatrice, is critically ill in a local hospital, with nephritis.—Drs. Charles C. Tomlinson and George A. Young have been appointed assistant health commissioners of Omaha.—Dr. Joseph J. Hompes, Lincoln, has been appointed a member of the advisory board of the state board of health.

Hospital Items.—The city council of Omaha has formally approved the plan of Health Commissioner Manning to establish an internment hospital for women and girls at Twenty-Second Street and St. Mary's Avenue. This hospital has a capacity of sixty beds.—Contracts for the construction of the new Lutheran Hospital, Beatrice, has been awarded. The building will cost \$125,000 and will be completed within eight months.

NEW YORK

Personal.—Dr. Robert P. Bush, Horseheads, was elected medical director of the New York State Department, G. A. R., at its annual meeting, June 27.—Dr. John H. Pryor has been reelected president of the Buffalo Tuberculosis Association.

Long Island Hotel for Army Hospital.—The government has signed a contract by which the Hotel Nassau, Long Beach, L. I., will be taken over early in September for use as an Army convalescent hospital. It is estimated that 2,000 convalescents can be accommodated.

Schools Kept Open During Measles Outbreak.—A recent bulletin of the New York State Health Department points out that it is not always advisable to close the schools in order to control an outbreak of measles. When measles appeared in Kingston, the sanitary supervisor, Dr. Laidlaw, made a survey and found that there had been 355 cases of measles reported to the city health officer. A survey of the schools showed that 83 per cent. of the children in the parochial schools and 79 per cent. of the children in the public schools were immune to measles. The question to be determined was whether it was better to close the schools to 2,268 children who were immune or to watch 756 children who were non-immune. The latter course was decided on. Just as soon as a child exhibited signs of measles he was sent home. By daily visits to the schools, the school physician was able to detect and control the beginning cases.

New York City

Personal.—Dr. Lewis S. Pilcher, Brooklyn, was elected senior commander of the New York State Department, G. A. R., at its annual meeting, June 27.

Shore Drives for Sick Soldiers.—The Brooklyn branch of the National League for Women's Service has opened a home for convalescent soldiers and sailors on the Shore Road at Eighty-Ninth Street, Brooklyn. To this are brought for day's outings convalescent men in the hospitals. Ambulances and private cars go for them in the morning and they are returned in the evening.

OHIO

Personal.—James E. Bauman, assistant commissioner of health of Ohio, has been placed in charge of the office of the state health commissioner during the absence of Major Allen W. Freeman who is in the military service.

Medical Council Named.—Committees constituting a city medical council to assist in developing a city wide system

of medical service and education in connection with the social unit plan were named, July 1, and the meeting held at the Cincinnati General Hospital which was attended by sixty physicians represented various branches of medicine. Dr. John H. Landis, health officer of Cincinnati, appointed in charge of the temporary organization of these committees Drs. J. Victor Greenebaum, William D. Porter, E. Otis Smith, John D. Miller, David I. Wolfstein, Robert Carothers, William Mithoefer, Sidney Rauh, Edwin W. Mitchell and Willard D. Haines.

Control of Venereal Diseases.—Ohio is the thirteenth state to centralize its activities for the control of venereal diseases by placing them under a separate bureau in its state health department, according to a statement from the Ohio State Department of Health. Such a bureau has been in operation for several months and is carrying on educational work throughout the state and is encouraging the local health departments of the state to enlist in the campaign. The new venereal disease regulations that went into effect, July 1, are expected to aid in the campaign by increasing the health officials' knowledge of the prevalence of venereal infections and by providing for the isolation of infected persons who are likely to menace the public health. The new regulations require reporting of all cases of venereal diseases, with name of patient and probable source of infection, by physicians, dentists, hospital superintendents and heads of various institutions. Medical examination of prostitutes and others suspected of having a venereal disease is provided for, and quarantine of diseased persons, where such quarantine is deemed necessary by the state commissioner of health, is required.

OREGON

Personal.—Lieut. Albert A. Grossman, M. R. C., U. S. Army, Portland, attached to the Sixty-Second Battalion, Machine Gun Corps, British Expeditionary Forces, has been awarded the military cross by King George.

Medical Board Elects Officers.—At a recent meeting of the Oregon State Board of Medical Examiners, the following officers were elected for the ensuing year: Dr. Urling C. Coe, Bend, president; Dr. Frank E. Smith, Portland, treasurer, and Dr. Frank W. Wood, Portland, secretary.

PENNSYLVANIA

Lehigh Valley Association to Meet.—The annual meeting of the Lehigh Valley Medical Association will be held at Kittatinny, Delaware Water Gap, July 25, and the principal address will be delivered by Dr. Ernest LaPlace of Philadelphia on "Focal Sepsis in Relation to General Practice."

Quarantine at Allentown.—On account of the epidemic of measles in Allentown, a quarantine has been ordered affecting all children under 16 years of age. They are forbidden to attend Sunday school, church, or to go to any such public places as playgrounds, moving picture shows and parks. The playground system, which was to have opened, July 4, has been postponed. During June there were 789 cases of measles in the city.

Baby Saving Exhibit.—Two traveling teaching exhibits, under the direction of the state health department at Harrisburg, have been opened, one at Willow Grove Park, Philadelphia, and the other at Pittsburgh, to instruct the public on many important matters relating to health hygiene and sanitation, particularly toward baby saving. The exhibit at Willow Grove is in charge of Dr. William C. Miller, Harrisburg.

Personal.—Dr. Edward R. Walters, formerly director of health and charities at Pittsburgh, has been appointed medical adviser to the state workmen's compensation board of the western Pennsylvania district, with headquarters at Pittsburgh.—Dr. Roscoe F. Mauser, Fountain Springs, former resident surgeon at the Shamokin City Hospital, but who has been in service in France for two years, first with the French ambulance corps and later with the American ambulance corps, has been awarded the Croix de Guerre.

Philadelphia

Personal.—Dr. Wilmer Krusen, director of public health and charities, has been forced to drop his work because of a severe attack of tonsillitis.—Dr. William Wayne Babcock has been made a lieutenant-colonel and is stationed at the U. S. General Base Hospital No. 6, Fort McPherson, Atlanta, Ga.

SOUTH DAKOTA

Personal.—The state university at Vermilion has bestowed the degree of LL.D. on Dr. Leonard C. Mead, superintendent of the State Hospital for the Insane, Yankton.—Dr. Albert Sherrill, Sioux Falls, director of the hospital at Fort Crook, Omaha, is reported to be in a serious condition as the result of injuries received in an automobile accident.—Dr. William F. Keller, health officer of Sioux Falls for ten years, has resigned.

TENNESSEE

Hospital Site Purchased.—A tract of 159 acres of land has been purchased near Oakville as a site for the Shelby County Tuberculosis Sanatorium, which will be known as the Oakville Memorial Sanatorium.

Colored Physicians Elect Officers.—At the annual meeting of the Volunteer State Medical Association, held in Clarksville, last month, Dr. Charles A. Kelley, Clarksville, was elected president, and Dr. J. H. Hale, Nashville, secretary.

Campaign for Base Hospital.—The women of Memphis are making plans for a vigorous drive to secure \$50,000 to be used by the Base Hospital No. 57, the Memphis Unit to provide extra care and attention for the sick and wounded soldiers. Mrs. A. S. Buchanan, Memphis, is chairman of the committee.

Personal.—Mrs. John Hill Eakin has been elected president of the state board of charities succeeding Dr. I. Lewenthal who was elected vice president.—Dr. William H. Bruce, a retired practitioner of Mount Pleasant, is seriously ill from an overdose of poison which he took accidentally in mistake for quinin.—Dr. Rufus E. Fort, Nashville, has resigned from the vital statistics bureau of the state board of health.

TEXAS

Personal.—Dr. S. L. Ingham, Canyon, while visiting Hampton, Iowa, was taken ill with appendicitis and was operated on at the Lutheran Hospital in that city, June 19. He is making satisfactory progress toward recovery.—Drs. Hiram B. Henry, Jacksonville, and Aleck P. Harrison have been appointed field directors of the bureau of rural sanitation of the Texas State Board of Health.

Prohibits Venereal Advertisements.—A new law has been passed in Texas which prohibits the advertising of remedies for venereal diseases and advertisements in which such diseases are mentioned or which direct the attention of the public to an office or person where such medicine or treatment may be obtained. A fine is provided for the publishing, delivering or distributing of such advertisements, as well as for those who permit placards or posters containing such information to remain on buildings controlled by them. The law is distinctly aimed at the male specialists and remedies for male diseases.

VIRGINIA

Society Suspends Meetings.—The board of directors of the Southwestern Virginia Medical Society has decided to discontinue meetings of the society until after the close of the war.

Personal.—Dr. William A. Brumfield, Richmond, who has been appointed acting assistant surgeon, U. S. P. H. S., will be in charge of the venereal disease campaign with headquarters in Richmond.—Dr. Robert L. Wilkins, Alexandria, has been reelected state commander of the Knights of Macca-bees, and Howard Urbach, Richmond, has been elected state physician.

CANADA

Academy Election.—The Academy of Medicine, Toronto, elected the following officers at its annual meeting: president, Col. Alexander Primrose, C. B.; vice president, Dr. Edmund E. King; secretary, Dr. Jabez H. Elliott, and treasurer, Dr. J. Herbert McConnell.

Venereal Disease Regulation.—The provincial board of health of Ontario has issued a volume of regulations in pamphlet form, respecting venereal diseases, including suggested plans of treatment for the guidance of medical practitioners. Secrecy is emphasized with regard to all matters that may come to the knowledge of the practitioner.

Housing Committee Appointed.—The Ontario government has appointed a housing commission, of which Sir John Willison is chairman. It is said that in Toronto alone 25,000 extra houses will be needed to accommodate Toronto's population in the months of the coming winter. The medical officer

of health has placed himself on record as being opposed to the erection of departmental houses.

When Prescribing of Liquor Is Proper.—The Ontario Medical Council is advising physicians on the roll of membership of the College of Physicians and Surgeons that "the giving of orders by medical men for the obtaining of alcoholic liquors is justified in any case in which the medical man is satisfied, 'of his own knowledge' that the use of alcoholic liquor is necessary and proper for the treatment of the patient."

Personal.—Col. Harold C. Parsons has arrived home in Toronto from overseas.—Col. Clarence L. Starr, Toronto, has returned from London, England, where he has been doing special orthopedic surgery in a military capacity.—Dr. T. R. Elliott, London, England, is mentioned as a likely appointee to a professorship in research medicine in the medical faculty of the University of Toronto.—Col. John M. Elder, Montreal, has been created a Companion of St. Michael and St. George.—Dr. Frederick N. G. Starr, Toronto, is spending a two months' vacation in the Maritime provinces.—Dr. David M. Mathieson, major and senior adjutant of No. 2 District Demobilization Depot at Toronto, has resigned. Dr. Mathieson was overseas with the Canadian engineers. He was for a time officer in command of the Spadins Avenue Military Hospital, Toronto.—Major Edward Shapter Jeffrey, Toronto, has been made deputy assistant director of the medical corps in Toronto.—Capt. Calvin A. Ames, C. A. M. C., of the base military hospital, Toronto, has been attached to the aeronautical school in that city.—The Hon. Dr. Henri S. Beland, M. P., St. Joseph de Beauce, Que., formerly postmaster-general of Canada, who has been a prisoner for more than three years in Germany, recently arrived in England from Holland. He will sail for Canada in the near future.

GENERAL

Harvard Alumni Election.—At the annual meeting of the Harvard Alumni Association, Dr. Henry Jackson, Boston, was elected president, and Dr. William C. Quinby, Baltimore, secretary-treasurer.

District Society Meeting.—The Iowa and Illinois Central District Medical Association held a meeting at the Outing Club, Davenport, Iowa, July 11, at which Major John M. Dodson, dean of the College of Medicine of the University of Chicago, delivered an address on "The Medical Profession and the War."

Sisters of Charity Organize Base Hospital.—The American Sisters of Charity, for the first time since the war began, have enlisted as war nurses. St. Vincent's Hospital of Birmingham, Ala., has organized the Loyola Unit, known as Base Hospital No. 102, which is being outfitted in New York. The sisters wear the habit of their order, but otherwise follow Red Cross rules.

Jurisprudence Society Ends.—The majority of the members of the American Association of Medical Jurisprudence have filed a petition in the Supreme Court for dissolution of the corporation. The petition shows that the membership has decreased from 200 to twenty-three, and that there is a general lack of interest in the organization. The judge signed an order directing all persons interested to show cause, July 30, why the corporation should not be dissolved.

Sioux Valley Academy Not to Meet.—Dr. Lorenzo N. Grosvenor, Huron, S. D., secretary of the Sioux Valley Eye and Ear Academy, announces that there will not be a meeting of the academy at Omaha, July 25, as previously announced, on account of the number of members of the academy who are in active military service, the difficulty of securing papers, and the nearness of the meeting to that of the American Academy of Ophthalmology and Otolaryngology and the Fourth Colorado Ophthalmological Congress at Denver, August 5 to 7.

Bequests and Donations.—The following bequests and donations have recently been announced:

Harvard Medical School, a donation of \$25,000 by an anonymous benefactor to establish a scholarship to bear the name of Dr. Edward H. Bradford, Boston, dean of Harvard Medical School.

Mt. Sinai Hospital, New York City, \$25,000, and United Hebrew Charities, New York City, \$10,000, by the will of Meyer H. Lehmen.

Saranac Lake, N. Y., General Hospital, about \$1,000, the proceeds of a baseball game and circus.

Holy Ghost Hospital for Incurables, Boston, \$24,000, and the residue of his property after certain other public and private bequests have been made, and Carney Hospital, South Boston, \$1,000, by the will of Dr. John E. Somers, Cambridge.

FOREIGN

Scarcity of Gasoline in Switzerland.—The authorities of Switzerland by an order dated July 14, 1917, restricted the purchase of gasoline for motor vehicles to persons provided with a permit from the county (canton) testifying to their need for the use of a motor vehicle in the practice of their profession, and further provided with a gasoline ration card, to be renewed monthly.

Organization of Medical Men in Spanish Parliament.—The physician and pharmacist members of the lower house of parliament in Spain have organized, with Dr. F. Rodriguez at the head. They meet to discuss questions affecting the two professions in particular, and to seek to influence legislation in matters affecting the public health. The members include Drs. Pi y Suñer, Gil, Gimeno, Villamil, Llanos and Villalobos, the latter acting as secretary. Eleven physicians in the upper house have also appointed a committee for a similar purpose. This committee consists of Drs. Cortezo, Gimeno and Pulido, and it is expected to cooperate with the organized medical men in the lower house. The *Medicina Ibera* in commenting on this organized action in favor of improved public health legislation and of matters affecting the profession, urges physicians throughout the country to sustain the efforts of these parliamentary groups so that their work may be crowned with success. The *Siglo Medico* comments that, although only in its incipency, it looks as if a serious campaign on behalf of matters affecting the public health had now been started by the medical members of the two houses of parliament.

Deaths in the Profession Abroad.—N. Achucarro of Madrid, noted for his works on the histopathology of the nervous system, member of the editorial staff of the *Siglo Medico*, aged 37.—Lieut.-Col. H. Moore of Dublin, aged about 46, who succumbed to the effects of wounds at the front.—F. Ortega of the City of Mexico, stabbed in the abdomen by bandits as he was leaving his home to answer a late call.—The *Nederlandsch Tijdschrift* mentions the death of A. Kolisko of Vienna, professor of pathologic anatomy, and the *Norsk Magazin* reports the death of L. Etinger, a pioneer in the field of the comparative anatomy of the brain, director of the Neurologic Institute at Frankfurt-on-the-Main, aged 63.—The death is reported of Leopold Meyer, professor of the diseases of women and children at the University of Copenhagen and one of the leading obstetricians of Denmark and of the world. He has published, among others, authoritative works on normal and on pathologic pregnancy, parturition and childbed, on the menstruation process and its pathologic variations, and completed in 1915 a large manual of obstetrics for physicians and medical students. Meyer was a familiar figure at international medical gatherings and is said to have visited America as early as in Sayre's and Emmet's day.

MEXICO

The Medical Toll of Typhus.—The sanitary inspector of the Mexican National Public Health Service, Dr. J. Garcia, is another medical victim of typhus.

Medical Director of General Hospital.—Dr. R. Carrillo, professor of obstetrics and midwifery, has been appointed director of the General Hospital of the City of Mexico.

Society Organized in Mexico to Combat Blindness.—Dr. Vasconcelos announces in the *Universal* the foundation of an organization to combat blindness. The director of the school for the blind in the City of Mexico, Dr. J. J. Izquierdo, is the secretary of the new society which is called the Comité para combatir la ceguera. The other officers are leading women.

The Booklets of the Mexican Preventive Association.—Dr. E. Landa is the author of the booklets for workingmen and for mothers and teachers, destined to enlighten youth and the heedless in respect to the dangers of venereal diseases. The pamphlets were issued under the auspices of the Sociedad Mexicana Sanitaria y Moral de Profilaxis de las Enfermedades Venereas in 1914 and are being widely distributed.

Representative Medical Journal to be Founded in Mexico.—At the last national medical congress in Mexico, it was voted to found a medical journal in which to publish the works of Mexican physicians and surgeons and to keep them informed of the progress of the medical sciences in other lands. The executive committee, preparing for the approaching medical congress, the sixth, has ratified this decision, and Dr. Francisco Bello of Puebla has been appointed general manager of the new enterprise.

CORRECTION

Article by Rieger and Solomon.—In the article entitled "The Circulation of Arsenic in the Cerebrospinal Fluid," by Drs. John B. Rieger and Harry C. Solomon, *THE JOURNAL*, July 6, page 15, the abbreviation "mg.," used to denote the amount of arsenic found, should read "mmg.," denoting micromilligram instead of milligram.

PARIS LETTER

PARIS, June 14, 1918.

Physical Education and Athletics for the Young

In the course of a recent manifestation in favor of physical education, organized at Bordeaux, M. Henry Paté, deputy, delivered a very interesting address in which he stated that he and some of his colleagues in the house of deputies had decided to participate actively in the physical education and athletics of the young, in accordance with the following program: 1. To adopt a general method of rational physical instruction, based on a knowledge of the physical needs of the subject, the specialization of the work, and the attraction of the exercise. 2. To create regional schools and a superior school destined to create and to maintain a unity of methods. 3. To open these schools to the physical instructors of the army, to the monitors of the preparation for military service, and to the instructors of both sexes. 4. To direct the young toward outdoor exercises, giving them free places, playgrounds and vacation camps. 5. To encourage the work of private societies and to assist them freely. 6. To obtain (a) the simplification of school programs, which are frightfully overloaded and tend to destroy energy; (b) the introduction of a physical test in all examinations; (c) the institution of outdoor schools and open air or outdoor colonies for the physically abnormal children, and (d) the complete reorganization of school medical inspection. 7. To assure the employment of special professors of gymnastics. 8. To demand legislation providing for obligatory postgraduate instruction and the introduction of the eight-hour day (*la semaine anglaise*), so as not to injure the professional work of the adults, or their apprenticeship, or reduce the wages to which they may aspire. 9. To give a larger place in the training for military service to physical education and athletics, as a base for the future reorganization of the army and of the recruiting laws.

In order to solve these multiple problems there has been appointed a Comité national de propagande pour le développement de l'éducation physique et sportive, de l'hygiène sociale et de la rénovation de la race. This committee will cooperate closely with the public authorities, the universities, the faculties, the commercial centers, industrial centers, financial powers and the press.

Medical Treatment of Wounds of the Thorax

Dr. P. Delaunay reported to the Réunion médico-chirurgicale de la IV-e Armée forty-three cases of penetrating wounds of the chest caused by shell fragments and grenades, in eight of which there were associated lesions of *l'étage supérieur*. There were only five deaths in this whole series, four occurring almost immediately. The treatment of these cases was as follows: Treatment of the initial shock; no surgical intervention. The projectile was not sought, unless it was situated in the parietal wall and easily accessible. In cases of multiple wounds demanding immediate operations on limbs, resort was had to cocaine anesthesia so as to avoid shock. As for hemothorax, pleural or pulmonary suture was not done, and the necropsy findings showed that any such intervention would have been a failure. In only one case was a late puncture made. In only four cases was a pleurotomy necessitated by pleural infection. Two patients who had a grave pleural septicemia, but were cured, seemed to be benefited by a fixation abscess. Although pleural complications were infrequent, pulmonary complications were quite numerous. In cases of pulmonary reactions manifested around the projectile tract, Delaunay applied pulmonary antisepsis: (1) the daily administration, by mouth, of a fluid mixture containing from 0.25 to 0.50 cg. of eucalyptol or 2 or 3 gm. of sodium thiosulphate (hyposulphite); (2) inhalation of eucalyptol spray; (3) intratracheal instillations, daily, of 5 c.c. of 5 per cent. of eucalyptus in oil; these instillations are tolerated well, the patient lying on the injured side for some minutes afterward. The fever was lessened; the expectoration was rapidly and desirably modified. In all these conditions the patient was freed from

immediate danger, and if indications developed, could be operated on later.

At What Age Should Infants Be Vaccinated?

It is generally claimed that the new-born are not susceptible to vaccination; therefore, an official circular, dated Aug. 7, 1903, ordered that children should not be vaccinated before the age of 3 months. The application of this measure has proved very inconvenient. In the maternities, the women recently delivered stay in the institution only a few days after their delivery, and the new-born are thus taken away from these services without having been vaccinated. This renders it difficult to enforce the law. The obstetricians of the hospitals, notably Professor Pinard, have deliberately disregarded the law, and have been vaccinating all infants born in their service, during the first few days of life. This practice has yielded results completely at variance with previous beliefs; it makes it possible to protect all the little ones against variola. It is all the more urgent at this time because they can contract the disease precociously. As proof of this statement may be cited the recent case of a Paris child, 2 months of age, which was not vaccinated, and which succumbed to smallpox. Therefore, Professor Wurtz, chief of the Vaccine Institute, suggests that all children be vaccinated for the first time between the ages of 10 days and 3 months.

LONDON LETTER

LONDON, June 18, 1918.

The Calling Up of Physicians for Military Service

The government has issued a statement to the medical profession of the present position as regards physicians who are liable to military service. Physicians are required in the army for the practice of their ordinary profession, and it can only be under exceptional conditions that a physician will not be of more use to the army in this capacity than in any other in which he can there be employed. Physicians in the army always hold commissioned rank and have a higher rate of pay from the outset than most officers when first commissioned. It follows that the financial sacrifice entailed on a physician in joining the army is distinctly less than that required of most persons of corresponding pecuniary circumstances in civil life when called up. Through special arrangements made partly by their professional colleagues, and partly by public authorities and others employing physicians, those who have joined the army have usually received a higher proportion of their ordinary income, and have enjoyed a better prospect of returning to their former position, than have other citizens of like financial position. The number of physicians required by the military authorities for ministering to the needs of the army greatly exceeds the number ordinarily available for treating the same number of persons in the civil community; and thus recruiting from the medical profession has been, proportionally, much greater than from the community as a whole. Moreover, the burden of recruiting has up to now fallen especially on particular areas which contained large proportions of the younger men. These were, in many cases, the very areas which, under conditions existing prior to the war, had the smallest supply of physicians in proportion to population; and many such areas are important industrial centers now engaged in essential war industries.

In view of these considerations and of the fact that a certain minimal standard of medical service is vital to the civil community and therefore to the continuance of the national effort in the war, it was recognized early in the war that the interests, not more of the profession than of the community, required that bodies, both central and local, representative of the profession, should be closely associated with the government departments concerned in selecting physicians for military service. Thus physicians have had the great advantage that in the process of deciding whether they should be called up their circumstances have been assessed almost exclusively by representative bodies of their own profession. While recruiting was voluntary, certain central professional committees, the Central Medical War Committee in England and Wales, the Scottish Medical Service Emergency Committee in Scotland, and the Irish Medical War Committee in Ireland, were constituted bodies representative of the profession. There was subsequently added to the Central Medical War Committee the Committee of Reference, appointed by the Royal Colleges of Physicians of London, and of Surgeons of England, to deal with the question of the medical staffs of the London hospitals. Local medical

committees were also formed, being elected by the local profession. When compulsory military service was enacted, the Army Council decided to recognize the professional committees to deal with cases of physicians claiming exemption on grounds other than that of conscientious objection, with power to make recommendations binding on the tribunals. Arrangements were concurrently made by the Army Council whereby physicians who did not exercise their right of claiming exemption would nevertheless not be called up until the appropriate professional committees advised this. Under these various arrangements, considerable numbers of physicians were called up and provision was made for carrying on their civil work. Successive representations made by the committees to the government indicated, however, increasing difficulty in carrying out this task, notwithstanding the fact that considerable numbers of physicians remained in many parts of the country in excess of the apparent needs of the civil community in those places. The factors producing this anomalous position were: (a) the fact that compulsion for military service extended only to those under the age of 41; (b) the great difference in different localities in the proportion of physicians under this age; (c) the fact that there was no obligation on physicians to undertake work in civil life as substitutes for younger physicians who might thus be made available for the army, and (d) the difficulty, under a voluntary system, of inducing a sufficient number of physicians over 41 to undertake substitution work (whether at a distance or in their immediate neighborhood) when necessary for the release of younger men. This apparent unwillingness was not due to want of patriotism or of *esprit de corps*. As so often happens in connection with purely voluntary service, the unwillingness of a small number to accept their fair share of a common burden made it impossible to bring into operation arrangements in which the majority would gladly have concurred could they have been made applicable to all. Presumably these conditions led the Central Medical War Committee and the Committee of Reference to pass, in December, 1916, a resolution approving of "the principle of mobilization of the medical profession apart from any question of general mobilization of the whole community, so that every physician shall give such service as he can when required to do so by the state." Matters then rapidly reached the stage at which no substantial additional number of physicians could be obtained for military service under existing powers and conditions. When the necessity arose for the passing of the recent military service act, it became necessary to raise the age of compulsory military service for physicians to 55 years. Under the regulations now issued, the committees, instead of being (as heretofore) technically advisory to tribunals, are constituted the tribunals by which applications by physicians for exemption will be considered. Applications for exemption may be lodged on the following grounds: (a) That it is expedient in the national interest that the physician, instead of being employed in military service, be engaged in other work in which he is habitually engaged or wishes to be engaged, or if he is being educated or trained for any work, that he should continue to be so educated or trained. (b) That serious hardship would ensue if he were called up for army service, owing to his exceptional financial or business obligations or domestic position. (c) Ill health or infirmity. (d) Conscientious objection to the undertaking of combatant service. The tribunals may grant absolute, conditional or temporary exemption on grounds of personal hardship or ill health, or of conscientious objection; but when the ground of exemption is occupational, only conditional exemptions will be granted, the condition being that the physician if not required for military service shall give his services to the civil community in such manner as the minister of national service deems best. He will be required to undertake work according to his age, state of health, the kind of work in which he is engaged and to which he is best fitted, and his financial circumstances. If some of the physicians in a particular district can be spared without substantial detriment to the population, they can be used to release for military service physicians in their own or in other districts. It will be no longer possible, therefore, for a physician to obtain exemption from military service on occupational grounds unless he undertakes to render his professional services in such place and under such conditions as the government thinks best. The probability is that most physicians will not be required to undertake additional work outside their own locality; but they must be prepared to accept the eventuality of military service or substitute service of any kind which the minister of national service after consultation with the Central Professional Committee deems best.

The German Bombing of Hospitals

The following are the official figures of the casualties due to the bombing of hospitals in France by the Germans from May 15 to June 1: killed: officers, 11; other ranks, 218; nursing staff, 13; civilians, 6; wounded: officers, 18; other ranks, 534; nursing staff, 18; civilians, 23, making a total of 841. During the period mentioned the hospitals were bombed seven times. A graphic account is given in the *Daily Telegraph* by Mr. Roland Hill, Canadian official correspondent, of the destruction of another Canadian hospital in an area never used for military purposes, the roofs being painted with great red crosses. One three-story wing, 200 yards long, was cut in half by a huge bomb and then caught fire. The operating room was working at high pressure, as some badly wounded patients had just been brought in, and the entire staff, physicians, nurses and patients, were buried under an avalanche of débris. In a few minutes the whole operating section was a flaming tomb, and bursting tubes of ether and hydrogen added to the ghastliness of the scene. Two other surgical teams fortunately had just gone off to their midnight supper, or the casualty list of surgeons would have been far heavier. The murderous intentions of the airmen is shown by the testimony of the matron that they used flares which lighted up everything. Not satisfied with dropping bombs, they flew low and used machine guns on the escaping refugees. During these horrors the nurses neither showed fear nor thought for themselves. The chaplain of one of the bombed hospitals told the king that they even refused to avail themselves of the protection of getting under the beds. They did their best to cheer and comfort the wounded, and gave them pillows with which to cover their heads. Many paid for their pluck by being maimed.

American Naval Hospital in London

The American Navy is to have its own hospital in London. For this purpose Mrs. Guest, wife of Captain Guest, M.P., has transferred to the American Red Cross her residence at 26 Park Lane, known as Alford House. Mrs. Guest before her marriage was Miss Amy Phipps of Pittsburgh. The house will contain fifty beds and will provide for both officers and men. The surgeons and attendants will be from the medical Corps of the United States Navy. On the official records the new institution will be known as "American Red Cross Hospital No. 25." It will be the twenty-fifth hospital which the American Red Cross has established in England. During the first three years of the war Mrs. Guest used her house as a private hospital for British officers.

The Reorganization of the Staff of the Metropolitan Hospitals

The minister of national service has approved a recommendation of the committee of reference that in order to provide more physicians for service in the army while at the same time safeguarding the interests of the civil community, the hospitals in the London area shall be arranged in groups, and that a sufficient staff of physicians shall be reserved to maintain the medical service of each group. Many physicians and surgeons are now serving at hospitals in various parts of London, involving long journeys, waste of time, and consequently loss of energy; and at the same time there are others both of military age and over that age who are capable of doing, and willing to do, more hospital work than they are now doing. Every member of the staff of a hospital will be asked to supply the committee of reference with a detailed statement of the hospital work and other work of a national character that he is now fulfilling, on a blank sent him for the purpose. This information will be tabulated and an analysis made of the amount of service rendered by each member of a hospital staff. From this analysis the committee will be in a position to advise the minister of national service as to the number of physicians of military age who must be considered indispensable to the civil community and who should in consequence be retained in civil practice. It may be necessary, in order to obtain the fullest benefit of a physician's service, to transfer his work from a hospital in one group to a hospital in another group as a temporary arrangement for the duration of the war. Each physician will be asked to sign a declaration that, if it is considered desirable in the national interest, he will agree to serve on the staff of any hospital or hospitals to which he may be assigned by the minister of national service on the recommendation of the committee, and at the same time to discontinue his services at any hospital where he may now be acting as a member of the staff. An appeal will be made to those mem-

bers of hospital staffs who are over military age, to those who hold *à la suite* commissions in the army, and to those who have been medically rejected for service in the army or are otherwise excepted from liability under the military service acts, to assist by their cooperation in making this scheme a success.

The Loss of Potential Lives Due to the War

In a lecture at the Royal Institute of Public Health on "The Effects of the War as Shown in Vital Statistics," Sir Bernard Mallet said that in England and Wales the births registered in 1913 numbered 881,890. In 1915 they fell to 814,614. In 1916 there was a further fall to 780,520, the slowness of the fall from the previous year being due to the boom in marriages in 1915, when the number celebrated reached the "record" figure of 360,885. In 1917 the births fell to 668,346, a decline from the 1913 figure of 24 per cent. Up to the present we had lost in England and Wales in potential lives, on the standard of 1913, 650,000. He thought that it would be long before the birth rate reached even the figure that obtained before the war. Serious as this loss is to the coming generations in our country, there is reason to believe that we have suffered less than the other belligerents. In terms of percentages of loss on the prewar population, Germany has lost in potential lives the equivalent of 4.5 per cent. of its total prewar population, Austria 5 per cent., and Hungary 7 per cent. Sir Bernard Mallet calculated that the present war has cost the belligerent countries of Europe not less than 12½ millions of potential lives. While the war has filled the graves, it has emptied cradles. At the present time, every day that the war continues means the loss of 7,000 potential lives to the United Kingdom, France, Italy and the Central Empires. Race suicide among European peoples on a colossal scale is the outstanding result of German militarism.

Extension of Food Rationing

State control of the distribution and consumption of food is to be carried a stage farther by the introduction of national ration books (instead of the present cards). The new scheme coordinates and simplifies the national and local measures of rationing already in operation, and prepares the way for any necessary development. It also enables the minister of food to put into operation arrangements intended to secure the smoother working of the rationing machinery and to make provision for supplementing or varying the rations in cases in which the existing system applies unfairly. After July 14, there will be national rationing of sugar, butter, margarin, lard, butcher's meat, and bacon. Tea will not at present be rationed nationally, but local authorities may enforce their own schemes, and may also ration in their areas cheese or other articles. Provision is made for the rationing of jam if this should become necessary, owing to the partial failure of the fruit crop. An interchange of rations as between meat and fats will be allowed to vegetarians and Jews. The granting of supplementary rations of meat and fats to invalids will be decentralized, and the extra ration may be allowed in respect of illnesses other than tuberculosis and diabetes. Simplified methods of using ration coupons during temporary absences from home have been devised. Soldiers and sailors on leave will be provided with ration books for the period.

National Council for Combating Venereal Diseases

The third annual meeting of the National Council for Combating Venereal Diseases has been held. Lord Sydenham, who presided, said that the council had fifty-four branches. In the year, 1,323 lectures to civilians had been arranged by the branches, as well as 168 lectures by the central body in areas which the branches did not cover. A central council had been established in South Africa, and it was hoped that shortly Canada and every state in Australia would follow suit. In Bombay there was also an affiliated branch. The council is in communication with the war office on the difficult problem of demobilization. Mr. Hayes Fisher, president of the Local Government Board, said that 135 local authorities in this country had arranged for laboratories, and 136 had submitted schemes, under the regulations of which 127 had been approved. The hospitals treating these cases numbered 124, and all were provided with free supplies of arsphenamin for the treatment of syphilis by physicians. The returns for 1917, the first full year of the system, were not yet complete, but, so far as they went, they showed that 22,000 cases had been dealt with in these hospitals, and that there had been 197,000 visits to the outpatient departments.

Deaths

Lieut. William Gordon Herrington, M. R. C., U. S. Army, Nunez, Ga.; Medical College of Georgia, Augusta, 1912; aged 34; a Fellow of the American Medical Association; was killed in action in France, June 6. At a meeting of the medical officers of the Second Division, American Expeditionary Forces, held at La Ferte-sous-Jouarre, June 23, a committee of medical officers of the division presented the following resolutions:

Whereas: Our fellow officer and colleague, Lieut. William G. Herrington, junior surgeon of the 3rd Battalion of the 23rd U. S. Infantry, was killed in action, June 6, 1918, while, under heavy shell fire, he was attending wounded with utter disregard for his own safety, thus giving clear evidence of his marked courage and fearlessness, and so giving his life cheerfully and gloriously in the defense of his country. Be it resolved that: We, the Medical Officers of the Second Division of the American E. F., hereby express our deep appreciation of Lieut. Herrington's splendid display of loyalty and unselfishness in the performance of his duty.

Albert William Myers, Milwaukee; University of Pennsylvania, Philadelphia, 1898; aged 46; a Fellow of the American Medical Association; associate professor of pediatrics in Marquette University, Milwaukee; chief of the dispensary staff of the Milwaukee Infants' and Children's hospitals; for several years editor of the *Wisconsin Medical Journal*; widely known as a specialist on diseases of children; died at his home, July 2, from pneumonia.

Asst. Surg. Richard Franklin Hill, Lieut. (j. g.), U. S. N. R. F.; Hahnemann Medical College, Philadelphia, 1909; aged 30; who was detailed to duty at the Philadelphia Navy Yard, and from there was sent to the Naval Hospital on account of a nervous breakdown and finally to St. Elizabeth's Hospital, Washington, D. C.; committed suicide in the latter institution by hanging, July 2.

John Edwin Somers, Cambridge, Mass.; Bellevue Hospital Medical College, 1875; aged 67; a Fellow of the American Medical Association; for several years a member and chairman of library trustees of Cambridge; a member of the local school board; died in the Massachusetts General Hospital, July 4, from edema of the throat, following an operation three days before.

John Calvin Williams, What Cheer, Iowa; State University of Iowa, Iowa City, 1888; aged 73; a Fellow of the American Medical Association; a veteran of the Civil War; a member of the American Association of Railway Surgeons; a practitioner of What Cheer for forty-three years; died in the Mahaska County Hospital, July 2.

Richard Saunders Martin, Stuart, Va.; College of Physicians and Surgeons, Baltimore, 1881; aged 58; a Fellow of the American Medical Association; president of the state board of medical examiners; formerly secretary of the board; a member of the House of Delegates of the General Assembly; died in North Carolina, June 23.

John Latane Lewis, Bethesda, Md.; University of Maryland, Baltimore, 1888; aged 52; a Fellow of the American Medical Association; for several years secretary and treasurer, and in 1915 president of the Montgomery County Medical Society; died suddenly at his home, July 4.

Edwin Curt Abbott, Salinas and Monterey, Calif.; University of Michigan, Ann Arbor, 1871; aged 78; a Fellow of the American Medical Association; a veteran of the Civil War; died at his home in Monterey, June 11, from arteriosclerosis and glossopharyngeal paralysis.

Louis Peter Wineburg, Ligonier, Ind.; National Medical University Chicago, 1908; Bennett Medical College, Chicago, 1909; aged 39; a Fellow of the American Medical Association; died in the North Chicago Hospital, June 30, from tuberculous peritonitis.

John Hillyard Dancey, Capac, Mich.; Trinity Medical College, Toronto, 1896; aged 50; a member of the Michigan State Medical Society; for three terms mayor of Capac; a member of the board of auditors of St. Clair County; died at his home, June 27.

Claudius De Witt Bell, Chicago; Jenner Medical College, Chicago, 1907; aged 43; a Fellow of the American Medical Association; for ten years radiographer to Provident Hospital, Chicago; died in that institution, July 9, from lobar pneumonia.

William Dillon, Brooklyn; L. R. C. S., Ireland, 1884; licentiate Kings Queens College of Physicians, Dublin, 1885; aged 61; a Fellow of the American Medical Association; died at his home, June 26, from carcinoma of the liver.

John A. Lewis, Georgetown, Ky.; Medical College of Virginia, Richmond, 1868; aged 77; a Confederate veteran; for many years a trustee and president of the board of trustees of Georgetown College; died at his home, July 5.

John H. Saylor, Groveport, Ohio; University of Pennsylvania, Philadelphia, 1862; aged 82; surgeon of volunteers during the Civil War; died in Grant Hospital, Columbus, July 6, a week after a surgical operation.

Simon Leslie West, Philadelphia; Jefferson Medical College, 1868; aged 73; a Fellow of the American Medical Association; well-known as a specialist in roentgen-ray work; died at his home, June 22.

Edgar S. Adams, Garrison, Texas; Medical College of Georgia, Augusta, 1873; aged 71; a member of the State Medical Association of Texas; died in a sanatorium at Shreveport, La., June 24.

Louis Ovide Morasse, Putnam, Conn; University of Victoria College, Coburg, Ont., 1884; aged 57; a member of the Connecticut Medical Society; died at his home, June 30, from cirrhosis of the liver.

Katherine Hanks, Covington, Ky.; Laura Memorial Woman's Medical College, Cincinnati, 1896; aged 62; died at St. Elizabeth's Hospital, Covington, July 7, from malignant disease.

Edward Lawrence Burke, Culdesac, Idaho; University of Illinois, Chicago, 1900; aged 45; while returning from a professional call, May 18, died suddenly from heart disease.

Murray Pearson Davidson, Hanford, Wash.; Kentucky School of Medicine, Louisville, 1894; aged 46; died in Spokane, Wash., July 1, from disease of the heart and kidney.

Elias J. Reed, Leipsic, Ohio; Cincinnati College of Medicine and Surgery, 1872; aged 79; a veteran of the Civil War; died in the Lutheran Hospital, Fort Wayne, Ind., June 25.

Woodson Allen, Berkeley, Calif.; Eclectic Medical Institute, Cincinnati, 1884; aged 64; formerly a member of the local board of education; died at his home, June 30.

Louis Durant Mead, Byron Hot Springs, Calif.; College of Physicians and Surgeons in the City of New York, 1902; aged 43; died at his home, June 14, from paralysis.

Charles L. Townley, Cambridge Springs and Erie, Pa.; Western Reserve University, Cleveland, 1884; aged 65; died in his office in Erie, July 7, from acute gastritis.

John Philips Sivewright, Chatham, Ont.; Trinity Medical College, Toronto, 1876; aged 65; died in a drug store in Chatham, June 21, from cerebral hemorrhage.

George Preston Smiley, De Soto, Mo.; Washington University, St. Louis, 1863; Bellevue Hospital Medical College, 1877; aged 78; died at his home, June 15.

Walter E. Rukenbrodt, Brooklyn; Pulte Medical College, Cincinnati, 1875; aged 67; dropped dead in front of his home in Brooklyn from heart disease, June 22.

John L. Burke, Laclede, Mo.; Missouri Medical College, St. Louis, 1881; aged 71; a member of the Missouri State Medical Association; died at his home, June 20.

O. P. Hawthorne, Due West, S. C.; Reform Medical College, Macon, Ga., 1860; aged 82; a Confederate veteran; died at his home, May 9, from pneumonia.

Charles Fitch Ginn, Miamiesburg, Ohio; Cleveland Homeopathic Medical College, 1881; aged 70; was found dead in his office from heart disease, July 3.

Isaac K. Leming, Waldron, Ark.; St. Louis Eclectic Medical College, 1877; aged 65; died in a hospital in Kansas City, June 22, after a surgical operation.

William Hale, Dallas, Texas; University of Arkansas, Little Rock, 1892; aged 68; also a clergyman and a graduate in law; died at his home, June 28.

Frank C. Barto, St. Louis; Keokuk (Iowa) Medical College, 1896; aged 46; died in the Missouri Baptist Sanatorium, July 5, after a surgical operation.

Joseph F. Cross, Bellingham, Wash.; University of Pennsylvania, Philadelphia, 1856; aged 82; died at his home, July 6, from cerebral hemorrhage.

Benjamin F. Bailey, Keokuk, Iowa; Cleveland University of Medicine and Surgery, 1866; aged 82; died at his home, June 27, from senile debility.

Roger J. Levering, Snyderderville, Pa. (license, continuous practice, Monroe County, Pa., 1882); aged 82; died at Stroudsburg, Pa., recently.

St. Clair Dunn, C. A. M. C., Gimli, Man.; Manitoba Medical College, Winnipeg, 1908; aged about 40; was killed in action in France, in May.

Thomas H. Kingsley, Bakersfield, Calif.; University of California, San Francisco, 1886; aged 65; died at a hospital in Bakersfield, June 28.

Colin McLarty, St. Thomas, Ont.; Trinity Medical College, Toronto, 1875; L. R. C. P., Edinburgh, 1876; aged 69; died at his home, June 25.

Wells Andrews, Chicago; Rush Medical College, 1876; aged 64; died in Garfield Park Hospital, Chicago, July 2, from cerebral hemorrhage.

Clinton B. Fisk Grantham, Stanberry, Mo.; Ensworth Medical College, St. Joseph, Mo., 1890; aged 49; died at his home, about June 23.

Charles Alfred Tyrrell, New York City; Eclectic Medical College in the City of New York, 1900; aged 75; died at his home, July 2.

John Milton Major, Davenport, Iowa; a practitioner since 1848; aged 93; died in Davenport, June 3, from cerebral hemorrhage.

William Sidney Severance, Greenfield, Mass.; Eclectic Medical Institute, Cincinnati, 1853; aged 89; died at his home, July 1.

William B. Kyler, Benton, Ind. (license, Indiana, 1897); aged 72; died in Goshen, Ind., July 9, from cerebral hemorrhage.

Thomas Cato Kinmont, Hicksville, Ohio; University of Michigan, Ann Arbor, 1866; aged 86; died at his home, July 5.

Frank Ashton Packard, Kearney, Neb.; University of Vermont, Burlington, 1873; aged 65; died at his home, June 27.

John Goodwin Lane, Boston; University of Dublin, Ireland, 1876; aged 64; died at his home in South Boston, July 5.

Christian J. Simonson, Bowie, Ariz.; Barnes Medical College, St. Louis, 1910; aged 39; died at his home, June 6.

Samuel Toman, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1882; aged 72; died at his home, June 28.

Marriages

ASST. SURG. ROYAL KNIGHT JOSLIN, U. S. N. R. F., Providence, R. I., on duty with the U. S. Marine Corps, at Quantico, Va., to Miss Beryl Higbee Kane of Newport, R. I., at Fredericksburg, Va., June 22.

LIEUT. ROBERT MARION PRATHER, M. R. C., U. S. Army, Beeville, Texas, on duty at Fort Riley, Kan., to Miss Delia J. Purifoy of Birmingham, Ala., at Dallas, Texas, May 28.

MAJOR EDGAR ERSKINE HUME, M. C., U. S. Army, commanding Base Hospital No. 102, Camp Beauregard, La., to Miss Mary Swigert Hendrick, both of Frankfort, Ky., July 1.

LIEUT. THERON OTIS WALKER, M. R. C., U. S. Army, Greenville, S. C., on duty at Camp Lee, Va., to Miss Janie Wood Hughes of Greer, S. C., April 24.

LIEUT. OSCAR EMIL NELSON, M. R. C., U. S. Army, Minneapolis, to Miss Helen Moore Stover of South Bend, Ind., June 25.

LIEUT. GEORGE HOWARD WILSON, M. R. C., U. S. Army, to Miss Gladys Lorene Harvey, both of Mount Carmel, Ill., June 24.

LIEUT. WALDO BEATTY FARNUM, M. R. C., U. S. Army, to Miss Grace Marion Fischer, both of New York City, July 2.

ASST. SURG. HENRY SACHTLEBEN KINLOCH, U. S. Navy, to Miss Hannah H. Brook, at Philadelphia, recently.

FREDERICK ADAMS WOOD, Brookline, Mass., to Miss Ellen Larned Payson of Chicago, in Boston, July 3.

CAPT. CHARLES WOLF, M. R. C., U. S. Army, to Miss Rosalie Zeamans, both of New York City, July 1.

MORRIS AARON FLOWER, Newark, N. J., to Miss Claire Francis Beam of Philadelphia, June 22.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

A rather expensively prepared advertising card (8 in. by 10 in.), of which the above is a photographic reproduction, was forwarded by a medical officer in France to the Surgeon-General's Office in Washington, which in turn sent it to THE JOURNAL. It is an interesting evidence of the attempt of a French "patent medicine" maker to exploit the English-speaking soldiers now in France. The card, an embossed affair with white letters on a dark green background, indicates that more money was spent on its mechanical production than on the brains that were used to turn the French quack's appeal into English. We question the advertising value of the card—at least insofar as it applies to the English-speaking soldiers from the Western Hemisphere. It lacks the finesse of the American venereal quack; no wide-awake American, even though suffering from "urinary duets" or even, conceivably, "quartettes" or "sextettes," would be caught by such a crude appeal.

PRESCRIPTION A-2851

A Dangerous Nostrum of the "Rheumatism Remedy" Type

In this department of THE JOURNAL of April 6 was reported the findings of the chemists of the Louisiana State Board of Health in analyses of several "patent medicines." One of the preparations was "Prescription A-2851" of which was said:

"This product, which is said to have been known earlier as 'Eimer and Amend's Rheumatic Remedy,' was analyzed by the state chemists of Louisiana, who reported that the preparation seemed to be essentially nothing more nor less than a low grade of sherry wine containing approximately 7½ per cent. of potassium iodid."

More than a month after this item appeared Eimer and Amend wrote to THE JOURNAL in part as follows:

"We assume that your intention in this column is to be fair. With this assumption in mind we call your attention to the fact that in your paragraph in reference to said prescription you have failed to mention the principal ingredient thereof. Such ingredient is wine of colchicum seed, which constitutes forty-five per cent. (45 per cent) of the contents. Also you have erroneously stated the per cent. of iodid therein contained which, instead of seven and one half per cent. is nine and three tenths per cent. (9.3 per cent.)."

From a leaflet in our files giving directions for the taking of Prescription A-2851 we find the following claims:

"It dissolves the calcareous deposits which cause the painful swelling at the joints and eliminates the uric acid from the system by its alterative action.

"It contains no opiates or narcotic drugs in any form."

The dose for this nostrum, according to the directions, is 1 dram (teaspoonful) three times a day. As, according to the manufacturers, 45 per cent. of this stuff consists of wine of colchicum seed, this means that each dram contains 27 minims of that drug. Thirty minims is considered a full dose. Wine of colchicum seed, or, for that matter, any preparation of colchicum, is so powerful and its toxicity so uncertain that its use in products of the home remedy type should be unhesitatingly condemned. As one author has said in discussing the dangers of colchicum poisoning: "The poisoning is one of the most painful, slow and hopeless poisonings known and a man taking as much as an ounce of the wine of the root or the seed is almost inevitably doomed to a terrible death." In this connection it is worth bearing in mind that the four ounce bottle of "Prescription A-2851" contains, according to the manufacturer's letter, about two ounces of wine of colchicum seed. Yet this stuff is put on the market with no warning of its toxic character. The presence of so potent a drug as colchicum in any nostrum of secret composition sold to, and taken indiscriminately by the public, is unwarranted. The least that Eimer and Amend can do if they insist on continuing to sell "Prescription A-2851" is to warn the public of its dangerous character by using the word poison on the label.

Correspondence

HOW TO SECURE CHEST EXPANSION

To the Editor:—In the section of THE JOURNAL of July 13, 1918, devoted to queries and answers regarding the Selective Service Regulations, Dr. O. L. Williamson of Marianna, Ark., asks what shall be done in the cases of many physically fit negroes who do not know how to expand the chest, and show no chest mobility equaling 2 inches.

I find that if one cannot obtain 2 inches on first trial, it is wise to go on with the rest of the examination. While auscultating the lungs, part of the time I tell the registrant to take deep breaths. The conversation runs somewhat as follows: "Take a deep breath." "Take a deeper breath." "Now breathe all that you can." After concluding this exercise, of which the registrant understands not the purpose, on taking the chest measurement one is very much surprised to find 2½ or 3 inches of expansion, when at first he could not obtain better than 1½ inches. Today I tried this method successfully on a negro and a Russian, both of the laboring class, robust physically, neither of whom could expand 2 inches on first trial. After the lung examination, during which I exacted several deep respirations, as detailed above, the mensuration of the negro was 3 inches and of the Russian, 2½ inches.

In this zone are examined more negroes than in any other one in this end of the state, there being 1,300 negro registrants, besides many examined by us for other boards, principally Southern, Texas especially, there having been a large influx from Dallas and Houston to this locality this year. As Dr. Williamson points out, many of them physically fit every way seem incapable of expanding sufficiently to meet the regulation requirements. The method I have suggested will solve the difficulty in most, if not all, of these cases.

H. P. ASHE, M.D., Pittsburgh.

Examiner, Local Board No. 2.

VARIOUS SUGGESTIONS

To the Editor:—It seems to me that for the period of the war, the graduate schools of the country should be requested to assume the duties of training physicians for the military service before going to camp, for the reason that there will

be but little demand for polyclinic courses in medicine while the great struggle continues. On the other hand, undergraduate schools should confine their attention solely to the training of students who are candidates for the degree of Doctor of Medicine. Their depleted faculties cannot possibly do more than this without the risk of losing their dynamic and inspiring qualities.

Graduate schools with ample hospital facilities should also undertake for the duration of the war the work of reclaiming those young men who are rejected from military service on account of remedial defects. They should further seek to create permanent institutions or departments for the preparation of physicians for the military service after the war.

Finally, there should be an organization made up of members of the Medical Reserve Corps after hostilities cease, the chief aim and purpose of which should be to promote the scientific and practical interests of the military medical service. A serious attempt to inaugurate and maintain an era of activity and progress relating to military medicine and surgery in America would be timely, more especially since we cannot hope to be always so fortunate as regards the incumbent of the office of the Surgeon-General of the Army, as was the case when hostilities began. The interest of the members in the medical profession would not be one whit lessened by their new responsibilities.

JAMES M. ANDERS, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VENEREAL DISEASES IN THE PRESENT WAR

To the Editor:—Please give me a list of references to articles on venereal diseases in the present war. If you answer in THE JOURNAL, please omit my name.

ENQUIRER, Cincinnati.

ANSWER.—The following is a list of references on this subject:

- Gaucher: Venereal Disease During War at Military Hospitals; *Bull. de l'Acad. de méd.*, Paris, March 28, 1916.
- Ffrench: Treatment of Venereal Disease in English Army, *Practitioner*, London, May, 1916.
- May: Prophylaxis of Venereal Diseases in English Army, *Practitioner*, London, May, 1916.
- McGrigor: Treatment of Syphilis in English Army, *Practitioner*, London, May, 1916.
- Tullidge: Venereal Disease in European Armies, *Mil. Surgeon*, July, 1916; Venereal Diseases and War, *Med. Rec.*, New York, Sept. 22, 1917.
- Zweig: Treatment of Venereal Diseases in Army Hospital, *Deutsch. med. Wchnschr.*, Nov. 23, 1916.
- Gaucher and Bizard: Syphilis after Two Years of War, *Bull. de l'Acad. de méd.*, Paris, Dec. 26, 1916; *Paris méd.*, Jan. 20, 1917.
- Riggo, C. E.: Prevention of Venereal Diseases at Naval Training Station, Norfolk, Virginia, *U. S. Nav. Med. Bull.*, January, 1917.
- Merz, H.: Skin Diseases in the Swiss Army, *Cor.-Bl. f. Schweiz. Aerzte*, Jan. 27, 1917.
- Bates, G.: Venereal Disease Problem from Military Standpoint, *Pub. Health Jour.*, February, 1917; Military Aspects of Venereal Diseases, *ibid.*, February, 1918.
- Wettenhall, R. R.: Dermatology in Active Service with R. A. M. A., *Med. Jour. Australia*, March 3, 1917.
- Pasteau, O., and Mallein E.: Genito-Urinary Dermatologic Centers in Army, *Arch. de méd. et pharm. mil.*, April, 1917.
- Gougerot, H.: Skin Diseases of War, *Rev. de méd.*, May-June, 1916.
- Wolbarst, A. L.: Prevention of Venereal Diseases in Our Military Forces, *Med. Rec.*, New York, April 28, 1917.
- Gaudy, J.: Venereal Diseases in the Army, *Arch. méd. belges*, June, 1917.
- Moscatti, G.: Syphilis in the Army and its Prophylaxis, *Riforma med.*, Aug. 11, 1917.
- Cole, H. N.: Prophylaxis of Venereal Disease in Army, *Cleveland Med. Jour.*, September, 1917.
- Lyster, W.: Venereal Diseases and the New Army, *THE JOURNAL*, Oct. 13, 1917, p. 1257.
- Botti, A.: Venereal Diseases and War, *Riforma Med.*, Jan. 5, 1918.
- Callender, G. R.: Problem of Venereal Disease in the Army, *Mil. Surgeon*, January, 1918.
- Clark, J. B.: Straddle Stand for Prophylaxis and Treatment of Venereal Diseases in the Army, *THE JOURNAL*, Jan. 12, 1918, p. 90.
- Ebert, R. G.: Problem of Venereal Disease in the Army, *Mil. Surgeon*, January, 1918.
- Pcacock, A. H.: Problem of Venereal Disease in the Army, *North-west Med.*, January, 1918.
- Spencer, J. C.: Venereal Diseases in the Army, *California State Jour. Med.*, January, 1918.
- Hazen, H. H.: War and Syphilis, *Am. Jour. Syphilis*, January, 1918; Dermatology and War, *Med. and Surg.*, February, 1918.

- Gorgas, W. C.: Venereal Diseases and War, *Am. Jour. Pub. Health*, February, 1918.
 Macleod, J. M. H.: Dermatology and War, *Practitioner*, London, February, 1918.
 Pinard, M.: Venereal and Skin Diseases in a Battalion, *Paris méd.*, Feb. 2, 1918.
 Lindsay, H. C. L.: Dermatology in the Army, *New York Med. Jour.*, March 9, 1918.
 Mowry, A. E.: Prevention and Control of Venereal Diseases in the Army, *Illinois Med. Jour.*, March, 1918.
 Anderson, G. G.: Diagnosis and Treatment of Syphilis on Active Service, *Med. Jour. Australia*, March 30, 1918.
 McKie, E. M.: Venereal Diseases—Army Viewpoint, *Boston Med. and Surg. Jour.*, April 4, 1918.
 Cunningham, W. P.: Syphilis and War, *New York Med. Jour.*, April 6, 1918.
 Noguchi, H.: Method of Facilitating Serum Diagnosis of Syphilis under War Conditions, *THE JOURNAL*, April 20, 1918, p. 1157.

THE DAY

This poem was written by a railroad porter in England some two years ago. It has been printed many times, in many countries, but it will bear repeating, especially at this time. One of the popular toasts at military banquets in Germany used to be *Der Tag*—the day when Germany would make an actuality of another toast, *Deutschland über Alles*.

You boasted the Day, and you toasted the Day,
 And now the day has come.
 Blasphemer, braggart and coward all,
 Little you reck of the numbing ball,
 The blasting shell, or the "white arm's" fall,
 As they speed poor humans home.

You spied for the Day, you lied for the Day,
 And woke the Day's red spleen.
 Monster, who asked God's aid Divine,
 Then strewed his seas with the ghastly mine;
 Not all the waters of the Rhine
 Can wash your foul hands clean.

You dreamed for the Day, and you schemed for the Day;
 Watch how the day will go.
 Slayer of age and youth and prime
 (Defenseless slain for never a crime).
 You are steeped in blood as a hog in slime,
 False friend and cowardly foe.

You have sown for the Day, you have grown for the Day;
 Yours is the harvest red.
 Can you hear the groans and the awful cries?
 Can you see the heap of slain that lies,
 And sightless, turned to the flame-split skies,
 The glassy eyes of the dead?

You have wronged for the Day, you have longed for the Day
 That lit the awful flame.
 'Tis nothing to you that hill and plain
 Yield sheaves of dead men amid the grain;
 And widows mourn for their loved ones slain
 And mothers curse your name.

But after the Day there's a price to pay
 For the sleepers under the sod.
 And He you have mocked for many a day—
 Listen, and hear what He has to say:
 "Vengeance is Mine, I will repay!"
 What can you say to God?

MATERIALS FOR NOGUCHI MODIFICATION OF WASSERMANN TEST

To the Editor:—Please answer this in Queries and Minor Notes: Where can one obtain small quantities in bulk, monthly, of acetone-insoluble lipoid antigen, and antihuman hemolytic amboceptor for the Noguchi Wassermann test? M. E. MILES, M.D., Boulder, Colo.

ANSWER.—We assume that the materials required for the Noguchi modification of the Wassermann test are wanted by our correspondent. According to New and Nonofficial Remedies, 1918, p. 353, these may be obtained from the H. K. Mulford Company, Philadelphia.

NEED FOR THE GENERAL PRACTITIONER IN THE ARMY

To the Editor:—Kindly advise me what would be the proper place in the service for the general practitioner, the man 45 years of age, who has worked night and day for years but is in splendid physical condition and willing to join the Army. The impression prevails here that men under 35 years of age and specialists are needed, but that there is no place for the others who have spent their time in general practice. X. Y. Z.

ANSWER.—This is a wrong impression. There is need in the Medical Department for every physician who can qualify physically, morally and professionally. In many departments of the service the general practitioner is a far better man for the work than the specialist.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

NURSES CANNOT LEGALLY GIVE ANESTHETICS IN WEST VIRGINIA

A decision recently handed down by the Attorney-General of West Virginia holds that the giving of anesthetics constitutes the practice of medicine, and that no person, nurse or otherwise, can legally give anesthetics unless he or she is duly licensed to practice medicine. The decision is as follows:

Under the law, the right to administer drugs used in surgical anesthesia by a person not a licensed physician would not depend upon either the question of preparation by study or otherwise, or compensation or fees charged for services, but upon the question as to whether or not the administration of such drugs would constitute the "practice of medicine and surgery" within the meaning of the statutory definition. Is the administration of the anesthetic preparatory to a surgical operation an integral part of the operation itself? I think it is. There are certain things preparatory to a surgical operation necessary to be done that can be trusted to nurses and attendants which are not really a part of the operation itself, and require no great amount of skill to perform. However, an anesthetic is a substance, the unskilful handling of which is dangerous to human life. The person undergoing the operation places himself absolutely under the control of the person administering the anesthetic. This is the first dangerous step in the operation; the first one requiring peculiar skill and knowledge. The operating surgeon concentrates his attention to the cutting part of the operation and cannot well exercise careful supervision over the person administering the anesthetic. The anesthetic is such a subtle and dangerous agent that the most careful supervision on the part of the operating physician does not remove the danger of the anesthetic in the hands of an unskilful person.

If it be held that the administration of anesthetics does not constitute the "practice of medicine and surgery," then the fitness of a person to administer them is determined in each case by the operating surgeon. He would constitute the examining tribunal and might choose either a skilled or unskilled person to perform a recognized dangerous part of the operation. I do not believe the legislature ever intended that any person not a licensed physician should be permitted to administer drugs used in surgical anesthesia, even though such person may act under the direction and in the presence of a licensed physician and surgeon.

From this opinion it appears that under no circumstances can any person, whether trained nurse or otherwise, administer an anesthetic during a surgical operation unless such person has received a certificate entitling him to practice medicine and surgery. It does not seem likely that the opinion of the Attorney-General would render illegal the administration of anesthetics in obstetrics, since in such cases only partial anesthesia is sought in the great majority of cases. If complete anesthesia becomes necessary, it seems that no one except a licensed physician can legally administer the anesthetic.

Decisions by attorney-generals of the various states in regard to the giving of anesthetics by nurses are thus far as follows: In Ohio and West Virginia it has been decided that the giving of anesthetics constitutes the "practice of medicine" and requires that the person who gives it must be duly licensed to practice. In Pennsylvania and Wisconsin the decisions were that the nurse could be permitted to give anesthetics. In Kentucky the lower court decided against the nurse, but the higher court reversed the decision so that Kentucky now lines up with Pennsylvania and Wisconsin. Decisions in other states will be watched with interest.

California February Examination

Dr. C. B. Pinkham, secretary of the Board of Medical Examiners of California, reports the oral and written examination held at Los Angeles, Feb. 19-21, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Of the 86 candidates admitted to the physician's and surgeon's examination, 53, including 40 osteopaths, passed, and 33, including 32 osteopaths, failed. Three candidates were granted osteo-

pathic licenses. One drugless practitioner failed. Thirty-four physicians were licensed through reciprocity. Three candidates were granted osteopathic reciprocity licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
California Eclectic Medical College		(1915)	*
College of Phys. and Surg., San Francisco		(1917)	76.3
Hahnemann Medical College of the Pacific		(1917)	80.9
Leland Stanford Junior University		(1917)	86.4
Chicago College of Medicine and Surgery		(1917)	85.7
Loyola University		(1917)	82.7
University of Illinois		(1914) 95.1; (1916)	83.4
State University of Iowa College of Med.....		(1917)	82.2
John A. Creighton Medical College		(1913) 75; (1916)	83.5
Albany Medical College		(1904)	82.9
University of Buffalo		(1917)	82.9
FAILED			
National School of Medicine, Mexico		(1911)	65.3
* No grade given.			
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Physicians and Surgeons, San Francisco..		(1904)	Nevada
George Washington University ..	(1906) Wisconsin;	(1913)	Washington
Bennett Medical College		(1915)	Illinois
Chicago College of Medicine and Surgery		(1916)	Wyoming
College of Phys. and Surg., Chicago		(1883)	Colorado
.....	(1902) Iowa; (1903)		Illinois
Dunham Medical College		(1901)	Washington
Hahnemann Med. Coll. and Hosp. of Chicago		(1888)	Illinois
.....		(1896)	Minnesota
Northwestern University	(1898) Kansas; (1901)		Illinois;
.....		(1901)	Iowa
Northwestern University Woman's Med. School....		(1900)	Missouri
Rush Medical College		(1890)	Minnesota
Indiana University		(1911)	Indiana
State University of Iowa College of Medicine		(1909)	Iowa
Kentucky School of Medicine of Louisville		(1898)	Arizona
Harvard University		(1902)	New York
Detroit Homeopathic Medical College.....		(1872)	Virginia
Hamline University		(1905)	Minnesota
University of Minnesota, Coll. of Homeo. M. & S. (1907)			New York
American Medical College		(1912)	Hawaii
St. Louis College of Phys. and Surg.		(1901)	Wyoming
John A. Creighton Medical College (1899) Nebraska; (1906)			Iowa
Dartmouth Medical School		(1909)	New Hamp.
Columbia University		(1906)	New York
Hahnemann Medical Coll. and Hosp. of Philadelphia (1911)			New York
University of Pennsylvania		(1902) (1905)	Penna.
University of Texas		(1915)	New York
University of St. Vladimira, Russia		(1904)	Illinois

Alabama January Examination

Dr. S. W. Welch, secretary of the Alabama State Board of Medical Examiners, reports the written examination held at Montgomery, Jan. 8-11, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Eight candidates were examined, of whom 6 passed and 2 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College	1914)	78.6; (1915)	75.8
University of Alabama.....	(1917)	75.1, 76.5	81.1
Chicago College of Medicine and Surgery.....		(1917)	75.3
FAILED			
Meharry Medical College		(1915)	69.7
Vanderbilt University		(1917)	73
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Georgia		(1901)	Georgia

Kentucky May Examination

Dr. J. N. McCormack, secretary of the State Board of Health of Kentucky, reports the written examination held at Louisville, May 28-30, 1918. The examination covered 10 subjects and included 100 questions. An average of 70 per cent. was required to pass. Of the 37 candidates examined, 34, including 3 osteopaths, passed, and 3, including 1 chiropractor, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Med and Surg		(1918)	79
Louisville National Medical College.....		(1912)	72
University of Louisville.....	(1907) 87; (1912) 70; (1917)		79
(1918) 78, 81, 82, 83, 85, 86, 87, 89, 90, 91.			
Eclectic Medical College (1918) 76, 77, 77, 88, 90.			
Medical College of Ohio		(1890)	93
Meharry Medical College (1917) 71; (1918) 73, 77, 84, 85, 86.			
Vanderbilt University		(1917)	77
FAILED			
Meharry Medical College		(1917) 66; (1918)	51

Book Notices

DETAILS OF MILITARY MEDICAL ADMINISTRATION. By Joseph H. Ford, B.S., A.M., M.D., Colonel, Medical Corps, U. S. Army. Published with the approval of the Surgeon-General, U. S. Army. Cloth. Price, \$5 net. Pp. 741, with 30 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

This book is prefaced with a letter from Surgeon-General Gorgas saying, "I hope every medical officer in our service will furnish himself with a copy." The book is a veritable encyclopedia on the duties of the medical officer. It is based on a thorough knowledge of the work of our own Medical Department, of published literature as to the duties of the medical officer, and of service in Europe, since the author had the opportunity of making first hand observations in Europe before the present war as well as since. It serves to bring together much information scattered through official publications. Every section contains numerous quotations from official orders and publications. The various chapters deal with all the activities in which the Army medical officer may be engaged. A special chapter relates to public health service and deals with the sanitation of civilian communities; another important chapter on voluntary aid concerns the work of the Red Cross. A most extensive appendix quotes numerous recent general orders relative to paper work, the war risk insurance, and illustrates numerous blanks and forms correctly filled out.

CRIMINOLOGY. By Maurice Parmelee, Ph.D. Cloth. Price, \$2. Pp. 52. New York: The Macmillan Company, 1918.

With the recent rapid advance in the biologic, psychologic and social sciences, on which criminology is based, there is now available a much larger fund of knowledge from which to construct a criminologic theory and to devise a practical program of dealing with the problem of the criminal. It is obvious that crime cannot be attributed to any one group of causes. The author has attempted a comprehensive survey of the whole field of criminology under the headings of the theory of the nature and evolution of crime; criminal sociology; criminal anthropology; criminal psychology; criminal jurisprudence, and penology. In his scheme of penal treatment he says that the problem is fundamentally one of the manipulation of human character, and that with the exception of the rearing of the young there can be no better opportunity for endeavoring to develop human character along useful social lines. Penal institutions as they now exist fall far short of the ideal, and many criminals are more dangerous to society when they leave the prisons than when they entered. Police stations, local jails and other places of temporary detention are not penal institutions, and they should be sharply differentiated from such institutions, and the character of the confinement and treatment in them should accord with that view. Local jails are still needed for short term sentences, but as short sentences are gradually abolished and other minor penalties introduced, local jails will disappear. Those guilty of serious crimes or of persistent recidivism should be first sent to reception and observation prisons where they should be subject to the most careful study and observation by experts conversant with modern methods of studying aberrant human nature, the psychologist, the psychiatrist, the criminologist, the sociologist, by whom some form of penal treatment other than imprisonment may be found desirable. Penal institutions will still, however, have to conform to about four types: industrial reform schools and reformatories; industrial farm colonies; asylums for the insane, the feebleminded and the inebriates, and penitentiaries for the incorrigible. Release and after-care are important in the scheme, as are substitutes for imprisonment, such as labor on roads, farms, etc., and restitution and reparation, which the author thinks have an excellent psychologic and moral effect on the offender. Of the sterilization of the criminal, for which some states have provided by legislation, the author says that one of the principal motives back of this sort of legislation has been to prevent criminals from reproducing themselves on the theory that their criminality will be transmitted to the offspring. It is obvious, he says, that

criminality per se cannot be inherited, and it is hardly justifiable to use mutilation as a form of punishment; but it is legitimate to impose sterilization when an individual has an unquestionably hereditary trait which is dangerous to society. Most of the legislation on the subject in this country violates this scientific principle and according to the author should be revised. Especially interesting sections of the book concern evolutive crime and democracy, and the prevention of crime.

LESSONS FROM THE ENEMY. How Germany Cares for Her War Disabled. By John R. McDill, M.D., F.A.C.S., Major, Medical Reserve Corps, U. S. Army. Medical War Manual No. 5. Authorized by the Secretary of War and under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, \$1.50. Pp. 262, with 145 illustrations. Philadelphia: Lea & Febiger, 1918.

Dr. John R. McDill arrived in Germany, June 17, 1916, as director of a unit sent to the Central Powers by the American Physicians' Expeditions Committee of New York, and was assigned first to Coblenz on the Rhine, and after one month to Fortress Graudenz in the East. After his arrival he obtained permission from the German military authorities to study their methods for publication in the United States. The results of these studies are embodied in this book. In the foreword the author says, "All through this narrative stands out the fact that preparation for war has been going on in Germany for many years not only by the army, but by numerous civil organizations preparing to lend essential assistance when a state of war occurred." The book covers the whole aspect of the medical service of Germany in the war, with chapters on the German medical military organization, administrative methods of the sanitary service and the base hospitals, covering volunteer nursing and welfare work, and coming finally to rehabilitation and reeducation, national and communal war relief work and social service. All of the illustrations are clear and instructive. The following sentence from the foreword is especially interesting:

The common people of Germany at least, although still physically fit, are suffering from a hopeless malady "Friedensehnsucht," or longing for peace; but as time passes and their rulers demand more and yet more sacrifices and their hope is dashed as soon as it is born, their condition is so desperate that they are benumbed and are finding out that it is not so hard to die after one gets used to it.

A SYSTEMATIC COURSE OF QUALITATIVE CHEMICAL ANALYSIS OF INORGANIC AND ORGANIC SUBSTANCE. With explanatory notes. By Henry W. Schimpf, Ph.G., M.D., Professor of Analytical Chemistry in the Brooklyn College of Pharmacy. Third Edition. Cloth. Price, \$1.50. Pp. 187. New York: John Wiley & Sons, 1917.

Any one who owns a previous edition of this book will gain little additional information from the later "revised" edition, which still contains much matter that is decidedly out of date. The student using this textbook alone would have no conception of the important subject of ionization. In fact, there is reflected a lack of knowledge on this phase—or carelessness—for otherwise it would be difficult to conceive why such mistakes should be made as that ammonium chlorid added to a solution of ammonium hydroxid and magnesium chlorid form the double salt $\text{MgCl}_2 \cdot 2\text{NH}_4\text{Cl}$ (p. 59); or that manganese forms a soluble hydroxid, soluble in an excess of NH_4OH (p. 59); or that silver chlorid and ammonium hydroxid form argentic *amin* (p. 30). The book abounds in chemical equations, but they are for the most part misleading in that they infer that the reactions occur as they are given on paper, when as a matter of fact, they do not; some of the mistakes are beyond presumptuous explanation.

MEDICAL SERVICE AT THE FRONT. By Lieut.-Col. John McCombe, C. A. M. C., and Capt. A. F. Mcnzies, M. C., C. A. M. C. Leather. Price, \$1.25. Pp. 128, with illustrations. Philadelphia: Lea & Febiger, 1918.

This book is an outline of the Canadian methods of organization and administration in the war. The several chapters concern a division in the front line, the regimental medical officer, four chapters on the work of the field ambulance, the assistant director of the medical services, the corps, medical arrangements for cavalry, and the casualty clearing station. Surgeon-General J. F. Fotheringham of Canada vouches for the accuracy of the book. It is quite brief, its contents corresponding to about thirty-two pages of THE JOURNAL, about one fifth of that space occupied by the diagrams.

Medicolegal

Validity of Agreement Not to Practice in a Certain Locality

(*Scott v. Asbury (Mo.)*, 198 S. W. R. 1131)

The Kansas City (Mo.) Court of Appeals affirms a judgment in favor of the plaintiff in this suit to enjoin the defendant from practicing the profession of medicine and surgery within the territory covered by a circle having a radius of 10 miles with a certain place as its center, in violation of his executed oral contract with the plaintiff. The court says that the defendant was practicing in said place and vicinity, and lived in a residence the title to which was in his wife. Desiring to leave there and remove to the South, he advertised for sale his home and practice, in response to which the plaintiff went there. Negotiations were entered into between them. The defendant promised that if the plaintiff would become the purchaser of the home at \$3,500, he would turn over his medical practice to him and leave there, and would not thereafter resume practice within 10 miles thereof. This offer was accepted and complied with on the plaintiff's part. A deed was executed by the defendant and his wife to the plaintiff conveying the home to the latter, possession was turned over to him, and the defendant publicly installed him as his successor in the practice of medicine and then removed to Louisiana. The deed to the home was a straight-out conveyance thereof for a recited consideration of \$3,500, and said nothing about any agreement in reference to the medical practice. Before the deed was prepared, the plaintiff suggested that their contract be put in writing; but, on being assured that it was not necessary, as the defendant was going to Louisiana at once, the plaintiff did not further insist on the reduction of their contract to writing. But in a few months the defendant returned to his former home town and began practicing there.

The defendant's first contention was that there was no consideration for that part of the agreement relating to his further practicing at said place, but clearly this was not tenable, since the refraining by him from further practice there was one of the effective inducements offered to the plaintiff to become the purchaser of the home, and was a part of the consideration for that purchase.

The defendant's other contention was that, when the deed to the home was executed, the prior oral agreement, with all of its terms and provisions, became merged into the conveyance, and rendered inadmissible oral proof of the terms of the contract between the parties. But the rule referred to had no application to the facts of this case. The original contract between the parties was oral and entire, and the execution of the deed was not a reduction of the contract to writing, but was done only in order to perform a part of the contract, namely, to pass the title to the house over to the plaintiff. The deed recited nothing in relation to the agreement concerning the medical practice, nor did it contain anything to show that the contract between the parties was therein sought or intended to be reduced to writing. Nor were the other terms of the contract of a nature sufficiently related to the subject-matter of a conveyance of real estate to require their inclusion in the deed as one of the necessary elements thereof or to make the terms of the contract inherently in conflict with the terms of the deed. Hence the oral proof of the contract and of its terms in no way tended to vary, add to or contradict the deed. The court did not err in admitting evidence of the contract between the parties.

Bases for Recovery of Compensation

(*Succession of Pons (La.)*, 77 So. R. 515)

The Supreme Court of Louisiana says that an attorney named Fourchy and his associates engaged the services of physicians named O'Hara, Pothier and Mioton as expert alienists, to aid them in their defense of a suit then pending, under a written contract reading, as to the terms, as follows:

"In consideration of said employment, said Fourchy, agent and attorney in fact, agrees to pay to said O'Hara, Pothier

and Mioton the sum of \$1,200, to be divided between them, and, in the event that said interdiction proceedings are dismissed by judgment in favor of said Mrs. Pons, then the said . . . agent . . . agrees to pay . . . an additional sum of \$1,800 to be divided between them. In case said interdiction proceedings are abandoned by plaintiffs, . . . then the sum of \$3,000 shall thereupon become due and payable, or, in case said . . . proceedings shall be decided against said Mrs. Pons by final decree or judgment declaring her interdict, the sum of \$1,200 shall be . . . payable, when the judgment shall become final."

The three physicians claimed \$3,000 for their services as experts; but, the interdiction proceedings having abated by reason of the death of the defendant, the court is of the opinion that the "Messrs. Doctors" were entitled to but \$1,200, to be divided between them, and that the \$1,500 allowed by the judgment appealed from should be reduced to that amount.

Where the services of specialists are engaged under a contract that they shall be paid a certain sum in the event of certain specified possible happenings and a larger amount in the event of other happenings, they can recover only according to their contract, and, if the specified possible happenings do not happen, cannot recover the larger amount.

Again, the court says that Dr. O'Hara was called into consultation by another physician who had been placed in charge of Mrs. Pons and that he made an estimated number of visits for which he claimed \$1,000, at the rate of \$10 per visit. The judgment appealed from allowed him \$500 for his services in that capacity, and the court finds no sufficient reason for making any change in that amount.

One who seeks to recover for medical services on the basis of consultations at so much per consultation or per visit should be able to show how many consultations or visits were had or made.

What Physicians May and May Not Testify To

(*Klein v. Prudential Insurance Company of America* (N. Y.), 117 N. E. R. 942)

The Court of Appeals of New York holds that, in this action on a life insurance policy decided in favor of the defendant, it was not error to receive the testimony of the physician who attended the applicant for insurance claimed to be insured, February 13, the day before the first premium on the policy was paid in full, that he was then sick, though the court says that in any case the evidence that the applicant was sick on the day before he was taken to the hospital (February 14) appeared almost, if not entirely, beyond controversy by testimony other than that of the attending physician. The prohibition against a physician giving evidence of matters within his knowledge, relating to a patient, the court says, is statutory. It is confined to information acquired in attending a patient in a professional capacity and which is necessary to enable him to act in that capacity (Code of Civil Procedure, Section 834). The code section is not intended to prevent a person from testifying to such ordinary incidents and facts as are plain to the observation of any one without expert or professional knowledge, and without tacitly or otherwise inviting or receiving confidences by which the incidents and facts are or may be brought to light and obtained. When the information obtained by a physician extends to the existence of an ailment, although not the subject of his attendance or treatment, but is acquired through an examination of the patient in attending him in a professional capacity, and the discovery of which was a necessary incident to the investigation made to enable him to act in his professional capacity, it is within the language and purpose of the code prohibition.

The plaintiff beneficiary's reference, in her certificate as a part of the proofs of death, to the certificate of the hospital physician, made his certificate admissible in evidence as an admission against her for what it was worth. If it appeared therefrom to have been based in whole or in part on hearsay evidence, or on confidential communications made to him by the patient, and the plaintiff desired to prevent its being considered in evidence, she should have objected to it on that ground, or have made a motion to strike it from the record.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirtieth Annual Meeting, held in Lenox, Mass., May 27-29, 1918

DR. L. E. LAFETRA, New York, in the Chair

Hemoptysis Following Exploratory Puncture of Chest

DR. AUGUSTUS CAILLE, New York: In an infant admitted with a diagnosis of lobar pneumonia, a history of symptoms of respiratory embarrassment dating back two weeks, moribund and cyanotic at the time of admission, percussion revealed flatness over both lungs posteriorly and absence of pectoral fremitus below the scapula. To make sure of the absence of pus or serum, an aspirating needle was pushed into the seventh interspace for about three-quarters inch. This procedure was followed by a feeble coughing effort and by brisk hemorrhage from the mouth, and in less than a minute life was extinct. At necropsy the foramen ovale was found patent. Beneath the leaflet of the mitral valve there was an opening in the intraventricular septum. The cardiac musculature was of about the same thickness on the right as on the left side. There was distinct consolidation of both lungs, and marked congestion of the entire lung. No puncture of a large blood vessel could be found, and there was no laceration of the lung tissue. In acute cases in which puncture seems to be indicated, the introduction of an exploratory needle into the thorax containing a highly congested lung is attended with some degree of risk when cyanosis and other characteristic signs point to cardiac or circulatory failure.

Breath-Holding Attacks

DR. I. A. ABT, Chicago: Breath holding manifests no true laryngeal spasm. The breathing is restive, and stops suddenly in the midst of a crying attack; but there is no inspiratory spasm. The child works himself into a rage, cries for a time, and then suddenly stops, finding it impossible for a brief period to make any further sound. The child becomes cyanotic or pale, his body becomes rigid, the eyes turn and become set, and it appears for a moment that the child is asphyxiated. The attack usually lasts for a few seconds and then disappears. Breath-holding attacks differ from minor epilepsy in that they follow immediately on severe crying, excitement or anger, while epileptic attacks occur suddenly in the midst of quiet play or even during sleep. Biting of the tongue, which occurs in epilepsy, does not occur in breath holding. Breath holding usually occurs in neuropathic children, and treatment should be directed toward the general management of the nervous child. When an attack occurs there should be no fussiness or consternation evinced by the mother or nurse. The patient should be shown in no uncertain manner that any repetition of the attack will meet harsh if not painful measures.

DISCUSSION

DR. ROWLAND G. FREEMAN, New York: I had a case in which the attacks were sometimes prolonged until the child became unconscious. While the child had a cold it got one of these breath-holding attacks, became unconscious and died without regaining consciousness.

DR. PERCIVAL J. EATON, Pittsburgh: Of a family of four boys, three were subject to these spasms. The parents of these boys carried out the treatment Dr. Abt suggests. I have found that by forcing the mouth open, drawing the tongue out, and then pushing the cheeks in, some reflex is excited which relieves the spasm of the glottis.

DR. HENRY HEIMAN, New York: There are borderline cases which present a condition very much like spasmophilia, or Erb's phenomena.

DR. I. A. ABT, Chicago: None of these cases of breath holding occurred until the second year of life, whereas spasmophilia manifests itself earlier. These children were, first of all, ill tempered, had short crying spells, and would then develop the breath-holding attack.

Death From Cardiac Failure in Children, Unexplained by Postmortem Examination

DR. JOHN HOWLAND, Baltimore: Several cases came under my observation which ended in death with marked evidence of circulatory failure, but with no changes to be made out other than great cardiac hypertrophy and more or less dilatation. The hypertrophy was the striking feature. The musculature was intact. None of the conditions with which cardiac hypertrophy occurs were present in any of these cases. The myocardium was normal. There is reason for believing that as the result of some nervous or muscular disturbance, inordinate action of the heart results.

DISCUSSION

DR. CHARLES HUNTER DUNN, Boston: I saw a baby with marked cyanosis and cardiac insufficiency. A diagnosis of double pleurisy and hydrothorax was made. The roentgenogram disclosed that the condition was cardiac, and it was thought that we were dealing with a pericarditis with effusion. The outline of the heart was very large, but the heart muscle was normal and there was nothing to explain the hypertrophy.

Infantilism: Two Cases Illustrating the Brissaud and Frölich Types, Respectively

DR. J. P. CROZER GRIFFITH, Philadelphia: A girl, at the age of 1½ years, had an attack of whooping cough and since that time is said not to have grown physically, although mentally the parents think she is normal. The extremities are short for the size of the thorax and the legs are slightly bowed. The child's weight is 20 pounds, the normal weight for her age being 49 pounds. Her height is 29 inches, the normal for her age being 45 inches. The thyroid was not palpable and this region of the neck did not seem as full as in normal children. The eyes are somewhat apart, the chest short and full, and there are slight subcutaneous fatty deposits in the suprascapular fossa. The abdomen is much distended, resulting in a distinct costal flare, and producing a compensatory lordosis of the lumbar spine. The temperature averaged somewhat below normal. The child was given thyroid medication and, while there was some increase in weight and measurement, there was no very material change in her condition.

A boy, aged 11 years, was admitted to the hospital for excessive obesity. The tendency to an undue deposit of fat had been first noticed when the child was 11 months of age. This had been gradually progressive and did not seem to be influenced by diet. The boy's weight was 251 pounds, the normal for his age being 70 pounds. The boy walked with a distinct limp, his abdomen was very fat, and the penis buried in fat and very small for the rest of his development. The testicles were descended, but very small. The urine showed slight traces of albumin, but no formed elements. The roentgen-ray examination of the head revealed a sella turcica definitely smaller than normal, indicating a small pituitary body. Examination disclosed a lowered sugar tolerance. After the administration of pituitary extract for two months there was a decided increase in the sugar tolerance. The patient was given a low carbohydrate diet, which was varied from time to time. While under our care, nearly three months, he lost only 17 pounds. This case represents an excellent instance of pituitarism of the Frölich type, except in certain particulars, namely, some of these cases of pituitarism of the Frölich type exhibited a retarded skeletal development, while this case showed a decided overgrowth. This might depend, as Cushing suggested, on activation of the anterior lobe of the pituitary body combined with insufficiency of the posterior lobe.

Variations in the Lipoid (Fat) Content of the Blood of Infants Under Certain Nutritional Conditions

DRS. W. MCKIM MARRIOTT, St. Louis, and WARREN E. Sisson, Boston: An infant fed on considerable amounts of fat, but unable to utilize this fat, is virtually in a state of fat starvation. Analyses of the stools for fat or its derivatives gives some indication of the efficiency with which the fat of the food is digested and absorbed. Further information can

be obtained from a study of the fat of the circulating blood under varying conditions of feeding and states of nutrition. Other factors being equal, well nourished and poorly nourished infants have essentially the same amounts of fat in the blood.

An infant who is gaining weight, no matter what his state of nutrition, will have a higher blood fat percentage than one that is not gaining. Breast fed infants gaining weight show a higher average blood fat than any other group of infants in the series studied. Infants fed on milk mixtures containing no fat showed a low blood fat percentage, much lower than those being completely starved. Some of the infants being starved were suffering from "intoxication," and a few developed acidosis. The infants with acidosis showed blood fat percentages essentially the same as those that did not have acidosis.

DISCUSSION

DR. CHARLES HUNTER DUNN, Boston: Very often an infant gains weight on a fat free diet. What is the result of the blood fat examination in these cases?

DR. FRITZ B. TALBOT, Boston: Did you try to find any connection between high carbohydrate feeding and blood fat?

DR. HENRY F. HELMHOLZ, Evanston, Ill.: In children that have large fat deposits are these drawn on in acidosis? Is it only those that have large fat deposits in the organs that show a high blood fat?

DR. W. MCKIM MARRIOTT, Baltimore: I did not have any infants in this series that were gaining weight on low fat feeding. We had no infants on high carbohydrates, but I think the blood fat would be low under those circumstances.

Relative Efficiency of Mercurial Preparations in Congenital Syphilis

DR. WALTER R. RAMSEY, St. Paul: In infants and children, mercury when given by the mouth, by inunction or subcutaneously is excreted at least partly by the urine. By inunction mercury is readily taken up by the skin and eliminated in the urine and continues to be eliminated for a considerable time. When one inunction is given, the maximum daily amount of mercury is eliminated during the following twenty-four hours, smaller amounts being eliminated for a variable time. Where continuous inunctions are given there is an accumulation in the system, and considerable amounts are eliminated at intervals with only traces between. It is probable, therefore, that it is unnecessary to have mercury in contact with the skin, with or without rubbing, as often or as long as has been generally thought necessary. Mercuric salicylate suspended in oil and given subcutaneously continues to be eliminated in the urine in appreciable amounts for as long as eight days. Therefore, a repetition of the treatment not oftener than at intervals of eight days would be sufficient. Mercuric chlorid by the subcutaneous method continues to be eliminated for eight days. It therefore seems probable that the daily use of any of the mercurial salts in the amounts usually prescribed is unnecessary and presumably harmful.

Standards for Growth and Nutrition of Schoolchildren

DR. L. EMMETT HOLT, New York: The relation of height to weight is important as indicating the state of nutrition, but considerable variation exists in healthy children. A child's nutrition may be considered below the normal when he is 10 per cent below weight for his height between the sixth and the tenth year, or 12 per cent below from the eleventh to the sixteenth year. The best guides to the state of nutrition, and more important than either of the foregoing, is the annual rate of increase in weight and height. The annual increase in weight is from 4 to 6 pounds a year from the sixth to the tenth year, while it rises to an average of 13 pounds in the fifteenth year. The annual increase in height varies normally less than weight. The average increase is from 1¾ to 2 inches a year from the sixth to the eleventh year; it rises to its highest point in boys from the thirteenth to the sixteenth year, when it is usually from 2½ to 3 inches a year. In girls it is highest from the tenth to the fourteenth year. Observations on 1,243 school boys between 10 and 16 years of age showed that they increased in weight 1¼ pounds more in six

months from May to November than from November to May, and that the gain in height was 0.38 inch more during the first named period.

DISCUSSION

DR. JOHN LOVETT MORSE, Boston: Growth in height is most rapid in the spring, and gain in weight is most rapid in the autumn.

DR. ALFRED F. HESS, New York: It has been our experience that children do not gain well in the summer months. The reason Dr. Holt found a greater gain during the summer is that the boys were housed up during the winter and led an outdoor life during the summer. To be of practical value, these observations should be made on hundreds of thousands of children.

DR. CHARLES HENDEE SMITH, New York: Under nutrition affects growth in height as well as in weight. The factor of heredity has also a great influence. The children of taller parents can be made to grow more rapidly, if treated properly, than those whose parents are of short stature.

Complement Fixation Test for Tuberculosis in Infancy and Childhood

DR. HENRY HEIMAN, New York: The serums of fifty-nine patients from 6 months to 12 years of age were tested. Sixteen were tuberculous, six probable or suspicious, and twenty-eight were nontuberculous. Among the former group were six cases of tuberculous meningitis. Complement fixation reactions on the blood of these patients with both antigens was negative in four and only suspicious in two cases. Of seven cases of pleural effusion one was definitely tuberculous, three were probably tuberculous and in three others the etiology could not be definitely determined. In these cases the complement fixation tests were negative with both antigens. The serum of the three patients in whom the etiology was not definitely determined gave negative reactions also. Of six children with pulmonary involvement, two being cases of miliary tuberculosis with the usual course, all gave negative reactions with both antigens.

One case of tuberculous peritonitis gave a negative reaction with both antigens. The diagnosis was subsequently confirmed by necropsy findings. Among twenty-eight cases with no signs or symptoms of tuberculous infection, complement fixation tests revealed three strongly positive reactions, one faint inhibition and one suspicious reaction.

DISCUSSION

DR. PAUL ARMAND DELILLE, Paris, France: Some years ago I made complement fixation tests in tuberculous children and also in adults using old tuberculin and different antigens, and I found that this test was of no value.

DR. J. P. SEDGWICK, Minneapolis: Results with the complement fixation test in tuberculosis are largely a question of the antigen. Dr. Larsen of the University of Minnesota has a better antigen, and he is getting remarkable results.

Value of Auxohormones in Feeding the Young

DR. E. W. SAUNDERS, St. Louis: A condition which I have seen four times during the past year shows a clinical course as follows: A baby that has previously given no cause for anxiety is suddenly taken ill. The symptoms are insomnia, frantic nervousness, vomiting, and loathing of the particular kind of food on which it has been fed, momentary convulsions, rapid pulse, very slight fever and no acetone breath. Tetany is rarely manifested in the hands and feet. Death comes without warning. One factor is invariably found, namely, that the child has been taking a dead food exclusively. This condition cannot be identified with thymic asthma, tetany or spurious hydrocephalus. In the treatment of the conditions, much may be hoped from the prompt and vigorous employment of large doses of glonoin dropped on the tongue and exclusive tube feedings, using a live rennet whey and rapidly increasing the percentage of unpasteurized cream, autolyzed yeast and green vegetable juices. Calcium bromid and the phosphates seem to be beneficial in all cases. If we do not stop the craze for high sterilization in the feeding of infants, we shall have a nation of rickety dwarfs. To protect against this tendency we may feed the yolk of an egg, never

the white, honey and vinegar, which we have used during the last two years with increasing satisfaction and which authorities say enhances the value of vitamins. Gruels of natural grains, ground whole, have proved far more acceptable than the 1 per cent cereal decoctions of devitalized grains. Baby's milk may be constructed out of an ounce or more of coconut oil, emulsified with a natural gruel which has been boiled with cabbage and sweetened, preferably with honey. The patent foods for babies are destitute of vitamins and glandular fat and of adequate mineral content, and, in whole or in part, deserve governmental supervision in the interests of the children.

Balantidium Coli Infection in a Child

DR. L. R. DEBUYS, New Orleans: The patient was 5 years of age, had helped round up the pigs, and ate his food at times in the pig pen. He had been ill for nearly a year with diarrhea. There were periods of improvement. Each succeeding attack, however, was more severe than the preceding one. The stools resembled those of amebic dysentery, containing blood and mucus. The rectal tube was passed and the organism was identified.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

June, 1918, 77, No. 6

- 1 *Operation for Urinary Incontinence in Women by Transposing Levator Ani Muscle. F. J. Taussig, St. Louis.—p. 881.
- 2 Total Hysterectomy, per Vaginum, Lapping of Anterior Vaginal Wall Fascia and Approximation of Cardinal Ligaments, for Cure of Extreme Procidentia Uteri of Long Standing. D. Bissell, New York.—p. 892.
- 3 Tertiary Syphilis of Cervix Uteri; Report of Case. O. H. Schwarz, St. Louis.—p. 900.
- 4 Hemorrhoids of Urethra in Women; Report of Cases. A. Heineberg, Philadelphia.—p. 912.
- 5 Puerperal Pelvic Infection. J. O. Polak, Brooklyn.—p. 916.
- 6 *Results of Blood Pressure Observations in Four Hundred and Forty-Seven Cases of Pregnancy. W. C. Danforth, Evanston, Ill.—p. 927.
- 7 *Blood Transfusion (Citrate Method) in Hemophilia Neonatorum. R. Lewisohn, New York.—p. 933.
- 8 Conservative Treatment of Displaced Uterus. H. A. Wade, Brooklyn.—p. 936.
- 9 Indications, Dangers and Contraindications of Uterine Curetment. C. S. Barnes, Philadelphia.—p. 940.
- 10 Possibility of Mistaking Remains of Hypogastric Artery for Ureters. S. E. Tracy, Philadelphia.—p. 947.
- 11 *Cesarean Section in Treatment of Eclampsia. W. E. Parke, Philadelphia.—p. 948.

1. Operation for Urinary Incontinence.—The occasion for this new procedure was the necessity of finding some muscle tissue that could be utilized for the purposes of a new sphincter urethrae. It occurred to Taussig that with a somewhat relaxed pelvic floor the anterior bundles of the levator ani muscle could be utilized for this object by transposing this portion of the muscle beneath the anterior vaginal and attaching it under the urethral opening to the pubic ramus of the opposite side. The procedure is described in detail.

6. Blood Pressure of Pregnant Women.—Danforth's observations in a series of 115 cases showed that the average blood pressure of the pregnant woman is less than that of the non-pregnant. Labor causes in many cases a rise of arterial tension. Toxemia of pregnancy is accompanied by a rise of blood pressure except in very rare instances and this rise usually precedes other symptoms.

7. Blood Transfusion in Hemophilia Neonatorum.—Lewisohn's personal experience in hemorrhage of the newborn comprises eight cases. Six of these were permanently cured by a single transfusion.

11. Cesarean Section in Treatment of Eclampsia.—Parke reports twenty-one cases of eclampsia delivered by abdominal section, in addition to or preliminary to eliminative treat-

ment. Two of these mothers died (and four babies), a mortality of 10 per cent. These cases were not selected because they appeared to be favorable, but were cases good and bad as they presented themselves. Many of them were not early cases; that is, the operation was not done promptly after the first convulsion which, Parke says, is the time of election, but even so the percentage of recoveries compares not unfavorably with that of other methods of treatment.

American Journal of Ophthalmology, Chicago

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- 12 Contraction of Paretic External Rectus Muscle Diminished When Masseters Are Contracted in Act of Biting. P. N. K. Schwenk and W. C. Posey, Philadelphia.—p. 393.
- 13 Deep Roentgen Ray Therapy in Treatment of Tumors of Hypophysis. C. Loeb, Chicago.—p. 397.
- 14 Vernal Conjunctivitis Greatly Improved by Radium Treatment. E. A. Shumway, Philadelphia.—p. 404.
- 15 Blocking of Macular Arterioles as Cause of Central and Paracentral Scotoma of Macular Bundle Type. R. I. Lloyd, Brooklyn.—p. 406.
- 16 Magnet Extraction of Foreign Bodies from Eyeball. F. Allport, Chicago.—p. 412.
- 17 Tumors of Eyeball and Structures Accessory. D. F. Harbridge, Phoenix, Ariz.—p. 417.
- 18 Case of Cystic Brain Tumor; Necropsy Report. G. F. Libby, Denver.—p. 424.

American Journal of Orthopedic Surgery, Boston

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- 19 *Operative Treatment of Nerve Injuries. H. J. Stiles, Edinburgh, Scotland.—p. 351.
- 20 Arthrodesis of Shoulder Joint. C. H. Bucholz, Boston.—p. 364.
- 21 *Use of Boiled Bone in Operative Surgery. W. E. Gallie, Toronto, Canada.—p. 373.
- 22 *Lower Back Pain. A. R. Colvin, St. Paul, Minn.—p. 384.
- 23 *New Stabilizing Operation for Foot in Infantile Paralysis. F. E. Peckham, Providence, R. I.—p. 397.
- 24 *Fractures of Tibia Following Removal of Bone Graft. J. A. Brooke, Philadelphia.—p. 399.
- 25 American Hospital in London. F. C. Kidner.—p. 400.

19. Operative Treatment of Nerve Injuries.—Stiles emphasizes the fact that as the operative treatment of peripheral nerve injuries frequently entails extensive, and sometimes difficult, dissections, it is essential that the operator should possess a thoroughly practical knowledge of anatomy. In operations on the nerves of the extremities three assistants are generally required, namely, one to steady the limb, a second to swab the wound and secure the vessels, and a third to take charge of the retractors. Stiles never uses a tourniquet at these operations because the vessels are often a good guide to the nerve and its branches, because much time has to be spent in securing the vessels when the tourniquet has been removed, and because there is a greater tendency to subsequent oozing. During the operation he never bathes the wound with normal saline; the best lotion is the patient's own blood. The dissection to expose the injured nerve should err on the side of being too extensive rather than too limited, and the importance of exposing the nerve above and below the lesion in the first instance cannot be too strongly insisted on. This is especially important when the nerve is bound down by, or embedded in, cicatricial tissue.

While Stiles is careful to use gloves in all septic cases, he considers it a distinct asset to be able to dispense with them where rapid and delicate dissecting work is required; but the omission of gloves must not be attempted unless the surgeon has learned how to keep his skin smooth. Nor is it necessary in performing nerve dissections to protect the wound from the adjacent skin by clamping gauze to its cut edges. By so doing, one only encumbers the field of operation unnecessarily. In suturing a nerve he prefers to use the finest linen thread. A single through-and-through suture is sufficient even for the great sciatic. While it is being introduced, every endeavour should, so far as possible, be made to bring the corresponding fibers of the two stumps into apposition, in other words, there must be no unequal rotation on the stumps. The rest of the sutures include the sheath only. They are most conveniently introduced by means of a fine, curved needle (cleft palate needle) and a needle holder. They should only be in sufficient numbers to prevent protrusion of the nerve fibers. After suture the nerve should not be ensheathed either with a vein, fascia, lata, or Cargile

membrane, as these materials only serve to promote the formation of cicatricial tissue. The best bed for the nerve is one consisting of fatty cellular tissue or healthy muscle.

Subcutaneous sutures are quite unnecessary, and their introduction only serves to prolong the operation. It must be remembered, however, that wounds in the long axis of the limb may give rise to a little tension, so that the sutures should be left in for ten days or so. Silkworm gut is the best material to use. With regard to drainage it is seldom necessary to introduce a tube, especially if interrupted sutures are employed, when all that is needed is to leave an interval between one or two of the stitches sufficient to admit of the escape of the blood stained serum. When flexion of the adjacent joint is necessary to take the tension off the nerve, the limb should be carefully splinted, and the first dressings should not be left entirely to the nurses. Those in charge of the after-treatment should not be in too great a hurry to straighten the limb. Increased experience has convinced Stiles that we often delay too long in operating. Delay is justified if there is definite evidence that improvement is taking place, and this is more likely to happen if the nerve has been contused as a result of a fracture, or if the symptoms are due to the pressure of callus. In such cases the improvement is progressive and often ends in complete recovery. In cases, however, where the nerve has been directly injured by a bullet or piece of shrapnel it is a mistake to wait, although the lesion may be only partial. Valuable time is wasted in waiting for a recovery, which, in the end, is only very partial. The operation can do no harm. The pain, the trophic changes, the reflex spasm and the contractures often rapidly disappear. In short, the operation will not only expedite the recovery, but will at the same time render it more nearly complete. Stiles also discusses the treatment of injuries of individual nerves.

21. Use of Boiled Bone in Surgery.—Four patients with spine deformities have been operated on by Gallie. One of the patients was operated on two years later for another surgical condition, and with the consent of the parents, Gallie was able to examine the graft and obtain a piece of it for section. The spines were found to be solidly united together by a rigid bar of bone of the same size and shape as the original grafts, except that it was more rounded at the edges and covered with a thick fibrous membrane, resembling periosteum. The piece removed for section was obtained by cutting the graft longitudinally with an osteotome, and it included the tip of one spine and a section of the graft above and below this spine as far as the middle of next space on one side, and as far as the edge of the next spine on the other. In this way the whole length of one segment of the graft was studied. The changes in the boiled spinal graft consisted first, of the union of the graft to the spines by the laying down of new cancellous bone on it. Then comes the reestablishment of the circulation by the ingrowth of blood vessels into the empty haversian canals. Finally, the graft is invaded by osteoblasts along the course of the blood vessels. These osteoblasts slowly accomplish the absorption of the dead bone and its replacement with new living bone, which persists in a somewhat similar gross form, while conforming to the general law governing the architecture of bone. The ability of these osteoblasts to spread along a dead graft as far as half the distance between the spines, Gallie says, is therefore conclusively demonstrated, and the feasibility of locking the spines together for a period of two years by means of boiled bone transplants is indisputably established.

22. Lower Back Pain.—On one occasion, in a young person suffering from pain of sciatic distribution, Colvin discovered by rectal examination an infected embolic aneurysm. In another case, supposed to be a sacro-iliac strain, a sarcoma of the sacro-iliac region was found. In a third case a tumor mass about the size of a small fist below the diaphragm, wedged in the costovertebral angle secondary to a primary malignant focus (a small papilloma) in the gallbladder caused severe lower back pain; other cases are cited.

23. New Stabilizing Operation for Foot in Infantile Paralysis.—This operation consists of taking a long strip of fascia lata and transplanting it to the lower leg. In a case in which

the tibialis anticus and posticus were paralyzed, there was a marked toe-drop and the foot was turned outward (valgus). The tough fascia which enclosed the muscles and which is attached to the tibia, was split the whole length of the muscle. The lower end of the piece of fascia lata was arranged like a cuff around the tendons of the tibialis anticus and posticus, the dissected surface being next to the tendons and muscle belly. Next, the foot was held in inward rotation and dorsally flexed on the leg, while the upper end of the fascia lata, pulled taut, was stitched down at the origin of the muscles. Then the whole length of the piece of fascia lata was securely stitched to the fascia on either side where it had been divided to expose the muscles and tendons. Another case in which the common extensor and peroneals were paralyzed, was done in a similar manner. Incision was made the whole length of the leg and the enclosing fascia was incised. The long piece of fascia lata was then transplanted. A cuff was formed around the lower end of the tendons, above the annular ligament, the dissected surface being next to the tendons and muscle belly. The foot was then held in strong outward rotation and dorsal flexion, while the upper end of the fascia lata was thoroughly stitched in place. Each side of the strip of fascia lata was then securely stitched to the edges of the divided fascia of the leg.

24. Fractures of Tibia Following Removal of Bone Graft.—Fracture of the tibia from very slight injury has occurred in three of Brooke's cases following the removal of a bone graft. In each case the graft was cut by a motor saw and the tibia not split by the chisel in removing the graft. In two cases the bone grafts were used for an ununited fracture of the radius; the third for the humerus. As the incisions had healed promptly and there was no pain over this area, the patients were allowed to walk about at the beginning of the fifth week.

Illinois Medical Journal, Chicago

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- 26 Some Eugenics Problems that Demand Solution. E. H. Ochsner, Chicago.—p. 301.
- 27 Surgical Reconstruction During and After War. C. Beck, Chicago.—p. 306.
- 28 Tuberculosis Period of Profound Peril. K. B. Rich, Chicago.—p. 309.
- 29 Army Medical Corps. E. J. Doering, Chicago.—p. 312.
- 30 What Oculist Can Learn from Other Physicians. C. Loeb, Chicago.—p. 312.
- 31 Disastrous Possibilities in Thyroidectomy. R. M. Parker, Chicago.—p. 317.
- 32 Appendicitis in Children; Report of Two Cases. I. E. Bishkow, Chicago.—p. 320.
- 33 Rectal Surgery Under Local Anesthesia. C. J. Drucek, Chicago.—p. 322.
- 34 Management of Epiphora or Watery Eye. C. H. Francis, Chicago.—p. 325.
- 35 Etiologic Factors of Chronic Constipation. Z. D. Klopfer, Chicago.—p. 327.
- 36 Eye Muscle Imbalance. R. Von Der Heydt, Chicago.—p. 329.

International Association of Medical Museums, Ann Arbor, Mich.

May, 1918, Bulletin No. 7

- 37 Technic of Preservation of War Material. E. L. Judah, Montreal.—p. 21.
- 38 American Substitute for Russian Paraffin. A. S. Warthin, Ann Arbor.—p. 30.
- 39 Histoloid as Imbedding Agent. W. M. Johnson, New York.—p. 31.
- 40 Modified Sugar Solution as Final Preservative for Museum Specimens. E. B. Ellis, New York.—p. 32.
- 41 Methods of Organ Reconstruction by Injection of Arterial Tree. L. Gross, Montreal.—p. 33.
- 42 Methods of Mounting Animal Parasites in Solution, Including Use of Plaster of Paris. F. D. Weidman, Philadelphia.—p. 36.
- 43 Teaching Collection Connected with Department of Surgical Pathology, Harvard Medical School. D. P. Blair, Cambridge, Mass.—p. 39.
- 44 Souchon Museum of Normal Anatomy. E. P. Souchon, New Orleans.—p. 42.
- 45 Anthracosis Associated with Chronic Tuberculosis. O. Klotz, Pittsburgh.—p. 43.
- 46 Unresolved Pneumonia Associated with Severe Anthracosis. S. R. Haythorn, Pittsburgh.—p. 49.
- 47 Incomplete Transposition of Great Vessels in Girl of Sixteen. J. W. McMeans, Pittsburgh.—p. 53.
- 48 Persistence of Cranial Bone Anlagen in Complete Acrania. C. V. Weller, Ann Arbor.—p. 58.
- 49 Technic of Obtaining Samples of Alveolar Air for Estimation of Carbon Dioxid Tension; Modification of Plesch-Higgins Method. M. E. Abbott, Montreal.—p. 60.

Iowa State Medical Society Journal, Des Moines

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- 50 Present Status of Cardiac Disease. D. L. Rundlett, Sioux Falls, S. D.—p. 200.
- 51 Indications for Cesarean Section. N. Schilling, New Hampton.—p. 207.
- 52 Treatment of Tuberculous Cervical Adenitis. G. Decker, Davenport.—p. 209.
- 53 What Is Significance of Diastolic Blood Pressure? G. E. Crawford, Cedar Rapids.—p. 213.
- 54 Some Details in Abdominal Surgery. A. J. Farnham, Traer.—p. 217.

Journal of Biological Chemistry, Baltimore

June, 1918, 34, No. 3

- 55 *Rate of Dialysis of Blood Sugar in Experimental Diabetes. I. S. Kleiner, New York.—p. 471.
- 56 Influence of Neutral Salts, Bases and Acids on Precipitability of Gelatin by Alcohol. J. Loeb, New York.—p. 489.
- 57 Origin of Conception of Physiologically Balanced Salt Solutions. J. Loeb, New York.—p. 503.
- 58 *Method for Colorimetric Determination of Lactose in Milk. A. J. P. Pacini and D. W. Russell, New York.—p. 505.
- 59 *Analysis and Composition of Seed of Silver Maple (Acer Saccharinum). R. J. Anderson, Geneva, N.Y.—p. 509.
- 60 Urea Content of Placentas from Normal and Toxemic Pregnancies. F. S. Hammett, Boston.—p. 515.
- 61 *Nutritive Factors in Plant Tissues. Protein Factor in Seeds of Cereals. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 521.
- 62 Milk as Source of Water Soluble Vitamin. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 537.
- 63 *Hydrogen Ion Concentrations of Various Indicator End-Points in Dilute Sodium Hypochlorite Solutions. G. E. Cullen and J. H. Austin, New York.—p. 553.
- 64 Carbon Dioxid Content of Urine. W. Denis and A. S. Minot, Boston.—p. 569.
- 65 Study of Nephelometric Values of Cholesterol and Higher Fatty Acids. F. A. Csonka, Pittsburgh.—p. 577.
- 66 Metabolism of Mustard Oils. W. H. Peterson, Madison, Wis.—p. 583.
- 67 *Experimental Studies on Creatin and Creatinin. Alleged Exogenous Origin of Urinary Creatin in Protein of Diet. W. C. Rose, J. S. Dimmitt and H. L. Bartlett, Galveston, Texas.—p. 601.

55. Blood Sugar Dialysis in Diabetes.—Blood from diabetic dogs was dialyzed against Ringer's solution, to which was usually added a small amount of dextrose. The rate of dialysis of the blood sugar was determined by analyzing samples taken at regular intervals. This was compared with similar dialyses of normal dog blood which had been brought to the same sugar content by the addition of dextrose. The diabetic blood sugar dialyzed at an irregular rate, with a delayed or completely interrupted dialysis during one or more periods, usually the second hour. The control dialysis (normal blood with added sugar) was not interrupted in this manner. This is interpreted by Kleiner as possible evidence for the existence of combined sugar in diabetic blood, the significance of which is discussed.

58. Determination of Lactose in Milk.—A rapid colorimetric method based on the blood sugar method of Lewis and Benedict, is described for the determination of lactose in milk. The method is expeditious and accurate and lends itself admirably for routine laboratory procedure.

59. Analysis and Composition of Seed of Silver Maple.—Attention is called by Anderson to the high food value of the seed of the silver maple. The analysis shows that the chief constituents are starch, protein and sucrose. The principal protein is a globulin. The ash contains much potassium and phosphorus. In the seed, the phosphorus is present chiefly in organic combination.

61. Nutritive Factors in Plant Tissues.—The authors' experiments indicate that it ought to be possible to make an animal grow on a diet in which the maize kernel is the sole source of protein, provided a preparation of the total proteins could be obtained which would permit feeding them in sufficient quantity so that enough of those amino acids which are present in certain of the proteins and not in the others would be available to meet the minimum nutritive requirements of the organism.

63. Hydrogen Ion Concentrations of Dilute Sodium Hypochlorite Solutions.—In the preparation of Dakin's hypochlorite solution it has been customary to adjust the reaction by the use of powdered phenolphthalein. After precipitating

the calcium of the bleaching powder with sodium carbonate, Dakin added boric acid to the strongly alkaline hypochlorite solution until it no longer colored powdered phenolphthalein. Daufresne modified this technic by using sodium bicarbonate in place of boric acid, but still used powdered phenolphthalein as the test for the reaction of the solution according to Cullen and Austin. Such a solution has frequently been described somewhat loosely as a neutral solution of hypochlorite, but it is not neutral. Because of the bleaching action of the hypochlorite, the end points of indicators in dilute sodium hypochlorite solutions are different from the end-points of the same indicators in ordinary solutions.

A method is described for studying the hydrogen ion concentrations of dilute sodium hypochlorite solutions by means of the end-points of powdered phenolphthalein, of phenolphthalein in alcoholic solution, and of o-cresolphthalein in alcoholic solution. The end-point to powdered phenolphthalein in a 0.5 per cent. sodium hypochlorite solution is at a p_H of about 10.1. All of the hypochlorite is present as the salt (NaOC). The end-point to alcoholic solution of o-cresolphthalein in 0.5 per cent. sodium hypochlorite solution is at a p_H about 9.3. The same end-point in a 1 per cent. sodium hypochlorite solution is at a p_H of about 9.6. Of the total hypochlorite in these solutions from 7 to 17 per cent. is present as HOCl. This less alkaline solution is sufficiently stable to be satisfactory for clinical use. The end-point to alcoholic solution of phenolphthalein in similar solutions cannot be precisely estimated by the authors' method owing to the rapid decomposition of the HOCl, which constitutes from 35 to 60 per cent. of total hypochlorite of such solutions. The p_H is probably, however, about 8.5 to 8.8. This solution is highly unstable, because of the low alkalinity, and is also for other reasons unsuitable for clinical use.

It is suggested that for certain purposes the hydrogen ion concentration of dilute hypochlorite solutions be defined more closely than has been the custom in the past. For this purpose the end-points of the indicators established above are of value. For preparing sodium hypochlorite solution (Dakin's solution) for chlorin and sodium carbonate, a method is outlined which secures the required hypochlorite, concentration and also the desired alkalinity, simply by using definite amounts of carbonate and chlorin.

67. Creatin and Creatinin Metabolism.—The ingestion of diets excessively high in protein fails to induce the excretion of creatin in normal women and men. Diets yielding 3,400 to 3,900 calories a day, whether accompanied by a moderate (13 gm.) or large (27 gm.) nitrogen intake, exert no appreciable influence on creatin-creatinin metabolism. It is the belief of the authors that no evidence has yet been adduced sufficient to justify the acceptance of a theory which postulates an exogenous origin of urinary creatin in the absence of creatin in the diet.

Journal of Cutaneous Diseases, Chicago

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- 68 Treatment of Dermatitis Venenata by Vegetable Toxins. A. Strickler, Philadelphia.—p. 327.
- 69 Experiments with Roentgen Rays and Radium. W. H. Guy, Pittsburgh.—p. 332.
- 70 Folliculitis Ulerythematosa Reticulata. G. M. Mackee and M. B. Parounagian, New York.—p. 339.
- 71 Cheilitis Exfoliativa. D. W. Montgomery, San Francisco.—p. 363.

Journal of Laboratory and Clinical Medicine, St. Louis

June, 1918, 3, No. 9

- 72 *Researches in Rheumatism. W. Lintz, Brooklyn.—p. 509.
- 73 *Massive Infarction of Spleen; Report of Case. D. G. Richey, Pittsburgh.—p. 519.
- 74 *Etiology of Scarlet Fever. R. W. Pryer and G. Sewell, Detroit.—p. 525.
- 75 Adaptations of Renal Function Tests for General Use. W. T. Vaughan.—p. 531.
- 76 *Three Cases of Parietal Aortic Thrombosis. P. G. Woolley, Cincinnati.—p. 539.
- 77 Tables for Use in Blood Analysis. F. H. Frankel, New York.—p. 548.
- 78 Apparatus for Teaching Laboratory. 1. Device for Determination of Time of Muscular Contraction and Relaxation. 2. Automatic Key. A. W. Downs and G. Hays, Montreal, Canada.—p. 553.
- 79 Simple Mounting for Carbon Dioxid Apparatus of Van Slyke. W. Morse and L. L. Landenberger, Chicago.—p. 557.

- 80 Uniformly Satisfactory Method of Collecting Urine Separately from Each Ureter in Acute Experimental Work (Dogs). A. B. Luckhardt, Chicago.—p. 558.

72. Researches in Rheumatism.—The object of Lintz' work was to demonstrate that in at least a small percentage of cases of acute articular rheumatism a definite micro-organism can be isolated from the blood, and to establish the pathogenicity of the micro-organism by animal experimentation. The four cases which yielded positive blood cultures were typical cases of acute articular rheumatism. The micro-organism isolated resembles a streptococcus. Acute articular rheumatism, with its frequent complication, pericarditis, has apparently been reproduced in a dog, by an organism isolated from the blood of a patient suffering from a similar disease. Further studies are necessary to determine whether acute articular rheumatism is caused by a specific micro-organism.

73. Massive Infarction of Spleen.—A negro man, 35 years of age, was admitted to the hospital in a semicomatose state. The only available history was that of a protracted deafness and that the onset of his present illness had antedated his death by a period of eight days. There was no history or antemortem, physical or laboratory finding which pointed to the presence of any splenic condition. The cause of death was directly referable to an acute suppurative meningitis (pneumococcic), the origin of which was an old otitis media and mastoiditis. The spleen was very atrophic, showing a large area of necrosis, fibrosis and calcification, and two small peripheral masses of living splenic tissue surrounded by dense fibrous adhesions. The positive findings in the other viscera were coincidental to the acute infection of the meninges, save for the presence of many small gallstones. No focus from which an embolus could have arisen was found. No congenital abnormalities were evident.

74. Etiology of Scarlet Fever.—A preparation made from cultures of an organism isolated from the blood of a man dying of scarlet fever by a method similar to the preparation of typhoidin from the typhoid bacillus gives a higher percentage of reactions in scarlet fever convalescents than is the case in other infectious diseases, while typhoidin gives slightly more positive reaction in other infectious diseases than it does following scarlet fever. The probability of a positive reaction with scarlatin, as the authors call this preparation, increases with the duration of disease and in people with no history of scarlet fever increases with age of the person tested. They do not hold that they have proved that this organism is the etiologic factor in scarlet fever, but that they have presented sufficient evidence to give this organism serious consideration as a possible and probable cause of the disease.

76. Parietal Aortic Thrombosis.—Three cases are reported by Woolley in which aortic thrombosis occurred at the seats of syphilitic lesions. From these thrombi, emboli were carried to various portions of the body. In one case the symptoms were acute; in one they were chronic and referred to paralytic disturbances; in one they were probably acute and paralytic.

Kansas Medical Society Journal, Topeka

June, 1918, 18, No. 6

- 81 Treatment of Burns. G. M. Seacat, Cherryvale.—p. 133.
- 82 Uremic Ulceration of Intestine. R. H. Major, Rosedale.—p. 136.

Laryngoscope, St. Louis

June, 1918, 28, No. 6

- 83 Pathology and Therapy of Tonsils in Light of Their Physiologic Function. P. J. Mink, Utrecht, Holland.
- 84 Abnormal Voices: Falsetto, Nasality, Hoarseness, Cleft Palate Speech, Choreatic Speech, Anarthria, Voice of Deaf and Mental Deficient. M. K. Scripture, New York.—p. 457.
- 85 Lateral Sinus Thrombosis; Report of Three Cases. D. H. Ballon, Montreal, Canada.—p. 465.
- 86 Attempt at Simplification of Physiology of Vestibular Labyrinth. I. H. Jones, Philadelphia.—p. 472.
- 87 Periodic Attacks of Vasomotor Rhinitis Followed by Asthma and Symptoms of Paranoia, Recurring Over Period of Ten Years. J. R. Davies, Jr., Philadelphia.—p. 475.
- 88 Epithelioma of Esophagus; Report of Case. E. Mayer, New York.—p. 477.
- 89 Unusual Disease Conditions Apparently Cured by Tonsillectomy. V. Dabney, Washington, D. C.—p. 479.
- 90 Case of Pansinusitis on One Side with Tic Douloureux on Other Necropsy. W. L. Culbert and J. G. Dwyer, New York.—p. 480.
- 91 Laryngectomy for Epithelioma. H. Arrowsmith, Brooklyn.—p. 489.

- 92 Embryonic Carcinoma of Ethmoid and Roof of Antrum. J. A. MacKenty, New York.—p. 491.
93 Adenoids in Adults. F. A. Lewis, Auburn, N. Y.—p. 493.

Medical Record, New YorkJune 29, 1918, **93**, No. 26

- 94 Origin and Organization of Department of Health of City for New York. S. Smith, New York.—p. 1115.
95 What General Practitioner Should Know About Acute Gonorrhea in Male. A. L. Wolbarst, New York.—p. 1118.
96 Melanoderma Arsenicale Produced by Cacodylate of Iron. D. W. Montgomery, San Francisco.—p. 1121.
97 Normal and Abnormal Psychiatry. B. Lemchen, Dunning, Ill.—p. 1123.
98 Some Medical Antecedents. J. A. Hagemann, Pittsburgh.—p. 1125.
99. *New Method of More Accurately Determining Upper Border of Liver by Means of Percussion. G. L. Laporte, New York.—p. 1126.

99. **Method of Determining Upper Border of Liver by Means of Percussion.**—Laporte percusses from above downward in the mammillary line, laying the end phalanx of the index finger firmly on the chest wall parallel to the ribs and using a medium strong percussion stroke. At the first change of sound from clear pulmonary resonance to a somewhat duller sound a line is drawn on the chest wall. Then place the finger over the liver dulness at the lower costal margin and percuss with the lightest possible percussion (threshold percussion, so light that over liver dulness hardly any sound is audible) upward until a slightly more resonant percussion sound is perceived (lower lung border). Another line is placed on the thorax at this point. The true upper liver border lies half way between these two lines. In all Laporte percussed 100 cases to determine the upper liver border, all of which were controlled fluoroscopically. Of these 100 patients forty-one were examined by the old method. In the vast majority of these, the upper liver border was placed too high, sometimes as much as 5 or 6 cm. Fifty-nine cases were percussed by the new method and the results were found to be much more accurate, very frequently exact, and seldom varying more than 1 cm.

Medicine and Surgery, St. LouisApril, 1918, **2**, No. 4

- 100 Army and Tuberculosis. P. K. Brown, San Francisco.—p. 389.
101 Examination of Enlisted Men for Tuberculosis. P. Gath.—p. 396.
102 Tuberculous Lymph Glands of Neck Treated by Roentgenotherapy. C. A. Pfender, Washington, D. C.—p. 400.
103 Diagnosis of Early Pulmonary Tuberculosis. M. F. Morris, Jr., Chelsea, Mass.—p. 418.
104 Practical Diagnosis of Tuberculosis from Treatment Standpoint. W. H. Watterson, Chicago.—p. 429.
105 Predisposing Factors in Etiology of Tuberculosis, Theoretically Considered—Plan to Reduce Greatly Incidence of Tuberculosis. O. H. Brown, Phoenix, Ariz.—p. 434.
106 Treatment of War Cases of Tuberculosis by Artificial Pneumothorax. M. E. Lapham, Highland, N. C.—p. 443.
107 Phthisiophobia. S. A. Slater, Oil City, Pa.—p. 447.
108 Occluded Renal Tuberculosis—Autonephrectomy. J. R. Caulk and H. C. Greditzer, St. Louis.—p. 453.
109 Roentgen Diagnosis of Early Pulmonary Tuberculosis. M. J. Hubeny, Chicago.—p. 457.
110 Causation and Prevention of War. J. Dworetzky, Staten Island, N. Y.—p. 487.

New York Medical JournalJune 29, 1918, **107**, No. 26

- 111 Prevention of Hydrophobia. H. L. Abramson, New York.—p. 1209.
112 Defective Vision; Its Pathologic Significance. A. Gumbiner, New York.—p. 1214.
113 Sarcoma of Corpus Callosum. J. Byrne and A. H. Harrigan, New York.—p. 1217.
114 Tetany. C. E. Hyde, Bridgeport, Conn.—p. 1218.
115 Dichloramin-T in Treatment of Wounds. J. C. Scal, New York.—p. 1222.
116 Acute Febrile Entity with Vomiting, Somnolence and Acetone. II. Lowenburg, Philadelphia.—p. 1220.
117 Gastro-Intestinal Diseases in Aged. S. Floersheim, New York.—p. 1223.

Pennsylvania Medical Journal, AthensJune, 1918, **21**, No. 9

- 118 Treatment of Fractures of Neck of Femur; Whitman's Abduction Treatment. G. M. Dorrance, Philadelphia.—p. 551.
119 Pneumococcic Peritonitis. E. W. Meredith, Pittsburgh.—p. 556.
120 Treatment of Fracture of Patella. C. D. Schaeffer, Allentown.—p. 558.
121 Surgical Factors in Tuberculous Peritonitis. L. J. Hammond, Philadelphia.—p. 561.
122 Treatment of Chronic Hypertrophic Rhinitis. E. J. Stein, Lancaster.—p. 564.

- 123 Traumatic Sixth and Seventh Nerve Paralysis; Operative Treatment with Functional Recovery. T. J. Moran, Pittsburgh.—p. 568.
124 Treatment of Malignancy in Mouth and Throat by Radium. R. H. Boggs, Pittsburgh.—p. 571.
125 Functional Tests of Kidney in Diagnosis and Prognosis. O. H. P. Pepper, Philadelphia.—p. 575.
126 Radium in War Surgery. W. H. Cameron, Pittsburgh.—p. 579.

Public Health Journal, TorontoJune, 1918, **9**, No. 6

- 127 Trail of Medical Vampire. F. Paul, Toronto.—p. 249.
128 Venereal Diseases as Communicable Diseases. M. M. Seymour, Regina, Sask.—p. 255.
129 Relation of Alcohol to Acquisition of Venereal Diseases. G. Bates.—p. 262.
130 Why It Is Worth While to Construct Sewerage Systems in Small Towns of Ontario. F. A. Dallyn.—p. 271.
131 Case of Generalized Vaccinia. J. G. Fitzgerald.—p. 278.
132 Botulism. E. C. Dickson.—p. 280.
133 Social Background. Children as Wards. P. J. Bench.—p. 286.
134 Social Control and New State. F. U. Stapleford.—p. 287.

Southern Medical Journal, Birmingham, Ala.June, 1918, **11**, No. 6

- 135 *Treatment of Locomotor Ataxia and Genral Paresis by Intraspinal Injections of Bichlorid of Mercury. R. B. McBride, Dallas, Texas.—p. 407.
136 Practical Discussion of Carminatives. G. M. Niles, Atlanta, Ga.—p. 411.
137 Cercomonas Diarrhea and Its Management. S. K. Simon, New Orleans.—p. 414.
138 Dental Foci and Diseases Related. T. P. Hinman, Atlanta, Ga.—p. 419.
139 Rural Tuberculosis as Health Problem. H. Boswell, Magee, Miss.—p. 422.
140 North Carolina Plan of County Health Work. B. E. Washburn, Raleigh, N. C.—p. 425.
141 Latent Manifestations of Syphilis in and About Joints. E. S. Hatch, New Orleans.—p. 431.
142 Scrotal Skin Grafts in Severe Injuries of Penis. S. R. Benedict, Birmingham.—p. 438.
143 Cancer of Penis; Report of Case. M. Y. Dabney, Birmingham.—p. 443.
144 Use of Radium in Nonmalignant Uterine Hemorrhage. C. J. Miller and E. L. King, New Orleans.—p. 449.
145 How Industrial Surgeon Can Best Cooperate with Government During War. J. C. Bloodgood, Baltimore.—p. 453.
146 Retinochoroiditis Juxtapapillaris (Jensen's Retinitis). H. H. Martin, Savannah, Ga.—p. 455.
147 Some Advantages of Sitting Posture in Nose and Throat Operations Under Ether. F. D. Sanger, Baltimore.—p. 459.
148 Value of Ophthalmoscope, Retinoscope and Pupillary Disk in Refraction. A. B. Mason, Waycross, Ga.—p. 466.

135. **Treatment of Locomotor Ataxia and Paresis.**—McBride employs mercuric chlorid intraspinally. From one sixtieth to one fortieth of a grain of mercuric chlorid, dissolved in from 1 to 2 c.c. of distilled water, is introduced into one-half ounce or more of spinal fluid that has been collected from the patient into a glass funnel. Experience with some cases has convinced McBride that infected blood is capable of reinfecting the spinal fluid or vice versa. Where the interval between spinal treatments has been long he has found some fluids that had become negative to the spinal fluid tests, again become positive, and they became so before clinical symptoms were manifest in many cases. It was not until he combined the intraspinal and intravenous methods of treatment that both the blood and spinal fluid became negative to all tests. Results obtained by this combined method are very gratifying and the treatment leads to an absolute cure so far as clinical symptoms are concerned, for at least a good period of time. So far none diligently treated has fallen down.

Southwest Journal of Medicine and Surgery, El Reno, Okla.June, 1918, **26**, No. 6

- 149 Modification of Watkins Operation for Procidencia. W. E. Dicken, Oklahoma City.—p. 121.
150 Plea for More Careful Refraction. J. D. Pifer, Joplin, Mo.—p. 125.
151 Disorders of Metabolism; Report of Three Cases. H. J. Stacey, Leavenworth, Kan.—p. 136.

Texas State Journal of Medicine, Fort WorthJune, 1918, **14**, No. 2

- 152 After the War—What? B. L. Jenkins, Clarendon.—p. 57.
153 Educational Function of Institutions Caring for Tuberculous. B. Cornick, San Angelo.—p. 63.
154 Study of Venereal Diseases. A. I. Folsom, Dallas.—p. 60.
155 Study of Cancer. R. W. Knox, Houston.—p. 63.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 8, 1918, 1, No. 2997

- 1 Utilization of Muscles of Stump to Actuate Artificial Limbs. V. Putti.—p. 635.
- 2 Relation Between Heat-Stroke and Malignant Malaria. C. E. H. Milner.—p. 638.
- 3 Basal Leptomeningitis Resembling Botulism. S. T. Steward.—p. 639.
- 4 Early and Effective Reduction and Fixation of Gunshot Fractures of Femur. O. H. Williams.—p. 639.
- 5 *Agglutination in Diagnosis of Dysentery. C. J. Martin, P. Hartley and F. E. Williams.—p. 642.
- 6 *Postoperative Pulmonary Embolism Due to Condition of Blood. A. L. Smith.—p. 644.

5. **Agglutination in Diagnosis of Dysentery.**—The authors tested the serum from 151 cases of dysentery from whose stools bacilli of this group had been isolated, and found that in only fifty-eight did the patient's serum contain ten or more agglutinin units, that is, less than 40 per cent. of the persons who had recently been infected by a member of the Flexner-Y group exhibited an agglutinin content in the serum of ten or more units. In every case of proved Shiga infection the patient's serum agglutinated the standard agglutinable culture used, and this agglutination was always complete in the highest dilution of the patient's serum tested. These results indicate that in the case of infections due to *B. dysenteriae* Shiga determination of the agglutinin content of the patient's serum constitutes a valuable method of diagnosis.

6. **Postoperative Pulmonary Embolism.**—Smith says that if the full normal proportion of water is present in the blood before operating pulmonary embolism will not occur. Replace by the rectum the amount of liquid lost by vomiting, catharsis, sweating, hemorrhage and urine, either during the operation or immediately after it. Encourage the patient to move the lower limbs freely, if not during the first two days at least during the next ten. Give the patient abundance of water between meals and during the night; it may be hot or cold, sweet, sour, or salty, in the form of lemonade, barley water, weak tea without milk, or beef tea; a jug and drinking cup with spout should be left within reach so that it may be taken when wanted without waiting for the nurse to come. Speedy operating lessens embolism because it means less hemorrhage, and less sweating and less loss of water from the system. Round pointed needles with flat eyes are much less likely to cause hemorrhage than ones with cutting edges, and should alone be used in the abdomen.

Edinburgh Medical Journal

June, 1918, 20, No. 6

- 7 Perforated Gastric and Duodenal Ulcer. W. O. Wood.—p. 358.
- 8 Cerebrospinal Fever. P. W. MacLagan.—p. 370.
- 9 Training of Student of Medicine: Teaching of Materia Medica and Therapeutics. T. R. Fraser, C. R. Marshall, W. C. Sillar and R. Stockman.—p. 380.
- 10 Id. Teaching of Public Health in Curriculum of Medical Students. J. Robertson, M. Hay and H. Stewart.—p. 398.

Journal of Tropical Medicine and Hygiene, London

June 1, 1918, 21, No. 11

- 11 Case of Blackwater Fever with Prowazekia in Urine. E. T. Wright.—p. 113.
- 12 Genus Endoplasma Castellani, 1914. S. L. Brug.—p. 114.

Lancet, London

June 8, 1918, 1, No. 4945

- 13 *Kineplastic Amputations. V. Putti.—p. 791.
- 14 Methods of General Anesthesia in Facial Surgery. R. Wadc.—p. 794.
- 15 So-Called Functional Symptoms in Organic Nerve Injuries. J. S. B. Stopford.—p. 795.
- 16 Conception of Regression in Psychologic Medicine. M. Nicoll.—p. 797.
- 17 Hernia of Urinary Bladder. H. Blakeway.—p. 799.
- 18 Effect of Convection Currents on Agglutination. W. W. C. Topley and S. G. Platts.—p. 800.

13. **Kineplastic Amputations.**—Kinematic plastics, or kineplastics, is the term applied to any kind of bloodless or operative plastics that tend to economize, restore, or sub-

stitute muscular masses which can be employed toward imparting direct and voluntary movement to an artificial limb. In an actual, or antecedent, amputation or disarticulation, the tendon and muscle, provided they have the necessary physiologic protection (skin, vessels, nerves, etc.) can generally be used for the kinematic prosthesis, provided that they admit of the formation of an artificial point of attachment, to be protected in a similar manner.

Kinematization can be effected, or prepared for, at the time that the primary amputation is made; it can also be done on stumps that have already healed. Motor flaps may vary as to their number, position, shape and function. The most elementary and the most commonly used, are the clava and ansa motors, and also those obtained by means of the canalizing, or tunnelizing, of the muscular masses. As regards the number, the motor can be single, double or multiple; in function it can be either unimotor or plurimotor. When the motor is made to execute two opposite movements in succession one to the other it is called alternative. According to the position they occupy motors are either terminal when placed at the extremity of the stump, or extra-terminal should they be placed in the continuity of the stump. Up to the present the upper limb has been the part that has been the most frequently kinematized, but the number of successful cases of kinematization of the lower limbs is daily increasing.

Putti says that skin flaps, muscular insertions, various bone and tendinous fragments and segments of limbs, which would seem utterly superfluous under ordinary circumstances for the preparation of ordinary stumps, are to be considered of the greatest value in view of the future kineplastics. A motor flap, in order to correspond with the object for which it is made, must conform to the following requirements: 1. It must possess every requisite for withstanding a firm, resisting and painless, grip, also a traction that, in not a few instances, may attain a high degree. 2. It must be provided with a sufficient amount of functional muscular tissue to guarantee the accomplishment of the task that will be demanded of it. The primary conditions for obtaining the first requisites are: 1. That the motors be covered with skin in perfect condition, well nourished, and provided with a normal degree of sensibility. 2. That, with regard to its shape and dimensions, the motor be of a size suitable for the fastening of the hooks, wings, and reeds that are destined to transmit the functional movement to the artificial limb. The muscular masses must be sought for and obtained from among those of which the stump still disposes, and that, on account of their anatomic structure and physiologic disposition for the production of broad, strong and independent contractions, are best adapted to the task.

As the tendon is the element best adapted for the transmission of muscular contractions, it must be largely employed for the formation of motor flaps. Should the tendon be missing the muscles must be utilized either by including muscular bundles within the terminal motors or by tunnelizing the muscular masses in order to obtain extra-terminal motors. The antagonistic powers, indispensable to all active movement, must be provided either from the stump itself, by the formation of motors with elements belonging to muscular groups of opposite action, or from the artificial limb by means of elastic resistance in the opposite direction to the resistance offered by the motor flap.

With a view to gaining both space and integuments it may be advantageous, at times, to shorten slightly the bony stump and to perform excision of superfluous muscular masses; this, however, depends on the bone being sufficiently long to allow it. In order to provide such materials as may be missing in loco recourse may be had to the numerous methods that modern plastic surgery places at our disposal, as, for instance, skin, muscular, aponeurotic, or osseous transplantation, etc. Arthroplasties, with the interposition of aponeurotic flap, may be utilized so as to render mobile those stump segments which, through stiffness and ankylosis, have become unusable. By these same means neo-arthritis can be created in the continuity of the stump, thus giving the motor flap the power to develop a leverage action.

As a result of kineplastics, it is possible to utilize those stumps which, up to the present, had always been held as incapable

of functional movement, as, for instance, the carpal stumps, the very short forearm stumps, and the disarticulation stumps. The surgeon who, in the case of shoulder disarticulation, succeeds in sparing the deltoid and pectoralis major, in covering these muscles with skin and in finding means for creating a point of attachment may be congratulated on having preserved for the benefit of the mutilated man a precious functional capital. With regard to the difficult problem of utilizing short forearm or short leg stumps, the solution will be enormously facilitated through the preparation of points of attachment that correspond to the insertion of the biceps and patella tendons.

Medical Journal of Australia, Sydney

May 18, 1918, 1, No. 20

- 19 Agglutination After Administration of Typhoid and Paratyphoid Vaccines. W. K. Inglis.—p. 405. To be continued.
- 20 Practice of Anesthetics. E. H. Embley.—p. 410.

Quarterly Journal of Medicine, Oxford

April, 1918, 2, No. 43

- 21 *Pathologic Anatomy of Primary Mediastinal Sarcoma. G. T. Hebert.—p. 165.
- 22 *Pathogenesis of Diphtheritic Paralysis. F. M. R. Walshe.—p. 191.
- 23 Importance of Mechanical Factor in Treatment of Pulmonary Tuberculosis. H. M. Davies.—p. 205.
- 24 Bone Changes Occurring in von Recklinghausen's Disease. E. P. Gould.—p. 221.
- 25 *War Nephritis. N. M. Keith and W. W. D. Thomson.—p. 229.
- 26 *Gunshot Wounds of Chest. J. M. F. Brickdale.—p. 267.

21. **Pathologic Anatomy of Mediastinal Sarcoma.**—Twenty-six cases were studied by Hebert. He says: Dyspnea is the most prominent symptom, and is often out of all proportion to the amount of lung tissue involved. It was present in all of the cases, and in the majority was very marked. Cough is generally a prominent, and often the earliest, symptom. The amount of sputum is, as a rule, small, and less than in cases of pulmonary tuberculosis. Malignant cells can occasionally be recognized in it. Hemoptysis is said to be an unimportant symptom, but it was recorded in 24 per cent. of the cases. Loss of weight, though not so pronounced as in most cases of extrathoracic malignant disease, is almost invariably present to a greater or less extent. Night sweats were present in 36 per cent. of the cases, and seemed to bear no relation to pyrexia. Pain is a common complaint, cyanosis, venous dilatation, and edema form an important group of symptoms. Dysphagia, hoarseness, and contracted pupil are not uncommon, and may be among the earlier symptoms. Vomiting and hiccough are more rarely seen. Coma, delusions, and mental derangement occur in the later stages. The symptoms due to metastatic deposits in the abdomen are few, and occur late. Cerebral metastases, when they occur, are more important.

Primary mediastinal sarcoma arises in the lymph gland structures of the thorax; that is, the thymus and the lymph glands, except in the cases of the rarer forms of sarcoma such as lipoma sarcomatodes and osteosarcoma and chondrosarcoma, and in the cases of growths of subpleural origin which should really be classed as endotheliomas. Starting in a gland the new growth enlarges, both by extension along lymphatics to neighboring glands and by breaking through the capsule and invading surrounding connective tissue, to form an irregularly lobulated tumor which increases in size in the direction of least resistance. The more rapidly growing of these tumors are, as a rule, soft and white, exuding a milky fluid on section. Small hemorrhages are often seen in the deeper parts, and generally some pigmented glandular remnants. There is usually an ill-defined capsule, continuous with the connective tissue stroma of the growth. Small grey or dull yellow areas of degeneration are present, especially in the more fibrous, more slowly growing tumors, some of which are of a daffodil yellow color. The metastatic deposits and the secondary extensions sometimes show the true features of the growth better than do the mediastinal glands. Degeneration is especially common in the pulmonary growth, owing no doubt to superadded septic infection.

Microscopically, the twenty-six cases of the series presented very similar characteristics. The cell common to all was an oval cell rather larger, sometimes much larger, than the

lymphocyte, but, like it, possessing little cytoplasm. The nucleus has a capsule which sometimes appears to be rather shrunken, and it stains less deeply than does that of the lymphocyte. It contains a granular network and a well-marked eosinophil nucleolus. The cells are sometimes seen in pairs, and lie in a delicate connective tissue reticulum. Spindle cells, giant cells, and cells resembling the myelocyte were present in small numbers.

Primary mediastinal sarcoma invades the lung, in the majority of cases, by extension from the mediastinal glands. The trachea suffers, especially at its lower end, in almost all cases of mediastinal sarcoma. The main bronchi are found, generally to have suffered severely. Ten of the twenty-six cases showed invasion of heart muscle. Nineteen cases showed invasion of the pericardium. Cases of primary mediastinal sarcoma are often wrongly diagnosed as pulmonary tuberculosis, and occasionally as aortic aneurysm or as pulmonary fibrosis.

22. **Pathogenesis of Diphtheritic Paralysis.**—Walshe is convinced that diphtheritic paralysis at any rate in the initial and most characteristic of its stages, and of cranial nerve involvement, is an ascending infection of the central nervous system; the toxin elaborated in the membrane passing up to the medulla in the perineural lymph channels of the cranial nerves innervating the tonsils and fauces. There seems, then, to be a twofold mechanism in the production of diphtheritic paralysis in man. There is the initial sometimes severe and relatively short-lived local paralysis, due to the action of the toxin, which has ascended the nerves innervating the local lesion, on the nerve nuclei in the brain stem. Secondly, there is the later, longer-lasting generalized paralysis, which is part of the general systemic toxemia.

25. **War Nephritis.**—The data presented by Keith and Thomson were obtained from thirty-three specially selected typical cases of war nephritis. These cases are divided into two groups: Resolving and nonresolving. The resolving group is characterized by: (a) Rapid disappearance of edema accompanied by a distinct diuresis, copious excretion of chlorids and fall in blood pressure. (b) Rapid diminution in amount of albumin in urine. (c) Relatively good renal function. The nonresolving group is characterized by: (a) Slow disappearance of edema and delayed diuresis. (b) Persistent gross hematuria and persistence of albumin in the urine. (c) Development of permanent retinal changes. (d) Grave impairment of renal function. The acute nephritis following a focus of infection is a distinct entity from war nephritis. Relapses are of frequent occurrence in both types of the disease and are of serious prognostic significance.

Functional studies during relapse give many interesting results as regards the different methods of excretion of different substances by the kidney. An acidosis of moderate degree is present. In the resolving group this disappears with general improvement, but in the nonresolving group alkali therapy is required to restore the normal acid base relationship. Functional tests are of the greatest value in forming an opinion as to the extent of renal impairment. The gravity of certain cases may be entirely overlooked if one depends on clinical observation alone. In the early stages of the disease the excretion of phenolsulphonephthalein, the urea content of the blood, and the concentration of the chlorids in the urine are the most helpful. When the acute symptoms subside and the above tests give more or less normal results, Ambard's coefficient often shows evidence of a damaged kidney. Prognosis as to ultimate complete recovery, even in the resolving group, must be guarded. In the nonresolving group many cases show relatively early in the disease evidence of permanent renal change. The exhibition of alkali therapy is of distinct service in many cases, as shown not only by a restoration of the normal acid base relationship in the blood, but also by an improvement in renal function.

In cases terminating fatally in the first two weeks of the disease an intracapillary glomerulitis is the most striking histologic feature; in cases in which death has occurred in the fifth week there is found, in addition, a proliferation of the cells lining Bowman's capsule, intense edema of the interstitial tissue, small round celled infiltration and flattening of the epithelium lining the convoluted tubules. Cases in which

death has been delayed to the seventh week of the disease show the proliferated cells of Bowman's capsule replaced by fibrous tissue, with resulting sclerosis of the Malpighian tuft, increase of interstitial tissue, and widespread and severe tubular changes.

26. Gunshot Wounds of Chest.—One hundred and sixty-nine cases of injury to the chest came under Brickdale's observation during the last half of 1916. The patients were in most cases admitted within a week after the injury. The initial symptoms were collapse, pain, more or less shortness of breath (often only on exertion), fever, and hemoptysis. Hemoptysis occurred in 117, or 77.4 per cent. As a rule the amount is trifling and the symptom needs no special treatment. In twenty-seven cases diagnosed as laceration or bruising of the lung, in which there were no signs of hemothorax, hemoptysis occurred in all. Febrile symptoms are present in the large majority of cases. The physical signs of hemothorax are usually quite distinctive. They may be confirmed by roentgenography and exploratory puncture. Jaundice of the toxic type was observed in two cases. Abdominal injuries occurred in three cases, and were fatal. Lesions of the nervous system were noted in four cases. In two the spinal cord was damaged, producing paraplegia; in two there were peripheral nerve injuries producing paresis of the right arm. Hematuria occurred in one case. Subcutaneous emphysema was noted in twenty-one cases. Secondary hemorrhage occurred in one instance.

The gross mortality of the 150 penetrating wounds of the chest was nine, 5.6 per cent., but not all of these patients died of thoracic injuries. The deaths which were attributable to purely intrathoracic injuries were four in number, or 2.5 per cent. of the total number of cases. This includes one patient who died of septic pericarditis and pleurisy. Of the nine deaths which occurred in the entire series all but one, were due to septic infection. In twenty severely infected cases there were four deaths from purely intrathoracic causes (20 per cent.). When the fluid withdrawn by the exploring syringe is found to contain numerous bacilli, streptococci, or pus cells, the ordinary surgical treatment for an empyema is necessary. The lightly infected cases may be treated in the same way as those which are bacteriologically sterile, but they require careful watching, and often repeated exploration, as in some the infection becomes more severe, definite pus appears in the pleura, and reaction becomes necessary. In simple sterile hemothorax the treatment will depend on the size of the effusion and its effects on the position of the heart and the general comfort of the patient.

Archives des Maladies de l'Appareil Digestif, etc., Paris

April, 1918, 9, No. 11

- 27 *Lamblia Enteritis.* R. Goiffon and J. C. Roux.—p. 601.
28 *Enteroptosis in Connection with Inadequate Diets.* M. Einhorn (New York).—p. 616.
29 **Paradoxical Chemistry of the Stomach with Gastric Ulcer.* L. Timbal.—p. 625.
30 *Ictero-Hemorrhagic Spirochetosis.* R. Savignac.—p. 645.

29. Deficient Gastric Secretion with Gastric Ulcer.—Timbal has encountered eleven cases in which ulceration occurred in stomachs with achlorhydria or hypochlorhydria. These cases of paradoxical chemistry show that too much reliance must not be put on chemical exploration of the stomach. As a rule, however, there is some anatomic viciation which explains the abnormal functional findings, and some inflammatory process must have been responsible for the anatomic viciation. He warns further that in estimating the findings after a test meal the concentration is very important. During the digestion of the Ewald meal, the concentration at the thirtieth minute is 0.09; at one hour, 0.06, which corresponds normally to the acme of digestion, and then the concentration diminishes progressively down to 0.01. When the concentration is above 0.06, we can be confident that the acme of the digestion has not been reached; when below 0.06, that it is past. By this means we can estimate tardy or early hyperchlorhydria and thus escape labeling certain cases as hypochlorhydria when there is really excessive secretion. In some the concentration was 0.07, which showed that the stomach contents had been withdrawn before the digestive process

had reached its height. This explanation based on the concentration does not explain the cases lacking hydrochloric acid in any form. In his experience, these were mainly cases of ulcer on the lesser curvature. The symptoms with these ulcers, spasm of the cardia, salivation and nausea, suggest that the pneumogastric nerve is responsible for them, and that the ulcer injures this nerve directly. Syphilitic changes may cooperate in some cases.

Archives des Maladies du Cœur, etc., Paris

May, 1918, 11, No. 5

- 31 *Diastolic Murmur with Simple Perforation of Intraventricular Septum.* L. Bard.—p. 193.
32 **Peripheral Signs of Cardiac Symphysis.* C. Pezzi.—p. 201.

32. Peripheral Signs of Cardiac Symphysis.—Pezzi gives the tracings in some cases, showing the paradoxical pulse, the swelling of the veins of the neck in the course of a tranquil inspiration. It shows in the tracings by an arterial wave of moderate amplitude during expiration; the amplitude is larger during the respiratory pause. This is the paradoxical pulse of mechanical origin, which Griesinger and Kussmaul explained by mechanical factors causing the disappearance of the arterial pulse during inspiration on account of adhesion between the mediastinum and the pericardium. The paradoxical pulse of dynamic—generally respiratory—origin occurs only in forcible inspiration. It is accompanied by the collapse of the vein during inspiration, and shows in the tracings by an arterial wave higher during expiration, while during the respiratory pause the amplitude is moderate. The presystolic liver pulse is the most instructive sign of concomitant endopericardiac symphysis. This presystolic pulsation in the liver testifies that there is some obstacle impeding the right auricle from emptying its contents into the ventricle below. The auricle has to redouble its effort of systole in order to force its contents along, and this forces some of its contents back into the inferior vena cava as far as the liver. If the heart lies free in the pericardium, even if the latter is adherent to the mediastinum, there is no need for this extra effort. It becomes necessary however if the ventricle is encircled by a pericardium whose two sheets are fused together. This stiff shell prevents the normal play of both ventricle and auricle.

Archives de Médecine des Enfants, Paris

June, 1918, 21, No. 6

- 33 **Visceral Spasms in Inherited Syphilis.* H. H. Barbier.—p. 281.
34 *Cultivation of Diphtheria Bacilli on Sweetened Gelose.* E. C. Aviragnet and Le Soudier.—p. 299.
35 *Recent Works on Effects on Infants of Fat-Free Diet.* J. Comby.—p. 313.

33. Visceral Spasms in Inherited Syphilis.—Barbier reiterates that the nervous system of the child may suffer predominantly from inherited syphilis, the clinical picture simulating acute or tuberculous meningitis, epilepsy or insular sclerosis. If one bears in mind the possibility of syphilis as a causal factor in such cases, treatment may be instituted in time. Other manifestations on the part of the nervous system are periodical paroxysmal vomiting, attacks of enteralgia, and nocturnal enuresis. He describes in detail seven typical cases of paroxysmal vomiting in children of 4, 5, 7 and 10, in families with known syphilis in parents or grandparents. Two of the children were brother and sister. In some of the cases there were meningeal symptoms or other nervous manifestations. In one family one child had enuresis and recurring enteralgia; another, headache and vomiting about once a month, and a third, epileptiform attacks. The vomiting occurs spontaneously, with no connection with meals, often fasting. It is generally preceded by a few hours or days and is accompanied by violent frontal headache. There is no nausea; the child suddenly grows pale, and vomits in a gush. In some cases this was repeated twenty times in the twenty-four hours, and there was some blood in the vomit. The child returns to his play as soon as the attack is over. The intervals between attacks are irregular; there may be two or three a year or at longer intervals. They are rarely shorter than a few months, but the tendency may keep up for years to puberty. Lumbar puncture gives the clue as the Wassermann reaction is always positive, whether or not there is lympho-

cytosis. Any tendency to fever turns the scale toward tuberculous meningitis in dubious cases.

Bulletin de l'Académie de Médecine, Paris

May 21, 1918, 79, No. 20

- 36 Early Vaccination of the Newborn. Wurtz.—p. 391.
- 37 Hemiplegia from Tuberculous Meningitis. T. Legry.—p. 393.

Bulletins de la Société Méd. des Hôpitaux, Paris

April 19, 1918, 42, No. 13

- 38 *Reactions in Blood Serum and Spinal Fluid in Epilepsy. L. Babonneix and H. David.—p. 357.
- 39 Improvement in Leprosy under Cod Liver Oil. Balzer.—p. 360.
- 40 *Epidemic Lethargic Encephalitis. H. Claude.—p. 364.
- 41 *Epilepsy Consecutive to Meningitis. P. Sainton.—p. 368.
- 42 *Multiple Complications of Scarlet Fever. P. Nobécourt and H. Gimbert.—p. 373.
- 43 Tardy Tachycardia of Scarlet Fever. P. Nobécourt and H. Grimbert.—p. 378.

38. **Abnormal Reactions in Blood Serum and Spinal Fluid in Epilepsy.**—Epilepsy is unmistakably the result of lesions of the meninges and cortex, and in the majority of cases these can be traced to inherited syphilis. These statements by Babonneix and David are based on a number of etiologic, clinical and therapeutic arguments, and they now present further evidence in the reactions found in the body fluids of both the epileptics and their parents. In ten epileptics the Wassermann reaction was found weakly positive in the blood serum in seven and strongly positive in two; negative in only one case. In over 50 per cent. there was also slight lymphocytosis in the cerebrospinal fluid. Like tuberculosis and like acquired syphilis of the nervous system, inherited syphilis of the nervous system seems to proceed in waves, *poussées évolutives*.

40. **Lethargic Encephalitis.**—Claude describes a case of toxic-infectious encephalitis with somnolence, lethargy to such an extent that there was no psychic or motor reaction, incontinence of urine, and narcolepsy, with transient delirium. Headache, fatigue, somnolency, fever and general malaise were the first symptoms, and now, nearly three months later, there are still some apathy and loss of memory.

41. **Epilepsy Consecutive to Meningitis.**—Sainton describes a second case in which, six months after recovery from meningitis, epileptic seizures developed. In his first case the interval was one month. Netter has had epilepsy develop after cerebrospinal meningitis only twice in 253 cases.

42. **Complications of Scarlet Fever.**—The young soldier during his scarlet fever developed acute articular rheumatism, mitral endocarditis, nephritis and tardy tachycardia. The tachycardia was still evident in the tenth week, as an orthostatic tachycardia, although the heart and kidney disturbances had apparently long entirely retrogressed.

Paris Médical

April 27, 1918, 8, No. 17

- 44 *Eosinophils in Pleural Effusions. Petzetakis.—p. 321.
- 45 Hemorrhage in Kinked Colon. R. Gaultier.—p. 329.

44. **Eosinophils in Pleural Effusions.**—Petzetakis declares that local eosinophilia is more common with pleural effusions than generally suspected. He reports here four cases of associated eosinophilia and basophilia with a hemorrhagic pleural effusion, or with traumatic hemothorax. The eosinophils in some cases reached 60 or 75 per cent. They seemed to have been formed directly in the pleura, the result of a special degeneration of the leukocyte elements which occurs only in an aseptic medium. The sterility of the fluid explains the lack of symptoms. He ascribes to this same mechanism the eosinophilia of convalescence. The vascular system during an effusion may be regarded as a closed aseptic cavity, conditions entailing degeneration of the leukocytes and consecutive eosinophilia. The eosinophils in the pleural effusion get into the blood finally, which explains the tardy eosinophilia.

Presse Medicale, Paris

May 9, 1918, 26, No. 26

- 46 *Bone Grafting. L. Imbert.—p. 233.
- 47 *Spinal Anesthesia. Desplas and P. Millet.—p. 234.
- 48 Improvised Transfusion of Blood. P. Thévenard.—p. 237.

46. **Bone Grafting.**—Imbert has made a special study of this subject, and states that the tibia seems to be better for bone grafting than the fibula or a rib, for reasons which he enumerates. Also that the final outcome of a graft cannot be estimated until after several years. He emphasizes further that the method of implantation of the graft is of prime importance; the best results are obtained when the graft is cut pointed to fit into a cavity made for it in the bone stump, or vice versa. This does away with the necessity for metal or other foreign body fixation. His experiments on animals always resulted in the complete absorption of a subcutaneous graft, but the focus of fracture in man, even when there seems to be a totally inert pseudarthrosis, still retains a latent bone-producing power which can be stimulated to action by some irritation. The implantation of a graft seems to be the most effectual means to accomplish this.

47. **Stovain Spinal Anesthesia.**—Desplas and Millet found that the stovain was all eliminated by the urine before the ninth hour in the fifty cases examined. The blood pressure dropped lower only in three of the forty men tested, and these were in severe shock when the anesthesia was begun. In all the others the blood pressure persisted normal or was brought down to normal. They are confident that in a number of the cases in which they were compelled to operate while the man was in profound shock, he would have succumbed with any other method of anesthesia.

Progrès Médical, Paris

April 20, 1918, 33, No. 16

- 49 *Mental Disease among Combatants. H. Damaye.—p. 141.
- 50 Case of Acquired Morbid Fear. P. Voivenel.—p. 144.
- 51 Primary Suture of Shell Wound of Elbow in Man of 72. R. Didier.—p. 146.

April 27, 1918, 33, No. 17

- 52 Primary Resection for Wounds of Joints. R. Leriche.—p. 149.
- 53 Simplified Transfusion of Blood. J. Fiévez.—p. 150.
- 54 Postoperative Meningitis. Lochelongue and R. Didier.—p. 151.
- 55 A Medical Officer under Napoleon. P. Voivenel.—p. 152.

49. **An Army Center for Nervous and Mental Disease.**—Damaye has classified the psychiatric cases that passed through his ambulance during the last two years. He compares the types observed with the events of the war taking place at the time. His classification includes 131 different types of mental disturbance. Mental and neuropathic phenomena are generally associated. Of the total 908 men, 647 were discharged cured or far on the road to a cure. Only 23 had to be sent to an asylum; 12 died; 31 tried to commit suicide. The symptoms in men who had been wounded in the skull were of the neurastheniform type observed after concussions and bombardments. The physical condition was generally poor in all the men. A calomel purge was given at once, and the men were not allowed anything but milk and water, with sodium bicarbonate, for several days. Iodin and arsenic, especially sodium cacodylate, were found extremely useful. The younger soldiers were inclined to react with convulsions, like children, under the influence of extreme fatigue or intense emotional stress.

Revue de Chirurgie, Paris

Sept.-Oct. 1917, 36, No. 9-10. Published April, 1918

- 56 *Petrolatomas. O. Jacob and Fauré-Fremiet.—p. 221.
- 57 *Action of Hypochlorites. N. Fiessinger and R. Clogne.—p. 264.
- 58 Fractures of Lower Jaw. L. Imbert and P. Réal.—p. 304.
- 59 Projectiles in Mediastinum. R. Le Fort.—p. 320. Continuation.
- 60 *War Wounds of Heart. H. Costantini and M. Vigot.—p. 383.

56. **Petrolatomas.**—Seven cases are reported of tumors developing consecutive to injection of camphorated oil, the "oil" used being liquid petrolatum. The experiences on record with paraffin tumors should have warned against the use of petrolatum for the excipient. The tumors first became manifest from five to nineteen months after the injection. They did not modify the general health, but the pains from the tumors and their interference with the use of the limb compelled their removal in each case. There was recurrence of the tumors in every instance, evidently from some particles of the petrolatum left in the tissues. The tumors should

therefore be cut out by extensive excision as for a malignant growth.

57. Biologic Study of Alkaline Hypochlorites in War Wounds.—The conclusions of the extensive research reported are to the effect that the improvement realized in wounds treated by the Carrel continuous irrigation method is due more to the proteolytic action of the hypochlorites on mortified tissues rather than to any sterilizing action. The Dakin solution has a weak germicidal power, but on muscle tissue and in war wounds continuous irrigation with Dakin's solution, in the doses employed at present, does not realize a sterilization. All antiseptics may be classed in two groups: the cytopexic and the cytolytic, namely, those which coagulate the albumins in the wound and thus create a barrier between them and the deeper elements, and those which dissolve these albumins and thus sweep out and clean out the wound. The cytopexics are not antiseptics, and the cytolytics are only weakly antiseptic. The alkaline hypochlorites are cytolytic. Dakin's solution is the form with a constant constitution, and its action is tolerated by the tissues. Its antiseptic power is weak; the more albumins it dissolves, the more diluted its antiseptic action.

60. Immediate Operations on the Heart for War Wounds.—Costantini and Vigot emphasize that the operation should be terminated by transfusion of blood and that a curved and threaded needle should be used. This harpoons the wound, and the needle once planted is let go. By so doing, there is no risk of tearing the wall one is about to suture. Experiments on the cadaver indicate that ample access can be realized by resection of the fourth cartilage and a 3 cm. segment of the sternum. The loss of these tissues is immaterial, while this technic relieves the heart from rubbing against this portion of the sternum and cartilage. The symptoms from a war wound of the heart vary widely with the seat of the wound and the degree of the hemopericardium. A projectile in the heart muscle may escape detection with the roentgen rays. When the rays fail to show hemopericardium, intervention is not urgent, as a rule, although there is always a possibility of extensive hemorrhage into the pleural cavity. In two cases described the men recovered after immediate removal of the projectile. In a third case the operation would have been feasible but for a fatal abdominal wound. After death the proposed operation on the heart was done as planned, confirming the assumed premises. In a fourth case the man died after the operation, and necropsy revealed injury of the lung explaining the fatality.

Revue Médicale de la Suisse Romande, Geneva

April, 1918, 38, No. 4

61 *Rupture of Aortic Valve from Muscular Effort. P. Reinhold.—p. 229.

62 *Treatment of Endemic Goiter. F. Messerli.—p. 248.

63 *Retention of Elements of Bile. P. Gautier.—p. 254.

64 *School Inspection in Rural Districts. S. Chapuis.—p. 260.

61. Traumatic Rupture of Aortic Valve.—Reinhold remarks that the aortic valve is less able than the mitral to resist rupture; in Ranelletti's compilation in 1910, there were forty-nine cases of rupture of the aortic valve to twenty-seven of the mitral, two of the tricuspid and one of the pulmonary valve. With rare exceptions, only the valves in the left heart are liable to rupture from physical effort alone. In a case described, the man of 43 had always had good health. There was no history of scarlet fever or rheumatism. He does not smoke and is temperate in drinking and nothing could be found to throw any light on the suddenly developed valvular lesion except a slip on some stone steps, when he made a violent effort to keep from falling, seizing the balustrade with both hands. As he did this he felt a sharp pain, radiating to the left side of the head, with vertigo. He nearly fainted, but recovered and walked on feeling an oppression in his left side and noticing a peculiar sound in the heart region. The physician found a lesion in the aortic valve.

Such lesions are important from the standpoint of accident insurance and workmen's compensation. A man with a ruptured valve is unable to do heavy work thereafter, and this detracts materially from his earning capacity. In athletics the muscles are keyed up and on the alert to respond

to the demands of the sport, but in a sudden slip on an icy staircase the muscles are caught unawares, and the surprise and wrench are incomparably greater. Under the influence of the surprise the effort made is excessive. On the other hand, if the previous condition was known with greater precision, there probably would not be so many cases recorded of "rupture of a sound valve." The Swiss compensation laws provide for cases in which the injury is the result of an accident acting on a previously damaged organ. This principle is new in their jurisprudence, and it imposes on the profession the necessity for being on the alert to detect all the factors in the injury. The compensation of course is estimated lower when it is a question of a previously damaged organ. A retrospective diagnosis is often difficult, but it is indispensable in these cases. In the case reported, even in the absence of any known predisposition, there is still a possibility of arteriosclerosis, syphilis, and infectious endocarditis. In a middle aged man, arteriosclerosis seldom is revealed by peripheral manifestations. In the elderly, on the other hand, arteriosclerosis can be regarded as an organic modification entailed by age, and it cannot be accepted as of special causal importance. As the Wassermann reaction is relatively inconstant, a negative response leaves a query. In Germany the indemnities for traumatic heart lesions are estimated at 50 or 70 per cent. but these lesions sometimes permit light occupations. The physician's word is decisive here.

62. Benzonaphthol in Treatment of Goiter.—Messerli has already published several communications on the benefit, with goiter, from systematic disinfection of the intestines. His works have been duly summarized in these columns, as on page 607 of THE JOURNAL, Feb. 19, 1916. The goiters likely to be influenced by this means are the large soft goiters of the follicular, hypertrophic and parenchymatous types. He reports two new cases which apparently confirm anew his statements. The profile views of the young men show no trace of the goiter after five weeks of benzonaphthol, three doses daily, each 0.5 gm. The circumference of the neck at three levels had grown smaller by 4, 6 and 4 cm. in one case and by 5, 5 and 1.5 cm. in the other. The disinfection of the intestines has to be kept up continuously. It does not interfere with iodine treatment of the goiter. His experience confirms MacCarrison's statements as to the causal importance of intestinal abnormalities.

63. Dissociated Retention of Elements of the Bile.—Gautier remarks that the easiest and simplest means of research in this line is with the urine. The Grimbert method is useful for determining the bile pigments, with the Hay sulphur reaction for the bile salts. Study of the blood dust always confirmed the urine findings in his experience, and this research on dissociated retention threw light on the functional capacity of the liver. It revealed even slight insufficiency, transient or durable, of the liver cell. Repeated examinations allow close surveillance of liver functioning, and he advocates this as a reliable aid in the diagnosis and prognosis in every case of suspected liver disease. He gives a few charts showing retention of bile pigments and even of urobilin in the course of pneumonia and scarlet fever; in some cases of cirrhosis of the liver there was retention merely of bile pigment.

64. Medical Inspection in Rural Schools.—Chapuis comments approvingly on Pahud's article on this subject (summarized in these columns, May 18, 1918, p. 1508). Chapuis, however, insists that the medical inspection should watch over the children's earlier years, to ensure better physical material when the children enter school. In the villages in his district, eighty of the 449 children entering school for the first time last year had signs of rachitis, and the chest was not of normal shape. In one village this was recorded of sixty-six of the 275 children. The country life and fresh air and exercise could not outbalance the effects of injudicious feeding in infancy. He has had two large cards printed, one with directions for feeding infants six months old, and the other, from 8 to 18 months old. Whenever the mothers pay heed to the card the infants speedily throw off their rachitis and begin to thrive.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 18, 1918, 48, No. 20

- 65 Physiology and Pathology of the Placenta. Guggisberg.—p. 625.
 66 *Congenital Syphilis of Bones. A. Hotz.—p. 631.
 67 *Cretinism. Finkbeiner.—p. 637. Conclusion.
 68 Arrosion of Aorta by Gravity Abscess. K. Schnyder.—p. 655.

66. **Cure of Bone Lesions from Congenital Syphilis.**—Hotz gives a series of roentgenograms which show the gradual return of the bones to normal under the influence of specific treatment. The patient was a 3 months' infant with various manifestations of congenital syphilis, severe osteochondritis, various superficial lesions, and coryza. In the ten weeks' course of treatment, practically the normal shape of the bones was restored. The bone lesions of older children take much longer to retrogress than infants', and the restitution is never so complete. In his case the periostitic process was slower in retrogressing than the osteochondritis, but in both the tendency to rapid recovery of normal conditions was amazing. The Wassermann reaction was still positive when the bone lesions had entirely retrogressed, as also in Hasler's similar case, while in Therstappen's case it had veered to negative before the bone lesions had entirely retrogressed.

67. **Cause of Cretinism.**—Finkbeiner found 56 per cent. males to 44 per cent. females in the 119 cretins in the Nollen district. The smaller the villages the larger the proportion of cretins, as also of deafmutes and of conscripts rejected on account of goiter. The native-born furnish the overwhelming majority of cases. He accepts this as disproving the infection theory, as a pathogenic parasite could not distinguish between those born in the region and those moving in later. Healthy persons from other regions need not fear cretin offspring, not even when one parent is native-born. But a marriage between the native-born, even when both are healthy, is liable to yield cretin children, as there is usually some more or less distant blood relationship between the people in small, stable communities. Even moving to an endemic-free region does not avert this doom. It is not the place but the family taint that is responsible for the endemic. He reiterates that immigration is absolutely free from danger while emigration is no protection. Nothing was found in this district to sustain in any way the theory of water, soil, the thyroid or infection as responsible for cretinism. The data all point to inbreeding, and that only by heredity can this form of degeneration appear in a family. Cretinism prevails in remote, shut-in communities, and it dies out when the place becomes accessible by a railroad, or when industries bring in new blood. This dying out of cretinism as transportation is improved is the reverse of what occurs with infectious diseases. For example, Chagas' disease (which has certain features resembling cretinism), has spread along the route of the railways in Brazil.

Gazzetta degli Ospedali e delle Cliniche, Milan

April 28, 39, No. 34

- 69 Roentgen Study of Large Intestine. A. Berti.—p. 333.
 May 2, 1918, 39, No. 35
 70 Radiotherapy of Uterine Fibromyoma. L. A. Oliva.—p. 345.

Policlinico, Rome

May 19, 1918, 25, No. 20

- 71 Bacteriologic Diagnosis of Dysentery. A. Accoli.—p. 461.
 72 Serotherapy of Anthrax. L. Lollini.—p. 467.
 May 26, 1918, 25, No. 21
 73 *Spirochete Jaundice. E. Bravetta.—p. 485.
 74 *Reinforcing the Heart Sounds. A. Amati.—p. 489.
 75 *Tuberculosis in Soldiers. C. Baduel and G. Mendes.—p. 492.
 May, 1918, 25, Surgical Section No. 5
 76 *Hematoma Aids in Bone Regeneration. L. G. Gazzotti.—p. 129.
 77 *Secondary Hemorrhage after Ligation. G. Razzaboni.—p. 145.
 78 Gas Infection of War Wounds. V. Calo.—p. 158. Continuation.
 May, 1918, 25, Medical Section No. 5
 79 *Gastric Pneumatosis. A. Ceconi.—p. 129.
 80 *Treatment of Empyema. E. Morcelli.—p. 153.

73. **Spirochete Jaundice.**—Bravetta draws the clinical picture of this disease from the hundreds of cases he has had in his care. There is an incubation of a week or two, then the period of invasion which lasts from two to six days, with fever usually so slight that it is not noted, but there is no jaundice although there may be intense muscular pains, sug-

gesting rheumatism, or digestive disturbances with headache, suggesting typhoid. Then follows the stage of jaundice, during which the temperature drops to normal or even below and the pains subside. There is usually an interval of a day between defervescence and the onset of the cholemia. It is accompanied by weakness, at times extreme, the spleen and liver enlarged. A special feature of the disease is that the temperature runs up again after an interval of from four to six days. The glands also swell, especially in the right axilla. There were no hemorrhages from skin or mucosa in his cases, but a tendency to rhinorrhagia was common. As the jaundice and albuminuria subsided, the depression was extreme, with vague pains, low blood pressure and brownish tint of the skin and the prostration and convalescence were long protracted.

74. **Reinforcing the Heart Sounds.**—Amati has found that the heart sounds can be rendered more distinct by pressing with the finger on the abdominal aorta during auscultation. He has noticed also that percussion of the retrocardiac region does not yield appreciable findings in normal conditions, but when a patient has been lying for a long time on his back, the heart settles down closer to the rear wall, and percussion may show a dorsal area of dullness. Percussion from the rear may also reveal conditions in the left auricle, the outline of the heart, and possibly cardiopneumosis.

75. **Tuberculosis in the Army.**—This communication, presented at a recent interallies conference at London, relates what Italy is doing for tuberculous soldiers. The war has rendered it possible to detect tuberculosis in the entire male population between the ages of 18 and 44, and to ensure that the tuberculous get proper treatment and instruction in prophylaxis for themselves and others. This has been realized by the close cooperation between the war department and the public health service, with the Italian Red Cross to supplement them. Soldiers found to be tuberculous are given a pension for three years and the family receives financial aid while he is being given institutional treatment. The effort is made to have the soldier discharged from the army on account of tuberculosis cared for in a sanatorium near his home. The suspects among the repatriated prisoners of war are sent on in the same train to the seaside sanatorium at Nervi, which has accommodations for 1,200. The suspects from the army are sent to the sanatorium near Florence. Both are new and well equipped sanatoriums, beautifully located. The Red Cross has two trains for the tuberculous, four climatic sanatoriums with a total of 900 beds, and three institutions for the moderately severe cases, total 640 beds. The army has seven regional sanatoriums, with a total of 3,808 beds, eleven institutions for the advanced cases, besides the Nervi and Florence sanatoriums, and centers in each army corps for prolonged observation and diagnosis by the most approved methods. Some corps have more than one.

When a soldier develops tuberculosis, it is usually within a month or two of his entrance on active service. Those who have been at the front for one, two or three years very seldom develop tuberculosis. This has convinced every one that the stress of service is so liable to fan a latent tuberculosis into a flame, that the most stringent, searching tests are now applied to keep out of the army those with tubercle bacillus infection in any form and in any stage. Those already in the army are being weeded out as rapidly as possible. All have to pass through the institutions for confirmatory differential diagnosis, and here they are trained in prophylactic measures before being returned to civilian life. If they need treatment, they are pensioned the same as if they had been wounded in the service.

76. **Influence of Hematoma on Healing of Fractures.**—The extensive experimental research reported by Gazzotti seems to show that the presence of a hematoma stimulates the periosteum to greater regenerating activity.

77. **Artery Walls with Secondary Hemorrhage.**—Razzaboni always found evidences of an infectious process in the walls after ligation and secondary hemorrhage. (See Abstract 87, p. 155.)

79. **Gastric Pneumatosis.**—Ceconi has encountered a number of cases in which symptoms seemed to indicate heart or

lung disease but the sole cause of the disturbances was the extreme distention of the stomach with air or gas and vagotonic spasm of cardia and pylorus. The vagotony was the most prominent feature of the cases. The displacement of the diaphragm entailed dyspnea, and the displacement of the heart entailed sometimes palpitations and other disturbances, sometimes suggesting even angina pectoris. The clinical picture corresponds to that with dyspeptic asthma, flatulent dyspepsia, reflex digestive neurosis, the cardiac neurosis of public officials, psychogenous dyspepsia and gastrocardiac neurosis as described by various writers. Ceconi insists, however, that the clinical picture depends directly and exclusively on the hypertension of the stomach. Examination later, during the absence of symptoms, will show that all is in order once more, and that any assumption of heart or lung disease is unjustified. The relief and improvement of the disturbances during and after exercise aid in excluding true heart disease.

80. Prophylaxis of Empyema After War Wounds.—With the technic described with an illustration, Morelli has succeeded in curing 85 men with "closed" war wounds of the thorax, with complicating empyema in only 2 cases, and empyema developed in only 6 cases in 22 with "open" wounds of the thorax. Of the total 110 cases of war wounds of the thorax, all the men recovered except 5 and none of the deaths were from hemorrhage. The recovery was complete, both anatomic and functional, in nearly every instance. In his experience with 400 cases of war wounds of the chest, the advantages of the most active intervention at the earliest moment have been impressed on him beyond the possibility of question. After the surgical toilet the wall must be closed airtight, and he accomplishes this with a long, inflatable rubber bag, narrowing in the center so that it fits firmly in the breach. A tube passes through the rubber bag and ensures effectual drainage. As the bag is inflated through another tube, it closes the breach in the chest wall air tight. The drain tube is connected with a vacuum jar apparatus arranged so that the pressure in the apparatus balances that in the chest. Any effusion or pus upsets the balance, and the fluid is aspirated out through the drain tube, after which the balance is spontaneously restored again, compelling the expansion of the lung. An arrangement of cocks permits flushing the pleura through the same drain tube, followed by aspiration of the fluid. He uses some disinfectant fluid at first, thus flushing out the cavity several times a day, and less frequently later. He describes his technic without waiting for further experience as the remarkable improvement realized to date has been so striking and so constant that he wants others to benefit by it. He has found a simple stout rubber bulb answers the purpose of the aspiration apparatus in certain mild cases. It is connected with the drain tube with a three-way cock, one for aspiration of the endopleural fluid and to promote expansion of the lung, one for releasing the fluid aspirated out, and the third for expelling* the air without increasing the suction.

Riforma Medica, Naples

May 11, 1918, **34**, No. 19

- 81 *Slow Endocarditis. A. Ceconi.—p. 362.
82 Displacement of Foreign Bodies in Skull and Spine. A. Cortesi and F. Bonola.—p. 365.
83 Gas Gangrene. E. Aievoli.—p. 369.

81. Slow Endocarditis.—Ceconi describes a case he encountered ten years ago in a young woman. It began with a gallstone cholecystitis. This was followed by an irregular slight fever over five months, when a violent chill ushered in septicemia which finally led to endocarditis with a fatal termination over seven months later. The clinical course and necropsy findings are compared with the literature on the subject. The colon bacillus was found in the gallbladder but a small streptococcus was found in the heart walls and valves. He warns that endocarditis should always be suspected with septicemia, even when no symptoms call attention to the heart. Endocarditis is one of the sources of bacteriemia which remain longest unknown and unsuspected. We know now that bacteria do not proliferate in the blood but perish in the

blood. In septicemia, consequently, the bacteria found in the blood are being constantly supplied from some possibly unsuspected source. This compels extra surveillance of the heart as the possible source of the bacteria.

Rivista Critica di Clinica Medica, Florence

April 20, 1918, **19**, No. 16

- 84 Diarrhea and Dysenteriform Enteritis in Troops on Active Service. A. Roccavilla.—p. 181. Conclusion.
May 4, 1918, **19**, No. 18
85 Landry's Paralysis of Poliomyelitis Type in a Syphilitic. A. Salmon.—p. 205. Commenced in No. 17, p. 193.
86 Kernig's Symptom in War Psychoneuroses. L. Siciliano.—p. 209.

Annaes Paulistas de Medicina y Cirurgia, S. Paulo

September, 1917, **8**, No. 9

- 87 Biology of Dermatitis Hominis. A. Neiva and J. F. Gomes.—p. 197.
88 *Skunk Eats Cobra. F. Iglesias.—p. 210.
89 Paraspecific Serotherapy by the Mouth. P. Burnier.—p. 212.
October, 1917, **8**, No. 10
90 Absence of Side Walls of Nose. J. A. Galvão.—p. 221.
91 *Serotherapy of Pregnancy Toxicoses. V. Marcondes.—p. 234.

-88. Skunk Immune to Cobra Venom.—Iglesias found that a young skunk brought up in captivity attacked and ate venomous snakes. The skunk was repeatedly bitten by the cobras, but showed no effects from this at the time or later. Skunks are numerous in Brazil, and he remarks that if they prove generally to be the ophiophagous mammal this specimen certainly is, they should be protected.

91. Serotherapy of Pregnancy Toxicoses.—Marcondes ascribes to pregnancy toxemia all the pathologic manifestations from headache to fatal eclampsia. The glands with an internal secretion are not able to keep pace with the production of toxins from the fact of the pregnancy. By injecting serum from a pregnant woman we may be able to supply the deficit, and this has proved its usefulness in the clinic. The inconvenience of obtaining human serum for the purpose suggested the use of serum from pregnant goats, and this proved extremely effectual in the two cases described. One was a case of pregnancy dropsy, asthma, itching urticaria and acne; the other of uncontrollable vomiting. Only 5 c.c. of the antitoxic goat serum was injected, repeated in five days, and by the third injection the symptoms had all disappeared except slight albuminuria. In the case of uncontrollable vomiting, with albuminuria and urticaria, 10 c.c. of the serum were injected daily, and the vomiting ceased after the third day.

Brazil-Medico, Rio de Janeiro

April 6, 1918, **32**, No. 14

- 92 *Defective Development of Muscles. A. F. de Magalhães.—p. 105.
April 13, 1918, **32**, No. 15
93 Flagellate Parasites. VII. O. O. R. da Fonseca.—p. 113.
94 Eugregarina Parasites of Arthropods. VI. C. F. Pinto.—p. 113.
95 *Hemiplegia of Larynx. E. de Moraes and C. Fraga.—p. 114.
96 Methylene Blue and Arsenic Preparation in Treatment of Noma. C. de Rezende.—p. 115.
97 Application of Carrel Method at Buenos Aires. C. Barcellos.—p. 116. Commenced in No. 14, p. 106.

92. Deformities from Defective Development of Muscles.—There are five types of deformities in the young infant, varus equinus, valgus, bilateral talipes and permanent flexion of the arm. De Magalhães in analyzing them shows how each is the result of defective development of certain muscles. Persevering massage and manipulations may start these muscles to physiologic development in time, and thus there is hope of correcting some if not all of the deformities.

95. Hemiplegia of Larynx.—The man presented a typical example of what is known as Jackson's syndrome. On waking one morning recently he found swallowing and speaking difficult and the left arm was weak so he could scarcely lift it. The symptoms were those from complete paralysis of the left side of the larynx, similar to what has been published as the result of a shrapnel ball in the region. As the patient was known to be syphilitic, specific treatment was applied on the assumption of some syphilitic lesion in the bone nearby, and the prompt restoration to practically normal conditions confirmed the correctness of this surmise.

Gaceta Medica de Caracas

May 15, 1918, 25, No. 9

98 *Relapsing Fever in Venezuela. R. Pino Pou.—p. 93.

99 Vaccine Therapy of Typhoid. E. P. de Bellard.—p. 97.

98. **Relapsing Fever in Venezuela.**—This disease had never been reported in Venezuela until recently Pou encountered a case in a well-to-do man who had arrived from San Cristobal after a four days' trip through the Panama district. The symptoms seemed to be those of acute malaria except that the liver and spleen were enormously enlarged. The patient said he had never had malaria, and this enlargement was too extreme for recently acquired malaria. The spirochete of relapsing fever was found in the blood, and rats inoculated with it developed the disease, but not monkeys, rabbits, dogs or fowls. This testified that the spirochete could not be the spirochetes of relapsing fever as observed in Europe, Africa and India; certain features suggest identity with the spirochete of relapsing fever as encountered in French China. Attempts to transmit the disease by rat fleas proved negative; no experiments were made with lice. A rat developed the disease after inoculation of a few drops of citrated blood from the patient, the second day of the second period of apyrexia. This confirms Darling's findings as to the virulence of the blood during the afebrile intervals. In the rodents, as in the clinical case, the disease occurred with an attack of invasion and two relapses, separated by two periods of apyrexia of five or seven days. There was always diarrhea during the afebrile period. The disease subsided without serious consequences in both man and rat. Since this report was published, two more cases have been discovered at San Cristobal and two at Caracas.

Medicina Ibero, Madrid

February 28, 1918, 2, No. 17

100 *Indications for Early Prostatectomy. R. Molla.—p. 257.

101 Rubber Tissue in Dermatology. Sicilia.—p. 258.

102 Cancer of the Tongue. Chornet and L. Arago.—p. 261.

100. **Early Prostatectomy.**—Molla advocates prostatectomy always when a man under 60 develops prostatic retention, even when not more than 60 gm. of urine are retained. The retention is bound to increase, and palliative measures are liable to bring infection. The indications are the more imperative the younger the patient, and the more rapid the increase in size of the prostate. This suggests a malignant tendency. In a recent case the man of 54 refused the operation and passed through suppurating orchitis and other infectious processes entailed by the catheterization. The ninth year he succumbed to a cancer which had developed in the prostate. Early prostatectomy is indicated also without fail in cases of prostatism from chronic prostatitis without enlargement or only partial enlargement obstructing the passage.

Prensa Medica, Argentina

April 10, 1918, 4, No. 31

103 *Prophylaxis of Tuberculosis. G. A. Alfaro.—p. 447.

104 Tumor in Occipital Lobe. A. Capurro and E. Dameno.—p. 450.

105 *Normal Beef Serum in Treatment of Anthrax. J. Penna, J. B. Cuenca and R. Kraus.—p. 455. Conclusion.

106 The Teaching of Obstetrics. Liberatio.—p. 456.

103. **Prophylaxis of Tuberculosis.**—[Alfaro was president of the Liga Argentina contra la Tuberculosis when he delivered this address. Since then he has been appointed chief of the entire public health service.] His idea of the primordial element in the campaign against tuberculosis is the instruction of the people, instruction in school, newspapers, magazines, lectures, moving pictures and by posters, with compulsory and secret notification of open cases, multiplication of preventorium and medical and social assistance for the families of the tuberculous. Only when concrete advantages and gratuitous services are offered the families of the tuberculous can we hope for notification to be a success. He emphasizes that the direct prophylaxis of tuberculosis is the prophylaxis of all social ills and poverty, and hence it is a government function. The national, provincial and municipal authorities have it for their primordial duty to undertake this function with decision and energy. Philanthropic and other organizations can be only subsidiary and adjuvant to the state in this matter.

For the campaign to be effectual, the government must concentrate in a single hand all the resources and mediums of action. The government should organize a tuberculosis department for prophylaxis and assistance, either as an autonomous department or as a section of the public health service. This department should have a survey made of the entire country to locate the tuberculous, have all the institutions for the tuberculous amplified and multiplied, and the whole work of assistance for the tuberculous systematized. A special fund should be created for the purpose of combating tuberculosis, to which should be diverted certain tax monies, inheritance taxes, liquor licenses, taxes on luxuries, etc., but its principal funds should be derived from compulsory insurance against disease, disability and old age which should be organized for the entire country. All educational institutions and their personnel should intensify the instruction of the people in hygiene, from the primary schools to the highest seats of learning.

105. **Normal Beef Serum in Treatment of Anthrax.**—This instalment completes this long report on 200 cases of anthrax treated with ordinary beef serum, without other measures, the malignant pustule and septicemia subsiding under it even more promptly, it is stated, than when anti-anthrax prepared serum is used. Before this serotherapy was instituted, the mortality had been 10 per cent. in 250 cases in the preceding ten years, while with the beef serum treatment the mortality was only 0.5 per cent. in 200 cases. Similar good results have been reported from Montevideo in eighteen cases, the outcome a greater success than with any other treatment known to date. The serum is injected subcutaneously in doses of 30 or 50 c.c., and this is repeated in twelve, twenty-four or thirty-six hours as the case may require. In very severe cases, the serum can be given by the vein. The serum is sterilized by heating it twice for half an hour at 56 C. Anaphylaxis is even more exceptional with beef serum than with horse serum.

Repertorio de Medicina y Cirugia, Bogota

April, 1918, 9, No. 7

107 The Leukocyte Balance at Bogota. J. del C. Acosta.—p. 340.

108 Carrel Treatment of Open Osteomyelitis and Compound Fractures. R. Sanmartin.—p. 375.

109 Treatment of Talipes. J. A. Ceron.—p. 380.

Revista Medica del Rosario

May, 1918, 8, No. 2

110 *Neuropathic Diathesis in Nurslings. P. Rueda.—p. 87.

111 *Metritis. E. Argonz.—p. 97.

112 *Cholecystectomy. J. B. Abalos.—p. 106. Conclusion.

110. **Neuropathic Diathesis in Infant.**—Rueda remarks that it is impossible to foretell how infants in this category will react to different elements in the milk. He insists, however, that sooner or later every infant reaches a point when cow's milk is borne well. A typical instance of neuropathic taint is described. The infant was over 2 months old but he could not stand his mother's milk or any breast milk. The fat in it seemed to be responsible for the pallor and syncope which followed the feedings. These and absolute intolerance for breast milk subsided when the child was given sweetened skimmed cow's milk and later, sweetened breast milk, from which the fat had likewise been removed, with addition of some heterogenous albumin, until pure cow's milk could be substituted for the latter. The child has been thriving constantly during the six months since.

111. **Metritis.**—Argonz deplors that metritis is so often disregarded and complications are allowed to develop. Then even operations on the adnexa leave the cause—the metritis—to continue its ravages. No disinfectants applied to the mucosa of the uterus reach the microbes lurking in the depths of the glands, and hence vaccine therapy is indispensable as an adjuvant. He warns that curetting the pathologic mucosa often starts severe local and general infectious processes.

112. **Cholecystectomy.**—Abalos' technic was described in these columns, May 11, 1918, p. 1406. He here reports the outcome in 95 women and 5 men. The operation was done for gallstones in all and the 94 survivors have been com-

pletely and permanently cured. Of the 6 who died, myocarditis, probable cancer or other extraneous element was responsible for the fatality in all but 2. One of these succumbed to infection and hemorrhage the twelfth day; the other never recovered from the profound shock that followed the operation.

Revista de Medicina y Cirugia Pract., Madrid

April 21, 1918, **119**, No. 1503

113 *Stretching Nerve with Trophic Process. J. Blanc.—p. 65.

April 28, 1918, **119**, No. 1504

114 Pathology of the Skin in relation to Pathology of the Digestive Apparatus. E. de Oyarzabal.—p. 97.

115 Aphorisms of a Physician. S. V. de Castro.—p. 103.

113. **Stretching the Nerve in Treatment of Trophic Processes.**—Blanc analyzes a number of cases of trophic processes demonstrating the futility of operations when the tissues are incapable of defensive reactions on account of infection or defective circulation or other cause. The operation actually whips up the trophic process. Other cases show the prompt and lasting benefit when intervention is restricted to stretching the nerve. This was particularly evident in two cases of perforating ulcer of the sole. Clinical and functional restoration was complete in three weeks in the stretched nerve case while in the other case, treated with the usual measures, including resection of part of the foot, the disease continued a progressive course. He ascribes the benefit from stretching the nerve to action on the sympathetic nerve fibers, like the peripheral sympathectomy by resecting the nerve sheath of an artery. These sympathetic nerve fibers undergoing stretching have their functioning temporarily arrested, and thus the blood vessels are released from their constricting influence. The circulation in the region returns to normal or is even exaggerated, and the trophic process promptly starts to heal.

Revista Sud-Americana de Endocrinologia, Buenos Aires

February, 1918, **1**, No. 2

116 Test for Sugar in Presence of Albuminoids (in Meat Packing Industry). R. Sourbeck.—p. 45.

Semana Medica, Buenos Aires

Feb. 28, 1918, **25**, No. 9

117 *Diagnosis of Echinococcus Cysts. J. Bacigalupo.—p. 227.

118 Surgery in North America in 1917. R. Finochietto.—p. 230.

119 Mortality from Tuberculosis at Buenos Aires. Coni.—p. 233.

120 *Abdominal Pregnancy. M. G. Lascano and A. B. D'Atri.—p. 235.

121 Welfare Work at Buenos Aires. E. R. Coni.—p. 239. Cont'n.

122 *Preventive Vaccination against Diphtheria. C. Ponce.—p. 252.

March 14, 1918, **25**, No. 11

123 Notes on Antropology. J. Howard.—p. 281.

124 Infantile Mortality in Buenos Aires. E. R. Coni.—p. 290.

125 Surgery in North America in 1917. R. Finochietto.—p. 292.

126 *Sarcomas. G. P. Rebello.—p. 299.

117. **Diagnosis of Echinococcus Cysts.**—Bacigalupo says that the urticaria, which often accompanies echinococcus disease, is evidently a manifestation of absorption of toxins. It is possible to induce a characteristic reaction in sound skin by treating it with the toxic substances from an echinococcus cyst, if the subject is already sensitized by echinococcus disease. The most instructive reaction of the kind was obtained with fluid from an echinococcus cyst, the fluid kept in a cold place for a year and filtered just before using. One drop was injected by the intradermal technic. With a positive reaction, a papule forms with a red and painful halo and subcutaneous edema, the whole reaching its height in thirty-six or forty-eight hours. The painfulness may keep up for four or five days. The allergy responsible for the specific reaction may persist for two or three months after the cyst has been extirpated. In the normal subject there may be a papule, but it is not painful and soon subsides without redness of the skin. In one of the twelve cases described, all giving a positive reaction, the cyst had suppurated.

120. **Abdominal Pregnancy.**—The healthy woman of 40 had had five normal deliveries but the sixth ran a somewhat abnormal course with vomiting, pains and chills. With approaching term the enlargement seemed to be mainly on the left side. Twelve months passed without delivery and men-

struation reappeared. The fifteenth month large quantities of a blood-stained mucous fluid were passed by the rectum during several days. The fetal membranes had evidently perforated into the rectum, and the abdomen returned to normal size. Four years later fetal bones were passed through the rectum, and Lascano and D'Atri then dilated the rectum and extracted the remainder of the bones of the fetus. The pocket containing them was the size of an orange with thick walls and putrid contents. It was cureted and swabbed with iodine; the next day it was cleaned of fecal matter, and smooth recovery followed.

122. **Prophylaxis of Diphtheria.**—Ponce relates that diphtheria has long been endemic at Mendoza but it has recently been brought under control by systematic use of a vaccine to immunize all in the environment of every case of diphtheria. This seems to confer a more lasting immunity than with the use of antitoxin, while his experience indicates that it is free from the drawbacks of the latter.

126. **Sarcomas.**—Rebello concludes from his study of sarcomas that there are only two distinct types, the round celled and the melanic. All others are merely modifications of these two types.

Siglo Medico, Madrid

April 6, 1918, **65**, No. 3356

127 Different Forms of Acute Otitis Media. E. Botella.—p. 262.

April 13, 1918, **65**, No. 3357

128 *Erysipelas. B. H. Briz.—p. 282. Conclusion.

129 *Typhus in Portugal. V. M. Cortezo.—p. 282. Commenced in No. 3354, p. 225.

128. **Serotherapy of Erysipelas.**—Briz reports that all the new-born with erysipelas at the Madrid Foundlings' Asylum have died, but he succeeded recently in saving three and another in his private practice, by giving three or four injections of 10 c.c. of a polyvalent antistreptococcus serum. By the second injection the patches had blanched and their spread been arrested. He has found doses of 20 c.c. effectual also in older children. He supplements the serotherapy by spraying or dressing the parts with 1 per thousand mercuric chlorid, and has the infants breast fed.

129. **Typhus in Portugal.**—Cortezo's report was summarized, June 29, p. 2000.

Gann, Tokyo

May, 1918, **12**, No. 1

130 *Incipient Gastric Cancer. K. Eto.—p. 1.

131 *Experimental Epithelioma in Fowls. K. Yamagiwa and S. Ohno.—p. 3.

132 Negative Results with Implantation of Mouse Cancer in Fowl Embryoes. K. Kiyono and Y. Sueyasu.—p. 9.

133 *Sarcoma of Femur. M. Nagayo and T. Kodama.—p. 10.

130. **Incipient Gastric Cancer.**—The minute malignant growth was discovered at necropsy in the stomach of the man of 76. It had evidently developed in an imperfectly healed ulcer, and the findings disproved a unicentric growth. Notwithstanding the apparently incipient stage of the malignant disease, there was metastatic infiltration in a lymph node nearby, and thrombosis in a small vein.

131. **Experimental Production of Cancer.**—Yamagiwa has continued his successful work in inducing malignant growths at will in experimental animals. He here reports, with Ohno, that three carcinomas were thus realized in experiments on forty-one fowls by injecting saturated scarlet red oil into the wall of the fallopian tube. From one to five of these injections were made, each requiring a separate laparotomy. This is a proportion of 7.3 per cent. Nothing suggesting a primary focus elsewhere could be detected in any of the fowls. Some were quite young. (Yamagiwa's success in experimental production of cancer was described editorially in THE JOURNAL, June 16, 1917, p. 1818).

133. **Sarcoma of Femur.**—The chondroblastic sarcoma in the lower end of the femur of a boy of 14 compelled amputation two months after the first symptoms. Three months later symptoms in the right chest attracted attention and the lad succumbed in three months to progressive dyspnea. The rapid development of the metastatic tumor in the lung and its huge size were remarkable features of the case.

Nederlandsch Tijdschrift voor Geneeskunde, AmsterdamApril 13, 1918, **1**, No. 15

- 134 *Varicocele of the Orbit. W. P. C. Zeeman.—p. 986.
 135 *Gonorrhea in the Female. T. Passtoors.—p. 995.
 136 Case of Chyluria. N. J. van Dam.—p. 1007.

134. **Varicocele of the Orbit.**—The man had complained for six years that his right eye felt as if it were pushed forward, but only close inspection showed asymmetry. The protrusion seemed more pronounced when he stooped over. Zeeman explains this intermittent exophthalmos as the effect of a varicocele. The enlargement of the veins of the orbit is accompanied in all such cases by enlargement of the entrance into the sinus cavernosus. This explains the enophthalmos when the head is held in certain positions. He gives six roentgenograms of his case and discusses operative treatment. Some have injected an iron astringent, others have excised the varicose veins, but the results of the latter have not always been very encouraging. The ultimate outcome in the cases is not known. Removal of the convolute of veins may be indicated when there seems to be danger of injury of the optic nerve or there is recurring hemorrhage in the orbit.

135. **Gonorrhea in the Female.**—Passtoors discusses in turn and in detail the diagnosis and treatment of gonorrheal lesions in the urethra and vicinity, in the uterus and its annexes, and in the paragenital region. The question as to when a gonorrheal uterine lesion is cured is easier for the venereologist to answer than the gynecologist, as the former usually has both man and wife in his care, and the one serves as a control of the other. When Passtoors finds no more gonococci in the secretions on repeated examinations then he makes a provocative injection of vaccine, the first day 50, the second day 100 and the third day 200 millions. The fourth day secretions from the uterus, obtained with a blunt curet, are inoculated on culture mediums and smears are made. The cultivation of the gonococci is materially facilitated by having the secretions taken at the laboratory by the bacteriologist and placed at once in the incubator, without any chance for chilling the gonococci.

Hospitalstidende, CopenhagenMay 1, 1918, **61**, No. 18

- 137 *Arc Light Treatment of Osteitis. O. Strandberg.—p. 545.
 138 Narcolepsy. V. Askgaard.—p. 556.

137. **Arc Light Treatment of Osteitis.**—Strandberg reports the cure of nine patients under carbon arc light exposures for chronic osteitis of the mastoid or temporal region consecutive to middle ear disease. The course took up to nine months in some. The benefit was equally pronounced in the tuberculous and the apparently nontuberculous cases with a protracted course.

Ugeskrift for Læger, CopenhagenApril 11, 1918, **80**, No. 15

- 139 *Uveo-Parotid Fever. S. Bang.—p. 571.
 140 Self-Regulating Apparatus for Adding Saline in Infusing Arsphenamin. O. Jersild and M. B. Pedersen.—p. 578.
 141 *Blood in the Stools of the Tuberculous. P. Bogason.—p. 582.

139. **Chronic Parotitis with Iritis and Facial Paresis.**—Bang says that fifteen cases of this clinical picture have been published since attention was first called to it in 1905 by a Danish physician. Bang adds two more cases to the list, in a boy of 13 and a girl of 15, and tabulates the findings in the total seventeen cases. The subchronic iridocyclitis and parotitis extend over months, with low, remittent fever. Both eyes are usually affected and in not less than five cases the outcome was total blindness. The parotitis was always bilateral, and in six cases there was simultaneous tumefaction of the lacrimal glands. This is without precedent except in Mikulicz' disease (bilateral chronic parotitis and dacryoadenitis). Fridericia has recently asserted that we have every reason to accept Mikulicz' disease as a form of pseudo-leukemia, as all stages of transition have been observed between the pure Mikulicz disease and extensive lymphomatosis. This throws light on the uveoparotitis cases, especially those with lymphadenitis. The enlarged spleen and

the febrile course are analogous to the febrile forms of pseudoleukemia. The nodules in the iris may likewise possibly be lymphomatous infiltrations. Schou has reported a case apparently typical except that the parotid glands seemed to be normal. The finding of giant cells and of epitheloid cells in the nodules in the iris in four cases was assumed at the time to indicate a tuberculous origin, but Bang advises classing the uveoparotid syndrome—until further light is obtained—in the pseudoleukemia group rather than as tuberculosis. In any event, it is most certainly not a disease *sui generis*.

141. **Blood in the Stools of the Tuberculous.**—Bogason found that purulent sputum gave constantly a positive benzidin reaction for occult blood. Consequently swallowed sputum may be responsible for positive findings in the stools, and intestinal lesions need not necessarily be incriminated.

Upsala Läkareförenings Förhandlingar1917, **22**, No. 3

- 142 *Action of Alcohol on Muscles. C. Gyllenswärd.—p. 141.
 143 Nutritional Tests with Sugar on Surviving Frog Muscle. C. Gyllenswärd.—p. 162.
 144 *Accidental Heart Murmurs. E. Kylin.—p. 188.
 145 Operative Cure of Traumatic Epilepsy. A. Troell.—p. 213.
 146 *Rupture of Spleen. G. Nyström.—p. 221.

142. **Influence of Alcohol on Muscular Work.**—Gyllenswärd has applied Blix's test of the orientation capacity of the hand as a means of determining the amount of disturbance induced by small amounts of alcohol. The test requires coordinating action of several groups of muscles, and thus is more exacting than simple ergograph tests. The test amount of alcohol was always 5 c.c., taken before rising, and the exercise was done fifty minutes later. The subject is seated with his back against the back of the chair, his right arm hanging vertically, holding a pencil. A paper screen stands at arm's length before him, and in the center of the paper is a mark. The right arm is lifted, without moving otherwise, and the mark in the paper is touched. Then the arm drops back to its former position. The eyes are then closed and the procedure is repeated. A series of such movements are done alternately with eyes open and shut. The distances between the central dot and the other marks on the paper are added together and the sum divided by the number of times the attempt was made. This gives an index of the steadiness of the muscles involved. There was always a falling off of from 20 to 50 per cent. when the alcohol was taken. Several control solutions were used, so the subject did not know whether he was being given the alcohol or not on the day in question.

144. **Accidental Heart Murmurs.**—Kylin analyzes previous publications on this subject and reviews his own experience with 513 apparently healthy recruits, and 300 male hospital inmates of a corresponding age. Among the recruits, 18.1 per cent. presented these accidental murmurs, and 28 per cent. of the hospital inmates. In practically all with accidental heart murmurs the blood pressure was slightly above normal, while the capacity for physical endurance was almost invariably reduced to a certain extent.

146. **Rupture of Spleen.**—Nyström describes three cases in which intestinal paresis appeared as a complication of rupture of the spleen. He has found only one case on record of ileus from this cause. The spleen was sutured or tamponed, and all recovered, but the first two patients required a second operation to correct the ileus. Nyström reports further a case of rupture of the spleen nearly its entire length. He saved the spleen by tamponing alone, but has worked out on the cadaver a more certain method, namely, by tying a ligature around the pedicle, close to the spleen, with other ligatures around the spleen itself, like barrel hoops, each held firm in place by being knotted at right angles to the ligature around the pedicle. All this can be prepared before the abdomen is opened, so that the whole will fit like a bag over the spleen. The only tying necessary then will be the stout catgut passing around the pedicle. Possibly a tampon might be held in place by rubber bands passed around the spleen. A stout silk thread through each band could stretch it enough for it to be cut when the time came to remove it.

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CONSERVATION OF CHILD LIFE A NATIONAL RESPONSIBILITY*

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NEW ORLEANS

Every man was a baby. Unfortunately most men have forgotten the fact. Not the least of these is the majority of the medical profession, judging from their lack of desire for information about and their want of interest in the welfare of infants. The medical profession must interest itself in the saving of the lives of the babies, if the future population of the country is to be considered. Far-sightedness was never more necessary than at the present time. The adage, "Do unto others as you would be done by" never had a greater application than when applied to the infant. Let us mature adults, and particularly members of the medical profession, be leaders and advisers of our lay brothers and let us put ourselves in the place of the infant. What would we like the adults of the nation to do for us? This is easily and readily answered in the heart of every one. Then why not do for the infants and children what we would in their place have done for us? Naturally the lay members of the society look to their medical advisers to lead the way. This can be done only by knowing it ourselves, and it can be known only by interesting ourselves in the subject. This does not apply to the members of the medical profession who have been working in behalf of child welfare, more particularly the pediatrician, but to those members whose work in most instances is so spectacular or confined to such narrow paths as to cause them to forget that there are other branches of medicine, and that they were once infants and children themselves.

Let us not be short sighted and consider only the requirements as regards our Army of today during this great world crisis, but let us benefit, if not by the advice of those at home who are advocating energetic activities in behalf of early life, at least by the experiences of the other great nations of the world who now appreciate more than ever the necessity of keeping the birth rate as far above the death rate as it is possible to do.

The two great alarm clocks of public sentiment are dollars and human lives and unfortunately it usually requires a tremendous loss of either or both to cause a thorough awakening. We are now experiencing both and are gradually being awakened, but unless there is a proper and complete realization of the neces-

sity of the conservation of early life, the awakening will be decidedly appalling.

In any successful mechanical or architectural work, the ultimate outcome by analyses will be shown to depend on the proper fundamental factors utilized in its accomplishment. It is not different in regard to the human being, but because of the more finely adjusted and delicate factors, more thorough consideration of the fundamentals must be given, and the completed being must have the proper attention during his various periods of growth and development so that the fully grown adult may be of maximum efficiency and of greatest value to society. It is undeniable that the loss of life is greatest in the first two years, and during this period the nearer to birth the greater the death rate. It is very likely, also, that the loss of life in utero may approach if not exceed the death rate of the first few months of extra-uterine life. At least the work of conservation of the human life begins before birth and, yes, even before conception. The problem is one which concerns us most vitally and needs most careful study.

It is a noteworthy fact that the rejections by the examining boards for the Army in the United States were between 25 and 30 per cent., and in England the percentage of healthy persons accepted in the army was about 40 per cent. of the applicants, there being a still further number who did not apply. Are these facts not significant as to the ultimate human products in these two great countries during the past? England has awakened to her problems and has achieved wonderful results, and her future will undoubtedly be benefited. Why should we have to follow? Why not lead? No time was ever more propitious than now. Beginning during this era of educational propaganda, our great country should and can safeguard its strength and growth so that its future will be secure. It is essential to enlist the assistance of the layman in order to derive the greatest cooperation. By so doing, public sentiment may be so framed as to have proper legislation enacted which will facilitate the coordinated efforts of the various agencies employed in behalf of early life, working to a common end.

In many places it may be that necessary laws are already on the statute books, but where they are not they should be passed. Laws are worse than useless, if when enacted they are not enforced. Hence, it is necessary to enlist public sentiment that the laws after once being passed may also be applied.

The great work of the conservation of child life should include the following periods: first, parents of the future children; second, prenatal care; third, parturition; fourth, newly born; fifth, infancy; sixth,

* Chairman's address, read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the neglected period—from 2 years to school age; seventh, school child to puberty; eighth, puberty; and ninth, adolescence. Naturally it will be seen that there is a circle involved which after being properly regulated will become an easy matter to supervise, but we are confronted with the problem today which is to be

TABLE 1.—RESULTS OF SAVING OF LIFE IN THE UNITED STATES *

Years	Lives Saved	Death Rate	No. Lives Lost	Lives Remaining	Value	Amount in Dollars
1 to 5	500,000	0.3%	= 1,500	498,500	\$ 500	= \$ 249,250,000
5 to 10	498,500	0.026%	= 130	498,370	1,500	= 747,555,000
10 to 15	498,370	0.019%	= 95	498,275	2,500	= 1,245,687,500
15 to 20	498,275	0.031%	= 154	498,121	3,500	= 1,743,423,500
				1,993,266		\$3,985,916,000
OR						
1 to 5	750,000	0.3%	= 2,250	747,750	\$ 500	= \$ 373,875,000
5 to 10	747,750	0.026%	= 194	747,556	1,500	= 1,121,334,000
10 to 15	747,556	0.019%	= 142	747,414	2,500	= 1,868,535,000
15 to 20	747,414	0.031%	= 232	747,182	3,500	= 2,615,137,000
				2,989,902		\$5,978,881,000

* At the end of twenty years, the saving in life, and life expressed in dollars would be 1,985,266 lives and \$3,985,915,000, respectively, for a yearly saving of 100,000 lives; or 2,989,912 lives and \$6,008,881,000, respectively, for a yearly saving of 150,000 lives, allowance being made at the present death rate for loss of life during each five year period among the lives previously saved.

With the loss of life incident to war, the value on human lives expressed in dollars will necessarily be increased.

The values given in the table are those of Irving Fisher, in Table 2, using the mean for the various periods.

attacked at each one of these periods at the same time. The first period has reference to the venereal problem which has been shown to be greatly influenced favorably by the plans already practiced by our Army. The municipal and state health boards throughout the country are now assisting the government by having proper laws passed making venereal diseases reportable. The results of these laws will surely show the wisdom of such legislation which will redound to the credit of the nation.

The second period is closely associated with the first, but has not yet received the attention it deserves. The same may be said of the third, fourth, fifth and sixth—clearly those periods of life on the supervision of which is founded the strength of a nation and its future. Greater attention has been given to the seventh, eighth and ninth, though there is yet much to be done in these periods.

TABLE 2.—REPORT OF IRVING FISHER ON NATIONAL VITALITY, JULY, 1909

Age	Net Worth in Dollars	Age	Net Worth in Dollars
0	90	30	4,100
5	950	50	2,900
10	2,000	80	700
20	4,000		

Attention is particularly directed in this paper to the second, third, fourth, fifth and sixth periods.

More or less provision has been made for each of these periods, with probably the exception of the sixth or neglected period (so named for the lack of consideration accorded it), and yet during this period of rapid growth the child is exposed to more outside influences than at almost any other time of life. It is during this time that many illnesses may be averted which may have their immediate or remote ill effects.

More attention is given by our government to animal and plant life than to any one of the five periods

enumerated and purely because of shortsightedness. If our municipal, state and national governments do not realize the importance of their burden, it should be taken up as a war measure. It is as much so, considered from the point of view of the future of the nation, as the safeguarding of the soldier of today. Had proper attention been directed to this work a generation or so ago, our present national strength would be far greater.

Imagine, as is shown in Table 4, a yearly loss of over 300,000 lives, one half of which, or about 150,000, is acknowledged to be due to preventable causes and not yet the awakening of the government to this responsibility. Imagine this tremendous loss of life and yet no adequate measures adopted by the medical section of the Council of National Defense for its cessation as a war measure! Should we have the loss of as many lives among our soldiers, or even half as many—what a howl it would cause throughout our whole nation. And yet, are not the infants potential soldiers? If viewed from no other angle but an economic one, would it not be a saving to the government, as shown in the figures of Tables 1, 2 and 3, to look to the conservation of its infant population?

It cannot be said yet what will be the result of the world war on the birth rate and death rate in this country, but the effect of war on warring countries

TABLE 3.—AVERAGE SOCIAL VALUE OF AN INDIVIDUAL *

United States.....	\$4,720
England.....	4,140
Germany.....	3,880
France.....	2,900
Austria-Hungary.....	2,720
Russia.....	2,000

* The social value of an individual is that which the individual will restore to the community in any way whatever from his personal profit or earnings. (After Barriol, M. A.: Jour. Roy. Statistical Soc., 1915, 88, 365.)

is reflected in a diminished birth rate and usually an increased death rate, as shown in Table 5. It is hardly conceivable how this country can be an exception, particularly when added to the influencing factors incident to war all the allied nations are dependent on her for more or less foodstuffs, which will result, at least, in a more limited and restricted diet for the pregnant women, nursing mothers, and infants and children in the United States.

It is, therefore, incumbent on us pediatricians to assist to our utmost in this conservation work in view of the losses incident to war, in order to provide for the future of our nation; but the federal government should direct the work.

Imagine what the saving of 100,000 or 150,000 lives a year for twenty years would be to the nation—a saving of 1,993,266 to 2,989,902 lives, or a population from nearly two to nearly three millions greater than otherwise it would be, as shown in Table 1. Indeed, the increase resulting from proper supervision would be greater, because, with the educational propaganda carried on with the governmental stamp, the people would learn to think more of their health and mode of living, and in many ways the entire country would be benefited. The result would be a bettering of the nation with persons of stronger and healthier constitutions who would live longer and enjoy more comfortable later lives.

It is evident that the problem is an economic one as well as a humanitarian one and may be measured in

dollars and cents. While it is shown in Table 4 that there is an estimated loss of 315,129 human lives under 5 years of age, more than half of which are acknowledged to be due to preventable causes, Table 1, based on the saving of only 100,000 or 150,000 lives a year, gives an idea in money of what the saving of

The net result is that only twenty-eight of the forty-eight states are now in the registration area for deaths, and only twenty states in the registration area for births—areas where the registration laws are good and registration is at least 90 per cent. complete. To be sure, conditions are improving each year and the states are realizing more and more the importance of complete registration of births and deaths, but if it be left to the states to enact and enforce adequate laws, it may be a hundred years before birth and death registration will be even approximately complete throughout the United States.

On the other hand, federal control would insure at once the uniform enforcement of registration throughout the country.

It would not be necessary to change the good registration laws now existing in many states nor to replace the competent registration officials throughout the country. With a federal law calling for the proper registration of births and deaths, providing penalties and empowering the Department of Commerce to prosecute when necessary, the existing registration machinery in the various states, if kept up to a federal standard, could be allowed to remain.

Inasmuch as the constitution provides that a representative must have attained the age of 25 years, a senator the age of 30, and a president the age of 35 years, it is evident that Congress has the power to enact legislation for the registration of births, also, since the selective draft laws call for men of specified ages, and as it has been difficult in some instances to prove the ages of these men, the enactment of proper laws for the registration of births and deaths is now a federal necessity.

Undoubtedly there are communities doing maximum efficiency work. Also, there are communities

TABLE 4.—SEX PROPORTION AT BIRTH AND SEX INFANT MORTALITY IN THE UNITED STATES *

	Total	Per 1,000 Popula- tion	Per Cent.
Births.....	776,304	24.9	
Deaths (all ages).....	436,114	14.0	
Births greater than deaths.....	.....	10.9	1.1
Births:			
Male.....	398,615	.....	51.3
Female.....	377,689	.....	48.7
Male greater than female.....	.....	.....	2.6
Deaths:			
Male (infants).....	.....	110	11.0
Female.....	.....	89	8.9
Male greater than female.....	.....	.....	2.1
Remaining:			
Male.....	354,768	.....	50.75
Female.....	344,075	.....	49.25
Male greater than female.....	.....	.....	1.5

Estimated Deaths in Same Area (436,114)	In 31 per Cent. of Population	In Total Population (Estimated)
Deaths in same area of children under 5 years: 22.4% of 436,114.....	97,690	315,129

* From Statistics in Registration Area; 31,150,803 or 31 per cent. of total estimated population.

the very conservative numbers will amount to in twenty years, namely from \$3,985,916,000 to \$5,978,881,000, after which time the saving will be increased in a compound ratio owing to these saved lives becoming parents.

These calculations are estimated on the figures obtainable from those registration areas where births and deaths are recorded, which areas comprise only a part of the population of the United States. Many municipal and state political organizations are willing to favor national requests even when they are in conflict with their individual views, whenever they are shown to be of value as war measures. It cannot be denied that the conservation of the nation's resources is a war measure particularly when it concerns her man power or potential army. This is the time, therefore, that all movements should be uniform and nationwide. The commencement of this work, in order to be able to determine what its progress will be, is to secure reliable information now for future comparisons. The proper control of registration of births and deaths is the fundamental work for this statistical guide.

Complete registration of births and deaths is a goal which can be reached in a short time, if Congress will enact a law placing the matter under federal control.

The importance of complete registration of births and deaths is apparent to all. The number of births in a locality and the number of deaths under 1 year of age must be known, or no accurate knowledge can be had of the infant mortality rate—a most reliable index of the community well being. Other valuable health indexes are death rates for certain specific causes, as typhoid fever, tuberculosis, etc.

So far, the registration of births and deaths has been under the control of state and local authorities. In some parts of the country, good registration laws have been enacted and are being well enforced, but in other sections, little has been done along this line.

TABLE 5.—BIRTH AND DEATH RATES IN COUNTRIES ENGAGED IN WAR WHERE COMPARATIVE STATISTICS ARE AVAILABLE

Country	Birth Rate per Thousand					Death Rate per Thousand				
	1913	1914	1915	1916	1917	1913	1914	1915	1916	1917
United Kingdom.....	24.1*	....	22.2	21.1#	....	14.3*	....	15.6	14.6†	....
England, Wales.....	24.1*	....	22.0	20.9#	17.8	13.8*	....	15.7	14.4†	14.1
Scotland.....	25.5*	....	23.9	22.8	....	15.5*	....	17.1	14.6	....
Ireland.....	22.8*	....	22.0	21.1	....	17.1*	....	17.6	16.5	....
France.....	19.0*	18.0§	....	....	....	17.7*	19.6§	....	....	....
Italy.....	31.7*	31.1§	....	....	....	18.7*	17.9§	....	....	....
Roumania.....	42.1*	42.5§	....	....	....	25.0*	23.8§	....	....	....
Germany.....	20.9¶	....	....	21.3¶	10.9¶	15.8¶	....	....	10.5¶	13.1¶
	28.3°	....	....	....	....	15.8°	....	....	....	....

* Figures from Annual Report, Reg. Gen. Eng. and Wales for 1915.
Rates based on population estimated for the purpose by Department of Vital Statistics.
† Includes only civil deaths and population as regards England and Wales.
‡ Civil population only.
§ Latest report from "Statesman's Year Book" for 1917.
¶ "Vital Statistics in Germany" in the Daily Review of the Foreign Press, April 1, 1918, taken from Veröffentlichungen des kaiserlichen Gesundheitsamts, 1917, 41. Statistics from twenty-five cities with a population of 200,000 or more inhabitants, the aggregate number being 11,000,000, or one sixth of the total population of the German Empire.
° Figures from "Statistisches Jahrbuch für das deutsche Reich," for 1915.
The greater death rate for Germany in the civil population for 1913 over 1916 and 1917 is explained by the larger death rate under 1 year in 1913 before the birth rate had been so tremendously reduced.

doing their best with variable results and, lastly, there are those not doing their part either because of inertia, or because they are not yet awake.

In order to accomplish the greatest results, there should be a uniformity in plan, interesting every state to enact laws which should be uniform, which should conform to those which the nation should adopt and which should be enforced properly.

The direction of the work should be by or with the advice of medical men who are properly qualified in child welfare work, and who have devoted their endeavors to the early years of life.

Great appreciation should be felt for the various bodies already doing their utmost in this great work, unassisted by the government, and their entire cooperation should be further solicited which would be greatly aided by a national backing. There should be a coordination of all available agencies, all working to a common end and with the closest cooperation, which is absolutely essential. There should be no attempt at individualizing, but the spirit of self-sacrifice should prevail and methods should be adopted to produce the quickest, best and most uniform results.

Experience has shown that with governmental influence the most expeditious results may be obtained, and since the conservation of child life is such a vital issue to the welfare of a government in providing for its future strength and protection, its jurisdiction should be exercised in this work as much so as in the proper training and conserving of the youths of today who were the children of yesterday.

As adequate measures are not now being employed in the conservation of child life, a certain amount of responsibility lies with the pediatric men whose representative body in the American medical profession is this section. Your chairman has felt this and wishes to bring it to your attention for your consideration. Let it not be said in the future that the pediatric men of the medical profession in the United States were derelict in their duties. Some definite stand should be taken, expressed in the form of a resolution and placed before the proper authorities. This should be done not as a means of disposing of the matter, but in such a way as to place the responsibility with them, assuring them of our earnest, sincere and anxious desire to cooperate in every way possible by placing ourselves at their disposal in this work.

Pus Infection in the Industries.—Albaugh, director of the Division of Industrial Hygiene of the Ohio State Department of Health, in the *Ohio Public Health Journal*, April, 1918, summarizes the report of the division on the presence of furunculosis and wound infections among certain classes of factory workers in the state. These afflictions are said to be unusually prevalent among operatives of lathes and cutting and milling machines who come in contact with cutting compounds and cutting oils, and occur with greater frequency in summer. He says this represents an important economic loss to the company as well as to the men affected. Cutting compounds and cutting oils are vehicles for carrying pus-forming bacteria and are responsible for engendering and spreading much furunculosis and wound infection. The oils and compounds used appear inert to bacterial life, being neither germicidal, antiseptic nor directly supportive. Employees are probably most responsible for the infection of the oils, but accidental contaminations can occur and sterilization is probably necessary. Employees should be educated against spitting into lubricants and reservoirs, interchange of towels and wiping rags; clothing should be frequently changed and cleansed and they should seek prompt dispensary care of all wounds and skin eruptions. Only sterile oil products should be purchased from the manufacturer; heat sterilization of reclaimed oil should be carried out before it is redistributed. Disinfectants mixed with the oil are of doubtful value. A commercial cresol disinfectant with a phenol coefficient of 3.21 in the presence of organic matter was not effective unless used in a 2 per cent. solution, and in this strength its use is impracticable, according to investigations carried out.

PROTECTION OF INFANCY IN FRANCE

WHAT HAS BEEN DONE AND WHAT REMAINS TO BE DONE IN THE FIGHT AGAINST INFANT MORTALITY *

PAUL ARMAND-DELILLE, M.D.

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FRANCE

The struggle against infant mortality is one of the most urgent problems at present before France. The birth rate is already much diminished because of a variety of factors which cannot, however, find place here; also, we have suffered most heavily in the present war.

Since shortly after the end of the nineteenth century, infant mortality had been noticeably diminished, thanks to the progress of hygiene, but nevertheless not sufficiently, and, since the beginning of the war, as a result of economic changes, we are obliged again to note an increase. If France wishes to continue her rôle in the world, it is necessary that she protect her children more and more.

Formerly in France as in all countries, infant mortality was very great, but the families were much more numerous, and thus the population increased, as is evidenced by the colonization of Louisiana and Canada. In the sixteenth and seventeenth centuries, the families often numbered ten or twelve children, whereas today a family of seven is considered large; but of these ten or twelve children, six or eight were frequently lost in the first years of life. We find the proof of this in the so-called *livres de raisons*, which were kept annually by the head of the family in certain of our old French provinces. There were written in these diaries not only the number of receipts and expenses, the revenues of the farm, the hay or wheat in the granary, the wool of the sheep, but also the principal events of the family life—the marriages, births, baptisms and the illnesses of the children. It frequently appeared that a second or third son was christened the same name as the first; for example, "Pierre" might be found three times because of the fact that the previous children had died at an early age, and in order to preserve the name of the family, the same name had been given to another who had been born; and if this one died, it was given to still another.

At this time only the strongest children survived, or those whom the mother cared for particularly during the first few months, as a result of an instinctive knowledge. In order to diminish the mortality, the children were sent to the country as soon as possible after birth. This custom of sending the children to the country was very general among the French noblesse and bourgeoisie of the eighteenth century.

It is to Jean-Jacques Rousseau that we owe the first campaign in France in favor of maternal nursing.

PUERICULTURE

Maternal nursing is the basis and the natural method for the protection of infancy. To have every French mother practice it is the object of our league against infant mortality, of which I shall speak later. But this first feeding by the mother is not always possible, and

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

in some cases it must be supplemented by cow's milk. On the other hand, even the best mother who nurses her own child must still be guided by the laws of hygiene everywhere necessary, but especially so in the great modern cities.

After having trusted for too long a time to maternal instinct and good sense, which are useful but not sufficient, the scientific progress of the nineteenth century has demonstrated that in all divisions of activity, scientific methods are superior to empiricism, and so for the children there has been constructed a true science of puericulture, following the word of Pierre Budin, founder of the first "Children's Clinic."

In fact, it is from France, under the influence of this eminent teacher, too soon removed from his activity in French medicine, that this movement originated. My country has already accomplished a great deal along these lines, but it has not been possible to do all that was desired. At the inauguration of the Exposition of Puericulture of the American Red Cross at Lyons, my friend Jean Lépine employed a most accurate comparison. He said that for the last fifty years France had been comparable to a man with his right arm constantly raised for his defense, and who could only employ his left arm for his immediate needs.

If our French Red Cross could do nothing for the children before the war, the reason lay in the fact that it was obliged to prepare for the wounded which were expected, and every one knows that it has not failed in its task.

The civil department of your American Red Cross came, therefore, to offer its services, at the side of many other organizations in the struggle against infant mortality. Not only, my dear friends, do you collaborate with us on the field of battle to free the world from German barbarity—from might over right—but also to aid us in reconstructing the France of the future, in order that, with you, she may stand with arm outstretched, holding the flaming brand of liberty. We are deeply grateful for all that you have done, and we thank you from the bottom of our hearts.

MEASURES FOR THE PROTECTION OF CHILDREN

I will now explain what we have already done, in order to protect our children, what remains to be done, and that which we hope to accomplish, with your fraternal aid.

The works of charity, organized for abandoned children, date from several centuries ago, and the name of St. Vincent de Paul is intimately associated with the creation of orphanages. They were especially developed in the eighteenth and nineteenth centuries. The Hôpital des Enfants assistés at Paris and the Service des Enfants assistés, in our Ministry of the Interior, have made an official organization of these. But because of the fact that the mortality was very great in these agglomerations of children in the orphanages of the cities, the Assistance publique (the great governmental charity of France) organized the placing of children in the country in peasant families, guaranteeing the success of this proceeding by requiring administrative and medical supervision. On the other hand, with the beginning of mechanical industries, Marbeau, in 1844, founded the so-called "crèches," that is to say, "day nurseries," destined to receive children while the mother was working in the shops or factories. They have multiplied and are now very numerous in the great cities and industrial districts.

In 1846, a great philanthropist of Mulhouse in Alsace, Jean Dolfuss, founded the "Association for Pregnant Women" which gives an indemnity during the period of confinement and nursing to the workwomen of the factories. Along this same line of progress there originated a little later, the "Mutualité maternelle," which had for its object the aid of the mother at the time of confinement. Each woman gives a small amount of money annually, which is increased by gifts made by charitable persons. This capital permits, for all the participants at the moment of accouchement, the services of a physician or of a midwife, and also the receipt of an allocation permitting the woman to remain at rest for some weeks after the confinement. The results obtained by the Mutualité maternelle have caused a decrease in infant mortality of at least 70 per thousand births, and what is further very important, the passage of the Paul Strauss Law, of which I shall speak later.

France, in fact, possesses two principal laws destined for the protection of early childhood. The first was promulgated under the leadership of the eminent philanthropist, Théophile Roussel, and is known in all countries as the Loi Roussel. It was passed in the year 1874, and has for its particular aim the protection of children placed by their parents in nursing homes. Every child under 2 years, confided to a wetnurse, an ordinary nurse, or simply another woman for care, comes automatically under government supervision.

The second law, that of Paul Strauss, was adopted shortly before the war, in June, 1913, with the addition of certain amendments in June, 1914. It has to do with the protection of the mother during pregnancy and of the mother and child during the first four weeks after birth. It permits the mother to have complete rest and to begin the nursing of her child under the best possible conditions. This law has been a decided step in advance, but its success will depend on whether or not assistance is given and supervision maintained during all of the first year at least.

This surveillance exists especially in the districts where the mothers have the advantage of nursing clinics. Because of this, there was founded in France in the year 1902, by Budin and Paul Strauss, the Ligue contre la mortalité infantile or in other words The League Against Infant Mortality, which aims at the encouragement throughout the country of the formation of these so-called *Consultations de nourrissons*, or "nursing or baby's clinics." Further it aims to aid all societies, private and public, which have to do with the protection of mothers and young children.

The first Consultation de nourrissons was founded by Pierre Budin, professor of obstetrics in l'Hôpital de la Charité, at Paris, in 1892. He desired especially to organize a system which would "follow up" the children born on his service, and which would furnish necessary counsel and aid to the mothers during the first year. He obtained excellent results, and very soon similar clinics were established in various hospitals and dispensaries of Paris. Further, his example was promptly followed in the provinces, and in 1894, Dufour founded at Fecamp, a small town in Normandy, an analogous institution, to which he gave the name of Goutte de lait, literally translated meaning, "a drop of milk." This institution aimed at diminishing the infant mortality by employing the following methods:

1. Giving to the mother counsel and encouragement, inducing her thus to nurse her own child.

2. In case her own milk was insufficient to explain supplementary feeding to her and supply her with the necessary sterilized milk for this purpose.

3. In case the mother by reason of certain physiologic or material causes was unable to nurse her child at all, to furnish her with clean, sterilized milk, indicating to her the rules for this artificial feeding.

Since that time, many *Gouttes de lait* have been founded following this model, so that by 1906 there were 222 in the Pas de Calais alone, one among the eighty-six departments of France, and in this department, they have succeeded in reducing infant mortality in the neighborhood of 50 per cent. in the communities where they are located.

Nevertheless, as has been said by Mr. Jonnard, one of our former foreign ministers, at present governor general of Algeria, who wrote the preface of the book of Budin, only three things are necessary for the creation of a *consultation de nourrissons*:

1. A balance (a pair of scales).
2. A milk sterilizing apparatus.
3. The services of a physician.

The first two may be purchased, and the third, it is not necessary to tell you, may be found among my fellow countrymen who have so freely devoted themselves during the past four years to an attempt at safeguarding the liberty of the world.

There really exists one other factor indispensable to the efficient functioning of such an institution, namely, the visiting nurse, which important addition to social service is due to American initiative.

ORGANIZATIONS FOR IMPROVEMENT OF INFANT CARE

The Ligue contre la mortalité infantile¹ has equally encouraged the development or the creation of various organizations tending to promote maternal nursing and the progress of infant hygiene. The first of the *chambres d'allaitement* or "rooms for nursing" were established before the war in some of the larger factories, particularly in the industrial regions of France at present occupied by the Germans. Since the beginning of the war these *chambres d'allaitement* have been rendered obligatory in the munitions factories and other institutions producing war materials, where women are employed.

In each factory, there are set aside one or more rooms, well aired and kept perfectly clean, with walls painted in white. The workwomen bring their children here in the morning and return at regular intervals of three hours during the day to nurse them. There is also added a room for the sterilization of milk, in case supplementary feeding is necessary. There can also be in addition, a restaurant where the mothers may receive without leaving the establishment a well-cooked and well-planned meal at a low price. For the older children, in such factories, there are installed separate rooms called, "garderies," with rest rooms, playrooms and dining room, where is given the diet appropriate to the child's age, at a price easily within the range of the mother's purse. Further, there are reserved rooms for the isolation of children in case they are ill, thus preventing the propagation of contagion.

In Paris and certain large cities of the provinces, there exist great numbers of charitable organizations

directed toward the improvement of the condition of infants; for example, free restaurants for mothers, day nurseries for older children, temporary asylums in the town or country for the care of children during the confinement of their mothers.

Finally, I shall speak somewhat in detail of a very interesting institution called the Pouponnière at Versailles, organized for the benefit of a certain category of mothers in Paris. This institution receives the babies of mothers who because of physiologic or professional reasons cannot nurse their children and cannot afford to hire a wet-nurse. They can send their children, at a price much lower than would be required for a private nurse, to an institution established in the country under the best possible hygienic conditions, where the child is nursed by a woman who at the same time nurses her own child and also cares for another child of from 1 to 2 years of age. The children first entering the institution are submitted to a period of isolation to prevent the entrance of infectious diseases, and for the same reason other children may not visit the Pouponnière, and the mothers only under certain conditions.

The rôle of the visiting nurse will be to coordinate the interrelated actions of these various organizations. This is particularly possible because she comes in contact with the mother in her own home; she can direct her to the different *consultations de nourrissons*, *gouttes de lait* or dispensaries—then in the great field of "follow-up" work, she can coordinate the work of the societies tending to improve conditions of hygiene and of housing, both for the mother and for the child.

RESULTS OF THE WAR

Since the beginning of the war the problem of the protection of infancy has been much more difficult, and as a result of the war is now particularly urgent. In the first place, great numbers of physicians, those from 25 to 50, or even 55 years of age, have been mobilized. The natural result was a reduction in the number of clinics; this is particularly so because the younger physicians are the most familiar with the modern questions of public hygiene. Further than that, not considering that the war would be of long duration, most of the money formerly given those societies for the reduction of infant mortality was necessarily devoted to the various war requirements.

Finally, it should be noted that the birth rate since the beginning of the war has very markedly fallen, due partly to the great number of young married men who have been killed and a reduction in the number of marriages, and a falling off of the clientele of the dispensaries. There has also been, on the other hand, an increase in child mortality due to the rapid growth of the population of the large cities. This has been caused by the influx of workers to the munition factories, and of refugees, without adequate improvements in housing facilities.

Since 1916, the Ligue contre la mortalité infantile has been forced to crystallize all its efforts to combat this grave danger. This has resulted in the formation of a large number of societies destined to handle this immediate war problem. For example, in Paris, 14,000 liters of milk are distributed daily among the various children's hospitals, *consultations de nourrissons*, day nurseries, asylums for pregnant women, etc. Also, there have been opened in Paris, Lyons and other large cities new asylums for pregnant women, new day nurseries to care for the children of the women

1. For literature, please write to 49, Rue Miromesnil, Paris VIII^e, or to Dr. Paul Armand-Delille, 44 Avenue du Bois de Boulogne, Paris.

in the factories, and, as I have already mentioned, Albert Thomas, minister of munitions, has established in all the munition factories such an organization for the protection of women and children.

In order to furnish an efficient personnel for the foregoing noted organizations, there has been founded in Paris, under the auspices of the Ligue contre la mortalité infantile, a central school of puericulture. Lectures in puericulture have, however, been given for several years at the Foundation Pierre Budin, Hôpital des Enfants assistés, and in a special department of the Faculty of Paris under Dr. Marfan. I have myself, since 1906, given a course in puericulture in our nurses' training school of the city of Paris, and many others are given in the universities of the provinces.

At the moment, during 1917, when we found ourselves in particular difficulties along these lines in our reorganization of the fight against infant mortality, the American Red Cross arrived in France with its special department, the children's bureau (under the direction of Dr. William Palmer Lucas), to offer its aid. This offer was accepted by the whole of France with the deepest appreciation. That which has so appealed to us from the theoretical standpoint is your development of the visiting nurses, whose efficiency has been so clearly demonstrated in the United States. Of this I am particularly impressed, since I had the opportunity of seeing the visiting nurse organizations of New York, Philadelphia, Cleveland, etc.

After having responded to the most urgent appeals for aid incident to the war, as for example, at Toul, Nesle and Evian, the American Red Cross undertook, at Lyons, a work of a more general nature, in organizing an exposition of puericulture or, as is said here, an "infant welfare exhibit." This has had a most astonishing success. The American Red Cross has been able to group under its standard all of the best elements of the city, including religious, civil and political parties. As has been done by the French people against the Germans, it has made a "Union sacrée" in this great question of the protection of our children.

At the same time, there was inaugurated a course for visiting nurses, for which the number of applicants was soon greater than could be accommodated.

Soon the American Red Cross will transport this exhibit to other large cities of France (Marseilles, Bordeaux, etc.), where there already exist certain children's organizations and where the local committees have cordially offered their cooperation.

The director of public hygiene, M. Brisac, in the Ministry of Interior, is entirely disposed to second these efforts, and as he informed me just before I left on this mission to America, he would himself institute an investigation by his administration, in order to establish not only the list of existant organizations, but also the districts where the need is the most urgent. He assured me that the French government would cooperate with the American Red Cross in the perfection of its organization in the various departments, cities and communities.

We hope that soon, thanks to your aid, first the great cities, then each little village will have its *consultations de nourrissons* with their visiting nurses, so that all French mothers may have the aid and counsel which will permit them to save the generations of the France of the future.

By entering this war, you yourselves have demonstrated that you do not wish that the home of liberty and of the declaration of human rights should be

overwhelmed by the waves of barbaric hordes. Instead, it is your evident desire, for which we wish to express our heartfelt gratitude, that after so much sacrifice, France may be reconstructed and its new generations, working with yours, continue their mission for humanity, in defending the right, the justice and the liberty of the world.

THE CHILDREN'S YEAR CAMPAIGN *

GRACE L. MEIGS, M.D.

WASHINGTON, D. C.

The Children's Year campaign in this country is, I believe, part of a great international movement for the protection of children in war time that is stirring all of the warring countries.

In part, this movement is the logical outcome of the years of effort and thought for children that lie between 1900 and the opening of the great war. In these years a realization had grown that of all the people in a country the children are the most important. And so there are many now who feel that in war time it is the children whose interests must be especially protected from the deprivations, dangers and difficulties brought about by the war. One of the ideals in this war for ideals is the determination that children shall not suffer too much for this war, and that the future for which our armies are fighting must bring better conditions for children than did the past.

This movement, however, has had another stimulus, especially in the foreign countries hardest pressed by the war. Every foreign warring country is losing lives for its future in two ways: by losses on the battlefield, and by the losses represented by the inevitable and enormous decline in its birth rate. And every country is realizing that there is just one way to make up at all for these losses, and that is by lowering the death rates for babies and children. The vast and preventable wastage of life represented by the infant mortality rate of a country is really the only point at which a great economy of life is possible, an economy at all in proportion to the loss of life from war.

This has been realized, and in every one of the warring countries, efforts are being made to cut down infant mortality rates and to increase greatly the work for the protection of mothers and babies that had been proved successful before the war. That work includes measures to insure the care of the baby by a healthy mother in her own home, and includes, further, the work of public health nurses or other trained workers, and of centers for maternal and infant welfare. The increase in this work in foreign countries has had to be carried out in the face of great difficulties—the same difficulties we are facing now in this country. The greatest of these has been the shortage of physicians and nurses; the second has been the diversion of popular interest from infant welfare work to other work which has a more dramatic appeal or a more apparent connection with winning the war.

THE WORK ACCOMPLISHED ABROAD

But in spite of these difficulties in the foreign countries, this movement for the protection of mothers and babies has been successful. Infant mortality rates in

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

several of the countries have declined; in many countries more is now being done to care for women and children than ever before.

Reliable figures of infant death rates and birth rates are difficult to secure since the war began. Sir Bernard Mallet,¹ Registrar-General of England and Wales, has gathered together all the material available from official sources. He compares the fall in the number of births in England and Wales, Scotland, Ireland, Germany and Hungary. While the decrease in the number of births has been marked in all of the countries, it has been far less in the United Kingdom than in Germany and Hungary. In England and Wales, Scotland and Ireland in the succeeding quarters and years of the war, the percentage of decrease has varied from about 5 to about 30 per cent., but reached a point over 17 per cent. only in 1917. In Germany (in cities of over 15,000 inhabitants) and in Hungary, on the other hand, the percentage of decrease has been from 23 to 53 per cent., beginning the last quarter of 1914. The maximum point, 53 per cent., shows what an immense loss this represents.

Sir Bernard Mallet then compares the infant mortality rates of England and Wales, Scotland, Ireland and Germany for the years of the war ending in 1916, and shows that in general the rates in these countries have been lower than before the war. He says:

We have thus the extraordinary phenomenon all but common to these countries that the rate of infant mortality during these years has been lower than at any previous period of like duration. In the three parts of the United Kingdom the rate for 1916 is the lowest recorded, while that for Germany was equaled in 1913 and beaten only in 1912.

Since this article was published, preliminary figures for 1917 for England and Wales have been published and show a rise of 6 points in the infant mortality rate. Newspaper accounts tell us that official figures for Berlin have shown an increase in the infant mortality rates in the last months of 1916 and the first six months of 1917. It is still too early to comment on the meaning of this rise.

It is, indeed, a very striking and remarkable achievement that the countries of the United Kingdom—England and Wales, Scotland and Ireland—should in the second full year of the war attain the lowest infant death rates on record. This result is not due to happy chance. Never before has so much been done for mothers and babies. It is evident from the reports that this work is considered of paramount importance; that while economy must be urged in other directions, none is tolerated in the development of this work. The government in England and Wales gives grants of money through the Local Government Board to local authorities and voluntary agencies carrying on child welfare work. The budget allowance for this grant was £140,000 in 1917-1918, and was increased to £230,000 for 1918-1919.

The number of health visitors—trained women giving instruction to mothers in their own homes on the care of themselves and their babies—was increased from 600 in March, 1914, to 1,445 in February, 1917; that is, it has been more than doubled. The number of centers was increased to 842 in February, 1917, and to more than 1,119 before the end of the year.

Of course, great difficulty has been met in developing the work because of the shortage of nurses. The

great importance ascribed to the work has, however, evidently helped to meet this difficulty. It is said:

The value of this national work is so fully realized that the War Office, in spite of the need of nurses for military service, is not prepared to accept those who are acting as midwives and health visitors.²

Last year, England held a national baby week, similar to that carried on in this country in 1916 and 1917. It is said that the popular interest aroused by this campaign helped a great deal in increasing the number of health visitors and infant welfare centers, and in bringing home to the whole country the importance of saving mothers and babies as a war measure.

Perhaps the most important measures of all—those economic measures whose aim is to enable a mother to remain in her own home and care for her baby herself instead of going into industry—I shall not touch on here; nor can I speak of the work that is being carried out to give special preference in the milk and food supplies to mothers, babies and children.

I have sketched this work in England and Wales because it is illustrative of the work that has been going on in many other foreign countries since war was declared.

THE CAMPAIGN IN THIS COUNTRY

The work abroad has been an inspiration for the Children's Year Campaign in this country, which has been planned and is being carried out by the United States Children's Bureau cooperating with the Child Welfare Department of the Woman's Committee of the Council of National Defense. In this campaign the Child Welfare Committee and Committee on Nursing of the General Medical Board of the Council, as well as state and city departments of health, and physicians and nurses all over the country, are cooperating.

This campaign began April 6, the anniversary of the declaration of war, and is to last throughout the second year of the war.

In this country, because of our incomplete vital statistics, we do not know for the whole country the birth rate and infant mortality rate. But we estimate that every year in this country 300,000 children under 5 years of age die. It is safe to say, all agree, that one half of these deaths are preventable. The published aim of the Children's Year Campaign is to save the lives of 100,000 children under 5 during this year, the second of the war.

This aim—the public protection of mothers and young children—is only part of the program of the campaign, which is fivefold. The other four aims are: to maintain the standard of home care and the income on which proper care of children depends; to see that the restrictions on child labor and the requirements of school attendance laws are not broken down under war time pressure; to insure to every child opportunities for the outdoor life and recreation which are essential to health, and to provide for children in need of special care—the dependent, the neglected, the delinquent, the subnormal—the care that they require. I shall have space here to tell only of the first part of the program—the protection of maternity and infancy.

The aim of this part of the campaign is to save 100,000 lives this year. How can it be done? We

1. Mallet, Bernard: Vital Statistics as Affected by the War, Jour. Roy. Statistical Soc., 1918, 81, 1.

2. Hughes, A.: War and the Public Health Nurse, Pub. Health Nurse Quart. 1918, 10, 210.

have thought that to accomplish it two things are necessary:

First, to enlist the interest and gain the help so far as possible of every one in the country; of fathers and mothers, of physicians and nurses, of health officers—of every one; to develop the general conviction, here as it has been developed abroad, that the protection of children is a war measure.

Second, the development of permanent work for children, especially divisions of child hygiene in state and local departments of health; of centers for infant and maternal welfare, and of the work of public health nurses.

In a democratic country, progress must depend on popular understanding and support. And so in this campaign the Children's Bureau has enlisted the help of the many millions of women represented by the Woman's Committee of the Council of National Defense. In almost every county in this country a committee has now been formed; and under most state and county committees a child welfare committee has been established. These committees have been asked to take up the work of the Children's Year. The Children's Bureau and the Child Welfare Department of the Woman's Committee have asked all local committees to seek the advice of state and local departments of health and of local medical associations in making their plans. To every state, on the basis of its population, has been assigned its quota of children's lives to be saved, and in at least one of the states (Ohio) the state quota has been divided up between the counties and cities. We have heard of one small community whose quota of lives to save was seven, and which intends to save them.

You will wish to know in what ways we are trying to accomplish our two aims—to arouse popular interest and to stimulate the development of permanent work.

THE WEIGHING AND MEASURING TEST

The weighing and measuring test for children under school age is the plan which has been adopted to fix public opinion on the subject of the health of children, and to show the need for better provision for keeping children well—the need of more public health nurses and of more centers for infant and maternal welfare. I may explain the weighing and measuring test briefly as a test in which as many as possible of the children under 6 of a community are weighed and measured, and these measurements compared with a table of average heights and weights at different ages. It is advised that where possible a full physical examination of each child by a physician shall be included. The attention of parents is called to children whose weight falls markedly below the average for their height. The Children's Bureau has furnished a card for recording the height and weight of each child. Half this card is detached and given to the parents to serve as a permanent record; half is returned to the Children's Bureau. The cards where measurements have been made by physicians are to be tabulated. It is hoped that two or three hundred thousand cards will be available for tabulation; this will give data never before obtainable for a table of average heights and weights of children under school age.

The reports of the campaign in many communities are now coming in to the Woman's Committee and the Children's Bureau. They indicate a widespread interest and enthusiasm. Many of the committees are

reporting especially the interest shown in the test by the local physicians, and the way in which physicians are cooperating in carrying out the test in spite of the fact that their work is so much increased because of war conditions. The part taken in the campaign by state and local departments of health is a marked feature of the reports.

The weighing and measuring test has not yet sunk sufficiently into the past to let us judge what its end-results for good will be. But as a means of fixing popular attention, as a great publicity and educational campaign, I think most communities agree that it has been a success. The demand for cards for the test has gone far beyond our expectations; 5,000,000 cards have been printed and distributed. A campaign in which 5,000,000 families and many thousands of communities have taken part is one which is talked of and thought about. To most of these families we hope the idea has been brought home that the United States government considers that the special care of children in war time is a patriotic duty.

From New Orleans it is reported that a house-to-house canvass showed that there were about 40,000 children under school age. Of these, 32,730 have been weighed and measured. From Boston it is reported that about 35,000 children have been included in the test.

The test has been criticized because of its crudity. It is said that the height and weight alone are only an extremely rough index of the child's health and nutrition. This is true. It would be far better if every child could have been given a complete physical examination by a physician. But this would have been an impossibility on account of the shortage of physicians.

It is, however, true that the height and weight do give a rough indication of the child's physical condition. Many children who are very markedly underweight for their age and height are being found; there is the evidence of a children's clinic in a large city that the number of cases of rickets and malnutrition had doubled during the last month because of the children brought in by their parents who had discovered their condition through the weighing and measuring test.

THE FINAL AIM

To point out to their parents and to the community the children needing special care is one of the aims of the weighing and measuring test. But the thing which we hope, above all else, to accomplish is the development of permanent work for maternal and infant welfare. After the test, each community—as has been the case in Boston—will, we hope, have seen the need for more centers and more public health nurses, and will feel that the establishment of this work is a war measure. There is evidence that this is happening—that this work is having a great stimulus. We hope by the end of the year that the number of divisions of child hygiene, of infant welfare centers and of public health nurses will be doubled.

Of course, here the campaign comes up squarely against the difficulty that is affecting infant welfare work abroad and that is affecting all public health work in this country. This difficulty is the great shortage of physicians and nurses. The question of the shortage of physicians I shall not take up at all; perhaps it will be spoken of in the discussion. The shortage of those skilled in pediatrics is one of the

gravest problems at present in infant welfare work. This shortage makes an increase in the number of public health nurses for preventive infant welfare work all the more an urgent necessity.

The National Organization for Public Health Nursing and the Committee on Nursing of the Council of National Defense are working in close cooperation with the Children's Year Campaign. The first named organization was appealed to by a conference of state child welfare chairmen to devise means of increasing the supply of nurses, and it has approved a plan for cooperating with states in which funds have been raised to employ a state supervisor of nurses either by the state department of health or by the state child welfare committee. The organization will help states to find suitable candidates for these positions, and through a traveling secretary will aid the state supervisor in developing emergency plans for training graduate nurses to do public health and infant welfare work. Already the child welfare committee of one state—Connecticut—has raised funds for this purpose; and others are making plans to do so.

In many of the states and in many cities much work for children as a war measure was being planned or carried on before the opening of the Children's Year Campaign. I wish there were space to tell of the splendid work that has been done. We hope that the general interest aroused by the campaign has aided the work already begun in those states and cities.

All these lines of endeavor in our country and abroad, this whole movement for the conservation of children in war time which we are discussing today, will grow as the years go on. Some day, when the war is over, this movement for the protection of children, like that for the control of venereal diseases, will, I think, be considered among the important lines of progress that have developed from the great war.

This article and those by Drs. L. R. DeBuys and Paul Armand-Delille are part of a symposium on "Child Welfare." The remaining papers, by Drs. J. P. Sedgwick and N. O. Pearce, and by Dr. W. P. Lucas, with the discussion, will appear next week.

Progress in Child Labor Legislation.—The *Child Labor Bulletin* for May has as a special feature the tentative draft of a bill to create a federal Department of Education, to provide for a Secretary of Education and to secure the appropriation of \$100,000,000 for federal aid to the states. Drafted by the National Education Association and the National Child Labor Committee in cooperation with educators throughout the country, the measure has for its aims the abolition of illiteracy, the improvement of rural schools, the Americanization of immigrants, and the promotion of physical education in the schools. The *Bulletin* also reviews the gains of child labor legislation during the past year, naming New York, Massachusetts, Wisconsin and Missouri as the banner states for progressive law-making. Within that period, Virginia and Mississippi have raised their educational standards, the former extending her law to apply to the whole state and the latter passing a local option educational bill applying to children between the ages of 7 and 16 years. In addition to the state survey made in Oklahoma by the National Child Labor Committee, three more state surveys are now under way in Michigan, North Carolina and Alabama, for the purpose of studying and reporting on all the conditions affecting child life. The *Bulletin* declares that these surveys have become a part of the campaign of education which accompanies the drafting of children's codes in the various states. The survey in Alabama is especially designed to furnish information for the legislature.

POTENCY OF ANTIMENINGOCOCCIC SERUM

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During the past year there has been much discussion of the therapeutic value of the antimeningococcic serum available in the American market, and of its potency as determined by laboratory tests. While the question of the potency of this agent is still under investigation and is far from being settled, it appears desirable to present this brief review of the situation as it exists at present.

Epidemics of cerebrospinal meningitis occurring in 1915 and 1916, in England and continental Europe, with the mobilization of troops, afforded an opportunity to extend the therapeutic use of antimeningococcic serum, and to analyze the results of treatment with better controls than is usual.

The conclusions reached as to the efficacy of the serum treatment were conflicting. Some workers had most unsatisfactory results, while others working with serum of similar origin were apparently enabled to reduce, to a conspicuous degree, the mortality of the disease.

The failures were in part attributed to the presence in the epidemic of strains of the infecting organisms that were resistant to the serum, or, in other words, that the different serologic responses of the meningococcus were to be considered in serum therapy.

It is pertinent, therefore, to present briefly a few facts in relation to the classification of the organisms isolated from the cerebrospinal fluids of persons suffering from epidemic meningitis.

GROUPS OF MENINGOCOCCI

The first definite separation in groups of the organisms under discussion was made by Dopter, who found that by serologic methods it was possible to differentiate two groups, the true meningococci and a group which he designated parameningococci.

It has been very generally accepted that this separation is valid, but certain workers consider this grouping not sufficiently specific. Further investigation along these lines has led to the recognition by one set of workers of the "irregular" group, which includes organisms that vary from the serologic types which form the basis of the two groups mentioned. Others, working with the cultures secured from cases of meningitis that occurred among troops in England, established four types designated I, II, III and IV, I and III corresponding in general to the regular meningococci and II and IV to the parameningococci.

The group classification of a particular organism is made either by means of agglutination or by means of agglutinin absorption, but the results of the two tests do not necessarily run parallel. The separation of cultures into groups probably is a matter of the greatest importance in connection with the testing of the therapeutic potency of the serum. It should be said that ordinarily there is some "cross immunity" shown

by members of the several groups; that is, while a culture falls into a certain group as indicated by reacting with high dilutions of the group type serum, it will react with relatively low dilutions of the antiserum prepared from type strains of other groups.

Unfortunately we are not yet in position to accept finally any grouping that has been proposed, but tentatively, and for the purpose of testing the serum, it seems wise to recognize the largest number of groups which seem to have a reasonably substantial basis.

Some workers, having accepted the classification of four groups, have produced therapeutic serums spe-

the agglutination method, the determination of the opsonins or bacteriotropins, or the animal protection test. The English workers have used chiefly the agglutination method, the French prefer the complement fixation method, while according to the latest available literature, the Germans use both the complement fixation test and the determination of the bacteriotropin content of the serum.

Unfortunately there is no satisfactory evidence as to the correlation of the results of any of these methods of testing with the results of the therapeutic application of the serum to the disease in man.

PROTOCOL 1.—AGGLUTINATION TEST *

Strains	H. L. 98					H. L. 55					H. L. 56					H. L. 57					H. L. 106					H. L. 60				
	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800
Serum A	4	4	4	3	2	4	4	4	3	2	4	4	4	3	2	4	4	4	4	2	4	4	3	1	0	4	4	3	2	1
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
C	4	4	3	1	0	4	3	2	1	0	3	3	2	1	0	4	4	4	2	0	4	4	2	0	0	3	3	2	1	0
D	4	4	4	2	0	4	3	2	2	1	3	3	1	0	0	4	4	4	2	0	4	4	3	2	1	4	4	2	1	0
E	4	4	3	2	0	4	3	2	2	0	4	3	1	0	0	4	4	4	2	0	4	4	3	2	1	4	3	1	0	0
F	4	4	3	1	0	3	3	2	1	0	3	2	1	1	0	4	4	4	2	0	4	4	3	1	0	3	3	2	0	0
1	4	4	4	3	2	4	4	3	3	2	4	4	3	2	0	4	4	4	3	2	4	4	3	2	0	4	4	2	1	0
2	4	4	4	2	0	4	4	3	2	1	4	3	3	2	1	4	4	2	1	0	4	3	2	1	0	4	4	2	1	0
3	4	4	4	3	2	4	4	4	3	2	4	4	4	3	3	4	4	4	3	2	4	4	4	2	1	4	4	4	3	2

* In the protocols:
4 = complete agglutination with sedimentation and clear supernatant fluid.
3 = strong agglutination with sedimentation and faint clouding of the supernatant fluid.
2 = partial agglutination with slight sedimentation and cloudy supernatant fluid.
1 = slight agglutination with occasional flocculent clumps suspended or precipitated.
0 = no agglutination with homogeneous cloudy supernatant fluid and no flocculent precipitation.
Strong agglutination is credited as satisfactory.
4 = complete fixation or no hemolysis.
3 = strong fixation or a faint tinge to the supernatant fluid.
2 = definite fixation or slight hemolysis with a precipitate of blood cells.
1 = slight fixation or hemolysis with a slight residue of blood cells.
0 = no fixation or complete hemolysis.
Definite fixation is credited as satisfactory.

Lettered serums A, C, D, E, F represent those of producers not engaged in the interstate sale of this product. Numbered serums 1, 2, 3 represent different lots of the several producers who are engaged in the interstate sale of the product. The letter A uniformly refers to the check serum, the letter B to normal horse serum. The numbers refer to different serums in each protocol.

PROTOCOL 2.—AGGLUTINATION AND COMPLEMENT FIXATION TESTS
Agglutination Test

Strains	H. L. 98					H. L. 55					H. L. 56					H. L. 57					H. L. 106					H. L. 60				
Dilutions	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800
Serum A	4	4	4	3	2	4	4	3	3	2	4	4	3	3	2	4	4	4	3	2	4	4	3	2	1	4	3	3	2	1
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	4	4	4	4	4	4	4	3	4	4	4	4	3	4	4	4	4	4	4	4	4	3	4	4	4	4	3	

Complement Fixation Test

Groups	I					II					III					IV				
	H. L. 98					H. L. 55 and 56					H. L. 57 and 106					H. L. 60				
Dilutions	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000
Serum A	4	4	3	2	0	4	4	3	3	1	4	4	3	1	0	4	4	3	1	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	4	3	3	4	4	4	3	3	4	4	4	3	1	4	4	4	4	3

cific against a single group of the organisms. In view of the delay attending the group classification of the organism that may be cultivated from a case, under ordinary conditions, and the uncertainty as to the validity of such classification, it is questionable whether the use of such narrowly specific serums is desirable. Probably it is better for the present to follow the generally adopted procedure of furnishing a polyvalent serum representative of all recognized groups of the organism.

METHODS OF TESTING

A number of methods of testing antimeningococcic serum have been employed, but none has won general acceptance. Thus American manufacturers have been accustomed to use the complement fixation method,

The animal protection test is rather attractive because it seems to produce conditions that are analogous to those under which the serum is used in the treatment of the disease; but our lack of knowledge of the mechanism of infection and protection in man, and of the virulence of cultures for laboratory animals, does not permit the adoption of this test without further study. In other words, it may be quite possible that the protective action of the serum in animals and the curative action in man do not run parallel. Therefore it seemed wise, tentatively, to adopt test tube experiments to determine the activity of the serum used in the United States.

With the application of these serologic tests to the commercial serums, such wide variations in results were found that it seemed clear that the various

methods of applying these tests might with profit be replaced by those which would lead to the production of a more uniform preparation. Even with the use of the same test, the readings made by different persons on a given specimen varied considerably. It is scarcely an exaggeration to say that the various reagents used in the tests may be varied in concentration and quantity so as to show almost any result; thus we have a serum sent out for test purposes by a state department of health, which was stated to agglutinate in a dilution of at least 1:800 a given culture, but in our hands showed strong agglutination in but 1:100 with the same strain (Serum C, Protocol 1). These facts made it necessary to have all serums offered for

strains lend themselves to cultivation, and to the above mentioned reactions. After some experimentation it was finally decided that the tests should be made with one or more representative organisms of American origin of each of four groups determined by agglutinin absorption methods. It was found that these embraced representative cultures which would be classified in the three groups: the regular or normal meningococci, the parameningococci, and the irregular organisms. The antigens for both agglutination and complement fixation tests were prepared essentially by the methods employed by Lieutenant-Colonel Gordon of the English Royal Army Medical Corps, and his associates. These were distributed to commercial manufacturers,

PROTOCOL 3.—AGGLUTINATION AND COMPLEMENT FIXATION TESTS
Agglutination Test

Strains	H. L. 98					H. L. 55					H. L. 56					H. L. 57					H. L. 106					H. L. 60				
Dilutions	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800
Serum A	4	4	4	2	0	4	4	3	2	1	4	4	3	1	0	4	4	4	3	0	4	4	4	1	0	4	4	3	2	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
1	4	4	4	3	3	4	4	4	3	2	4	4	4	3	2	4	4	4	3	2	4	4	4	3	2	4	4	3	3	2
2	4	4	4	3	3	4	4	4	3	3	4	4	4	3	2	4	4	4	4	1	4	4	4	2	1	4	4	4	4	1

Complement Fixation Test

Groups	I					II					III					IV				
	H. L. 98					H. L. 55 and 56					H. L. 57 and 106					H. L. 60				
Dilutions	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000
Serum A	4	4	4	3	1	4	4	4	4	3	4	4	4	3	0	4	4	4	3	2
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	4	3	0	4	4	4	4	3	4	4	4	3	0	4	4	4	4	3
2	4	4	4	3	1	4	4	4	4	4	4	4	4	3	0	4	4	4	4	3

PROTOCOL 4.—LACK OF CORRELATION BETWEEN AGGLUTINATION AND COMPLEMENT FIXATION TESTS
Agglutination Test

Strains	H. L. 98					H. L. 55					H. L. 56					H. L. 57					H. L. 106					H. L. 60				
Dilutions	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800	1:50	:100	:200	:400	:800
Serum A	4	4	4	3	2	4	4	3	2	2	4	4	3	3	2	4	4	4	4	3	4	4	3	2	1	4	4	3	3	2
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	4	4	3	3	2	4	4	3	3	2	4	4	4	3	2	4	4	4	2	1	4	4	3	2	1	4	3	3	2	1
2	4	4	4	4	3	4	4	3	2	1	4	4	3	3	1	4	4	4	3	1	4	4	3	2	0	4	4	3	2	0

Complement Fixation Test

Groups	I					II					III					IV				
	H. L. 98					H. L. 55 and 56					H. L. 57 and 106					H. L. 60				
Dilutions	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000	1:250	:500	:1000	:2000	:5000
Serum A	4	4	3	0	0	4	4	3	2	0	4	3	2	0	0	4	3	2	0	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	3	1	0	0	0	4	3	2	0	0	1	0	0	0	0	4	3	1	0	0
2	4	0	0	0	0	4	3	2	0	0	1	0	0	0	0	4	3	1	0	0

sale in interstate traffic tested in a central laboratory, and a recommendation to this effect was approved by the proper administrative authorities. It was determined at the outset that it probably would be wise to accept as suitable for therapeutic purposes any serum which passed satisfactorily either by an agglutination or a complement fixation test. This seemed desirable as certain American and English workers favored the former, believing that it was an index of the value of the serum, while the latter was preferred by other Americans and by French workers. The choice of the strains for the preparation of antigens to be used in these methods is complicated by the differences of opinion on the grouping of meningococci, as well as by the readiness with which the

together with detailed descriptions of the use of these reagents and the method of reading the results obtained. It was required that the manufacturers should test this serum using these or similarly prepared antigens, but that the serum should not be released until samples had been tested and passed at the Hygienic Laboratory. All lots of serums have been tested in comparison with one (Serum A in the protocols) which gave moderately high titer, by the above-mentioned methods, and were regarded as satisfactory if they showed an agglutination or complement fixation titer slightly less than, equal to or greater than the check serum used (Protocols 2 and 3). There have been examined since Dec. 1, 1917, 101 lots of serum, representing in each lot from four to

more than 100 liters. Of these, twenty-five failed to meet the requirements. Of the twenty-five, nine were produced in the early months of 1917 before the application of the present methods by the Hygienic Laboratory, and six were produced by an institution which does not have a license to engage in interstate traffic, but submitted samples for check testing. Hence, of the lots produced subsequent to this date, 12 per cent. of those submitted by producers offering serum for interstate sale failed to pass.

Comparisons made on eighty or more tests have shown that complement fixation titer usually has a correlation with agglutination titer. However, in individual lots there are distinct deviations from this correlation, as are shown in Protocol 4.

All American serums now on the market are polyvalent serums, and are made by immunizing the horses with from thirty to eighty different strains of meningococci, most of which have been isolated from individuals in this country.

Different lots of serums even from the same manufacturer may vary in titer on different strains of the same and different serologic groups, both in agglutination and complement fixation reactions.

Further, the same lot of serum may show different titers on different antigens made from the same strains, and even on the same antigen. The latter variation is, however, within a comparatively short range.

It has been determined that producers can obtain results comparable with those of the Hygienic Laboratory, when using the methods of testing specified by this institution.

CONCLUSIONS

By the tests, thus far devised, it is possible only to determine definitely that the serum examined is derived from a horse which has been immunized with strains of meningococci representative of the various serologic groups occurring in this country.

All antimeningococcic serums now offered for sale in interstate traffic are required to show this property before release from the plant of the manufacturer.

Feeble-mindedness Discussed at National Conference.—At the meeting of the National Conference on Social Work at Kansas City, May 16, George A. Hastings, executive secretary of the Committee on Mental Hygiene of the New York State Charities Aid Association, in discussing the pressing problem of feeble-mindedness said that while no census of these defectives had ever been taken in this country, there are probably 400,000 of them, or one for every 250 of the population. In New York State alone there are about 35,000, of whom only about one-sixth are in proper institutions. About 15,000 men have been rejected from the new National Army on account of nervous and mental disorders, and of these, one-third, or about 4,000, were rejected on account of feeble-mindedness. The proper place to detect feeble-mindedness, he said, is in the schools, and in dealing with the problem, five definite steps are necessary—identification, registration, instruction, supervision and segregation. A practical working program should include an awakened public knowledge and conscience concerning feeble-mindedness, a realization of state responsibility and a definite policy, on the part of the state, facilities in the community for the earlier discovery of cases, central registration, the establishment of institutions and schools for segregation and training, facilities in the courts for determining the mental condition of prisoners, establishment of more ungraded classes in public schools, a system of community supervision, and continued scientific study of the whole problem.

RATIONALE OF TREATMENT OF TOXIC AND INFECTION PSYCHOSES *

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The clinical interpretation of toxic and exhaustion psychoses rests, primarily, on psychobiologic principles. Of these principles, the modern physiologic concept that living things are transformers, rather than generators of matter and energy, gives us understanding of the term "mechanism" when applied in conservation of energy, on which concept treatment must be founded. The neural mechanisms with their baffling complexities, their problems of functioning, their clinical interpretations, etc., all require familiarity with the physiology of nervous reactions and afford the most inviting field for the research worker today, especially when in this great world's war, the clinical problems in this special field are overwhelming both in intricacy and in numbers.

We must, in our approach to the understanding of these problems, keep in mind the three essential points of Sherrington,¹ as regards nervous reactions, namely, first, the natural history of cell life; second, the conduction of the nervous impulse more recently studied by Lucas,² and third, the integrative nervous reactions, in virtue of which the nervous system unifies functional activities. It is not necessary to dwell on these fundamentals as essentials in the biologic foundation for a psychologic doctrine of the mental life of an individual.

As practitioners, we all recognize the essential value of these principles on which mental mechanisms have their foundation. It is said by Dunlap³ of Johns Hopkins University that psychologists who have recognized the value of physiology have confined their attention almost exclusively to neurology. This neurology has been of little use to the psychologist, except as a terminologic scheme. The pressing need in psychophysiology is the study of muscle and gland, and only through the study of these tissues in their structural and functional relation to nervous tissue, can neurology be made psychologically valuable. Sherrington,¹ concluding his valuable epoch-marking work, strongly emphasizes the biologic point of view, for the research student, the clinician and all others concerned, in giving explanation of neural mechanisms, as a whole, the purposes of which are dominance and advantage over the environment of the individual. He says:

The dominance over environment is a necessity and each individual must be adequately adjusted for this purpose.

To a certain extent, this adequacy is a native endowment, transmitted, but with each advancing conflict with evolution of environment, readjustments are necessary. Only by continual modification of its ancestral powers to suit the present, can it fulfill that which its destiny, if it is to succeed, requires

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Sherrington, Charles G.: *The Integrative Action of the Nervous System*, New Haven, Yale University Press, 1911.

2. Lucas, Keith: *The Conduction of the Nervous Impulse*, London, 1917.

3. Dunlap, Knight: *An Outline of Psychobiology*, Baltimore, Johns Hopkins University Press, 1914.

from it as its life's purpose, namely, the extension of its dominance over its environment.

For this conquest, its cerebrum is its best weapon. It is then around the cerebrum, its physiologic and psychologic attributes, that the main interest of biology must ultimately turn.

Modern biologic thought and research have contributed valuable knowledge to an understanding of these mechanisms, notably the work of Loeb,⁴ who implies that the mechanisms of the instincts are reducible to laws which are as valid as the laws of physics; that even the indefinite term, environment, when considered in its individual physical and chemical forces which constitute environment have simple physico-chemical laws; that in heredity, with its perplexing problems, we do not need to depend on the assumption of the heredity of acquired characters, but that physiologic chemistry is adequate for this purpose.

Crile,⁵ in his kinetic theory, essentially a biologic consideration of man as an adaptive mechanism, proves conclusively that every reaction by which life is manifested in the organism and adaptation to environment secured, is the result of the transformation of energy in the organism.

The special system of organs which transforms potential into kinetic energy for the principal reactions of the body, Crile calls the kinetic system. This system is a part of the great scheme of conservation of energy in the living animal. It works harmoniously under normal conditions with the other recognized systems of the body, namely, digestive (which appropriates energy in the form of food from the environment), the respiratory (through which system oxygen is taken to and carbon dioxide from the blood), the circulatory system (which system transmits matter in the form of food to cells of the body and removes waste), the urinary system (also a remover of waste material), and the genital system (as a procreative system for the purpose of preservation of the species). Each of these systems performs a specific function and, in so doing, transforms potential into kinetic energy within the confines of special needs, but none for special essential adaptive needs.

The essential adaptive needs act, primarily, to transform potential into kinetic energy for the purpose of heat and motion. The principal organs in this system are the brain, the thyroid, the suprarenals, the liver, and the muscles. The functions of these organs, we all know, and also that they are material adjuncts in the processes of all other systems.

Crile postulates that the mechanism which transforms potential energy into kinetic energy to produce muscular action is the brain-muscular apparatus, assisted by the activating and accelerating organs, the thyroid and the suprarenals. Further, that this mechanism which produces muscular action and emotion is the same as the mechanism which generates heat, maintains consciousness, and causes the splitting up of foreign proteins by which the chemical purity of the body is maintained. Crile's theory has not been fully accepted by physiologists, but to the clinician, dealing practically with problems in which these mechanisms are involved, notably in exhaustion states, it offers a rational explanation for the clinical pathology with which we are confronted.

Crile's experience, in endeavoring to have his theory accepted, is not unlike that of Darwin with his theory of the origin of the species, which created such divergent views among biologists. And, as it was said of Darwin, so it may be said of Crile, "whether his views on the *modus operandi* of his theory receive further confirmation in the future, or whether they are materially modified, in no way affects the truth of the statement that, in employing his activities in adding to natural science, he has revolutionized the world of thought."

Crile's contribution to natural science have given us the most rational explanation of the mechanisms of exhaustion. Cannon,⁶ Fraser,⁷ Porter,⁸ Cowell,⁹ Bayliss,¹⁰ Sherrington and others, grasping the opportunity of the greatest war in history, have contributed valuable clinical research studies to these mechanisms; which are leading to, and assisting in, the standardization of the rationale of treatment.

We have all met cases in hospital practice, which in their delineation have passed through the varied stages of exhaustion produced by overstimulation, from the outer and inner environments of the body, and as we have observed their progress either to dissolution or to recovery, we have sought explanation of the mechanisms.

Our own observations and experience justify the acceptance of Crile's⁵ kinetic theory which "postulates that there is in the body a kinetic system, consisting mainly of certain organs, which is driven by the stimuli of the outer and inner environment of the body" and that the body is a mechanism integrated and driven by the brain in response to adequate stimuli—contact, distance and chemical—arising within and without the body. Both the phenomena of health and disease are explainable on the basis of this theory.

Under normal conditions, the balance of "wear and tear" is maintained. But, as Weir Mitchell¹¹ taught us years ago, overfatigue, brought about by excessive activity without adequate balance, will cause exhaustion of a greater or less degree. It is, therefore, the kinetic system driven, as Crile⁵ says, "at an overwhelming speed by such activations as severe physical injury, intense emotional excitation, perforation of the intestine, the pointing of an abscess into new territory, the sudden onset of acute infectious disease, such as cholera, an overdose of strychnin, a Marathon race, a grilling fight (such as our soldiers are today encountering), foreign proteins, or anaphylaxis, that there results a condition of acute exhaustion, clinically recognized as shock, and designated, according to its precipitated cause—traumatic shock, psychic shock, toxic shock, infection shock, anaphylactic shock, drug shock, etc. Whatever the cause of the shock, the essential pathology of shock is identical, as is the immediate clinical picture and the subsequent slow, halting recovery of strength and function."

In mental disorders, accompanied by the phenomena of exhaustion, we not infrequently encounter a slow,

6. Cannon, Walter B.: A Consideration of the Nature of Wound Shock, *THE JOURNAL A. M. A.*, March 2, 1918, p. 611; Acidosis in Cases of Shock, Hemorrhage and Gas Infection, *THE JOURNAL A. M. A.*, Feb. 23, 1918, p. 531.

7. Fraser and Cowell: Clinical Study of Blood Pressure in Wound Condition, *THE JOURNAL A. M. A.*, Feb. 23, 1918, p. 520.

8. Porter, W. T.: Boston Med. and Surg. Jour., May 16, 1918.

9. Cowell, E. M.: The Initiation of Wound Shock, *THE JOURNAL A. M. A.*, March 2, 1918, p. 607.

10. Bayliss, W. M.: Proc. Roy. Soc., 1916.

11. Mitchell, S. Weir: Fat and Blood, Philadelphia, 1911.

4. Loeb, Jaques: *The Organism as a Whole*, New York, 1916.

5. Crile, George W.: *Man as an Adaptive Mechanism*, New York, 1916.

enervating process such as worry, anxiety, with or without a background of physical disorder, such as nephritis, diabetes, exophthalmic goiter, cardiovascular disorder, and other conditions of essentially chronic type, in which cases a prolonged activation of the kinetic system occurs with resulting slow, but progressive exhaustion. In these cases, we are more apt to find as a complication the toxic-infection psychoses.

The clinical pathology in these cases is essentially the same as in the more acute cases, the difference being in the degree of the time element. The clinical history will show the gradual unbalancing of neural mechanisms where energy transformation is lessened and sooner or later the whole kinetic chain, beginning with the brain and extending to the muscular system, with collateral involvement of the glandular and other systems, until finally all of the mechanisms are out of harmony, inadequate in functioning, with gradual structural changes which ultimately overwhelm and produce dissolution of the individual.

To follow closely the mechanisms of exhaustion, it is necessary, in order to more fully understand what Dunlap said regarding the pressing need of psychobiology, "the study of muscle and gland," that we follow the functioning of the autonomic nervous mechanisms and the associated endocritic glandular activities in the light of modern clinical medicine.

Of creative interest to the clinician is the study of the emotions—their physical basis, their psychology—with their possibilities for good or ill to the individual.

In the realms of clinical psychology as applied to psychiatry, we have the wide field of opportunity to see, study and treat cases, which present in their ensemble the whole gamut of clinical symptoms. Especially marked are the evidences of conflict—the striving for adaptation to, and dominance over, the environment.

Again, let me repeat Sherrington's saying that "dominance over environment is a necessity." This fact really is the basic principle of the new psychiatry so far as psychologic factors are concerned. These conflicts are especially marked at the psychologic level, which are explained by White¹² as follows:

In general, the difficulties at the psychologic level arise because of inability to deal effectively with reality, and in being forced back from an effective adjustment to reality, the individual is pushed backward to earlier instinctive levels of activity which are more familiar, to regions in which he feels a greater sense of security. Inasmuch as the psychologic integrations are made possible only because of physiologic integrations, which have preceded them in the course of evolution and development, it must happen that, if the push back from reality is very great and long continued, that those lower, bodily types of integrative must often suffer.

The mental conflict is outwardly expressed by disturbances of bodily function. Psychologic conflict is converted into bodily disorder.

The bodily disorder we know may and does not infrequently take on the mechanism of hysteria in the psychoneuroses, while in the psychoses by reason of more or less excessive chronic emotional activation in the conflict, we have definite and demonstrable disorders, involving the autonomic neural mechanisms leading to exhaustion.

In deeply entrenched emotional experiences, occurring in individuals of the neurotic constitution type, with lowered bodily resistance to toxic and infectious

disorders, we have decided nutritional, metabolic bodily disorders. Doubtless you all have met, ere this, and will meet more hereafter, the patients suffering from the stress, unrest and anxiety of the war conditions, which cases give marked evidences of failure to find adjustments to circumstance and environment, and in their flight from reality to the safety zone, have mental perturbations within the zone of the psychoses or on the borderline. Each individual reacts according to his own limitations, but whatever the cause of starting the kinetic drive to safety, the mechanism is the same in all cases.

At whatever the level maladjustments occur, we will find characteristic symptoms and a definite clinical pathology. The symptoms which first attract attention may appear at the instinctive level or the social-psychologic level, both of which are evidenced in conduct; then to retreat to chemicopsychologic level as shown in the metabolic disorders, and the end-results in terminal acidosis. Most of our clinical problems arise within the domain of the metabolic changes leading up to the terminal results of exhaustion.

The psychologic factors are well understood and the principles of clinical pathology more or less definite in the toxic infection psychoses; yet the principles of therapeutics are more or less under theoretical discussion in the endeavor of modern medicine to secure stability in its practice.

Theoretical discussions of today are founded on research, experimentation and observation. The divergence between intensive research workers, such as Cannon,⁶ Crile⁵ and Porter,⁸ in the field of shock, which phenomenon is within the scope of the clinical pathology of exhaustion, as seen in the toxic-infection psychoses, is the friendly competition for truth, which we all welcome because it will lead to precision in our therapeutics. These eminent physiologists more or less mechanistic in their conceptions, have contributed valuable knowledge to our understanding of the relationship of physiology to medicine. The great opportunities of the world's war of today has given to these researchers the chance to know what health really means and what disorder really means, when bodily conflicts ensue under extraordinary and very varying conditions of environment.

Haldane¹³ says:

If we look on pathology as simply the description of damage to bodily structure, and the analysis of the causes of this damage, then pathology may be very helpful to preventive medicine, but does not help much in therapeutics. When, however, pathology studies the processes of adaptation to the unusual, defense of the organism against the unusual, and reproduction of the normal, just as the new physiology studies the maintenance of the normal under ordinary conditions, then therapeutics and surgery will be aided at every step by pathology, and a rational biological pharmacology will have its chance.

Modern therapeutics in psychiatry is profiting by the progress in the new physiology and clinical pathology. The disentanglements from old formulas, from the narrow empiricism from fanciful theories, etc., and the substitution of facts from physiology, chemistry, pathology, psychology, physics and allied sciences, has given us scientific therapeutics, with reasonable doctrines, which rational practice sustains in practical results.

12. White, W. A.: *Principles of Mental Hygiene*, New York, 1917.

13. Haldane, J. S.: *Harvey Society Lectures*, 1916-1917, p. 40.

In studying the morbid processes encountered in toxic-infection psychoses, with resulting clinical findings in altered functioning, as based on the psychobiologic principles which we have hastily reviewed, we find it necessary to make comprehensive comparisons with conditions as we know them in health. To do this, it is necessary to know as fully as possible from history and observation the apparent normality of the patient. Also the personality, especially the defense reactions which figure in the endeavor to effect a compromise in, or to compensate for, inadequacies to meet life's realities. This matter of defense reactions is the psychogenic factor in many cases of toxic-infection psychoses, which go on to exhaustion and dissolution.

Human motives are strong factors in a large number of such cases and need to be more generally understood by physicians engaged in family practice. The number of cases of toxic-infection psychoses, as a class, are limited in number, yet more such cases are seen in private hospital practice than in our state hospitals. Kirby,¹⁴ in his last report as clinical director of Manhattan State Hospital, gives 1.3 per cent. of the admissions for this large metropolitan district hospital. Our experience in private hospital practice is 10 per cent. This difference may be in classification, but our judgment is that private hospitals, in the natural sequence of events, care for a much greater proportionate number of such cases. The sphere of usefulness of the private hospital is consequently of enhanced value to a community or a locality, because of its more individualized and private care, its convenience of access, and the fact that such cases do not have to be committed in order to be admitted as patients.

The clinical history shows we are dealing with a grave malady. Certain persons, as we know, are more susceptible to exhaustion, shock and mild mental perturbations, such as slight delirium with febrile reactions, while in the more profound toxic and infectious states, more disturbing emotional reactions may develop more serious forms of deliria, including collapse—delirium and psychoses with exhaustion.

We have noticed in preceding remarks that there is no one etiologic factor responsible for the start of the kinetic drive, which eventuates in these terminal results. This fact is in keeping with Bonhaffer's statement made some years ago. This is why careful history, study of the personality and the constitutional make-up of the individual is necessary to determine the particular etiologic factor in each case. The clinical symptoms, physical and mental, are briefly the general appearance of illness, the skin as a rule is dry; nails are brittle; the face, drawn; pupils, dilated; tongue, coated; general nutrition shows loss of weight; the pulse varies according to the degree of emotional excitation; the temperature is usually subnormal; the laboratory findings show mild degree of secondary anemia; the urine, of high degree of specific gravity, and may show the existence of nephritis or diabetes as a complication. The blood pressure likewise is variable, depending on complicating factors; usually in depressive cases, the pressure is higher than the average; in cases with excitement, the pressure is apt to be low. Diastolic pressure is the most significant, both in the progress of the case and in prognosis.

The recent studies of Porter⁸ on the war front, as regards blood pressure in shock, emphasize the importance of initial fall of arterial diastolic pressure. To determine the fact that circulatory failure has begun without a knowledge of the factor to which it is due, is of little value in the application of remedial measures. The neurologic findings are of importance, and become of greater value as the case progresses. Because of variations in the reflexes, increased or diminished, of large or small excursion as the case may be, it is not unusual to see organic disease diagnosed such as multiple sclerosis; even brain tumor, etc., has appeared in our case histories.

Disorders of perception are characteristic, including all of the special senses. Peripheral analgesia is quite constant and figures conspicuously in the elaboration of the mechanism of the psychosis, accounting for the confusional states, inertia, hallucinations, disorientation, memory defects, defects of judgment and consequent delusional states with marked incoherence. What is true of irritations of the special sense functioning, is likewise true of the motor mechanisms, hence the restlessness, violence not infrequently, and finally volitional inhibitions extending to all muscular activities, including speech. Sleep disorder is an early experience, and out of its perturbations grow the modified dream states, the terrors, and finally the somnolence with its mutterings, merging into unconscious terminal states.

The range of clinical types of cases from mild recurrent attacks to profound collapse delirium, afford opportunities for interpretations on the part of the clinician which test his resources both in diagnosis and treatment.

TREATMENT

The general principles of treatment of toxic-infection psychoses have been built up little by little. They involve the broad principles based on clinico-therapeutic observations, leading to certainty as to scientific values; of these, first and foremost is rest, as a conservation of energy indication. This is based on the psychobiologic need for rehabilitation, conservation of functional neural mechanisms. Weir Mitchell,¹¹ Jackson, Hilton and other pioneers long since called attention to the need of rest rather than exercise in the cases where the experienced clinician interprets the borderline of exhaustion. That the traditions of the past are actively at work today in enforcing exercise on the overfatigued individual are noticed in our experience almost every day. Why is it an intelligent clinician, clear in his interpretations of clinical facts, is not clear concerning therapeutics?

The principles of the rest treatment have not yet reached the profession as a whole. They look on rest treatment as a therapeutic fad and completely overlook its intrinsic values as based on rational clinicobiologic principles. We have for the years of our experience in psychiatry been adherents to the principles and practice of rest in the treatment of mental disorders. Absolute rest is indicated just as in the more definite disorders like broken legs, typhoid fever, cardiac lesions, etc.

The rationale is understood by the physicians in such cases, but in exhaustion psychoses, even as a preventive measure, rest is overlooked or tentatively applied. Motor restlessness, sleep disorder, etc., are improved by rest methods, to which as an invaluable adjuvant, hydrotherapy with continuous bath promotes sleep

14. Kirby, George: Manhattan State Hospital Report, 1917.

and lessens motor irritability. Drug medication contributes help, if we keep in mind the fact that we are to harmonize expenditure with real dynamism and not contribute to the toxic overload with which the patient is already struggling. The choice of sedatives is usually hit or miss, the trial and error method, with no thought as to cardiac complications, nephritic, diabetic states, or whether the patient is a vagotonic, with peculiar limitations as to drug therapy. Drug medication is of preponderant value when intelligently used. Especially is it of individual value in complicated cases.

The cardiovascular and cardiorenal complications, especially need intelligent oversight as they are the most formidable crises we meet in these cases. Acute cardiac failure with its dynamic mechanisms, reduction of arterial pressure, diminished venous return and reduced cardiac power mark these crises. Wiggers¹⁵ says that the detection of the earliest degree of shock (exhaustion) is extremely important for this purpose; the initial fall of arterial diastolic pressure is to be determined. We have no circulatory sign or criterion by which the incipient state can be detected. But to counteract the mechanisms of cardiovascular crises, the apt suggestions of Wiggers apply, namely: (1) The reduced resistance must be overcome (peripheral); (2) the deficient venous return must be replenished. The drug therapy consists of: (1) vasoconstrictor drugs—epinephrin intramuscularly; (2) intravenous infusions, physiologic sodium chlorid solutions (Bayliss formula), and as suggested by Porter, the breathing of carbon dioxid mixture.

The object of all procedure is to augment venous pressure. Porter⁸ says: "The critical level of blood pressure is that point below which blood pressure will not rise again without assistance." An understanding, then, of the critical level is of first importance. If the blood pressure just touches the critical level, a difference of 10 mm. of mercury may be the difference between life and death. A few millimeters above this level, recovery will usually occur spontaneously; a few millimeters below, death will follow unless skilled aid is at hand.

It follows from this vital fact: (1) Procedures which at ordinary blood pressures are not harmful or are but slightly harmful may kill the patient at critical level; (2) remedies that raise the blood pressure but 10 or 15 mm. will save the patient, when rise carries the blood pressure from just below to just above the critical level. The critical level varies with the condition of the nerve cells and other tissues. A blood pressure high enough to maintain a sufficient nutrition in normal bulbar nerve cells is too low to maintain life in cells that already suffer from malnutrition. In that case, a blood pressure raised to a point above the usual critical level will shortly sink again. Hence, the importance of frequent readings of blood pressure until shock (exhaustion) patients are clearly out of danger.

Treatment not based on repeated readings of blood pressure is not intelligent and may be harmful. The diastolic pressure should be employed. The systolic pressure falls more than the diastolic. Conclusions from systolic pressure may err 15 mm. or more. At the critical level, a change of 15 mm. may mean life or death. The error in using the systolic rather than the diastolic pressure may do much harm.

Fraser and Cowell,⁷ in study of blood pressure in wound conditions, have contributed valuable knowledge in the use of physiologic sodium chlorid solutions in treatment of shock. They have been disappointed with clinical results obtained, and blood pressure readings confirm these facts in the use of normal salt solution (0.9 per cent. sodium chlorid solution). They have obtained satisfactory results from the hypertonic solution suggested by the Medical Research Committee: sodium chlorid, 2 gm.; potassium chlorid, 0.05 gm.; calcium chlorid, 0.05 gm.; water, 100 c.c. Also the colloidal solution suggested by Bayliss¹⁰ and Cuthbert Wallace: calcium chlorid, 0.075 gm.; sodium chlorid, 1.325 gm.; gum acacia, 2 gm.; water, 100 c.c. Sterilize; if kept in solution for stock solution, resterilize before using. Use from 15 to 20 ounces, or even 30 ounces, intravenously. Give slowly at the rate of 5 ounces in five minutes. Maintain heat at reservoir at 120 F. Give in cephalic or saphenous veins through small glass cannula. Repeat every twelve or twenty-hours.

Blood pressure rises within a few minutes. Injection of the calcium hypertonic gum solution will produce an immediate rise of pressure in cases of hypotension, complicated by toxemia.

Our object in treatment is to meet the cardiac crisis and to tide the patient over this lowered reserve, until blood pressure conditions are improved, the alkali reserve of the blood has been brought up, and cardiac nutritional conditions have improved. Thus, we avert acidosis, which is the terminal clinical exhaustion condition from which death eventuates, unless the heart first fails. Cannon⁶ says that "the lower the blood pressure, the lower the alkali reserve, that is, the greater the acidosis."

From clinical evidence, the conclusion is warranted that bodily states characterized by reduced blood pressure and consequently by defective circulation are accompanied by a diminished alkali reserve, and that, as a general rule, the lower the pressure the lower the reserve.

The danger Cannon calls attention to is the precipitous drop in blood pressure, to which Porter alluded, and which our experience confirms. Cannon insists we must keep up the alkali reserve. This has been our practice, and we supply the alkali by warm solution, either intravenously or by continuous proctoclysis, rectal drop method; also, by mouth, sodium bicarbonate, 1 dram, to 8 ounces of sweetened water.

REST METHODS

It is imperative that rest in bed continue indefinitely. The results are to be measured wholly by the nutritive state of the patient. Weight is in most cases the criterion of nutritive rest values, after the dangers of malnutrition have been met. Weir Mitchell¹¹ emphasized the importance of the physiologic value of adipose tissue. The variation in weight of individuals is well understood, but when it becomes pathologic then it is our duty to meet it and change the loss to one of gain.

Each pound gained is an increment to potential, nutritional values, and points the way toward recovery. This usually means that fat is a wholesome condition and means more and better blood and improvement in color, muscular strength and improved sleep. Mitchell said that the exact relations of fatty tissue to the states of health are not yet understood; but

15. Wiggers, Carl J.: *THE JOURNAL A. M. A.*, Feb. 23, 1918, p. 508.

since, on great exertion or prolonged mental or moral strain, or in low fevers, we lose fat rapidly, it may be taken for granted that each individual should possess certain surplus of this readily lost material.

Feeding in exhaustion is an individual problem to a certain extent. At first, it is a question of tolerance and of overcoming the tendency toward acidosis. Exhaustion, fatigue and toxemia interfere with the progress of digestion, and when this condition has become more or less habitual, then is presented our problem. Here is where fluid becomes a necessity and, as Stiles¹⁶ says, "Water is the largest item of income of the human body and an essential part of all tissues." Its percentage cannot be lowered without hazard to the body and even to life itself. Water not only adds to the elimination of dissolved tissue waste through the skin and kidneys, but its excess flushes the kidneys, keeps the skin moist, and promotes digestion. The kidneys are greatly hampered by being compelled to excrete a maximum of solids with a minimum of water, which duty they are called on to perform in exhaustion states.

Osler said water is the greatest diuretic. Hawk of Jefferson Medical College has shown by experimentation that the taking of water with meals is wholesome and advantageous in digestion. He has shown that fecal nitrogen is lower when water is taken in large volume, than when it is forbidden. This fact he holds to indicate more complete digestion and more thorough absorption. It is our practice to give water freely and to this end, when indicated, to follow the ingestion by mouth, even by tube if necessary, the use of proctoclysis by the rectal drop method of physiologic sodium chlorid or hypertonic saline solution given at bodily temperature.

We believe we have saved many lives by giving of excess fluids as the one measure which has turned the tide in favor of overcoming the exhaustion state. Stiles says, "Laboratory experiments show that dilution of fresh secretions is at least as likely to increase as to diminish their activity. It must be borne in mind that the dilution of a liquid containing a fixed amount of enzyme does not reduce the quantity of enzyme, but only makes it act in a larger volume in the mixture."

To encourage the taking of fluid, it is our practice to use palatable drinks, even coffee and tea in moderation, and other fluids, all for the purpose of cultivating the habit of taking fluid. Our experience is that the average person, especially women of neurotic constitution, do not take sufficient water. In exhaustion cases, it is the rule that these patients do not volunteer to take fluids in any form. With improved nutritional additions, we find the sleep habit more amenable to return to normal conditions.

Elimination removes the accumulated waste which acts as toxic irritants, to keep the patients awake and to contribute to dream states and confusion growing out of hallucinatory experience, which, in turn, aid in harboring delusions, all of which phenomena disturb sleep. We can aid the return to normal sleep habit by the use of hypnotics, the choice of which must be based on physical indications. The bromids are not hypnotic, but they may reduce psychic and motor irritations, which may be all that is necessary to permit the patient to go to sleep. Their use is limited in defined toxic and exhaustion states. What is needed

is a hypnotic which is not a depressant or which may contribute to the overload already present. To this end, paraldehyd renders good service in the more acute cases. It should be given just when needed and in as palatable form as possible.

The synthetic hypnotics are useful, but sulphonal is not safe in exhaustion states. Veronal is by far the safest and, in our experience, the most dependable hypnotic of this group and class. We must caution against the use of scopolamin hydrobromate in exhaustion states. It is dangerous, especially in vagotonic cases, and may contribute to collapse, especially in cases complicated by cardiovascular or cardiorenal conditions.

The continuous bath is in suitable cases of invaluable help and later the tonic baths, to stimulate metabolism. Conservation of energy is our shibboleth throughout the treatment.

Enforced rest methods to be pursued to this end are all of the adjuvants, namely, rest in bed, seclusion, feeding, massage when the time comes for its introduction, and then, with intelligent understanding of the degree as to its use, diversion, psychotherapy to contribute to insight of the patient's own condition—all leading to a rounding out of convalescence. Then, after-care, in ascertaining the patient's limitations, based on clinical findings, as to systemic conditions, namely organic disease in any system, the presence of constitutional disorders, the personal reactions to emotional stimulation, the tendency to worry, to be anxious, etc. In fact, a survey of physical and mental characteristics and tendencies should be made, in order that the patient may be forewarned, and thus forearmed, to meet the emergencies of life and its realities. If a patient can grasp these essentials, a prognosis can be given that a recurrence is not likely to occur and a large percentage of usefulness in life assured.

ABSTRACT OF DISCUSSION

DR. THEODORE DILLER, Pittsburgh: There is no essential diagnosis quite so important as the recognition of nervous and mental conditions due to factors which are toxic in character, for the reason that these conditions so well respond to appropriate treatment. It must have been the experience of all of you to have seen profound toxic and exhaustion psychoses make very excellent recoveries. In a practical way, these symptoms vary all the way from a slight tremor through cardiovascular symptoms and up to a profound delirium.

I wish to cite a case which illustrates the great importance of differential diagnosis between toxic exhaustion state and organic disease: A man, 30 years of age, was brought to me by his mother, who stated that for some weeks past he had been quite forgetful. His speech was slurring and suggested paresis. His face looked tired, tremulous and ironed out. Handwriting made in my presence exhibited marked tremor; knee jerks were sluggish; pupils reacted to light quite sluggishly. I made the diagnosis of paresis with considerable confidence and sent him to the hospital for laboratory tests. These showed blood and spinal fluid both negative, globulin normal, and cells 3. I reexamined the man with more pains and discovered that he possessed excellent insight; and I further noted that while the handwriting was bad there were but few errors in spelling. Gradually and then more rapidly, at the hospital, under complete rest treatment, his speech defect disappeared and the handwriting greatly improved. At the end of six weeks the speech was nearly normal and the handwriting hardly exhibited a defect. The diagnosis of paresis was revised and the case recorded as one of exhaustion psychosis—an extreme asthenic state. I suppose such problems of differential diagnosis occur seldom. I can recall only

16. Stiles, P. G.: Nutritional Physiology, Philadelphia, 1915.

one other case, one which occurred many years ago, which presented the same diagnostic problem.

DR. RALPH REED, Cincinnati: It is important to remember that there may be an exhaustion of psychogenetic origin. I readily concede that many of the psychoses are of toxic origin and also many of the neuroses, but I believe that there is a complaint of exhaustion which is nothing but an expression of dislike for the particular work the patient is doing. It is an evidence of inhibition rather than a true exhaustion. Work can be a pleasure or a pain, depending on how much we love it or hate it. Work in which some deeply disagreeable emotional factor is involved is always distasteful. An inclination toward its abandonment under the plea of exhaustion, the plea of working too hard, etc., is thus in some cases merely a rationalization of distaste for that particular work. A year ago a young man who was working for his father in a large mill came to me. He could not work two hours without becoming intensely exhausted, but it was curious to note that this exhaustion was not so great that he could not pace the office almost every minute he was there. Therefore, his exhaustion was a rationalization of his really unconscious distaste for his work. When certain depressing factors due to unconscious antagonism toward his father were removed, the exhaustion disappeared, and he is now able to work eight hours a day. But if there happens to be a slight renewal of that antagonism between father and son, he again comes to me with his complaint that the work tires him.

DR. MEYER SOLOMON, Chicago: The trouble with Dr. Reed's patient was not really an exhaustion; he simply acted as if exhausted. That is one of the problems we have to consider when we discuss the effects of the mind or the body. Ideas, attitudes on the part of the patient, cannot bring about disturbances of the sort discussed by Dr. Norbury. An idea may lead to a transient reaction of the voluntary nervous system, but when you get phenomena of real exhaustion related to some part of the nervous system, whether of the voluntary or of the vegetative nervous system, the symptoms are due to something else. We may look on the effects of shock, emotion, etc., in the following way: If we view the development of the mind and nervous system from the highest functions down we find that the highest function is critical consciousness; then comes observing or passive consciousness, then the ideational phenomena, then the locomotor and postural phenomena, next the vegetative reactions, and, finally lowest are the physico-chemical reactions. Shock, emotion, trauma, etc., may cause a disturbance anywhere along the line, in the same way that a toxemia, an infection, or what not, may bring about the same sort of disturbance. But the disturbance you see is a physiologic disturbance, due to a reaction on the part of the nervous system or of some one or several of the organs, and the treatment is not only psychologic but physiologic also.

Let us take an illustration: An individual begins to worry about something that has occurred and he develops insomnia. As a result of the insomnia he develops headache, asthenia, loss of appetite, loss of weight, etc. The symptoms he has are real symptoms due to fatigue, to exhaustion. You are not going to convince the patient that he has not real symptoms, because they are real to him. The treatment is relief of the symptoms, physiologically or by drugs, plus an explanation to the patient of the origin of the end-results that he presents. The symptoms he has are true phenomena, just the same as in shell shock cases.

The psychogenetic viewpoint is interesting, but we should not be swept away by the idea that hypnosis, or "unconscious thought," can, in a peculiar way, disturb permanently the involuntary or voluntary nervous system. They are really physiologic reactions and the treatment should be not only psychologic but physiologic also.

DR. C. K. WOODSON, St. Joseph, Mo.: Loading beyond the carrying, resisting capacity interferes with function. The man or woman who tries to work sixteen hours a day, or who assumes work when not well, or when not properly nourished, interferes with carrying or resisting capacity. Toxic conditions favor the lowering of resistance, and this, in turn, favors the production of a toxic condition. The individual who takes good care of himself, who works reasonably well, who takes

sufficient exercise, who takes sufficient rest, can carry much better than the one who assumes to work sixteen hours a day and has insufficient sleep, and who worries. Toxins interfere materially with the functions, whether the results be a mental depression or a manic depressive form of insanity does not matter. The same results will come from the same causes, or the same causes will produce the same results.* The individual who is not eliminating properly is not in normal condition; the man who is eliminating with a purgative is not in normal condition. In fact, almost all these patients are run down; they are below the standard weight; they have a tired feeling; they think slowly; they do not want to do much; they are confused, bewildered. And if we follow these cases through we find that when they improve in health, it is because they are beginning to sleep and eat well, after which they improve right along under ordinary circumstances.

DR. FRANK P. NORBURY, Jacksonville, Ill.: With reference to Dr. Reed's point as to a psychogenetic basis, I think the individual is endeavoring to dominate his environment whether you approach his problem from a psychogenetic or a physical point of view. The individual has to live, and it is the living he is endeavoring to elicit. Life is a struggle; and he has to make arrangements to survive. That is the point we have to consider. The associations through the man are explained also, and as such they explain the physical disintegration, if you wish to call it that, and all the factors that go with it. We are dealing with a state of exhaustion, confusional states, including confusion in the perceptive functions. All the faculties are thus in a state of confusion; this confusion reflects itself in disturbances which have to do with the general physical condition of the patient.

SOME SUGGESTIONS FOR MORE ACCURATE MENTAL THERAPY IN EPILEPSY *

L. PIERCE CLARK, M.D.

NEW YORK

Until a few years ago epilepsy was largely diagnosed by exclusion. After a complete medical and neurologic examination of a person who had fits, and in the absence of any marked evidence of any physical or mental disorder, he was called an essential or idiopathic epileptic. He practically had an enduring disease without any discoverable cause for it. Of late, a number of investigators have undertaken to study the whole subject anew, not alone from the physical, but also from the psychologic point of view. As a result of these studies, we believe a considerable advance in our knowledge of the subject has been made. For instance, we have analyzed the make-up of the essential epileptic as an individual, to discover, if possible, whether he constitutes a particular type. We have also studied the fit in the light of a biologic reaction and endeavored to analyze the fit as a part or a further elaboration of such an individual's peculiar make-up. In other words, given a certain potential constitution plus a special type of stress applied to it, we gain a certain psychologic effect which we have called the epileptic reaction. In many instances, the ultimate reaction is what is commonly called a convulsive fit. We may, therefore, consider briefly today, first, the constitution or make-up of the essential epileptic, second, the epileptic reaction, and third, sketch the main suggestions for a mental therapy based on such a rationalization of this great disorder. In passing, permit me to state that all

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the physical disorders including the late studies of endocrinic disturbances are not dwelt on here, not because they are unimportant but because an exact mental approach in the therapy of this disease has in the past been so neglected, or has been handled in a haphazard and empiric manner.

The epileptic constitution, or make-up, has long been recognized as the enduring mental stigma of essential epilepsy itself. Only recently have studies disclosed that the main tenets of such a character are present years before the nervous disorder of epilepsy is shown in fits. Indeed, most frequently some part of these defects of personality may be detected in earliest childhood. The chief instinctive defects of the potentially epileptic individual are egocentricity, supersensitiveness and emotional poverty. The potential epileptic is intensively self-centered and fails to project his life interests into his environment in a normal and healthful manner. Partly because of this innate character fault, he is or soon becomes unduly sensitized to all forms of extra stress and annoying demands. He either extroverts his supersensitiveness by exhibitions of rage and tantrums beyond those which may be seen occasionally in passionate children, or, he introverts this feeling and represses the feelings engendered by his environmental conflicts, causing him to develop a very unstable, irritable and sensitive emotional life. This emotional state paves the way for larger and more difficult adaptations which he cannot meet; outspoken fits may then occur. By possessing an egocentric and supersensitive make-up, the potential epileptic fails to make the degree of environmental contact which would lead him into a broad and rich experience with life, hence sooner or later he fails to acquire a well rounded emotional development. This deficit may or may not limit the individual's purely intellectual equipment in later life. Previously endowed with these defective instincts, the increased demands of adolescence and adult life enlarge the difficulties which such individuals are compelled to meet until they reach the breaking point in a fit or seizure. A disintegration of habits and character, known as deterioration, occurs more easily in one thus handicapped by a defective endowment. Therefore, mental or behavior deterioration often precedes actual epileptic seizures for a considerable time. The primary defective endowment plus its easy deterioration accounts for the fact that an essential epileptic from the very nature of his make-up is usually doomed to mental failure, if proper measures to check or controvert his innate faults are not taken at the earliest possible moment. Any effective plan of treatment must essentially take strict and early account of the make-up of epileptics, before all else.

It has been commonly held that even after the first grand mal fit, the epileptic disorder is already a chronic one and only too often defies any and all forms of treatment. This view is true and understandable in the light of what we have just considered. We can only profit by it in the future by steadily educating parents and relatives to recognize the earlier and more benign presence of epileptic reactions such as lethargies, twilight states of petit mal, pathologic absentmindedness, crass rages and tantrums, and the like excessive morbid emotional states. It is now obvious to the careful observer that the fit itself is a reaction away from the excessive stress which may have increased the nervous and mental tension. The

unconscious state has different degrees of depth depending largely on the amount of tension previously experienced. Usually it is not the degree of stress per se, but the amount of repression which the epileptic exercises which springs the fit-gun, as it were. From more recent studies we have analyzed the spontaneous productions or mental content of individual petit mal attacks. In these short delirious or automatic episodes occurring with or immediately after these seizures, one may find from the mental content the type of stresses which irritate and baffle the epileptic. These as well as the deeper strivings which may be recovered in the fit furnish data on which we may construct a rational reeducational therapy of the broadest yet specific moment. Time forbids our citing specific or detailed illustrations here. A series of such cases studied in detail are being published elsewhere. Suffice it to say that in the long series of cases studied at Craig Colony and in private practice we have learned more precisely in the mental content what the everyday conscious conflicts of epileptics really are. The basic idea in such studies is to determine the particular kind of defective make-up and its specific conflicts in everyday life. Then we try to induce the epileptic to take a better insight as to his innate faults and his conflicts and thus cause him to see the sequence and consequence of his crude handling of life.

The real therapeutic advantage to the epileptic in this whole procedure is comparable with that obtained by those who suffer from the benign psychoses, who, we know, are very considerably aided in making a more stable recovery from the individual attacks, and further fortifies the individual against possible recurrences of his psychotic episodes. Any one following this therapeutic method should bear in mind that continued epilepsy from its very nature is a deteriorating disorder physically and mentally, and if it be allowed to progress, it steadily lowers the capacity of the individual to make new or difficult adaptations, hence any principle of treatment which is based on a reeducational plan of living, as this method does, is itself liable to be very stressful. If it is done without due care and patience it places extra strain on the epileptic and may thus entail more seizures than before it was begun. Frequently the plan of analysis and reeducation given here must be undertaken for short periods only (days or weeks) and then the patient should be allowed to rest in his newly acquired position until he thoroughly accustoms himself to it, after which advanced work may again be undertaken. If the same mental content repeatedly returns in the automatic delirium in attacks, one must conclude that the special conflict brought out is so basic that no mere analysis will set it free. Then a practical system of training and reeducation must be instituted. Sooner or later one finds that analysis of the mental conflicts but indicates the road for an entire system of reeducation for these epileptics. The individual's susceptibility for this reeducation will give a just estimate of the prognosis in the particular case. It has also been found that coincident with a gradual disappearance of epileptic reactions, as shown in the fits per se, there must be a corresponding increased capacity for work and other spontaneous living interests. Usually these latter clinical evidences of betterment are heralded by a shortening in the reaction time and a lessening of perseveration. The mere cessation of attacks, without corresponding improvement in the psychologic tests, really indicates that the underlying

deteriorating disorder has not been as yet favorably modified, and the epileptic attacks may in the course of time be expected to return.

Finally, one may say that a study of the epileptic make-up and the mental content in epileptics, both everyday conscious ones, as well as those shown in the unconscious state, demonstrates (1) the depth of the unconscious regression; (2) the special type of stress which the epileptic has, and (3) the specific type of primary defect in his endowment which must be handled in reeducation. Its therapeutic value in addition to the foregoing is (4) to furnish a specific point of analytic attack by simple explanatory talks, thus increasing the patient's insight into his disease, and (5) to show more definitely the type of special reeducation which should be adopted for each individual patient.

ABSTRACT OF DISCUSSION

DR. ARCHIBALD CHURCH, Chicago: I would like to ask Dr. Clark to give us more concretely the results obtained by the application of these views in the management of epilepsy.

DR. MEYER SOLOMON, Chicago: I wish to ask Dr. Clark how he can prove that cases which do not develop real reactions of convulsive type, but which are of the sort he has described under the name of the epileptic constitution are really epilepsies if they do not develop the reaction of the convulsive type. It all depends on how you want to use the term epilepsy. If there are no petit or grand mal attacks, how can you say that the patient has epilepsy? The sort of makeup Dr. Clark has described may be found in the feeble-minded, in neurotics, and in many other persons who do not develop epilepsy.

DR. JOSEPH BYRNE, New York: I became familiar with Dr. Clark's work some time ago and have applied it at my own clinic. The method we formerly employed was the usual routine method, thorough examination in every case followed by operation in suitable cases. In epileptics of various grades we now combine the psychologic and operative methods. In other words, before any attempt at decompression is made, analysis of the personality and an attempt at reconstruction through education are made. Our results have been quite good. Perfect cures are not always to be expected, but the improvement in our patients was such as to convince us of the worth of the method.

DR. L. PIERCE CLARK, New York: The method of mental treatment which I briefly outlined in my paper has slowly been built on careful clinical experience and is still being modified and elaborated. It is primarily based on an intensive study of the epileptic as an individual, and the disorder of fits as a more or less necessary corollary of such a potential character makeup when encountering undue stresses. I believe it enhances the former physical and empirical therapy for this disorder at least 50 per cent. It is particularly serviceable in the very earliest cases, but has been found of inestimable value in the care and treatment of the interned cases also. My scheme makes no claim to say exactly what the nature of idiopathic or essential epilepsy really is, but we should seize on those modifiable factors in the epileptic individual and thus improve his social adaptability in its widest sense. To do this most successfully we must detect the epileptic character and habit at the earliest possible moment.

Comparison of Value of Milk with Other Protein Foods.—With bottled milk at 14 cents a quart, 1 cent buys 46 calories (fuel food), including 1/15 ounce of protein (building food). For porterhouse steak at 35 cents a pound, 1 cent buys 30 calories of fuel food, including 1/15 ounce of protein. With eggs at 60 cents a dozen, 1 cent buys 16 calories of fuel food, including 1/30 ounce of protein. At the foregoing prices 1 quart of milk supplies as much food as 10 ounces of porterhouse steak or 8 eggs.—*Weekly Bulletin* New York City Department of Health.

CARBON MONOXID POISONING: ITS NERVOUS AND MENTAL SYMPTOMS

REPORT OF CASE *

CHARLES W. HITCHCOCK, M.D.

DETROIT

McNally¹ makes the somewhat surprising statement that "deaths from carbon monoxid poisoning in large cities now exceed those from any other poison." The total number of gas cases in Cook County, Ill., for 1916 was 501, nearly 8 per cent. of the entire number of coroner's cases. Much of the increase, of course, is a purposeful one, illuminating gas being an easily available means of suicide. Industrial and domestic sources are, however, not a few.

"The proportion of carbon monoxid differs greatly in domestic and industrial gases, varying between 4 and 30 per cent.—in coal gas, 4 to 10 per cent., and 30 per cent. in water gas, and 20 and 30 per cent. in producer gas—almost all illuminating gas containing a large proportion of water gas. Stoves, salamanders, furnaces, blast furnaces and gas engines are not infrequent sources of this poison. Increased use of gas in the winter months accounts for the large number of deaths at this period of the year. If all gas stoves, plates and heaters were connected by metal instead of rubber, many lives would be saved."

As to the operation of the poison, I quote McNally further: "Carbon monoxid combines chemically with the hemoglobin of the blood to form a stable compound. According to the research of Nicloux, one volume of carbon monoxid acts like 220 volumes of oxygen. The corpuscle is not dead. All it needs is oxygen under sufficient tension to displace the carbon monoxid." In line with this are cases reported by J. Bock.²

Body of man found on floor near defective stove, two thirds hemoglobin of his blood transformed to carbon monoxid hemoglobin. A baby near him showed no signs of poisoning. Body of wife in adjoining room, and only one fifth of her hemoglobin had been so transformed. It is assumed that she was as deeply poisoned as husband, but sought another room where blood threw off the carbon monoxid gas. Bock says: "Evidently the central nervous system becomes irreparably injured from the after-effect of the protracted asphyxia."

With the various tests for carbon monoxid we need not concern ourselves here. My object in presenting this paper is twofold: (a) to call special attention to the dangers arising from automobile exhaust gases in closed garages, and (b) to note the nervous and mental symptoms attendant on carbon monoxid poisoning. Cases of carbon monoxid poisoning from the inhalation of automobile exhaust gas are, I think, more commonly fatal than otherwise. The files of an Accident Insurance Company, which paid the claim for the death, enable me to report the following case:

CASE 1.—S. M., residence, Chicago, employed as a chauffeur of a private car, had entered the garage, a small and closed one, at noon, Nov. 20, 1915, for some work about the machine. About two hours later a maid sent to call him could hear the engine running, but received no response to her summons.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. McNally, W. B.: Carbon Monoxid Poisoning, *THE JOURNAL A. M. A.*, Nov. 10, 1917, p. 1586.

2. Bock, J.: *Hospitaltid.*, Copenhagen, Jan. 2, 1918.

She at once procured a key, unlocked the door, and the body of the man was found in the seat of the auto, dead, the engine still running and doors and windows closed. There were no marks of violence. There was "pinkish red discoloration all over the body, including the face and extremities. The internal organs were found healthy." The coroner's chemist reported on the blood taken from body for examination (3 ounces) as follows: "A chemical examination shows that the blood was 58 per cent. saturated with carbon monoxid. The blood responded to the tannic acid, lead acetate, palladous chlorid tests, and the spectroscopic examination for carbon monoxid hemoglobin."

In January last, Dr. F. W. Nagle of Montreal, president of the Anesthetic Association of America and anesthetist of the Royal Victoria Hospital of Montreal, was found dead in his garage, suffocated by gasoline fumes.

Through the kindness of Dr. R. P. Albaugh of the Division of Industrial Hygiene of the State Department of Health of Ohio, I am able to cite two cases, neither of them directly fatal.

CASE 2.—R., man, aged 39, single, American, suffered from a slight case of malaria fifteen years ago. As a gas combustion engineer, he worked constantly for years in a small, poorly ventilated laboratory, over gas jets. About three years ago, he fell from his chair in an unconscious state and remained in this condition for several hours, when he apparently recovered. He continued his work for about two years, during which time he had three or four recurrences of the unconscious state which came on suddenly. In the interim, he has had frequent occurrences of forgetfulness and at times a complete lapse of memory for a few minutes, during which lapse, he would talk incoherently, and after it subsided would take up the thread of his story and continue the conversation. At times, after these attacks, his memory would remain clouded for several hours.

Laboratory analysis of the patient's blood revealed carbon monoxid in large amounts at different times over a period of more than two years. The blood count was: red cells, 5,500,000; white cells, 8,500; polymorphonuclears, 68; small lymphocytes, 4; large lymphocytes, 24; eosinophils, 4.

After going under the observation of a physician, he has suffered from periods of unconsciousness about once a week, periods lasting about five minutes, and also periods of lapse of memory lasting about a half hour, and averaging five or six a week. At present he is undergoing treatment consisting of breathing exercises, graduated walks and daily inhalations of oxygen. Carbon monoxid has been gradually eliminated from the blood since this treatment was begun, which has lasted for a period of about a year.

CASE 3.—M., man, aged 30, with negative previous history, went to his private portable garage, on an unusually cold morning, started the motor and returned to the house, where he stayed a few minutes. He went back to the garage to put some oil in the machine and while doing so, smelled something very sweet, and had a desire to laugh. He saw yellow flashes before his eyes and felt weak in the knees. His first thought was to sit down on the running board, but decided to go to the house. When just outside of the garage he felt a sudden throbbing of the temples and extreme weakness. His wife found him an hour later lying in the snow apparently asleep. He could be roused, but staggered and could not have walked alone. He was placed in bed and proceeded to sleep as if in a normal manner. He awakened in an hour complaining of dizziness and was unable to walk. He complained of a throbbing headache and talked incoherently. He apparently recovered that day and returned to work the following day. Associates stated that he talked incoherently at different times during the day and was unable to remember dates and other simple facts. He returned home in the evening and remarked that he could not get any sense out of the evening paper, which he had been trying to read. During the night, a severe headache and cough developed

with some dyspnea. A physician was called in the morning and found the patient suffering from pneumonia. He developed delirium in a few hours and passed into coma, dying that night.

Still more interesting is the case which I have had the privilege of seeing, and concerning which I entertain a good ultimate prognosis, although recovery is exceedingly slow.

CASE 4.—July 13, 1917, I was asked to examine G. W., a man, aged 32, a chemical engineer of college education. His family and personal history were negative. His complaint was of loss of memory, forgetting even things he had just done, names, events, etc. He had been well up to the following occurrence: He says that, Feb. 10, 1917 (month told by him, but day by his wife), he had been to his place of employment and attended to his duties as usual. He came home soon after noon and after luncheon went out to his garage to charge the battery on his car. He thinks he propped the garage door open, but it blew shut, the engine of the car running to charge the batteries. He did not know that the door was shut. Beyond this point, he has no memory of immediate events. About an hour or more later, his wife found him collapsed and unconscious on the garage floor, near the exhaust and the engine running with a very "rich mixture." Medical help was at hand in five or six minutes, the heart was found racing violently and respirations were only five or six per minute. A little later the pulse was only 40. Artificial respiration, strychnin and digitalis were vigorously made use of. He was unconscious until evening, some four or five hours, and then was irrational, drowsy and but partly conscious, for some time. The week following, he was very weak; knew every one of his friends, but would forget that any one of them had been there, if, for instance, he chanced to leave the room. He gradually improved physically and his pulse became normal, about six weeks after the accident.

When I saw him, he was said to be lax in his personal appearance, quite unlike his normal self. He was able to drive his car in quiet and accustomed places, but felt unequal to driving it where any traffic was. He was able to do a little work in his garden, and improvement was noted as to memory, ability, etc., but he could not collect himself sufficiently for laboratory work, and he lacked initiative for any work. His wife thinks him not as friendly in his attitude toward others as was his wont. In appearance, he was well nourished, of dark complexion, his face wearing a rather blank expression. He was inclined to be despondent and doubtful of his gains. His wife (apparently a good observer) notes his improvement from week to week, and that recently he has been able to listen to and follow short stories, which he could not previously do, appreciating their nice points.

The heart was then normal; the pulse, 65, and of good volume, and the respiration, normal. The urine was normal, and the systolic pressure was 110 mm. of mercury. Both the deep and superficial reflexes were quick and active. His pupils were equal and normal, and speech tests brought normal responses. There were no sensory changes and there was no Romberg symptom present. No cause for any memory defect could be discovered other than the occurrence of February 10.

Aug. 6, 1917, his wife reported his further improvement, and that he was then able to read stories himself, that he had promptly answered a business letter without help, aside from being told the date. The day before he was depressed and easily emotional, had cried several times.

Dec. 13, 1917, his wife wrote from Saskatchewan, where he had gone in September to recuperate: "Although my husband is better, he is still unable to resume work. The memory defect is still there, but not as pronounced. Things happening five or ten minutes back seem the hardest to recall. He can remember what has happened during the day now, but does not seem sure. He seems to recall the occurrences of the past eight months, but the first two months after his illness seem almost a blank. The month past is quite clear to him. His

eyes seem brighter, but he does not smile often and seems to have a worried look." There was, therefore, a continued anterograde amnesic defect and emotional disturbance. He even once gave a hint of possible suicide, if his recovery was not soon complete, and this naturally led to great care in letting him go out alone. Reminded to answer a letter, he wrote a two page letter, but it took him all one afternoon to do what he would ordinarily have done in ten minutes. He lacks his former ambition and energy, and is decidedly wanting in initiative and, at times, though rarely, is irritable, if urged to do other than as inclined. He was less easily emotional than he had been.

March 16, 1918, there had been comparatively little change. He was much inclined to be depressed and discouraged, and doubt his eventual recovery. He has now gone to a farm, where he can have outdoor life and duties, and, April 22, was reported as anxious to help on the farm in any way he could, becoming more alert and grasping things quickly, but (his wife wrote) "The mind does not retain the impression made. He still forgets things as soon as they are past." She says: "If he received a letter, and then after reading it put in his pocket, he would forget all about it and would ask when it came, and if he had read it. He enters into a conversation now more than he used to, if no strangers are present, but is very quiet before strangers. If that memory defect would only clear up he would be as well as ever. Physically he is in splendid condition, although inclined to go to sleep rather easily."

There is, then, in this case, fourteen months after the accident, an anterograde amnesia still present, some emotional disturbance, and some depression, and these were still well marked, April 16.

The mental manifestations of carbon monoxid poisoning are most interesting. The most constant one referred to in the literature is a memory defect, and this is the chief complaint in my case.

Dr. Mary O'Malley³ of the Government Hospital for the insane, reported an interesting case with complete recovery.

This patient, a woman, aged 45, native of Ireland, of negative history, was admitted to the hospital thirty-eight days after an accidental inhalation of illuminating gas, an open window having prevented a fatality. Immediately following her trauma, she had been for ten days in a general hospital, and two weeks after it had attempted to resume work, but it was at once noticed that she was dull and forgetful. A week later, it was noted that her movements were awkward, and peculiar, and that her memory seemed a complete blank. She attempted to put the trousers of a little boy on for a waist. She had outbursts of laughter without provocation. She was lost on the streets, became distinctly confused, and then was admitted to the hospital for insane. Here, in the next three days, "Mentally the patient was dull and apathetic: responded promptly to all questions, but was able to give little additional information in regard to personal matters. . . . Replies were irrelevant and accompanied by outbursts of laughter. . . . She had a mistaken identity of all persons in her environment. . . . There was a retardation and some incoordination in all her movements. Asked where she was, she said she was at home." In the next ten days she showed a tendency to confabulate, showed uncontrollable laughter, and had incontinence of urine and feces.

She then showed gradual improvement, and a mental examination about three months after her accident showed that she had recovered her mental faculties, but there was an anterograde amnesia covering a period of three months. Two months later she was discharged recovered.

Le Dosseur⁴ "has collected a number of cases in which the following mental disturbances were noted: aphasia, acute delirium, transitory chronic delirium,

mental confusion, amnesia, melancholia, dementia. On the physical side he found muscular paralysis of diverse types, hemiplegias, paraplegias and monoplegias, various trophic disorders, convulsions, etc."

Dr. P. C. Knapp⁵ cites a case of retro-antegrade amnesia following a gas poisoning, which occurred May 10, 1910, the patient having been some hours unconscious.

She was then 43, had married at 25, and had led a happy domestic life. Her amnesia blotted out previously acquired memories, and there seemed to be an inability for new memories. She forgot the doctor continually, insisted that she had never seen him before, etc., although she might have seen him but a very short time previously. She did not know where she now lived, nor by whom her husband was employed. She later improved somewhat, but Oct. 3, 1915, more than five years after her accident, her memory was still defective.

"The amnesia may simulate the Korsakoff syndrome in the polyneuritic psychosis with confabulation, pseudo-reminiscences, etc. A defective memory may exist in a certain number of patients who recover. This amnesia is retrograde or anterograde in type: it is variable in course and intensity." In my case, the memory defect was rather of the anterograde type, and complete only for the immediate events attending and immediately following his accident.

Of the amnesia, peculiar to these cases, Sachs has said: "In the early stage of convalescence, a total amnesia is especially typical, either extending over the time before the poisoning, retrograde, or to the things of the present, anterograde." Le Dosseur has cited a case of a physician, who, after an incomplete intoxication, lost his memory totally, recovering only after eighteen months. The aphasia to which some writers have referred as present in some cases, would seem to be an amnesia rather than a true aphasia.

A marked reduction in the field of the emotions has been noted by a number of observers. A masklike expression has been spoken of, and an emotional tone of great indifference. Outbursts of irresistible tendency to laughter, spasmodic in character, have been noted in some cases with an apathetic indifference between the attacks. By the occurrence of thrombotic occlusions and hemorrhages, Mott thinks all of the nervous symptoms are to be explained. It is interesting to note that Mott was the first to notice the marked similarity between the brain of a soldier dead from shell shock, and the brain of a man dead from carbon monoxid poisoning.

There is a lack of observation in these cases continued over a period of years. Various psychoses and psychoneuroses have followed these poisonings but, since many of them have been deliberately suicidal attempts, it is not wise to conclude that any remaining mental aberration is solely due to carbon monoxid poisoning. Memory defect, however, stands out as the most constant and prominent of nervous symptoms due to this toxic agent, and to this Mott in his second lecture on the effects of high explosives as shown in the present war, calls particular attention, demonstrating from photographs the capillary punctate hemorrhages, found in the corpus callosum both in industrial and military cases. Photographs also show cell changes due to carbon monoxid poisoning. The subject, therefore, has also a side of military interest, as well as its industrial phases and its too common occurrence in our every day life.

3. O'Malley, Mary: *Am. Jour. Med. Sc.*, June, 1913.

4. Le Dosseur, Louis: *Thèse de Paris*, 1901, quoted by O'Malley (Note 3).

5. Knapp, P. C.: *Am. Jour. Insan.*, October, 1915.

ABSTRACT OF DISCUSSION

DR. JOSEPH BYRNE, New York: I would like to ask Dr. Hitchcock what his experience has been in blood transfusion, bleeding, etc., in these cases?

DR. G. A. MOLEEN, Denver: Carbon monoxid poisoning is more common than we are apt to believe. It occurs not only with the gas car, but also with the steamer, as one of the cases which I observed evidences. As to the results, some years ago Spiller and his associate reported a case which showed marked destruction, especially in the striate body, and some destructive lesions in the subcortical area, which probably accounts for some of the phenomena that have been described by Dr. Hitchcock, as well as by other observers. Referring to the blood changes and the combining of the carbon monoxid with hemoglobin, William D. McNally, who was speaking from Nicloux's work, said: "Carbon monoxid combines chemically with the hemoglobin of the blood to form a stable compound." This conclusion has been questioned and I believe disproved first by Haldane and second by Yandell Henderson, who says that carbon monoxid does not form a permanent compound with hemoglobin. In the presence of excess oxygen, or even of pure air, carbon monoxid is rapidly given off and the oxygen carrying power of the hemoglobin is restored. This is a very significant statement.

One case to which I wish to refer was that of a physician who, until September 13 last, was in good health. He went to the garage in which he had a steamer; the pilot light had been left burning over night, and he was found unconscious. He later presented the defects in memory which have usually been described, but the peculiar thing that remains at the present time is the fact that his memory seems to be, as it were, punched out. He can do work up to a certain point and then everything stops abruptly. He will go to the laboratory where he has done a great deal of work, start a urinalysis, get up to a certain point, stop there and walk out in the street, and on returning he has forgotten what he has done. The second case was one of rather severe carbon monoxid poisoning. The man started a car in the garage, having closed the door, to make some repairs. At the present time he has a very pronounced apraxia. In both these cases recovery has not taken place, and I am doubtful whether any case of a fair degree of carbon monoxid poisoning ever recovers fully.

DR. CHARLES W. HITCHCOCK, Detroit: In answer to Dr. Byrne's question, I have not seen any recent cases, so the matter of transfusion has not come up. One point mentioned by me is confirmatory of what Dr. Moleen has said with reference to the mode of operation of the poisoning. I quoted McNally as follows: "The corpuscle is not dead. All it needs is oxygen under sufficient tension to displace the carbon monoxid." One other point was mentioned, namely, that the amnesia may simulate the Korsakow syndrome. That is sometimes the case, and a tendency to confabulate appears. With reference to the organic changes, the memory defect stands out as the most constant and prominent of nervous symptoms due to this toxic agent. Mott in his second lecture on the effects of high explosives, calls particular attention to this, demonstrating from photographs the capillary punctate hemorrhages found in the corpus callosum, both in industrial and military cases. Photographs also show cell changes due to carbon monoxid poisoning. Therefore, the subject has a side of military as well as industrial interest. This type of accidental poisoning is an altogether too common occurrence in our everyday life.

The President on Child Labor During the War.—As the labor situation created by the war develops, I am more interested than ever, if that were possible, in throwing all the safeguards possible around the labor of women and children in order that no intolerable or injurious burden may be placed on them. I am, therefore, very glad indeed that the National Child Labor Committee is diligently continuing its labors and extending its vigilance in this important matter. By doing so it is contributing to efficiency and economy of production, as well as to the preservation of life and health.—Woodrow Wilson.

HEAT STROKE

WITH A SECOND STUDY OF CEREBRAL
EDEMA *

PIERCE McKENZIE AND E. R. LECOUNT, M.D.
CHICAGO

The meteorological conditions responsible for heat stroke are rare in Europe but common in the Mississippi Valley and states of the eastern and southern coasts of this country; in general, heat stroke occurs in river valleys and low lands.¹ Inability of the air about the body to receive any more moisture because it is already so saturated, together with a high temperature of the air, are chiefly responsible for heat stroke, and this applies equally well to heat stroke caused by exposure to the sun's heat and to heat stroke under other conditions, as in hot kitchens or boiler rooms. The "wet-bulb" thermometer determinations so essential to indicate this relation between increased humidity and temperature² are unfortunately no longer a part of our daily weather reports.

Less important causes are tight and heavy clothing and a too small intake of water, each preventing or lessening cooling of the surface by evaporation as well as adaptive changes in other heat-regulating activities of the body. Evidence that consumption of alcohol in beverages favors the development of heat stroke and increases the mortality has been advanced by Norton³ and by Gauss and Meyer.⁴ Further evidence regarding this relationship is needed and especially from carefully controlled experiments. There is no evidence that actinic, ultraviolet or other rays except those of heat, play any rôle in the causation of heat stroke from exposure to the sun's rays.⁵ Aron⁶ found that monkeys accustomed to tropical heat quickly died when exposed to the sun in still air; those in the shade of an umbrella or in the sun with a current of air from an electric fan suffered no damage.

The possibility of an infectious origin for heat stroke is discussed by Sambon.⁷ Hedinger,⁸ from study of the chromaffin organs of the bodies of two persons dead from insolation, has suggested that a pre-disposition may exist in their imperfect development.

Some writers⁹ discuss the development of a poison as a consequence of the heat and altered metabolism, and liken it to snake venom, probably because hemorrhages in the skin and elsewhere are observed in heat stroke. Woolley¹⁰ has suggested that this poison may be protein and incompletely split from loss of water, concentration of the tissue colloids and changed metabolism, and also that such substances (Vaughan's thermogenic protein poisons) may cause the high fever.

SYMPTOMS

When heat stroke occurs in hot boiler rooms (heat exhaustion) or other similar places, there may be dizziness, nausea and weakness before unconsciousness; the attack may come on slowly; when more severe, profuse sweating, dryness of the mouth, a red or purple discoloration of the skin, shivering, and a sub-normal temperature or one of from 100 to 102 F. may precede death in coma.

* From the Pathological Laboratory of Rush Medical College.

* This investigation was made possible by a grant from the Fenger Memorial Association. A former study of edema of the brain is: Nuzum, Frank, and LeCount, E. R.: The Ability of Brain Tissue to Take Up Water in Delirium Tremens and Other Conditions, *THE JOURNAL A. M. A.*, Dec. 16, 1916, pp. 1822-1826.

* Owing to lack of space, this article has been abbreviated by omission of the bibliographic references. These appear in the authors' reprints.

A fibrillary twitching of the muscles, vomiting, slow pulse, a more abrupt onset, earlier coma and high temperature of the body (from 105 to 117) characterize heat stroke from direct exposure to the sun (insolation). In this condition the attack may be indeed a stroke without warning, and has been repeatedly observed in soldiers making a charge in great heat. The simpler classification is asphyxial and hyperpyrexial; Steinhausen¹¹ refers to comatose, epileptiform and convulsive forms as well as forms without loss of consciousness, an encephalitis variety and a form with delirium.

Edsall¹² describes instances in which generalized fibrillary twitchings and painful cramps of the muscles were the only outstanding features resulting from hot weather and classifies this condition as a separate disorder; some were sequelae.

Wiener¹³ and Schmidt¹⁴ among others have accounted for the higher mortality and greater severity of insolation by direct overheating of the scalp and other coverings of the cerebrum. An increase of cells in the cerebrospinal fluid, polymorphonuclear at first and mononuclear later, has been described by Dopter,¹⁵ Huble and Pigache,¹⁶ Dufour¹⁷ and Römer.¹⁸

PATHOLOGIC ANATOMY

There has been a great deal of discussion¹⁹ regarding the hyperemia of the brain and leptomeninges, partly because the conditions rapidly change postmortem, and observations have been made naturally at varying periods after death; also in part because the observations reported have been of different types of heat stroke and of the brain and its coverings with death at different periods after the stroke or prostration. The minute hemorrhages in the brain and these coverings are, no doubt, as fully responsible for the notice these structures have generally received, as any content-variation from normal of their blood vessels. In places where it usually is observed, cloudy swelling is found in organs of the trunk, with hyperemia; in the lungs, edema. The few gross changes²⁰ therefore, like the usefulness mathematically of negative values, support any contention of death from heat stroke.

Edema of the leptomeninges with varying amounts of cells in the transudate have led to the view by some²¹ that there is a serous meningitis with heat stroke; the suppurative meningitis maintained by Römer¹⁸ is unconfirmed by other observers. In the observations reported by Van Gieson⁹ and Steinhausen¹¹ of microscopic changes in the brain, there is nothing characteristic of heat stroke, and as yet no general agreement regarding the alterations. In this connection changes found in the Nissl bodies by these observers deserve mention.

In postmortem examinations made by one of us of the bodies of thirty-seven persons who died of heat stroke, the following alterations were found quite regularly: edema of the brain or leptomeninges or both; marked generalized passive hyperemia, especially of the brain and lungs; edema of the lungs; hyperplasia of the spleen; cloudy swelling of the liver, kidneys, and myocardium, and petechial hemorrhages of the various mucous membranes and of the skin, with irregular and lessened yellow material of the suprarrenal cortices.

Perhaps more interesting than other changes are the edema of the brain tissue and the enlargement of the spleen; many standard textbooks omit entirely mention of any change of the spleen. Norton,³ in his three

cases, mentions the spleen as "normal"; Packard¹⁹ refers to it as "large and soft"; Hiller¹⁹ as "now and then enlarged." Hemorrhages of the skin are common in that of the thorax, especially the sides below the axillae.

In all the thirty-seven, the cerebrospinal fluid was clear, colorless and usually increased. Edema of the brain alone was present in twenty-two; edema of the leptomeninges alone in nine; edema of the brain and leptomeninges in four; a foramen magnum pressure furrow of the brain stem in fourteen, and in three only hyperemia of the brain and leptomeninges. In two of the brains there were minute hemorrhages of the leptomeninges of the cerebrum, and in one barely visible hemorrhages of fresh surfaces made by sectioning the pons. These three had diagnoses of heat prostration. In these brains, after hardening in solution of formaldehyd²² there was quite generally edema of the brain substance, hyperemia, especially of the white substance, punctiform red places due to hardened blood within minute vessels, and enlargement of the ventricles, especially the lateral; in some cases the lateral ventricles were 14 mm. in the greatest diameter at the anterior commissure, measured on segments made by coronal sections. In one brain, small softening of the lenticular nuclei were found; the clinical diagnosis was heat stroke, and was well supported by the necropsy observations.

Because of the frequency and the seemingly marked edema of these brains, an attempt was made to learn the amount of water present with more accuracy: At the time of the postmortem examination, pieces were taken from the temporal lobes, one from each, and a separate estimate made for each. They were put separately into weighing bottles, the stoppers "locked" and the bottles and content placed in an ice-box until weighed. After weighing, the tissue was removed to a bottle containing redistilled 95 per cent. alcohol equal to two or three times the volume of tissue, and the tissue was then cut into small pieces. The weighing bottles were then weighed empty.

The water content of each specimen was estimated according to the method of Koch and Voegtlin²³ which, briefly, is as follows:

The tissue transferred to a dried, weighed filter-paper cup is extracted in a Soxhlet apparatus with redistilled 95 per cent. alcohol for from four to six hours, and this followed by extraction with redistilled ether for from two to six hours. It is then ground to a powder in a glass mortar. This powder is digested with 50 c.c. of hot distilled water on a water bath for fifteen minutes. This digestion is repeated four times. The water extracts are evaporated to about 20 c.c. and added to the wet powder with enough redistilled alcohol to make a 75 to 80 per cent. concentration and, after boiling to precipitate the water-soluble proteins, the solids are again transferred back to the filter-paper cup and extracted with redistilled 95 per cent. alcohol for from twelve to eighteen hours. The residue and the cup are dried at 105 C. in an oven to constant weight. All the filtrates and extracts are evaporated together in a weighed beaker and dried to constant weight in a vacuum desiccator. The sum of the two gives the weight of the solids. Subtracting this from the fresh tissue gives the weight of the moisture, from which the percentage is calculated.

It is known that the gray matter of the brain normally contains a higher percentage of moisture than the white,²⁴ and it has been found in experiments on swelling of the brain substance that the gray and white matters swell differently.²⁵ The need of studying the hardened brains, as well as technical difficulties of

estimating the water of the entire brain, led to taking only similar portions of each brain. The close agreement in water content found in the portions from each side of so many brains indicates a similarity of amount of gray and white matter on each side.

TABLE 1.—PERCENTAGE OF MOISTURE OF BRAINS OF PERSONS KILLED BY ACCIDENT* (1917) *

No. of Brain	Clinical Diagnosis	Time in the Hospital	Approximate Hours after Death before Necropsy	Percentage of Moisture
1	Crushing injury and amputation of the left leg; traumatic fracture of the first thoracic vertebra	5 hrs.	22	78.05
2	Crushing injury of the trunk....	1 hr., 30 min.	15	79.38
3	Fracture of ribs; death in 10 min.	10 min.	18	79.99
4	Gunshot wound of the abdomen	1 hr., 50 min.	16	79.76
5	Gunshot wound of the trunk....	None	Unknown	80.65
6	Gunshot wound of a lung, the liver and innominate vein	None	Unknown	80.50
7	Gunshot wound of the neck, spine and spinal cord	None	Unknown	79.41
8	Gunshot wound of the trunk....	None	7	78.56
9	Gunshot wound through the aorta	7 min.	12	80.30
10	Gunshot wound of the chest.....	None	23	80.50

* The average of the weights of the pieces of brains from persons killed by accident is 43.425 gm. The average of the percentage of moisture of the two pieces taken from each brain is given.

All of the brains studied were from adults. For comparison, similar portions of brains of adults dead from accidents or crime when death came shortly after violence were examined in a like manner. An average of the percentage of water for these similar portions of control brains is 79.7 per cent. (Table 1). Some of these control estimates were from the brains of persons who had lost a great deal of blood; and with anemia there is edema of the brain. Notwithstanding this factor, the water content found agrees very well with the results given by others for the normal brain,²⁶ considering also that their estimates are of the brain as a whole. As a dividing line it may be safely said that a percentage of moisture above 80 per cent. may be taken as above normal.

From the average weights of brains of Europeans between 20 and 80 years old, as found by twenty-six investigators working independently, Vierordt²⁷ gives as the average weight of the brain of a man, 1,357 gm., and of a woman, 1,235 gm. Therefore, 1 per cent. of difference in the water content of brains equals with brains of men about 13.5 gm., with those of women, 12 gm. With a 2 or 3 per cent. increase of moisture content of the brain in disease, if it does not replace other fluid, that is, if there is hyperemia of the brain and meninges and internal hydrocephalus as well, it is very likely that compression occurs, with disturbance of function of first the cortical centers, and then the medullary; 3 per cent. is more than 1 fluidounce, and the brain, unlike most viscera, has a firm wall about it.

The cases of heat stroke of 1916²⁸ are regularly of high water content (Table 2). Of the sixteen

brains estimated, thirteen have a gross diagnosis of marked edema of the brain. Of the latter, nine patients died en route or shortly after admittance to the hospital and their temperature is unknown, except in one, in whose case it was 110 F. One of the remaining seven was in the hospital two and a half days with a maximum temperature of 109 F., the others from one to seven hours and with temperatures of from 110 to 111 F.

Of the heat stroke brains of 1917 (Table 3), for only one was there a high water content, for three a moderate increase, and for the other two the water content was within normal limits, apparently. The heat of 1917 was not as severe as in 1916. With fewer such patients in the wards and, in general, more hours in the hospital for the individual, the treatment may have lessened the moisture content of the brain; perhaps more resistant individuals were affected.

Numerous contributions to and reviews of the subject make it unnecessary to attempt here any direct application of the results of this investigation to what is perhaps inaptly termed "acidosis." The results seem to confirm the impression gained by finding, soon after death and by opening the head first, the brain swollen with flat convolutions and tightly closed sulci, the arachnoid meshwork obliterated, and the parietal and visceral layers of the arachnoid in intimate contact. This condition, always most marked on the vertex and sides of the cerebrum, as already stated is not invariably found with heat stroke; it is perhaps less constant than hyperplasia of the spleen. It does, however, deserve a place with the minute hemorrhages and especially those of the skin, as one of the conspicuous alterations.

TABLE 2.—PERCENTAGE OF MOISTURE OF BRAINS OF PERSONS KILLED BY HEAT STROKE (1916) *

No. of Brain	Clinical Diagnosis	Time in the Hospital	Approximate Hours after Death before Necropsy	Percentage of Moisture
11	Heat stroke.....	45 min.	15	83.56
12	Sick three days before he was brought to the hospital; examining room diagnosis of typhoid	7 hrs.	17	81.91
13	Heat stroke; acute alcoholism...	11 hrs.	6	82.58
14	Heat stroke.....	Unknown	Less than 24	81.83
15	Heat exhaustion.....	7 hrs.	17	83.78
16	Heat stroke.....	1 hr., 15 min.	13	82.85
17	Heat prostration.....	Died on admission	14	81.16
18	Heat stroke.....	5 hrs., 30 min.	12	81.26
19	Heat prostration.....	2 hrs.	3	81.61
20	Delirium tremens.....	2 days, 16 hrs., 30 min.	24	82.91
21	Fell off a wagon while drunk....	None	19	81.32
22	Brought in dead.....	None	Unknown	81.32
23	Died in the ambulance on the way to the hospital	None	9	82.63
24	Heat prostration.....	Died on admission	11	82.27
25	Heat exhaustion.....	10 min.	17	83.27
26	Found sitting in a doorway overcome by heat (police record)	None	Unknown	83.42

* The average weight of the pieces of the heat stroke brains of 1916 estimated is 11.381 gm.

28. During the summer of 1916, according to the Chicago Daily News Almanac and Year Book and the Bulletin of the Chicago Department of Health, 535 persons died in Chicago of heat stroke, and this between July 15 and September 16. In 1917, thirty-three persons died of heat stroke all between July 28 and August 25. In reports for 1916 and 1917 of the United States Department of Agriculture, Weather Bureau, Monthly Weather Review, the records of both the wet thermometer and the ordinary heat thermometer are highest when the greatest number of heat strokes occurred.

There are, however, in medical literature two observations which should be mentioned in connection with these results. One is the experimental production of high temperatures in dogs by Woodyatt²⁹ by dehydrating the animal by means of continuous injections of glucose. He says:

By pushing matters it is possible to produce definite rigors and fever as high as 108 F., but unless the dehydration is carried too far, the chills, fever, shaking and hyperpnea all disappear when the body weight is brought back to the proper level by adding water. . . . The fever can be made to appear and disappear at will by changing the water level, . . . but water need not leave the body. It can be bound with sugar or salt molecules or by protein within the body. The suggestion is that one fundamental factor in the maintenance of a uniform body temperature is the maintenance of a constant water concentration in whatever body fluids function in a way comparable to that of the salt solution phase in the system mentioned.

The other observation,³⁰ one made by Maud Menten, is an increased hydrogen-ion concentration of the blood with low barometric pressure, that is to say, with heated air or moisture-laden air or both.

PROPHYLAXIS AND TREATMENT

In addition to such usual recommendations as a diet largely of carbohydrates, low in calories, with less of fats and proteins; the use of light, loose clothing and abstinence from alcohol; and to protect the head and avoid extreme muscular exertion in hot and humid air, emphasis should be made of the value of drinking water in the prevention of heat stroke. Hunt³¹ states

TABLE 3.—PERCENTAGE OF MOISTURE OF BRAINS OF PERSONS KILLED BY HEAT STROKE (1917) *

No. of Brain	Clinical Diagnosis	Time in the Hospital	Approximate Hours after Death before Necropsy	Percentage of Moisture
27	Heat prostration.....	11 hrs.	7	81.62
28	Heat prostration.....	1 hr.	3	80.15
29	Heat prostration; delirium tremens	6 days, 15 hrs., 30 min.	6	80.11
30	Heat prostration.....	2 hrs., 15 min.	15	79.46
31	Heat prostration.....	4 hrs.	12	79.94
32	Heat prostration.....	10 hrs.	5	80.37

* The average weight of the pieces of the heat stroke brains of 1917 estimated is 35.061 gm.

that three gallons of water are required by a man working on a hot day in the sun. Troops marching in the sun on a hot breezeless day will be less likely to suffer from heat stroke if marching in open rather than in close formation.

When the attack is not severe or in early stages, removal to a cool place may be all the treatment necessary. With collapse and a subnormal temperature, heat externally and massage are advised. With hyperpyrexia, ice and ice-water are used in a variety of ways. A favorite method is to cover the stripped patient on a stretcher with a sheet kept cold by pieces of ice and by pouring ice-water over it. When the thermometer kept in the rectum indicates 103 or 104 F., the patient is removed to bed, wrapped in a blanket, and the temperature watched. Ice-water enemas may be used; also a spray of ice-water on the back. Camphorated oil and other cardiac stimulants may be useful. Physiologic sodium chlorid solution subcutaneously was employed by Lewis and Packard,³² but they were not convinced of its great value. They found that removal of from 10 to 18 ounces of blood from patients after the temperature was reduced was often followed by improvement.

Woolley³³ advises solutions of sodium chlorid and carbonate in water rectally and intravenously. In

those cases in which the symptoms have continued for days with coma, spinal puncture has been done with good results.

Military Medicine and Surgery

VISUAL REQUIREMENTS OF THE UNITED STATES NAVY *

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The visual requirements of the Navy may in general be said to be more severe than those of the Army. At the same time they are simpler and more definite, both because of the much narrower latitude allowed for correction by glasses and because they are more categorical, since such requirements readily lend themselves to categorization through a consideration of the various branches and ratings of the service.

Also the visual requirements of the United States Navy may be said to be more severe than those of other countries having large navies, since conditions governing the physical requirements in the larger foreign navies are necessarily different from our own. In only one, that is in the British navy, does the system of voluntary enlistment prevail. In others, the recruits are subjects of a universal draft system, the sea-faring districts furnishing conscripts so far as needed for the navy, recruits from other districts going to the army.

For a proper appreciation of the visual requirements of the various ratings, it is necessary to have clearly in mind the different branches of the service and the duties involved therein. The enlisted men of the Regular Navy and of the Reserves, for the most part included under the United States Naval Reserve Force, may be classified in three main branches: (1) the seaman branch, which includes those directly responsible for navigating the ship and manning the guns; (2) the artificer branch, such as machinists, electricians, carpenters, plumbers, blacksmiths and firemen, and (3) the special service branch, which includes the yeoman or clerical service, hospital corps, musicians and cooks, also those rated in the radio service and aviation service besides the Marine Corps.

Commissioned officers, both regulars and reserves, are divided into officers of the line or those in charge of matters of navigation, executive command and similar duties and officers of the staff including medical officers, constructors, civil engineers, the pay corps and chaplains.

It is well to recall also the expansive effect on the personnel of the Navy of the present war, significant of which is the fact that any tendency to lower the standard of visual and other physical requirements is naturally to be traced to expanding the forces more rapidly than volunteers measuring up to full standard requirements can be obtained.

The declaration of war, April 6, 1917, found us with a total enlisted strength of 65,000 in the Navy or including the Marine Corps, 82,738. We now have approximately 400,000 officers and men in the various branches of the Navy, all volunteers.

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Notwithstanding the fact that the complement of the Navy has been increased to more than four times its original number and that still greater expansion is anticipated in the immediate future, no relaxation in the standard of visual requirements of the Regular Navy has been ordered and at present no such relaxation is contemplated. The same is true of the Reserves except for a certain class of men enlisted for shore duty to be noted later.

The visual requirements of the Regular Navy and Marine Corps may be thus summarized (unless otherwise stated, all vision values are without correction with glasses): Recruits for enlistment in the Navy including the Marine Corps are required to have normal vision, or $\frac{20}{20}$ for each eye, but in candidates who are otherwise physically sound a minimum visual acuteness of $\frac{15}{20}$ will suffice. Color vision must be normal. Various abnormal conditions are given as causes for rejection, such as trachoma, pterygium, strabismus and others which need not be fully enumerated here.

Candidates for admission to the United States Naval Academy are required to have $\frac{20}{20}$ vision in each eye, without the aid of glasses, and the regulation states that there shall be no deviation from this rule.

For the Medical Corps, Dental Corps, civil engineers and for chaplains there must not be less than $\frac{12}{20}$ for each eye, unaided by glasses and capable of correction by glasses to $\frac{20}{20}$. The eyes must be free from disease and color vision normal. For line officers and the pay corps, there must not be less than $\frac{15}{20}$ for each eye, unaided by glasses and capable of correction by glasses to $\frac{20}{20}$. For officers of the Marine Corps, $\frac{18}{20}$ for each eye, unaided by glasses and capable of correction by glasses to $\frac{20}{20}$. Normal color vision is required. The foregoing applies to regular and, in general, to reserve officers.

In the case of officers for promotion, the vision, hearing and other functions must be such as, in the opinion of the board, will enable such officers to perform efficiently their duties at sea.

In the Navy Nurse Corps (female), no specific requirements are observed beyond what is necessary in the opinion of the examining surgeon for proper performance of the work required, the same being subject to approval by the department.

In individual cases, in which the candidate may fall slightly below the standard required by the regulations, and where, in the opinion of the medical recruiting officer, he presents unusual qualifications otherwise, a request for a waiver of the defect may be submitted to the department which will assume the responsibility of the decision in such cases.

In addition to the foregoing, there are certain exceptional requirements for special duties specified, some of which are more liberal, others more rigid than the usual requirements. Under the more liberal requirements, it may be noted that applicants for service in the Naval Reserve Force who would otherwise be ineligible for enlistment may be accepted for special duty in Class 4, for service which involves shore duty only. Here the visual requirement is that which, in the opinion of the examiner, is required in any given case for the applicant properly to perform the duties of the position or rating to which he is to be assigned. Thus it is possible during the emergency to enlist for temporary service large numbers for duty at naval stations, navy yards and elsewhere for shore duty as barbers, cooks, tailors, shoemakers and for similar

occupations, in this way releasing a corresponding number of more standard men for sea duty. Except as noted, the visual requirements for Reserves are the same as for Regulars. In the entire seaman branch, the requirements are the same.

Examples of special duties, in which there are more rigid requirements, are those of aviators and gun pointers already enlisted, who must pass special examinations to be eligible for these duties.

The visual requirements for aviators, which are the same as those for aviators in the Army, namely, $\frac{20}{20}$ in each eye, with eyes otherwise normal, need not be further discussed here.

For gun pointers, the visual requirements are more severe than for any other class of duty, and the regulation which has been in force since 1908 requires that the candidate for such rating shall have $\frac{20}{15}$ vision in the right or aiming eye and at least $\frac{20}{20}$ in the other eye. A test of the visual acuity of qualified pointers is made before each target practice and the result entered on the record, a report being also sent to the department.

In this connection, it is interesting to recall some features of an investigation carried out in the winter of 1911, at Guantanamo Bay, Cuba, by E. J. Grow, Medical Inspector, U. S. N., with the view of determining the relation of visual acuity to actual shooting and whether the gun pointers and trainers should be selected with more consideration as to vision than was then required.

To appreciate just what is required in the way of vision in aiming large guns, it may be well to recall that the telescopic sights used include a proper lens system and in addition a glass on which are etched two lines crossing at right angles, one vertical, the other horizontal. Accurate aiming implies that both of these lines be seen in sharp focus by the observer. This will not be possible if there is any considerable degree of astigmatism present in the observing eye. The blurring of one of the cross lines may in such a case be so great that it will appear double. Another source of error, if astigmatism be present, is an ocular parallax between the object aimed at and the cross lines.

Experiments by Grow showed that the presence of an amount of astigmatism under 0.75 diopter could be considered a negligible factor in so far as it concerns accurate perception of the telescopic cross lines and the matter of ocular parallax. The records of the vision tests also showed that $\frac{20}{15}$ vision practically eliminated the chance of any one having over 0.37 diopter of astigmatism, which is to be considered a perfectly safe amount for the purposes here considered.

Myopia was not found in a single instance among the 270 gun pointers examined, as was to be expected, since all myopes would be eliminated by the requirement of $\frac{20}{15}$ vision, as well as by the fact that a myope would be eliminated in any target practice.

With hyperopia, it is entirely different, since a man may have much or little of this error of refraction and still satisfy the $\frac{20}{15}$ visual standard. A marked amount of hyperopia is undesirable in a gun pointer, since in the stress of practice or in actual battle, the vision may become blurred from relaxation of the accommodation. Three men out of the 270 examined were found to have 4 diopters of hyperopia, all three of whom had complained of their eyes being tired and vision blurred during target practice. Grow con-

siders that 3 diopters of hyperopia or more should cause rejection of any one as a gun pointer.

He concludes that a visual acuity of $\frac{20}{15}$ will in a simple and practical way eliminate all cases of astigmatism and myopia which by any chance would interfere with the most accurate aim which is possible to be obtained through telescopic sights. "Plenty of men," as he says, "can be obtained who have this vision. Nothing is to be gained by a higher visual requirement."

A comparison of the visual requirements of the navies of all the principal belligerent countries before and since the beginning of the war would be at this time interesting and instructive, but with the exception of France and of some meager data concerning the requirements of the British navy it has not been found practicable in the length of time at disposal to obtain the data required for such a study; this because of the difficulty of foreign correspondence under present conditions. A search of periodical and other literature was disappointing.

Visual requirements for the French navy were revised in the latter part of 1915, when it was announced that owing to appreciable loss in recruiting due to more or less rigid requirements certain reductions would be made in ranks other than pilots, helmsmen, signalers, canoneers, artificers, armed seamen and buglers. In comparing the French prewar and present visual requirements, together with those of the U. S. Navy, the following may be noted. For the sake of clearness, the French standard expressed in fifths is here reduced to its equivalent in the $\frac{20}{20}$ standard.

Helmsmen and lookouts: $\frac{20}{20}$ in each eye, prewar and present, which is slightly above the U. S. Navy standard of $\frac{20}{20}$ with a minimum of $\frac{15}{20}$ in exceptional cases.

Pilots above normal: $\frac{20}{15}$, prewar and present, which is also above our requirements of $\frac{20}{20}$, with a minimum of $\frac{15}{20}$ in exceptional cases.

Torpedo men: French prewar standard, $\frac{20}{20}$ each eye; present standard, $\frac{20}{20}$ in one eye, $\frac{8}{20}$ in the other, U. S. Navy, $\frac{20}{20}$ with a minimum of $\frac{15}{20}$.

Fusileers (corresponding to our marines): prewar, $\frac{20}{20}$ in right eye, $\frac{12}{20}$ in left; present, $\frac{20}{20}$ and $\frac{8}{20}$. U. S. Navy, $\frac{20}{20}$ in both eyes; exceptionally, $\frac{15}{20}$.

Hospital corpsmen: French prewar, $\frac{16}{20}$ and $\frac{12}{20}$; present $\frac{12}{20}$ and $\frac{4}{20}$. U. S. Navy, $\frac{20}{20}$; minimum, $\frac{15}{20}$.

Firemen, carpenters, tailors, sailmakers, buglers and members of the band: French prewar, $\frac{12}{20}$ and $\frac{8}{20}$; present, $\frac{12}{20}$ and $\frac{4}{20}$. U. S. Navy, $\frac{20}{20}$; minimum, $\frac{15}{20}$.

Gunners: French prewar, $\frac{20}{20}$ and $\frac{12}{20}$. U. S. Navy, $\frac{20}{15}$ in aiming eye; $\frac{20}{20}$ in the other.

The French prewar requirements are not at hand for the following ratings, but the present standards may be compared with those of the U. S. Navy as follows:

Apprentice seamen, seamen first and second class: French, $\frac{20}{20}$ and $\frac{12}{20}$. U. S. Navy, $\frac{20}{20}$; in exceptional cases, $\frac{15}{20}$.

Candidates for the Naval Academy: French, $\frac{12}{20}$ and $\frac{8}{20}$. U. S. Navy, $\frac{20}{20}$ in each eye; no deviation.

Medical Corps, civil engineers, pay corps, yeoman school, departmental officers: French, $\frac{12}{20}$ and $\frac{4}{20}$. U. S. Navy, $\frac{12}{20}$ in either eye; correctable to $\frac{20}{20}$.

In regard to glasses in the French navy, it is stated that glasses are unacceptable in the service of the fleet.

The visual requirements of the British navy in force before the present war required for men of the deck crew and for naval cadets full normal vision as determined by Snellen's tests. Since the war, candidates have been accepted in the Royal Naval Volunteer Reserve with $\frac{20}{20}$ in one eye and $\frac{10}{20}$ in the other. Thus the British prewar requirements were practically the same or slightly more severe, if rigidly enforced, than those of the United States, but since the war have been somewhat less rigid for the class of men noted.

Candidates for other branches than the deck crew and naval cadets must not have less than $\frac{6}{60}$ ($\frac{2}{20}$) in each eye, which must be correctable by glasses to normal vision. This is considerably below the requirements of the U. S. Navy for men of corresponding ratings.

A question sometimes raised is, To what extent should the wearing of glasses be permitted in naval service? The wearing of glasses by the deck crew of the seaman branch is not practicable, because of fogging of the glasses from sudden temperature changes, fog and spray, and is not routinely permitted. Among men of other ratings, such as yeomen, men in the pay department, and cooks, there is not the same objection, provided the glasses are worn to avoid the

discomfort incident to small or moderate errors of refraction and provided the person would not be incapacitated for duty in an emergency, if deprived of his glasses, for it must be remembered that all men on ship board have their assigned battle quarters regardless of rating, and a person who would be helpless for his assigned duty in case of sudden breaking or loss of glasses during battle would be an undesirable member of the organization. This problem, however, is eliminated as one of practical importance by

the visual standard required in recruits, since no one with $\frac{20}{20}$ vision, or even $\frac{15}{20}$ allowed in exceptional cases, will be entirely dependent on glasses. In individual cases the advisability of allowing glasses to be worn is determined by the medical officer in charge.

The method of taking and recording the vision in the navy differs in some respects from that generally used in examinations for the army and industrial institutions. According to the regulations, "Vision is to be expressed as a fraction, of which the numerator shall be the distance at which Snellen's 20-foot test can be determined and the denominator 20." The candidate, one eye being covered, stands before the card at a distance of 20 feet. If he cannot read the Snellen 20-foot letter at that distance he walks forward until he can just do so, the distance at which he can just read the 20-foot letter being, as before stated, the numerator of the fraction expressing the visual acuity.

In 1910, Medical Inspector E. J. Grow, then instructor in ophthalmology in the U. S. Naval Medical School, published a description of the "unlearnable" vision test card devised by him, which has been since then in universal use in the Navy. Grow was led to devise such a card by the following considerations: (1) There is no one absolute standard observed by publishers of Snellen test type, and the

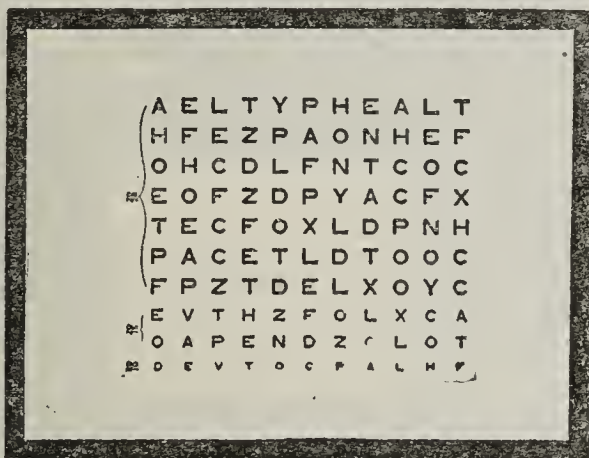


Fig. 1.—Grow "unlearnable" vision test card.

cards of various publishers varied to such an extent that in the case of the line which should be seen at 20 feet ($20/20$) line, there is a variation in the different charts from 7.4 mm. square to 10.6 mm., as a maximum. Such a variation would make a vast difference whether a candidate, slightly defective in vision, was tested by a card constructed according to the latter or former measurement. (2) The remarkable extremes to which candidates would go to enable them to pass the visual requirements, especially when a life occupation was at stake, simply because they lacked by 3 or 4 feet the ability to read the test letters at the required distance, included the memorizing of the various cards in use such that with the large letter at the top as a key letter candidates would be able to call off all the other letters.

The card contains a series of test letters which subtend an angle of 5 minutes vertically and horizontally at the nodal point of the eye at 20 feet, thus fulfilling Snellen's principles required by the regulations. For the purpose of recording better vision, as, for example, among gun pointers when $20/15$ vision is required in the sighting eye, an additional line proportionally smaller is added.

The card is mounted in a frame which includes a movable cover containing a vertical and a horizontal slit, by changing the position of which various combinations of letters are brought into view. The card can also be conveniently used unmounted, a piece of card board with a slit in the same being held in the examiner's hand serving to cover all lines on the card except the one being used as a test. The use of a single type of card by all medical officers in the service makes for consistency of visual records, and this type of card has proved otherwise eminently satisfactory.

In conclusion, it may be said that the visual requirements of the United States Navy are in general more strict than are those of other leading navies.

There have been no changes, since the beginning of the war, in the regulations governing the visual requirements of the U. S. Navy, and none are anticipated as being necessary or advisable at present or in the immediate future. Notwithstanding the considerable increase in the complement of the Regular Navy and in the Naval Reserve Force and the still greater expansion anticipated in the Reserves, there is, at present, no indication of serious danger of lack of the necessary volunteer recruits who may be enlisted under standards now in force.

In this connection, we may quote a recent announcement of the department. The question arose as to whether men who, while no longer potentially fighting men, would still be able to render limited service should be retained in the service or be discharged by survey. The matter was referred to the Bureau of Navigation, which announced its decision: "The Bureau of Navigation does not wish to adopt the

policy of retaining men who are physically unfit for duty in the Navy but feels that these men should be given their discharge."

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VISUAL STANDARDS OF THE UNITED STATES ARMY*

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The visual requirements for the soldier of the United States Army were formerly normal vision, or $20/20$.

Investigations of Bannister and Shaw tended to show that with a vision of $20/40$ or even $20/70$ a clear enough vision of the bull's eye of a target could be obtained to enable the soldier to shoot with a fair degree of accuracy, and that if one eye possessed $20/40$, this was sufficient. As a result of these investigations the requirements of vision in the Army were changed so as to read:

1. For the line of the Army and for the Signal Corps: $20/40$ for the better eye and $20/100$ for the poorer eye, provided that no organic disease exists in either eye.

Recruits may be accepted for the line of the Army when unable with the better eye to correctly read all of the letters on the $20/40$ line, provided they are able to read some of the letters on the $20/30$ line.

2. For the Ordnance Department and for the Hospital Corps: $20/70$ in each eye if correctable to $20/40$ with glasses, provided that no organic disease exists in either eye.

The contention was made by Army officers who had made a careful study of the subject that in accurate

shooting the bull's eye of the target should be clearly and distinctly seen while the front sight appears slightly blurred in the center of a much blurred rear sight.

To quote from Colonel Havard:¹

The ability to correctly estimate distances, under all circumstances, forms an important element in the education of the soldier, and is indispensable to become a good shot. It implies the power, as one changes position, to perceive differences in the clearness, color and shape of topographical features, details of uniform, moving bodies, etc. This is impossible for any one with a $20/40$ vision in the right eye and possibly a poorer one in the left eye. Shooting may be an act of monocular vision, but in all situations where a quick and accurate estimate of distance, speed and direction is necessary, binocular vision is indispensable. . . . Therefore, although it may be necessary at times to enlist applicants with vision below $20/20$ in order to obtain a sufficient number of recruits, the normal binocular vision should remain the standard and be required whenever possible.

* Read before the Section on Ophthalmology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Havard, Valery: Manual of Military Hygiene, New York, William Wood & Co., 1909.

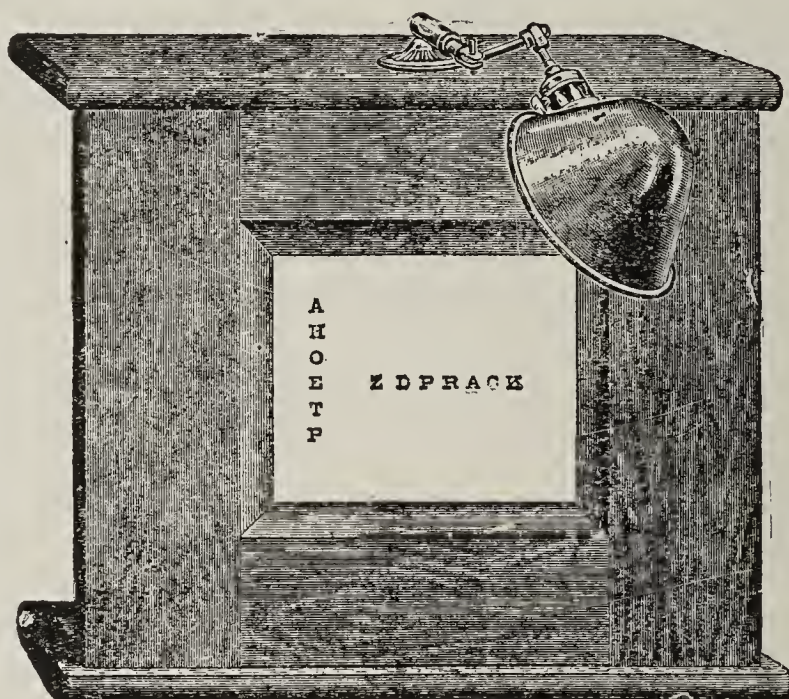


Fig. 2.—Grow "unlearnable" vision test card in cabinet.

In the present great emergency a large number of recruits is needed, and of these a large percentage will not be needed for the firing line, but for the multifarious duties connected with all branches of the military service. Hence the visual requirements have been still further modified by the Selection Service Law of May 18, 1917, and by the Selective Service Regulations prescribed in the Manual of Instruction for Medical Advisory Boards, Feb. 14, 1918. These Regulations for Recruits in the National Army are as follows:

Accept for general military service:

Vision $\frac{20}{100}$ in one eye, and $\frac{20}{40}$ in the other, without glasses, or $\frac{20}{100}$ in each eye, without glasses, if correctable with glasses to $\frac{20}{40}$ in either eye.

Accept for special and limited military service:

$\frac{20}{200}$ in one eye and $\frac{20}{40}$ in the other (either right or left) without glasses, or $\frac{20}{200}$ in each eye without glasses if correctable with glasses to $\frac{20}{40}$ in either eye. Hence a registrant is unconditionally rejected whose vision is below $\frac{20}{200}$ in each eye without glasses; or whose vision is not correctable to $\frac{20}{40}$ in one eye with glasses; or by inference, who has vision in one eye below $\frac{20}{200}$, even if the other has $\frac{20}{40}$ or better.

In different branches of the service, different degrees of visual acuity are required:

1. For officers of the Medical Corps and Medical Reserve Corps: Right, $\frac{20}{100}$; left, $\frac{20}{100}$, corrected to $\frac{20}{20}$ in both.
2. For the Ordnance and Hospital Corps: Right, $\frac{20}{70}$; left, $\frac{20}{70}$, corrected to $\frac{20}{40}$ in both.
3. For line and Signal Corps: Right, $\frac{20}{40}$; left, $\frac{20}{100}$; no correction required.
4. For Army Field Clerks: Right, $\frac{20}{70}$; left, $\frac{20}{70}$, correctable to $\frac{20}{40}$ in each.
5. For Aviation Section, Signal Corps: $\frac{20}{20}$ in each eye without correction.

Since the preparation of this paper there has been issued, through the office of the Provost Marshal-General, Form 75, revised regulations concerning "standards of physical examination governing the entrance to all branches of the armies of the United States."

No change has been made in visual requirements from those noted above except in regard to men accepted for special and limited service.

The requirements remain the same as before for this class, but there has been added Section 21 (b) which provides that men otherwise mentally and physically fit may be accepted for special and limited military service with "blindness in one eye with normal vision in the other eye without glasses." There is no qualification as to the degree of blindness, and it may be inferred that one eyeball may be absent if the other has normal vision.

The visual requirements in the armies of our allies, especially those of England and France, differ widely from our own, as will be seen by comparison.

VISUAL STANDARDS OF THE BRITISH ARMY

Prior to the War.—With vision in each eye of $\frac{20}{80}$ or better without glasses, the recruit was accepted as "fit."

With vision of $\frac{20}{20}$ in the right eye without glasses, and not less than $\frac{20}{200}$ in the left eye without glasses, the recruit was considered "fit."

With vision of $\frac{20}{20}$ in the left eye without glasses and not less than $\frac{20}{200}$ in the right eye without glasses, the recruit was considered fit for the Signal Corps, Medical Corps, Ordnance Corps and for drivers of artillery and engineers.

War Time Standards.—Since the war began the men have been graded into classes, from Class A, or those fit for general service, through other classes indicating limited service according to the physical qualifications of the men. These

various classes have been called categories and designated by A, B, C, D and E.

Men in Category A are wholly fit for any service.

Men in Category B are fit for service abroad at the bases or on the lines of communication, but not fit for general active service.

Men in Category C are fit only for home service.

Men in Category D are temporarily unfit for higher classification, but likely to become fit within six months.

Men in Category E are unfit for further service, and are waiting for discharge.

Attempts are continuously made to fit those men in the lower classes by treatment, training, etc., for places in the higher classes, and the soldier is therefore subject to reclassification at any time into a higher or lower category.

The requirements of vision for Category A, general service, are $\frac{20}{80}$ in one eye, and at least sufficient vision in the other to count fingers and to get about. It must be possible, however, to bring the vision of the right eye to $\frac{20}{40}$ with glasses, and there must be no organic disease in either eye. All men whose vision is less than $\frac{20}{40}$ must be examined by the eye specialist. In Category B I are placed men for garrison service overseas who have vision of $\frac{20}{40}$ in the right eye (if myopia does not exceed 7.50 diopters), and any vision at all in the left eye, or even nothing, if there is no active organic disease.

In Category B II, labor battalions overseas, are placed men who are unable to shoot, vision with glasses less than $\frac{20}{40}$ or with myopia exceeding 7.50 diopters, whose eyes are free from organic disease.

In Category B III, sedentary service overseas, are placed men who have about the same vision as in B II; but these men must be able to use the eyes for near work, such as clerical work.

In Category C I, garrison service at home, are placed men with same vision as those in B I, vision of $\frac{20}{40}$ in the right eye and anything or nothing in the left eye.

In these cases there may exist some quiescent corneal or other lesions which might recur and be aggravated by exposure to the irritation of light, heat, sand or dust likely to be encountered in field service abroad.

In C II and C III, labor or sedentary service at home, the visual requirements are the same as in B II and B III, and retention at home depends on the general physical condition of the man.

Generally speaking, no man is placed higher than B II if he has myopia of more than 7.50 diopters, because it is assumed that B I men may be called as supports to the firing line in times of emergency; and if the glasses are lost or broken, these men will be helpless, and might not be able to distinguish friend from enemy.

Squint cases go into Category A if the right eye has the necessary acuity, $\frac{20}{80}$ correctable to $\frac{20}{40}$. If the left is the useful eye, they are placed in B II.

STANDARDS FOR CANADIAN EXPEDITIONARY FORCE AND ACTIVE MILITIA OF CANADA

Category A for the infantry, artillery and cavalry: Standard I: $\frac{20}{80}$ or better in each eye without glasses.

Standard II: $\frac{20}{80}$ with right eye and $\frac{20}{200}$ with left eye without glasses.

Standard III: $\frac{20}{80}$ in one eye without glasses if the right eye can be brought up to $\frac{20}{40}$ with glasses.

Category B: Skilled railway employees, army medical corps, ordnance corps, forestry, construction and labor, drivers of artillery or engineers: $\frac{20}{200}$ in right eye and not less than $\frac{20}{80}$ with the left eye without glasses.

If one eye is amblyopic or blind from traumatic cataract, scar tissue or other local condition, provided this is not due to general constitutional disease, and the other eye has $\frac{20}{60}$ or better, the man is placed in Category B I.

VISUAL STANDARDS OF THE FRENCH ARMY

It is said that the standards of the Belgian Army are practically the same as those of the French.

1. For the armed service there is required visual acuity of $\frac{20}{40}$ in one eye and $\frac{10}{200}$ in the other, and this may be

obtained by the use of lenses correcting myopia, hyperopia or astigmatism.

2. For the auxiliary service are accepted those who have vision in either eye correctable to $\frac{20}{80}$, the other being below $\frac{10}{200}$ or even completely abolished.

However, men with myopia exceeding 8 diopters, even if the correction of the error of refraction gives them $\frac{20}{40}$ or better, are placed in the auxiliary service, provided the myopia is not accompanied by serious choroidal lesions. Men who have lost one eye and who can comfortably wear a prosthesis can be admitted to the auxiliary service if the vision of the other eye can be brought to $\frac{20}{80}$ or better with glasses, provided that in the case of myopia it does not exceed 8 diopters.

COMPARISON OF THE VARIOUS STANDARDS

A comparison of these standards shows that so far as visual requirements go, England, Canada, France and Belgium will be able to take into the military service a larger proportion of men of military age than will the United States. Unquestionably, with our present standards modified as they have been in the recent Selective Service Regulations, we are losing for military service many valuable men who, aside from their slight visual defect, are otherwise physically fit.

I wish to call attention to one condition that it seems to me should be recognized in our system of visual standards, especially in these war times. I refer to the condition which, for want of a better term, we call congenital amblyopia of one eye. Any one who has carefully examined many eye cases in the clinic, or for the advisory board, or for the review board at one of the cantonments must have been struck by the frequency of this condition, the degree of amblyopia varying from the ability to recognize forms or to count fingers up to $\frac{20}{100}$ or better.

The simplest tests show that the man is not malingering, and a careful ophthalmoscopic examination fails to reveal any deviation from the normal. On inquiry one frequently gets the history that the poor vision of one eye was not discovered until some trifling incident or circumstance prompted him to close the good eye and an examination later by a physician showed the degree of the defect.

Such cases, provided there is no fundus lesion observable, show a practically normal form field and good fields for color, showing that only the central vision is affected. Such persons are seldom annoyed by asthenopia if the fellow eye has fairly good vision and no great refractive error, for they do not have binocular single vision.

Such men, if otherwise physically fit, should certainly be accepted for special or limited military service, if not for general service; many of them are engaged in occupations requiring good sight. We should profit by the English and French standards so far as this class of cases is concerned. It seems to me that our standards for special or limited military service should be changed to read:

"Vision $\frac{20}{40}$ in one eye (either right or left) without glasses, and in the other sufficient vision to count fingers, provided examination shows a fairly good form field and there is no evidence of organic disease in the eye;" or $\frac{20}{200}$ in each eye, without glasses if correctable with glasses to $\frac{20}{40}$ in either eye.

The British standards, as has been shown, would allow such a man to be put into Category A for general service, and it seems to me that ours should do the same if the right eye is the good one.

In regard to the question of standards of vision for officers and enlisted men, they would be greatly sim-

plified if they were the same for officers and men in the various branches of the service. Such is the case at the present time in the line and Signal Corps in which there is demanded right $\frac{20}{40}$, left $\frac{20}{100}$, with no correction required. Men could be safely admitted to the Ordnance and Hospital Corps with lower vision than $\frac{20}{70}$ in each eye corrected to $\frac{20}{40}$, and there would seem no good reason why officers in the Medical Corps or Medical Reserve Corps should be required to have their vision in each eye corrected to $\frac{20}{20}$ or that they should be rejected if their unaided vision does not come up to $\frac{20}{100}$. If this rigid requirement is strictly enforced, many good medical officers will be lost to the service. If the condition is myopia it would be perfectly safe to accept men with $\frac{10}{200}$ at least in one eye, and if one is corrected to $\frac{20}{20}$ or even $\frac{20}{30}$ it is hardly necessary that the other be correctable to the same degree.

CONCLUSION

I would urge that in the present great crisis, the standards of visual requirements for our Army, at least in certain branches of the service, should be made more elastic in order that men may not be lost to the service who, aside from their eyes, are in good condition for it.

THE NEUROPSYCHIATRIC PERSONNEL

THE CHARACTER AND MAKE-UP OF THE MEMBERS OF THE NEUROPSYCHIATRIC DIVISION OF THE MEDICAL RESERVE CORPS *

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There have been thus far detailed to the Neurological Institute of New York City by the Surgeon-General's Department of the Army for intensive study in neurology and psychiatry about 100 officers of the Medical Reserve Corps. At this institution, the course was given by twenty-two specialists, among whom were men of such standing and preeminence as Charles L. Dana, M. Allen Starr, Bernard Sachs, J. Ramsay Hunt and George H. Kirby; and whose interest and fidelity in the work were reflected by the intensity of application and rapidity of progress of the Army medical officers assigned there.

These officers were of many types—physical and intellectual—and of all ages within the Army limits. Indeed, the suspicion that some were over age was, I take it, well founded. Physically the officers of the neuropsychiatric course were, as a whole, well set-up—not particularly of military bearing, excepting a few that had seen military service in the National Guard on the Mexican frontier—but fairly erect in their bearing. Their average height was considerably above the usual, and it took but few of them to fill a conference room. Mentally, they were of all grades. A few, who had seen only institutional life since their graduation from a medical school and who had had in this restricted environment but little contact with the larger world, were at first usually shy and rather ill at ease in the company of others of the class who were more, or shall we say, less fortunate. Of the others,

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

many had been in general practice with neurologic bent and were alert to grasp everything in the nature of novelty in diagnosis or therapy that was offered. There was a third group that had retired from medical practice for one or another reason, for whom the call to Army service was a lure not to be denied. It seemed to resuscitate and rejuvenate them, and they acted like children with a new toy. Some few men had taken out commissions because they were of draft age, and took this means of going into the Army while the going was good. Finally, there was a set composed of real neurologists and psychiatrists who had made intensive study of their specialty and had attained some degree of note and proficiency in their several communities before entering the service. Their number was about twenty-five of the 100. They were able to offer criticism of a constructive kind in the analysis of cases; their interest and intelligent cooperation was a constant stimulus to their less favored companions and their knowledge and past experience with neuropsychiatric cases put the instructors of the course on their mettle and helped to raise the level of the discussions and conferences to a degree never attained in a medical school or ordinary graduate course. Was the subject of debate epilepsy, a pathologist from Craig Colony, a member of the class, could offer from his vast experience facts of the utmost importance; was it pituitary disease, a former assistant of Cushing would regale us; was it shell shock, one of the class, who had been in England with Mott at Maudsly during the past year, had things to say. It was indeed a forum from which he who brought nothing must have been poor indeed. This brings up the thought that such a forum after the war would do more for neurology and psychiatry than a decade of graduate didactic teaching. I know that the writer frequently came from his teaching, learning more than he had taught.

The basic medical education of the class varied roughly with the age of the men. The older they were, the poorer their original equipment. Nothing so impressed us as the evidence of the rapidly increasing standard of medical education in this country, as evinced by the knowledge of the younger men compared with the vague notions of medical science of the older men. This does not mean that the younger men were better—far from it. Their knowledge was more precise; but their dependence on laboratory facts for accurate diagnosis stood in sharp contrast to their older confrères' greater powers of clinical observation.

Among such heterogeneous material, it may well be imagined that difficulties in the arrangement of a course would arise. And they did. But as this is Dr. Weisenburg's province, I shall not dilate on it excepting so far as these difficulties made it rather hard to engage and fix the attention of those to whom the presentations of cases were trite. As a result, there was at first not a community of interest. What appealed to the tyro in nervous diseases did not interest the adept. At first, therefore, the more mature man looked superciliously on his less favored classmate. But gradually, as this latter made rapid progress, he frequently overhauled his vainglorious brother and honors were even. They had then arrived on a plane where there could be a real interchange of views, and the *entente cordiale* was established. It was interesting to see the constant repetition of this process

in successive groups. On completing their course they were universally on the friendliest footing, with the common object of doing their best to make and keep our boys fit for the front.

At the first sessions in the course—most of the men having only recently left private life—there was some laxity in attendance and regularity, and discipline was rather conspicuous by its absence. That is to say, it did not seem heinous to be ten or fifteen minutes late in the morning, or to give a time-worn excuse for an absence. Nor yet did the course of instruction in some awaken more than a mild interest—and that rather in the instructor and his shortcomings than in the course. But very rapidly did these conditions change. As soon as it was understood that the work began promptly on the minute and that the very first minutes of a presentation frequently carried important demonstrations on which a later examination might hinge, the cure was complete and permanent. Of the entire group of 100 men, but two could never be brought to see the reasonableness of this procedure, and they were finally sent to an officers' training camp. This proving too much for the older one, a man well on in years and probably too old for such adjustment, he was allowed to resign from the Army.

In this connection, it might be well to consider some of the personal habits of the men, as shown by daily contact in the conference room or hospital ward. Of the total number, I do not believe more than four were given to alcohol in any marked degree, and only one to so great an extent as to warrant his discharge from the service. As for drug addiction, only one had been mildly affected, so far as we could judge. Three men were markedly negativistic; that is to say, they would react to a statement made by the instructor in the course of a demonstration by an abrupt negation or a stubborn refusal to see what was apparently plain to the others, and the reasons for their attitude were never based on proper foundation. These same men were also noncooperative and did not get along well with their companion officers. They usually went about alone. The rest of the class resented their attitude and occasionally took them to task. But they remained unchanged to the end. One of them had egocentric qualities, in addition, priding himself on his superiority to the others in confidential talks with his instructors. I believe all three were of a potentially psychotic make-up.

Apart from these few men out of the 100, the members of the class were strikingly free of mental taint. After a week or two at the institute, the men would undergo a species of self-measurement—would weigh themselves in the balance, as it were—and then would come to me singly or in small groups, telling me of their shortcomings in their specialty and asking to have a little more time given on this or that particular branch in neuropsychiatry. In this way, the course was gradually molded to suit, as nearly as possible, all their needs.

The chief subjects in which special emphasis and time were desired were the fundamentals—anatomy, physiology and pathology. It was also in these basic studies that the men were largely deficient. If there is one thing on which I should like to lay stress in the teaching of neurology in the future—whether to medical students or to advanced graduates—it is that the physiology of the nervous system must be one of the important basic branches. It should be taught in the

laboratory—at a working bench if possible—after the principles of the subject have been inculcated. In no other way can the dynamics of the central nervous system be appreciated. These men, in their process of self-measurement, arrived at this conclusion severally and independently. They felt that without such foundation their outlook was distinctly limited to clinical types—to fixed pictures requiring fixed classifications and fixed therapy, if indeed there were any therapy at all. They felt that they wanted to understand the development history of a case, the nuances and transitions which it underwent. This brings me to their inveterate desire, in the first period of their instruction, that is, the first fortnight, to make a diagnosis. It must be a distinct and clear diagnosis. For borderline cases they had nothing but impatience, for did not the Army regulations require a fixed diagnosis of a clear-cut disease, in order that a man might be rejected (or not) out-of-hand?

At one time there happened to be a case which involved three diagnoses, namely, progressive muscular dystrophy, Friedreich's disease and Marie's ataxie cérébelleuse. Very few of the class were satisfied with a critical discussion in which no sharp line was drawn between these possible diagnoses. And yet it was not possible to draw this sharp line. Then came the inevitable question. How should you classify this case in the Army? The Army surgeon will not accept more than one diagnosis. It was not unlike the question of the lawyer to the expert witness: "Will the plaintiff live a year longer? Answer yes or no." However, during the second fortnight of the course, the men began to lose their dogmatic, stilted attitude and regarded the cases in a broader aspect and from many angles. The neurologists realized that there was a mental side to most pictures, while the psychiatrists recognized that dementia praecox might be confounded with frontal tumor. And so they were gradually led to broader views of their allied subjects. At the same time, a growing respect for one another arose, and a real entente cordiale gradually developed. From this situation, progress went on apace. Each newcomer went through the same process—at first a certain aloofness; then opposition and negativism followed by a stage of silence; a gradually increasing tolerant attitude with partial merging and submerging of old concepts; and a final emergence into the light of breadth of vision. This moulding of character constituted, I believe, the very best phase of the entire course. With almost no exceptions, the men, as they were ordered away to their several stations, expressed their delight with the immense broadening influence that the contact with the instructors and other members of the class had had on them. They had gained something which added to their interest in life, and they looked to the future with new zest and eagerness. They had been lifted out of their past deadly routine.

Of course, even here there were some who were deadly dull—who brought nothing, who gained nothing; who might have remained in the course six days, or six months, or six decades, it mattered not; who never argued and never got impatient; never hurried and never learned; they never slept in lecture and probably will never die. I veritably believe that even the Surgeon-General's Office forgot all about them, for they were rarely called. I certified time and time again to Washington that so-and-so had completed, not his "course," mind you, but his "time," and begged

to have him ordered elsewhere. But he stayed and stayed, until through error, his monthly report went to Washington as "excellent." Before the error could be rectified he was suddenly whisked away. I think this error was made only twice—a favorable commentary on the quality of the class.

And as we are now on the subject of reports, a few words on paper-work may not be amiss. Gentlemen, paper-work for an active Army medical man is deadly, and worse, it begets sin. At first, an adjutant for the class was appointed to take over this work. He had had a little experience in the Army before coming to the school. It was decided that each order to every man of the class—according to Army regulations—needed five exact copies: one for the Surgeon-General's Office; one for the Adjutant-General; one for the Military Director of the school; one for Divisional Headquarters, in order to obtain pay, and one for individual filing. A succeeding adjutant who had had even more military experience than the former assured me that three further copies were necessary—making in all eight per order per man. Add to these, the necessary reports, also in triplicate, on each man every month, his duplicate pay vouchers, receipts and acknowledgments in triplicate of quartermaster's supplies, and you have a very respectable mass of filing material. Our adjutant took care of this; and the adjutant was the one man who invariably had a preoccupied look and was apt to be worrisome and irritable. The method makes a poor private secretary of a competent neurologist. It also undermines his health, so that it is necessary frequently to change the incumbent. Washington had, in addition, an annoying way of ordering your adjutant to other fields as soon as he had acquired efficiency, and then your own health suffered.

An interesting episode arose on one such occasion. Our adjutant, a well known neurologist, was ordered to New Mexico from the Neurological Institute. In answer to a request to remain longer, Washington replied: "Impossible to grant request." While en route another telegram followed: "Order to proceed to New Mexico rescinded." It was therefore incumbent on him to return to New York. In desperation, he telegraphed me for instructions. Before I could reply, a fourth telegram from Washington arrived: "Order rescinding order ordering you to New Mexico revoked." This was too much even for a neurologist, and I have not heard from him since. He was tagged out dodging between third base and home plate.

The very best adjutant of the class, as an adjutant, was one who had had much experience on the Mexican border. He was precise, military in carriage and utterance and snapped his replies and requests. But he couldn't spell. The simplest words were phonetically rendered and when corrected, he smiled almost cheerfully, but went right on in his own way. And to make the matter still sadder, he was a good neurologist. The one phobia that possessed the class as a whole was reflected in their faces each morning when telegrams were read. They feared that they might lose their adjutant, and then, whom would the lightning strike next? But even to this brain-racking experience they finally adjusted themselves.

In short, at the termination of each course period, we had a class of men who had profited largely by their experience and their intensive training at the institute. They were well rounded out, their original deficiencies and shortcomings from the clinical as well

as from the human and sociologic standpoints were pretty well made up, and they had acquired confidence in themselves and in their ability to do what would be required of them in the Army. From being diffident and uncertain, they had developed initiative, impetus and a spirit of cooperation which was perhaps more important than the actual teaching result.

At the completion of each course, the men could be fairly well divided into two large groups depending on the character of their mental equipment, experience and dynamic power—a group of leaders and organizers constituting roughly 20 per cent., and a group of detail men who had the patience, the receptivity to orders, and the peculiar tacit acceptance of an inferiority, which would not interfere with their equanimity and would not require original thought or initiative from them. This latter group, constituting 80 per cent. of the class, were excellent in their obedience to orders to the last detail, would hand in good reports on cases they examined and would make fairly good diagnoses. They were not brilliant nor original nor forceful. They were reliable. It is curious that these two groups formed spontaneously, as their several characteristics were developed, and the leaders were looked up to by the rest in tacit recognition. It was also never a division based on Army rank. In fact, I have never seen so little importance given to rank as just in these neuropsychiatric classes. But, wherever in the general grouping at the end of a course, a man found himself, he realized that it was his own effort that brought him there, and that his standing was actually determined by his classmates' opinion of his attainments. But all realized the great extent of the improvement that had taken place in them individually.

Each man, at his departure, almost without exception, made it a point to come to the director to thank him for what he termed the most gratifying and profitable experience of his medical life. And from all parts of the country, as well as from abroad, letters are continually received repeating these same statements in connection with the neuropsychiatric work that the men are called on to do. Army experience with its intensive training has been for the majority the greatest event of their lives. They recognize it, and they express their gratitude for it.

In conclusion, it may be said that the grouping of men of the neuropsychiatric division of the Medical Reserve Corps into schools or courses for intensive study is a procedure which amply repays for the six weeks' time devoted to each session, in that it molds of a mass of heterogeneous material with no definite aim, a homogeneous, constructive efficient corps of men, well adapted for the specialized work demanded of them.

ABSTRACT OF DISCUSSION

DR. FRANK P. NORBURY, Jacksonville, Ill.: I would like to ask if this course is to continue? In securing candidates for neuropsychiatric work at this time, many are anxious for the training. Two men would like now to take the intensive course mentioned by Dr. Timme. This question is asked of me at least once a week by prospective candidates for service. What is the necessary procedure in order that prospective candidates may be assigned to this training?

DR. JOSEPH BYRNE, New York: I cannot praise too highly the wonderful analysis Dr. Timme made of these matured students. A point I wish to emphasize that may have escaped attention in the mass of information imparted, is the point stressed in regard to the teaching of neurology based on

anatomic and physiologic knowledge. One of the great mistakes that occurred in the development of medical science, although not recognized at the time, was Purkinje's divorce of study of physiology from anatomy. How many of us today can bring the fundamental sciences practically to the bedside for the diagnosis and treatment of disease? In neurology especially the one fundamental thing we have to hold on to is anatomic and physiologic knowledge. In my teaching I always insist on it as well as on neurohistology. In studying neurology we have absolutely nothing to rely on if we get away from the fundamental facts of physiology, and we should thank Dr. Timme especially for emphasizing this important fact in teaching.

DR. WALTER TIMME, New York: Regarding the future of the neuropsychiatric course and how long it is to continue, my only answer is measured as all answers ought to be measured in talking of the future—we none of us know. I certainly do not know how long the course will extend. It may depend on the number of applicants for the neuropsychiatric units, or it may depend on whether a large number of those men may immediately be made necessary for army work by the rapid evolution of our troops for duty abroad so that there would not be time to give even six weeks' training.

I have always felt that physiology especially is a subject very much neglected, and when it is taught, as it is so often, according to a didactic method and by a professor in an amphitheater it is a perfect farce meant only for school-children. It certainly does not fit in with the medical education of a mature man.

BASE HOSPITAL AMPUTATIONS IN WAR

KELLOGG SPEED, M.D. (CHICAGO)

Major, M. R. C., U. S. Army

FRANCE

There is little interest in the tabulated report of amputations that I have made for this study, and therefore it is omitted. It has seemed, however, that an analysis of the correlation between the indication and the mortality resulting from a sizable list of these operations might prove profitable. For military reasons I am unable to state the relationship between the number and mortality of these patients and the total of admissions to the hospital with the average total mortality during the same period.

Base hospital amputations may be roughly divided into two classes: first, those that are indicated on the arrival of the wounded from the clearing stations, and second, those required much later. In the first class we may include the early gas infections, fulminating sepsis of large joints and bone injuries, and those wounds which have been passed through clearing stations in rush periods without receiving surgical attention, their primary need being amputation. In the second group might be placed the secondary hemorrhage from extremity injuries, septic limbs with or without gunshot fractures, septic joints, late gangrene from primary vessel injury, and trench foot. In the face of tetanus we do not operate.

War wound sepsis leads many surgeons of experience to change their ideas about their ability to control sepsis and the advisability of amputation. It seems to me that more patients suffer from delayed acceptance of the indication of amputation—thus failing to survive the operation—than other patients are mutilated by early amputation or operation before one would consider the indication rigid in civil work. That point is strongly brought to mind by patients suffering from

septic large joints, such as the knee, many of whom might escape with their lives if an early amputation were performed. No one favors mutilating a man by removing a limb, but after some experience in war surgery one may prefer being a party to mutilation in order to see a live patient result. The sepsis of war wounds is so insidious when once under way that the period beyond which no operation will return a live patient may be passed unnoticed.

Hence, a guarded advice: *Make the indication rigid, but amputate early.* Gunshot fractures terminate surprisingly well; one has only to read the evidences of base hospital records to see that. A certain standard of fracture treatment has arisen which protects them; its provisions are excellent; but when a question of amputation arises, the same general admonition concerning a final live patient must be borne in mind. In my experience, secondary hemorrhages are the most dreaded, and combined with septic fractures are the strongest indication for amputation. Gas infection may not be so fatal; early muscle group excision has done much for these patients, as has been reported,¹ and gangrene from vessel injury, trench foot, etc., is always a delayed reason for operating.

The prompt reaction of wounded soldiers from early and indicated amputation is striking.

STATISTICAL SUMMARY

The total number of amputations reviewed was 121, following which there were thirty-five deaths, a mortality equivalent to 29 per cent. The total number of gas infections handled among amputated patients was twenty-seven, with twelve deaths and fifteen recoveries.

Arms and Forearms.—There were twenty-seven arms and forearms amputated with three deaths, a mortality of 11 per cent. Seventeen of these patients had a gunshot fracture, and in all the fatal cases there was gas infection. Gas infection was present as an indication eight times, resulting in five recoveries after amputations. In those who recovered, amputation was performed on an average of three days after injury; the average in the fatal cases was longer between injury and amputation. Sixteen of the twenty-seven patients offered sepsis of the arm or septic fracture as an indication. Gangrene from primary vessel injury was the indication in the other three patients, all of whom recovered.

Legs.—There were twenty-three leg amputations with four deaths, a mortality of 18 per cent. Twelve of these patients sustained gunshot fracture, but only one of them died. Other indications and the results were: sepsis, 12, deaths, 2; secondary hemorrhage, 1, no death; gas infection, 3, with 1 death; gangrene from primary vessel injury, 3, with no death; trench foot, 3, with 1 death after double amputation.

Patients with septic gunshot fractures of the leg were carefully watched and cared for, and consequently amputation was performed early. From the review one might say, however, that septic legs from other gunshots without bone involvement went too long before amputation.

Thighs.—In the study of seventy-one thigh amputations we find twenty-eight deaths, or 40 per cent. Of these deaths the indication for operation was

sepsis in 13, gangrene in 4, secondary hemorrhage in 5, gas infection in 5, and trench foot in 1. In the eight fatal cases showing gas infection, operation was performed at an average of four days after wound reception, and three patients had sustained complicating femur fractures.

Septic knee joints furnished amputation indications in thirty-two patients, of whom thirteen had complicating long bone fractures into the joint. Of the thirty-two, nine resulted fatally, a mortality of 29 per cent., which is the average mortality of the entire series, and in the nine deaths there were six with a joint fracture. The average time elapsing between injury and amputation in the nine fatal knee sepsis patients was eight days. In twenty-three septic knee cases in which amputation was performed and the patients recovered, there was an average of 20.7 days between injury and operation. This seemingly contradictory fact is accounted for, however, by the tendency of the knee joint sepsis to develop with relative slowness, owing to the fact that it is often secondary to the outer wound infection and seeps into the joint late.

Fracture of the femur alone, without knee joint sepsis, gave indication for amputation in seventeen instances, nine of which, or 53 per cent., ended fatally. The femur indication amputations followed by death were performed on an average of 21 days between injury and amputation, whereas those with recovery had an average interval of 8.5 days. The number of patients observed is too small from which to draw a general conclusion, but the striking difference between the average preamputation period after wounding makes it appear that operation was put off too long to obtain a live patient.

The mortality percentage after amputation from septic fracture of the femur in this series is equivalent to twice that from septic knee joints. This may be explained by the fact that a septic joint, although slow to develop, often becomes alarming from its pain and temperature symptoms, and attention to its sepsis is called earlier than in a more slowly developing thigh sepsis from gunshot fracture. The fracture patient is liable to run along for weeks, getting into a weak and septic state with great burrowing of pus, and to suffer severely from the amputation shock on account of his poor condition.

Gas infection existed in sixteen patients whose thighs were amputated; eight of them recovered. None of them had complicating gunshot fractures, and four sustained primary injury to the great vessels of the limb. Vessel injury renders the prognosis very bad in gas infections. Of the four patients in whom secondary hemorrhage induced thigh amputation, three died, two almost immediately and one later of septic thrombosis of the femoral vein. Secondary hemorrhage appears as the frequent cause of death in proportion to other causes and leads to the gravest prognosis. When anatomically possible, one might make a rule that in all severe secondary hemorrhages involving the main vessels, operation should be performed at once for ligation of the vessels of the limb involved, if the indications do not warrant amputation. If required, the removal of the limb may be performed later when the patient has recovered from shock and from blood loss. It is my experience that any secondary hemorrhage worthy the name complicating a septic fracture means a dangerous pathologic

1. Speed, Kellogg: Localized Gas Infections in War Wounds Treated by Muscle Group Excision, THE JOURNAL A. M. A., Jan. 26, 1918, p. 225.

condition within the limb and is a strong indication for immediate radical procedure. In war wounds, practically all these limbs show false aneurysm on dissection. If the main vessels, as the femoral artery or its larger branches, are concerned, if there is severe sepsis present, the vein should be tied at the same time as the artery, because that act cuts off the possibility of venous hemorrhage and of septic absorption by the vein—a very fertile source of such absorption.

AMPUTATION TECHNIC

The one time popular guillotine operation or straight cut off of all tissues on the same level is falling into disuse. It means, of course, a secondary amputation which is always one involving bone resection. The subsequent application of stump splints fails many times to save the length of limb obtained, and with the recent development of clearing station surgery, the use of suitable flaps is now returning. In my experience these points have been observed: A circular skin incision answers the purpose in the majority of instances. The skin flap can be slit up one or both sides to obtain an easily reflecting cuff, which is cut very long. If it is damaged by the pathologic condition present, any flap device that meets the findings of the particular injury is used. In septic limbs the muscles are generally cut off transversely higher up; there is no attempt to make pyramidal flaps of them. The bone is also cut higher, and aperiosteal bone ends are invariably left—in the femur for a distance of 1 inch at least. On account of secondary hemorrhage from bone marrow or of late infection spreading up the long bones by way of the marrow opening, and also to avoid endosteal proliferation, the medullary cavity is often curetted out for three-fourths inch above the sawed end and its cavity filled with bismuth iodoform petrolatum paste² or bone wax.

Ether is the anesthetic of choice. In extremely septic patients in poor condition, spinal anesthesia with stovain, the patient being held in a semiupright position, gives excellent results. No instance of its administration has failed, and such severe types of amputation as hip disarticulation have been satisfactorily performed with its aid. When shock effects were greatly feared, in selected patients treated with spinal anesthesia, the sciatic nerve has been injected with stovain before severance. An attempt has been made to perform all the surgical work rapidly. A very complete hemostasis of severed tissues is to be desired. For that purpose mattress stitches of catgut are often employed in the large muscle bundles of the thigh. When sepsis is not too great, the skin flaps are often loosely approximated by silkworm-gut stitches. No attempt is made to suture muscles in war amputations. Dry or clinging gauze packs in open stumps should be avoided. If a pack is indicated for capillary oozing, paraffin gauze strips or a paraffin gauze covering over dry gauze packing can be used. The removal of dry gauze necessitates a second anesthesia, usually of nitrous oxid, and some packs are neglected when patients are passed along in rapid evacuations.

PRACTICAL SUGGESTIONS

From the notes on an inquiry carried out at certain military hospitals in England regarding the later stages of amputations and compound fractures, circu-

lated in January, 1918, we may learn many practical points. Some of the conclusions reached are:

Upper Extremity.—For the forearm, a stump less than 2½ inches long below the elbow is useless, and reamputation will be necessary.

Amputation should not be done through the elbow joint because the stump is bulbous and unsuited for an artificial limb; hence one should amputate above the humeral condyle.

For the Arm: Any portion of the humerus should be left; a stump 3 inches long is the desirable minimum. A 5 inch stump gives a good working arm and an 8 inch stump the most satisfactory result. The humerus should always be divided above the epicondyles to avoid a bulbous end.

Lower Extremity.—Foot: Comminuted fractures of the tarsal bones, with involvement of the midtarsal joints, particularly when combined with fractures of the first or fifth metatarsals, are best amputated; the foot resulting from the prolonged suppuration and necrosis consequent on such injuries is generally painful and useless, and inferior to an artificial one.

Ankle: Severe comminuted fractures involving all the bones of the ankle joint should, as a rule, be amputated. When comminution is limited to the astragalus, a good foot may be obtained by removal of this bone—an operation which should have a greater measure of success if done in the earliest stage.

Syme's amputation should be performed whenever the conditions are such as to give a reasonable probability of success. This operation, if well done with a thick and well nourished heel flap, gives an excellent weight-carrying stump, superior to that in the lower part of the leg. The success of Syme's amputation depends entirely on the condition of the heel flap and if this is thin and ill-nourished, reamputation higher up may become necessary. At casualty clearing stations, opportunities will occur from time to time in which Syme's amputation may be safely performed in place of amputation through the leg.

Pirogoff's amputation is universally condemned; the os calcis is likely to be drawn back by the Achilles tendon, exposing the scar to pressure and making it difficult to fit a satisfactory artificial foot.

Leg: The site of election is from 9 to 11 inches below the knee according to the height of the patient, 9 inches for a short man, 11 inches for a tall one, measured from the tubercle of the tibia to the end of the stump. (This probably means for the starting incision of the skin flaps. Certainly a bone stump that long is impracticable.) The best method is by lateral flaps, containing as much muscle as possible. The fibula should be cut 1 inch shorter than the tibia.

Amputation immediately above the ankle joint, where the tissues are chiefly fibrous, does not give a satisfactory stump.

The highest point at which amputation of the leg will give a useful stump is 2 inches below the tubercle of the tibia. When it is necessary to divide the bone at a higher level, it is better to operate above the knee joint.

It is important that all amputations below the knee should be kept extended on splints, as permanent flexion of the stump is easily acquired and is a very troublesome deformity to correct.

Knee Joint: Amputation should never be performed through the knee joint except as a temporary measure when necessary to save life. The stump left after such amputations is unsatisfactory and difficult to fit into a bucket.

Thigh: The nearer to the condyles the bone is divided, the better is the stump, provided too much of the bulging end of the bone has not been left. The most perfect result is obtained by the Stokes-Gritti operation, which gives an excellent weight-bearing stump. When the conditions are favorable for doing this operation it should undoubtedly be practiced at the casualty clearing stations, as has already been done by some operators. Failing Stokes-Gritti, Carden's operation gives a good weight-bearing stump. Amputation higher than Carden's will not give a stump that is capable of bearing weight on its end; the important point to

2. Bismuth subnitrate, 1 part; iodoform, 2 parts; sufficient liquid petrolatum to make a thick paste.

bear in mind is that the greater the length of femur left, the more useful will be the limb.

The best method of amputation of the thigh is by long antero-external and short postero-internal flaps, the resulting scar after this operation being well drawn up to the inside and behind, the seat of least pressure.

A reasonable amount of muscle in the flaps is an advantage, but flaps should not be cut too thick and fleshy, as the stump will then be difficult to fit into a bucket.

In the upper third of the thigh it is better to leave any portion of femur, however short, rather than to disarticulate. Even sawing through the neck of the femur gives a firmer and better stump than amputation through the hip joint.

THE TREATMENT OF EMPYEMA

BY FREQUENT ASPIRATION AND THE INJECTION OF
SOLUTION OF FORMALDEHYD AND GLYCERIN

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Major, M. R. C., U. S. Army; Division Tuberculosis Specialist

AND

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CAMP SHERMAN, CHILLICOTHE, OHIO

The treatment of empyema is that of pus anywhere—drainage. But the manner in which drainage shall be secured is a matter of vital importance, especially in the Army, where it is necessary to get men back to their organizations at the earliest possible date. Any method of treatment that cuts short convalescence will be of tremendous value to the government. It will result in a great saving of money and manpower, and these are the factors that will win the war.

Thoracotomy and costectomy are the methods most frequently employed. In some virulent cases in which rapid drainage is necessary, costectomy is the only method for consideration. This always leads to contraction and collapse of the lung to a greater or less degree. During the convalescence these men are held

PROTOCOL OF CASE 1*

Aspirated	Amount of Pus Removed, Cc.	Bacterial Estimation per Field
1/28/18	600	From 60 to 75
2/11/18	2,000	From 40 to 50
3/14/18	2,000	From 40 to 50
4/15/18	2,000	From 40 to 50
5/15/18	2,500	From 50 to 60
5/18/18	200	From 20 to 25
5/20/18	90	From 5 to 6
5/23/18	30	Sterile
5/27/18	Dry tap	Temperature and pulse normal

* V. R., private, aged 24, entered base hospital, Jan. 8, 1918, suffering from scarlet fever. Jan. 28, 1918, empyema developed.

in convalescent wards, where, at least in this camp, they are put through a series of graduated exercises and thus brought back to normal. Thus weeks and sometimes months pass before the men can be sent back to duty. Of course, there will be a period of convalescence no matter which method of treatment is used; but we believe that this period can be materially shortened.

Our method is not new, being simply plain aspiration with one or two variations.

Under the direction of Major S. M. Rinehart, tuberculosis specialist at Camp Sherman, we undertook a series of cases in which aspiration was done followed by the injection of 2 per cent. formaldehyd solution in glycerin. Aspiration was done every other day, if there were physical signs of fluid, and that is the point we wish to emphasize. We do not wait for

the temperature and pulse to go up, indicating sepsis. When once the diagnosis is made, aspiration is done as rapidly and as frequently as the pus accumulates, and we would not hesitate to do this every day, although every other day seems sufficient. The idea is simply to keep the chest cavity free from pus as nearly as possible, to remove it as rapidly as it accumulates and to inject 2 per cent. solution of formaldehyd in glycerin as advocated by Murphy. A large caliber needle is used, and the operation is done under local ethyl chlorid anesthesia. No harmful effects result from the repeated aspirations, and the patients complain very little of pain, much preferring aspiration to the discomfort of allowing the pus to remain and its resultant absorption.

PROTOCOL OF CASE 2*

Aspirated	Amount of Pus Removed, Cc.	Bacterial Estimation per Field
2/23/18	4	75
3/23/18	1,500	75
4/12/18	2,500	From 50 to 60
5/15/18	3,000	49
5/21/18	1,500	35
5/24/18	500	20
5/26/18	200	From 10 to 12
5/30/18	30	From 5 to 6

* J. Z., private, aged 23, entered base hospital, Jan. 30, 1918, suffering from influenza. Feb. 18, 1918, empyema developed.

By this method, men get well far more quickly than by thoracotomy or costectomy, and there being no collapse of the lung, the resulting convalescence is greatly cut short. There is no resulting deformity of the chest; and the formation of localizing adhesions about the drainage tube, thus forming walled-off pockets of pus and requiring secondary operation, never happens. It is a method which we think should always be employed first, since it will prove sufficient in the majority of cases, can do no harm, and offers no contraindication to costatectomy, which can be done later if indicated.

Records of two typical cases are given, showing dates and number of times aspiration was performed, with bacterial estimation done on each specimen of pus obtained. These cases are interesting in that they show how rapidly the bacterial count and the total amount of pus increased as long as aspiration was done at long intervals, and also how rapidly both dropped when aspiration was done whenever the physical signs indicated pus, however small the amount. Up to May 15, aspiration was done about once a month. From that time on it was done as rapidly as the pus accumulated, and the rapid drop in the bacterial count would seem to indicate that this is a valuable scientific and rational addition to our armamentarium.

Reforming the Soda Fountain.—In addition to abolishing the common drinking cup, the government has decreed that soda fountains in or near training camps must either sterilize their glasses or use paper or paraffin containers. Seven or more states and a number of cities have taken action regarding cleanliness in connection with the dispensing of soda water. Tennessee has a model law for this purpose, to be administered by the Food and Drug Department of the state, which sets forth strict requirements regarding places used for the preparation, sale or distribution of foods and their protection from all foreign or injurious contamination. Exact procedures are prescribed for the cleaning of glasses, dishes, spoons and all receptacles and implements used in serving food and drinks, either by hand washing, mechanical washers, live steam and dry heat, and the use of paper receptacles. The law has especial reference to soda fountains, soft drink and ice cream stands.

DIPHTHERIA AND DIPHTHERIA CARRIERS IN ARMY CAMPS

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The number of admissions to the base hospital at Camp Sherman has on several occasions taxed its bed capacity. This has necessitated the overcrowding of wards and the placing of patients in close contact in aisles and otherwise. The inadvisability of this procedure was clearly and early demonstrated in the frequency of new infections and reinfections. To meet the demands made on the hospital for the care of patients, a survey was instituted to determine the means available for increasing the number of vacant beds without resorting to ward overcrowding. It developed in this survey that the desired end in part might be obtained by the prompt and intensive treatment of the trivial conditions causing large numbers of hospital admissions to the end that the average days in hospital be lessened. This plan contemplated the acquiring of the needed bed space in hospital and, what is of greater significance, making it possible to return these patients earlier to their organization for duty and training.

As a single item in this survey it was noted that the average stay in hospital was high for a group of individuals who were not clinically ill, but who were a potential source of infection to their fellows from being carriers of various organisms, notably diphtheria and meningitis. Although the etiology of scarlet fever is not established, the hospital status of scarlet fever patients after the active stage is essentially that of carriers. In the case of scarlet fever, the arbitrary holding of all patients for six weeks undoubtedly leads to the retention in hospital of many individuals well beyond the time that they are sources of infection. On the other hand, the indiscriminate release at the end of six weeks of all scarlet fever convalescents who are physically fit is not without risk of contact infection if the retention of *Streptococcus hemolyticus* in the nasopharynx is accepted as a criterion of the patient's potential infectivity. In the case of meningitis and diphtheria, in the days prior to universal masking, it was exceedingly difficult for either convalescent carriers or contact carriers to exhibit a sufficient number of negative laboratory examinations to justify their release. Judged in terms of results obtained after the institution of masking, it may be accepted that the long hospital stay for certain carriers of diphtheria and of meningitis is to be attributed to constant reinfection of each other on the part of carriers living together in intimate contact. The remedying of this condition was a definite factor in reducing the stay in hospital of meningitis and diphtheria carriers. However, over and above these bettered conditions, it was found that, regardless of precise treatment of various kinds, many carriers

persisted in the retention of organisms. Since diphtheria carriers are always present in considerable numbers, the problem of such carriers in relation to the loss of man power is of appreciable economic concern. Accordingly, all pertinent data relative to diphtheria and diphtheria carriers have been collected with a view of formulating a program for the expeditious, adequate handling of such conditions. This program has as its chief aim the systematizing of all protective procedures so that (1) the quarantining and isolation is such as to hamper to a minimum the duties and training of the organizations in which the cases appear, and so that (2) the treatment of isolated carriers is such as to reduce to a minimum the time required to free the carriers of diphtheria organisms.

DIPHTHERIA CARRIERS

The outstanding factor in the communication of diphtheria is the matter of diphtheria carriers. These carriers are of two types. The "convalescent carrier" is the individual who, after having been a clinical diphtheria case, retains in the pharynx, nasopharynx or elsewhere the diphtheria bacillus. The "contact carrier" is the individual who, although immune to diphtheria, after coming in contact with a convalescent carrier or other contact carrier acquires and harbors the diphtheria organisms. The convalescent carrier, from the fact that virulent organisms are harbored, is potentially the source of greater danger of infecting others than the contact carrier who harbors in a high percentage of cases of avirulent diphtheria bacilli. However, from the fact that the clinical carrier was earlier known to be a clinical case and consequently segregated, this type practically is of less danger than the contact carrier who, being unaware of his condition, mingles freely with large numbers of persons.

The frequency of diphtheria carriers among normal healthy persons has been investigated by Goldberger and his associates.¹ Examinations were made on 4,093 healthy persons of diverse ages. Of this number thirty-eight, or 0.928 per cent., were found to be carriers. From an extension of these figures, any city of 800,000 population would contain between 7,000 and 8,000 carriers among its healthy citizens. By the same token the average cantonment containing 40,000 soldiers would have distributed among them, in the absence of a diphtheria epidemic, approximately 400 carriers. However, it may not be accepted that all such carriers are distributors of virulent organisms. Of nineteen carriers detected by Goldberger, only two when examined proved to be of high virulence. The same proportion applied to the average personnel of a cantonment would indicate that only about forty in a camp are the actual disseminators of virulent organisms causing the sporadic cases of diphtheria common to every camp. These figures of Goldberger's are appreciably lower than those obtained by other investigators of the same problem (von Scholly, Moss, Nuttall and Graham Smith).

The frequency of diphtheria carriers among troops in the vicinity of diphtheria patients and caring for them is reported by Labit² of the French army in charge of diphtheria for the "Ninth Region." In this portion of the country prior to the war, diphtheria was always endemic among civilians. On the station-

1. Goldberger, Joseph; Williams, C. L., and Hatchel, F. W.: Bull. 101, Hyg. Lab., U. S. P. H. S., 1915.

2. Labit: Arch. de méd et de pharm. mil., 1917, 67, 779.

ing of troops there, diphtheria early occurred. In 1915, 1,450 cases developed, with twenty-six deaths. This number has been much reduced during the ensuing years. At all times, however, the percentage of carriers in the environment of diphtheria averaged 28.9, and frequently 50. In one isolated hospital unit, concomitant to the occurrence of a single case of clinical diphtheria, nineteen carriers among nurses and attendants developed. The number of carriers became so large and with so great difficulty were freed of their organisms that the physically fit were isolated, but given employment as gardeners and the like.

Obviously no data obtained either from civilian centers or from a few army camps may be accepted as accurately representing conditions generally. It is sufficient to maintain that in every camp a varying percentage of the personnel are diphtheria carriers, some of whom are carriers of virulent organisms. The larger number of sporadic cases of clinical diphtheria originate from contact with these carriers. The detection and isolation of these carriers minimizes diphtheria as a camp disease.

DIPHTHERIA AND DIPHTHERIA CARRIERS AT CAMP SHERMAN

During the period covered by this study (from Jan. 1 to June 1, 1918) approximately 55,000 soldiers have been on duty at Camp Sherman. The largest number present at any one time has been slightly in excess of 40,000. Among the total number there have been detected sixty-three clinical cases of diphtheria. These have been distributed as follows: Forty-six cases occurred in various line organizations; eight developed in patients under treatment in the base hospital, and nine appeared in base hospital attendants. It is noteworthy that no two cases of diphtheria have occurred in any line organization within thirty days of each other, and only in five instances have second cases occurred in the same organization within any time limits.

Upon the detection at divers times of the diphtheria cases that make up this total of sixty-three, procedures hereinafter to be described were carried out which resulted in the recognition of eighty-nine contact carriers. These carriers were detected in organizations as follows: seven were detected in line organizations; forty-three were detected in patients undergoing treatment at the base hospital, and thirty-nine occurred in base hospital attendants. The higher percentage of carriers in base hospital patients and attendants is attributable in part to the greater frequency of exposure to actual cases of diphtheria; but more especially is this due to repeated extensive examinations, as a safeguard against undue exposure of patients. These eighty-nine carriers were detected out of 3,215 exposed individuals examined. The eighty-nine carriers represent 2.76 per cent. of the number examined. These sixty-three convalescent carriers plus the eighty-nine contact carriers form the material on which this report is based.

If the facts are considered that the individuals composing the camp live under crowded conditions, that pass privileges make it possible for these men to visit nearby large cities where diphtheria is at all times present, and that the camp is at all times visited by large numbers of civilian men, women and children, it will be appreciated that the total number of diph-

theria clinical cases that have occurred is small. If corresponding figures emanate from other camps, it is tenable to maintain that diphtheria is not a major camp disease, and that the occurrence of sporadic cases is not a matter of any especial gravity.

PROTECTIVE PROCEDURES AVAILABLE

The technical means at hand for the detection and prophylaxis against diphtheria are matters of such common information that detailed descriptions will be avoided.

1. *The Schick Reaction.*—This is the only ready method for determining whether or not an individual is immune to diphtheria. While not absolutely infallible, as shown by the development of at least one clinical case of diphtheria in this hospital among men having reacted negatively, yet it is of no little value in quickly and comparatively accurately eliminating from contacts those men who are naturally immune and have no need of being rendered passively so.

The technic of the test is as follows:

A solution of diphtheria toxin is prepared for the purpose of such strength that 0.2 c.c. represents one fiftieth of the minimum lethal dose for a 250 gm. guinea-pig. It is essential that this solution be freshly prepared, owing to the fact that it deteriorates rapidly in such dilution, losing its value within twenty-four hours after preparation. This amount, 0.2 c.c., is injected intracutaneously on the flexor surface of the forearm. As a control, 0.2 c.c. of the same strength toxin previously heated to 75 C. for five minutes is injected in like manner about 2 inches below the site of the first injection. It is all important that the injection be made intracutaneously, as otherwise the test is of no value. A good guide for the insertion of the needle into the proper layer of the skin is that one should be able to see the oval opening of the needle through the superficial layers of the epidermis.

The positive reaction represents the action of an irritant toxin on tissue cells that are not protected by antitoxin. It indicates, therefore, an absence of immunity to diphtheria. Within from thirty-six to forty-eight hours the positive reaction consists of a circumscribed area of redness and slight infiltration, which measures from 1 to 2 cm. in diameter. The degree of redness and infiltration varies to a great extent with the relative susceptibility of the individual.

In the negative reaction, the skin at the site of injection of the toxin remains normal, as the result of the protection of the cells by the existing immunity of the individual. The pseudo-reaction consists of red areas at both sites of injection and represents a local anaphylactic response of the tissue cells to the protein substance of the toxin dilution. The same reaction appears in the control consisting of the destroyed toxin as in the unheated or active toxin. This pseudo-reaction in the hands of experienced observers can be definitely differentiated from the positive reaction. It is more often of an urticarial nature, smooth in outline as compared with the irregular redness of the positive reaction, usually considerably smaller, reaching its height more quickly and disappearing more rapidly. The following show either negative or pseudo-reaction: 90 per cent. of adults; from 65 to 85 per cent. of children between 2 and 14 years; 60 per cent. during the first year of life, and from 93 to 90 per cent. of the new-born. The inference is that only 10 per cent. of persons of military age are susceptible to diphtheria.

2. *The Toxin-Antitoxin Reaction.*—The occasions for the expedient employment of diphtheria toxin-

antitoxin mixture as a means of prophylaxis are limited in army camps. Under optimum conditions of camp public health work, it might prove desirable to do Schick tests on the entire personnel of the camp and administer successive doses of diphtheria toxin-antitoxin to all giving positive Schick reactions. In view, however, of the large number of individuals to be so tested and treated, the considerable expense and the time and labor involved, it is to be questioned whether the seriousness of diphtheria as a camp infection warrants the tedious procedure. Since the immunity derived from the administration of toxin-antitoxin mixture is active and permanent and without the same degree of risk of anaphylactic reaction, this form of protection is advantageous when considerable time is available. From four to ten weeks are necessary for the establishment of adequate protection. This fact militates against the use of toxin-antitoxin mixture in the presence of contacts with an actual case. Its expedient use in Army camps is confined to physicians, laboratory workers, nurses and such others as handle continuously diphtheria patients or diphtheria materials, for whom the frequent administration of immunizing doses of antitoxin is undesirable. When employed, this active immunization consists in the administration of a series of three injections given subcutaneously at intervals of from five to seven days. Its use should be confined to such individuals as react positively to the Schick reaction. The mixture consists of a combination of from 85 to 90 per cent. lethal plus dose of toxin to each unit of antitoxin. The quantity injected successively is 1 c.c. Certain investigators advise the simultaneous injection of 1 billion killed diphtheria bacteria.

While diphtheria toxin-antitoxin under certain conditions is a desirable substitute for antitoxin, its use is sharply contraindicated as a treatment for clinical diphtheria; also it is without significant value as a treatment for diphtheria carriers.

3. *Prophylactic Antitoxin*.—The promiscuous use of immunizing doses of antitoxin for all contacts with diphtheria cases without resorting to the use of the Schick reaction is unwarranted. The Schick reaction, rightly administered and rightly interpreted, is an accurate criterion for discriminating between susceptible and nonsusceptible individuals. A decisive negative Schick reaction almost invariably indicates a permanent immunity against diphtheria. Such individuals should not be given diphtheria antitoxin. The practice not only wastes valuable and expensive antitoxin, but also sensitizes unnecessarily a large number of individuals. However, the frequently encountered apprehension lest anaphylaxis occur is for the most part unwarranted. The reaction from an initial administration of antitoxin is rarely severe, and the duration of sensitization is short. Persons known to have received serum of any kind at any prior time may be desensitized through the subcutaneous administration of minute doses (0.25, 0.5 and 1 c.c. doses) at half hour intervals. This procedure, however, is rarely necessary either for immunization or for clinical use of antitoxin when the antitoxin is administered subcutaneously or intramuscularly.

4. *Virulence Tests*.—After the detection of a contact carrier, it is possible, if deemed expedient, to isolate in pure culture the diphtheria bacillus, and

after repeated transplants on specially designed mediums determine the relative toxicity in terms of its action on guinea-pigs. This process will demonstrate that by far the greater number of carriers harbor organisms of scant toxicity. As a routine procedure this is inadvisable, on account of its tediousness and more especially on account of the fact that no evidence is in hand to show that avirulent organisms harbored in one throat may not display higher virulence when acquired in another throat. If virulence tests are carried out, the nonvirulent carriers detected should not be released until free of organisms.

5. *Cultural Methods*.—The swab contact made for the purpose of obtaining cultures should not be confined to the throat, but should include the nasopharynx as well. Cultures made from the nasopharynx plus cultures made from the throat will demonstrate a higher percentage of positive carriers than cultures made from the throat alone. If the number to be examined at any one time is small, separate nasopharynx and throat cultures should be made. However, when it is necessary to examine large numbers of individuals, from the point of view of economy in materials, labor and time, it is more practical to make a combination contact of nasopharynx and throat on one swab. For this purpose the bent wire swab is desirable. Since the diphtheria organism may be harbored deep in the tonsillar crypts after having cleared up on the surface of the tonsil, it is desirable that the swab always be small so as to penetrate more deeply into the tonsillar crypts. Loeffler's medium is the culture medium of choice for routine examination. So also Neisser's method of staining affords a maximum of accuracy in detecting organisms, with a minimum of technical difficulty in preparing the stains and in staining.

6. *General Measures*.—Apart from the specific measures outlined above, much may be accomplished in the way of diphtheria prophylaxis by careful general sanitation relative to such matters as bed spacing, ventilation, drinking water facilities, and the prevention of ordinary sore throats. It is an especial function of the medical officer on duty with troops to give consideration to complaints of sore throats and to see that suspicious throats are brought to the attention of the public health laboratory.

PROTECTIVE PROCEDURES IN FORCE AT CAMP SHERMAN

The measures grouped below obviously cannot be carried out in full for every detected case. They represent the optimum of protection which is approached as completely as the conditions for the several cases permit.

A. *Procedures Adopted in Line Organizations After the Diagnosis of a Case of Diphtheria*.—It is purposed to minimize the danger of spread of contagion and at the same time interfere as little as possible with the organization in the performance of its duties. The latter consideration is a factor that the zealous public health worker is apt to neglect.

1. The detection of one or two cases does not call for a quarantine of the organization (company, battery, troop, detachment, etc.).

2. All known immediate contacts of the patient are segregated at once. No fixed rules can establish who contacts are. Under immediate contacts are included:

(a) Men sleeping on either side and across from the patient. If the patient sleeps in a small room, all occupants are included.

(b) Messmates on either side and opposite to the patient.

(c) Fellow workers who have continually been in close contact with the patient.

(d) Any intimate comrades with whom there has been frequent close contact.

The total number of contacts usually averages from ten to twelve.

3. Schick tests are made on all segregated contacts. Cultures are made both from the nasopharynx and from the tonsillar region of all the segregated men. Masks are worn by all men from the time of their segregation, in order that non-carriers may not be unduly exposed during the period of observation.

4. The following morning the cultures are examined. In the event of the detection of any carriers, they are transferred immediately to the hospital. Their further disposition is considered below. All negatives are released for duty.

5. At the expiration of approximately thirty-six hours, the Schick reactions are observed in these men, and if any are positive, prophylactic doses of antitoxin are administered. Usually not more than one or two give a positive Schick reaction.

6. The medical officers on duty with these troops are instructed to inspect the throats of all men of the organization for suspicious throats during the ensuing ten days.

B. Procedures Adopted in Hospital Wards in Which Cases of Diphtheria Appear, the Patient Being Able to Be Transferred Immediately to the Diphtheria Ward.—More complete methods may be instituted here since the men have no duties to perform; also, more exact methods are desirable from the fact that such men on account of being diseased are probably of lower resistance and more liable to diphtheria infection.

1. The patient is removed from the ward to the diphtheria ward.

2. The ward is not quarantined.

3. The close contacts are noted, and cultures and Schick tests are made.

4. If the ward is not already masked, all patients, orderlies, nurses and ward surgeons are required to wear masks during the period of observation.

5. No patient is transferred from the ward until his culture is reported negative. New patients are masked on admission to the ward.

6. The following morning, cultures are examined. If carriers are detected, these are at once removed from the ward and cultures made of the entire ward for further carriers. Schick tests are carried out on patients in the ward.

7. Prophylactic doses of antitoxin are administered to the small number showing a positive Schick reaction.

C. Procedure in Ward Where Diphtheria Patient Is Too Ill to Be Transferred to Diphtheria Ward.—

1. The entire ward is quarantined. All quarantines for diphtheria are instituted and controlled by the public health laboratory.

2. The patient is placed in a single room in the ward until he is able to be transferred. Cultures and Schick reactions are made of the entire ward.

3. If not already masked, all patients, orderlies, nurses and the ward surgeon are required to be masked.

4. On examination of cultures, any carriers detected are transferred to the diphtheria ward if their condition warrants; otherwise they are placed in cubicles.

5. Repeated examinations are made by cultures at two day intervals.

When the patient's condition warrants, he is removed to the diphtheria ward. After his removal, two negative examinations of the ward are obtained prior to release from quarantine.

D. Procedures Adopted for Diphtheria Suspects Sent to the Hospital for Diagnosis.—

1. All suspects are masked on entering ambulances bringing them to the hospital.

2. Such patients are held in the observation ward in cubicles until a laboratory report can be made.

3. Since the membrane of Vincent's angina simulates in many respects the membrane of diphtheria, a clinical diagnosis of diphtheria, followed by the administration of antitoxin, is not made in the absence of the laboratory diagnosis of diphtheria until smears from the patient's throat are examined for the organisms of Vincent's angina. A diagnosis of Vincent's angina may be made with such facility that no time is lost in the administration of antitoxin in case the condition proves to be diphtheria. It is not unusual to find diphtheria and Vincent's angina coexistent. The demonstration of the organisms of Vincent's angina does not exclude the existence of diphtheria.

4. On laboratory diagnosis, the patient is transferred from the observation ward to the diphtheria ward.

E. Procedures Carried Out in the Diphtheria and Diphtheria Carrier Wards.—

1. These wards are at all times quarantined, masked and cubicled.

2. Diphtheria patients, convalescent carriers and contact carriers should be segregated in distinct groups.

3. As the treatment of clinical diphtheria is a matter of common information, it is not entered into here.

4. The treatment of diphtheria carriers is taken up in a separate section below.

5. Owing to the fact that the larger number of carriers are physically fit, such individuals under supervision are assigned certain outside duties. Masks are worn during this work.

6. Cultures are made at five day intervals on all carriers. These cultures are made from swabs of the nasopharynx and tonsils. Treatment of carriers is discontinued twenty-four hours before cultures are made. Three successive negative cultures form the minimum requisite for release.

7. Two weeks after discharge from the hospital, every carrier is required to report to the outpatient department of the hospital for final culture. A number of carriers discharged after showing three consecutive negatives have shown themselves positive on a final culture made two weeks afterward, necessitating their return to hospital.

TREATMENT OF DIPHTHERIA CARRIERS

It is to be conceded that the treatment of diphtheria carriers is an unsatisfactory chapter in therapeutics. Many substances have been employed and successes reported by various workers, but general corroboration has not established the efficacy of any of these materials.

Treatment by spraying with the staphylococcus or other organisms has been reported by Bell,³ Fay,⁴ Lorenz and Ravenel,⁵ Ravenel,⁶ Rolleston,⁷ Sanford,⁸ Wiemer,⁹ Womer¹⁰ and others.

Roskam¹¹ advocates the use of desiccated diphtheria antitoxin administered by insufflation. The use of diphtheria endotoxin is recommended by Hewlett.¹² Vaccines are reported efficacious by Weil.¹³ Various

3. Bell, A. J.: Arch. Pediat., 1916, **33**, 836.

4. Fay, J.: California State Jour. Med., 1913, **11**, 197.

5. Lorenz, W. F., and Ravenel, M. P.: Wisconsin Med. Jour., 1913, **12**, 35.

6. Ravenel, M. P.: Tr. XV Internat. Cong. Hyg. and Demog., 1913, **4**, 170.

7. Rolleston, J. D.: Brit. Jour. Child. Dis., 1913, **10**, 298.

8. Sanford, A. H.: Med. Rev. of Rev., 1913, **19**, 676.

9. Wiemer, R. G.: New York State Jour. Med., 1913, **13**, 95.

10. Womer, W. A.: Results of Staphylococcus Spray Treatment in Forty-Two Cases of Diphtheria Carriers, THE JOURNAL A. M. A., Dec. 27, 1913, p. 2293.

11. Roskam, J.: Arch. méd. belges, 1917, **70**, 406.

12. Hewlett, R. T.: Am. Med., 1915, **10**, 280.

13. Weil, A. J.: New Orleans Med. and Surg. Jour., 1915, **77**, 432.

other materials, such as kaolin, jasmine oil, Dobell's solution, ferric chlorid, diverse antiseptics and astringents have all been employed without establishing complete evidence as to their efficacy. Tonsillectomy as a therapeutic measure in getting rid of diphtheria organisms has been reported by Ballantyne and Cornell,¹⁴ Friedberg¹⁵ and others.

To us it appears established that the fundamental of carrier treatment is the placing of such carriers in the hands of competent throat specialists. The use of any materials, however efficacious, will not remove the organisms except on the surface of the tonsils and throat. The application of materials is only infrequently made to include the nasopharynx, and even less frequently to penetrate into the crypts of the tonsils, adenoids and perieustachian tissues. The required number of negative cultures may be obtained after the use of many antiseptic materials, only to have the organisms reappear through extension from a retained focus deep in some crypt. Cultures from the interior of excised tonsils of diphtheria carriers repeatedly have exhibited viable diphtheria bacilli when surface cultures indicated an absence of such organisms. Diphtheria carriers should be referred as a routine to a medical officer of the throat department, who will make examinations for and treat any ulcers or crypts in the tonsillar or adenoid tissues. In case the tonsils are badly involved; tonsillectomy is the procedure of choice, and should early be resorted to. When the general pathologic condition of the throat is adequately cared for, the state of being a carrier of diphtheria may be expected to clear up under treatment with various of the above-named methods. In this hospital during the period prior to that covered by this report and during the first month covered by this report, no especial consideration was given to general throat conditions. No masking of patients was done, no outside work or setting-up exercises were given. On admission of carriers to the hospital, a prophylactic dose of antitoxin was administered. The treatment included the use of various astringent applications, gargles of saline and hot Dobell's solution. During this period certain carriers remained in the hospital more than three months, and the average number of days in the hospital was fifty-five for diphtheria cases, in contrast to twenty-three days for the months of February, March, April and May.

Beginning at approximately February 1, an effort was made to standardize the treatment of all diphtheria carriers. The measures noted in Paragraph E of the foregoing section were instituted. The administration of antitoxin to carriers was discontinued as ill advised. Medical treatment then in vogue was discontinued as unsatisfactory. Treatment was especially directed to the elimination of existing open throat lesions. Tonsillectomy was carried out in a number of cases with a quick termination of harboring diphtheria organisms in all cases. In addition, a systematic treatment with chloramin-T (chlorazene) was inaugurated. This use of chlorazene in the treatment of diphtheria carriers was anticipated by Dunham and Dakin¹⁶ without, however, being used in any actual diphtheria carrier cases. Its application, as we have employed it, consists

in the use of an aqueous solution of 0.25 per cent. strength, administered as a gargle three or four times daily. In certain cases, the application was made by throat specialists to insure the reaching of remote points in the nasopharynx. The gargling was followed with an oily spray of dichloramin-T of 2 per cent. strength. It may not be maintained that the chloramin action is exclusively responsible for the appreciable reduction of days in hospital of carriers. This is in part due to the chlorazene-dichloramin-T treatment and in part to the general painstaking systematizing of the entire care of such patients. Through the use of these several described procedures, it has been possible to return the carriers to duty after an average of twenty-three days in hospital. During the month of May our systematizing of treatment made it possible to discharge all diphtheria patients (sixteen in number) after fifteen days in hospital, and all carriers (twenty-nine in number) after sixteen days in hospital.

SUMMARY

1. With reasonable precautions, diphtheria is unlikely to become a serious menace to the health of army camps.

2. During the five months covered by this report, sixty-three cases of clinical diphtheria occurred, with no deaths; 3,215 exposed persons were examined, eighty-nine of whom proved to be carriers; the number of carriers detected is 2.76 per cent. of the number of exposed persons examined.

3. The employment of the system for the care and treatment of diphtheria carriers described in the foregoing has reduced the average stay in hospital for convalescent carriers from fifty-five days in the first month of this report to fifteen days in the last month of the report, with an average for the four months of twenty-three days. The period in hospital for contact carriers has been reduced to sixteen days for the last month of the report, with an average of twenty-three days for four months.

4. The procedures described have greatly facilitated the early return of diphtheria patients and diphtheria carriers to their organization, physically fit for duties and training.

Reaction Following Administration of Neo-Arsphenamin (Neodiarsenol Brand).—A strong married woman, aged 36, weighing 175 pounds, presented herself for treatment for the secondary stage of syphilis with a 100 per cent. Wassermann reaction. During the fifteen months preceding she had received six intravenous injections of the German-made neo-salvarsan without any reaction. One ampule of 0.3 gm. of the neodiarsenol brand of arsphenamin was dissolved in 10 c.c. of distilled water previously boiled and then cooled to body temperature. The solution was cloudier than the imported product. Thirty seconds after the entire dose was given the patient began to gasp for breath and complained of tingling in her fingers and hands. She became almost pulseless, her pupils dilated, and her eyes rolled back as if she were dead. The stimulant closest at hand was aromatic spirit of ammonia, which I placed to her nose. She began to rally after a minute, and then became nauseated but could not vomit. Her head began aching very severely. I gave her a hypodermic strychnin sulphate, $\frac{1}{30}$ grain, for her pulse was still very weak and rapid. This dose was repeated fifteen minutes later. After one and one-half hours she was able to ride home in a car. All symptoms had abated except weakness and the headache, which remained about five or six hours, after which she was perfectly normal.—K. M. RICHARDSON, M.D., Rankin, Ill.

14. Ballantyne, C. C., and Cornell, B. S.: *Brit. Med. Jour.*, 1917, 2, 686.

15. Friedberg, S. A.: Removal of Tonsils and Adenoids in Diphtheria Carriers, *THE JOURNAL A. M. A.*, March 11, 1916, p. 810.

16. Dunham, E. K., and Dakin, H. D.: *Brit. Med. Jour.*, 1917, 1, 865.

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SATURDAY, JULY 27, 1918

THE DECLINING BIRTH RATE AND THE MEDICAL PROFESSION

The appalling losses of human life that all of the nations now at war are experiencing cannot fail to awaken thoughts as to the ultimate effects of these sacrifices on the population of the diverse countries in the decades to come. War almost inevitably leads to a decline in birth rate; but it is by no means the only, if, indeed, it is the foremost factor in the more permanent variations in the increment of a nation's population. Long before the present conflict the situation in France was deemed sufficiently serious, from a national standpoint, to require the appointment of a commission to study the causes of the growing depopulation of a country that once surpassed its rival neighbors in the numbers of its people. Less than a century ago the birth rate for France was 30 per thousand of population. When the present war began it was 18, while the death rate was 19.6, thus exceeding the birth rate.

Decrease in population, or failure to gain in numbers, may obviously be due to high mortality as well as to a declining birth rate. The figures just quoted are not such, however, as exhibit an inroad of pestilence and plague. We must seek the explanation in other factors than an undue increment in deaths. According to a competent American statistician,¹ the birth rate has declined in virtually every country of the civilized world during the past fifty years. The untutored reader may imagine, in view of our large increases in population, that such a statement is not applicable to the United States. But if we may believe the figures presented at the last meeting of the American Association for the Advancement of Science, there has been a marked and continuous reduction in the birth rate of this country for a period of years. According to Wilcox, at the beginning of the century there were 976 children under 5 for every thousand women between the ages of 15 and 44, whereas in 1910 the number was only 508 per thousand women at these child-bearing ages.

From a careful statistical analysis of the best data furnished, namely, those of the state of Massachusetts, it is evident that the decline in birth rate in the United States has been, as elsewhere, selective in character. Dublin¹ finds, first, that there has been a continuous decrease in the birth rate during the last forty years; and, secondly, that this decrease has been most marked in the native stock. In 1910, the native stock had a birth rate of 14.9 per thousand; the foreign-born birth rate was 49.1 per thousand. In the same year the native death rate was 16.3 per thousand, while the foreign death rate was only 15.4. There was thus, according to Dublin, an excess of deaths over births corresponding to a net annual loss of a little more than 0.1 per cent. in the native stock, while there was an annual increase of 3.4 per cent. among the foreign-born population. Hence the conclusion that "the race stock which laid the foundations of our institutions during the critical period of our national existence is, in large areas of the country, no longer maintaining itself, and its place is being taken gradually but surely by foreign races which, as we have seen, are reproducing very rapidly."

The facts, then, indicate that a large part of the native stock of this country is not maintaining itself. It is, of course, a dangerous venture to discriminate between the social strata of our society. American public men have given too many indications of the virility and efficiency of sons of lowly origin to justify any class distinctions. We may hesitate to say, with Dublin, that the best blood of America is being thinned out constantly by the exercise of conscious limitations of birth and is being replaced by a stock of a different order. Who shall be the censor of "good blood" in the commonwealth? We may, however, fairly admit that those families in the population which, by economic and social standards, are best able to bear and rear families, fail to produce the number of offspring necessary to maintain a stable population. To the query as to how many children are to be expected in order that the population may suffer no material change, a tentative answer can be framed. Making allowance for deaths in infancy and childhood, for failures to marry or marriage beyond the reproductive period, and for 7 per cent. of sterile marriages, the average number of children that must be born per family is close to four.

The problem of maintaining larger sized families appeals to the state as a sociological study, as a matter of education in the needs of democratic institutions, and as a possible duty of citizenship. For the medical profession, as such, there is a peculiar concern in the relation of motherhood and its burdens to the questions at issue. It may be that with the growing socialization of medicine, greater provision will be made for the education of women in the significance of family life and the better management of mothers in

1. Dublin, L. I.: The Significance of the Declining Birth Rate, Congressional Record, Jan. 11, 1918.

the critical period of childbearing. Every thing that facilitates motherhood may be expected to become, in the long run, an economic asset to the nation. Says Dublin¹:

The bearing and rearing of children is costly, both in energy and in funds, and must act as a check on personal ambition and on the enjoyment of the freedom and pleasures of social life. A family of four children requires all the attention of the thoughtful and capable woman. Her success as a mother will be at the expense, in the majority of cases, of her achievement in other fields. It is not asking too much that such a woman should be favored with the admiration of the community in which she lives and not, as at present, with its commiseration and pity.

DIET AND TUMOR TISSUE GROWTH

Tumors are masses of growing tissue that develop more or less independently of the organs with which they may be most closely affiliated in topographic anatomy. They have therefore been described as autonomous in the sense that "their growth is self regulated without regard for the laws governing the nutritive condition of the host." This need not imply, however, that tumors in no way depend on their hosts; for obviously the pabulum from which a neoplasm is built up must be furnished to it somehow through the surrounding tissues. Whether the constructive units can in any degree be synthesized anew by the tumor cells, whether these cells have unique constructive powers that put them in a class by themselves, or whether they are dependent like other parasites on their host for the special building stones which in ultimate analysis are provided to an organism through the digestion of its foods, are problems of great importance which have repeatedly been debated of late. The questions have, indeed, been complicated rather than simplified by the growing recognition of the complexity of animal food requirements. They have often been summarized in *THE JOURNAL* so far as the most recent contributions to the science of nutrition justify a definite formulation. Drummond has tersely expressed the requirements in these words: The calorific value of the diet must be sufficient to supply the necessary potential energy. Sufficient nitrogen must be supplied in a form suitable for the building up or repair of tissue. This nitrogen must be supplied in a form which will insure an adequate supply of certain amino-acids which the animal organism is unable to synthesize for its own use. The diet must contain an adequate supply of inorganic salts capable of satisfying the mineral requirements of the animal. Certain substances, probably two in number, the nature of which is at present unknown, but which have been provisionally termed "accessory growth promoting substances," must be present in a sufficient amount.

It is now clearly established, owing especially to the pioneer work of American investigators in this field of research, that shortcomings in any of the items just rehearsed will lead to nutritive disaster of some sort.

How will the tumor cells fare when the supply of the fundamentals of nutrition to the body as a whole is curtailed? Will they, too, experience a retardation of growth? Will they respond to inadequacies of the diet more or less promptly than the other tissues of the host by a cessation or inhibition of development? Will they retrograde? Or will they provide de novo whatever they may need by poaching on the surviving neighborhood cells and fluids? It need scarcely be pointed out that these inquiries are significant, because they might point the way to successful treatment of cancer by dietary management.

In the chemical investigation of tumors there has been detected little that indicates any important deviation of the chemical processes of tumors from those of normal cells of similar origin. This is the conclusion of Wells¹ in the latest review of the subject. Likewise, he adds, the chemical composition of tumor tissue resembles closely, on the whole, the composition of related normal tissues. It is hardly to be imagined that the course of chemical changes is greatly different in tumor cells from that in normal cells, in view of the abundant evidence that the metabolic products of tumor cells are identical with those of the cells from which they arose. Thus, metastatic growths of thyroid tissue will produce thyroiodin in any part of the body, liver carcinoma metastases produce bile, tumors from the choroid or from pigmented moles produce melanin, etc. The capacity of tumor cells to produce complicated products of metabolic action specific for the parent cells from which they arose, as illustrated above, indicates beyond question that the course of their chemical activities is very much like that of normal cells.

There is a widely current opinion, based largely on crude clinical observations, that anything which leads to wasting or malnutrition in the host tends to impede the growth of tumor cells. We have in the past referred to experiments on animals with implanted tumors tending to show a modification of the development of the neoplasms by deficient diets which stunt the hosts. These results have been criticized in the sense that it is unjustifiable to conclude that the apparent inhibition is due to the lack of some specific substance in the ration rather than to general malnutrition. Recently Benedict and Rahe² have investigated the relation of an absence of vitamins in the diet to the neoplasm. They concluded that tumor cells have no power to synthesize these accessory substances when they are absent from the diet of the host; yet, as they noted, a certain amount of tumor growth occurred, presumably at the expense of the tissues of the animal, even during a vitamin-free regimen. In other words, the tumor cells appear to be as dependent on

1. Wells, H. G.: *Chemical Pathology*, Ed. 3, Philadelphia, 1918, p. 492.

2. Benedict, S. R., and Rahe, A. H.: *Jour. Cancer Research*, 1917, 2, 159. Vitamins and Tumor Growth, editorial, *THE JOURNAL A. M. A.*, Nov. 3, 1917, p. 1526.

exogenous supplies of vitamins as are the normal cells of the growing animal.

In an elaborate investigation at the Cancer Hospital Research Institute in London, Drummond³ has given renewed attention to the possible importance of the plane of protein intake of the host, the character and amino-acid content of the protein constituent in its dietary, and the vitamin factors in relation to the growth of implanted tumors. Drummond found that in the event of a deficiency arising in the diet of the host, the tumor, provided it possesses a satisfactory blood supply, will continue to grow, although the host may be quite unable to do so. There is evidence that this proliferation will proceed at the expense of the tissues of the host, until these are no longer able to supply the missing units. When the host is unable to make good the deficiency, by drawing on its own reserves, the rate of tumor proliferation will decrease. There is no evidence that the cells of tumors possess powers of synthetic action which the normal cell of similar type does not possess. With their high growth potential they satisfy their requirement "by enforcing sacrifice of the tissues of the host." Other tissues possessing a high growth or functioning power are known to behave similarly at times; such are the uterus during pregnancy and the mammary gland during lactation. When dietary restrictions necessitate sacrifice, the embryo develops at the cost of other tissues. As Drummond has expressed it, established tumors invariably appear to possess the power of commandeering what part of the food supply of the host they require for their own use. Failing this source of nutrition it is usual to find the tissues of the host sacrificed to no inconsiderable extent in order to provide the requirements of the parasitic cells.

Thus far the dietary investigations have given little hope of alleviating the course of cancer. They are concordant in indicating that only the most drastic dietary restrictions, involving a very serious loss of weight on the part of the host, would have any retarding influence on tumor growth.

YEAST NUTRIENTS IN BREAD MAKING

Two years ago, investigators⁴ at the Mellon Institute for Industrial Research announced that the addition to the ingredients of bread of a small amount of a mixture of calcium chlorid, ammonium sulphate and potassium bromate permits the use of approximately one half as much yeast as would otherwise be needed. They stated further that a goodly amount of sugar and flour was saved from unnecessary destruction by the action of yeast alone. As regards quality, texture, color and "bloom" the bread was regarded as superior.

THE JOURNAL⁵ at that time pointed out the advantage of a large annual saving of yeast and sugar, and also that even the relatively small restoration of mineral salts to a bread prepared from a demineralized patent flour was desirable from a medical point of view.

As soon as the salt mixture came into wide commercial use, however, its employment was attacked because of the alleged introduction in bread of "objectionable mineral ingredients." J. P. Street, chief chemist of the Connecticut Agricultural Experiment Station, therefore investigated the "advantages or disadvantages following the use" of a mineral yeast food.⁶ In a rather exhaustive report of his examinations, Street⁷ apparently demonstrated that the quality of the bread was improved irrespective of the grade of flour employed, and that the bread made with the yeast nutrients did not contain more moisture, as had been charged. Taking up the study of the respective mineral ingredients which composed the yeast food, it became necessary to learn the fate of the mineral salts in the bread and what effect, if any, they had on its wholesomeness. The principal yeast nutrient, calcium sulphate, was found in the finished product in the form of sulphate amounting to 0.135 per cent., or little less than twice the amount present in breads made without the addition of yeast nutrients. Commenting on this phase, Street says that "many of our common foods are deficient in lime, and while the slightly increased content of lime in the yeast nutrient breads has little practical significance, its effects, if any, would be beneficial rather than injurious." In the case of ammonium chlorid, it was found to be mostly utilized by the yeast; the slight amount not so utilized was in a quantity comparable to that present in many of our well known foods. The third active component, potassium bromate, seems, according to the Connecticut investigation, to be converted to potassium bromid in the bread. The amount of bromin—0.58 per hundred thousand parts—present in the form of bromid in bread made by the aid of the mineral salts is ridiculously small, as a large number of common natural food products contain as much or more; hence the physiologic effect is probably nil. As a result of his work, Street agrees with the statements of Winslow and Falk of the Yale Medical School, who state in substance that if the results of this experiment taken as a whole indicate any effect of calcium sulphate, ammonium chlorid and potassium bromid on the digestibility of bread, the effect is a favorable rather than an inhibitory one. "We may safely conclude that the digestibility of bread made with yeast nutrient

3. Drummond, J. C.: A Comparative Study of Tumor and Normal Tissue Growth, *Biochem. Jour.*, 1917, **11**, 325.

4. Kohman, H. A.; Hoffman, Charles; Godfrey, T. M.; Asche, L. H., and Blake, A. E.: On the Use of Certain Yeast Nutriments in Bread Making, *Jour. Indust. and Engin. Chem.*, September, 1916, p. 781.

5. Yeast Nutriments in Bread Making, editorial, *THE JOURNAL A. M. A.*, Sept. 30, 1916, p. 1023.

6. The composition of the patented yeast food is: calcium sulphate, 25; ammonium chlorid, 9.7; potassium bromate, 0.3; sodium chlorid, 25; patent wheat flour, 40.

7. Street, J. P.: Experiments with Bread, *Bull. 200, Conn. Agric. Exper. Sta.*, 1917, p. 113.

salts is not affected by the yeast food used in its manufacture."

From the standpoint of economics, it is interesting to note that in making 1,000 loaves, weighing $1\frac{1}{2}$ pounds each, and using $4\frac{9}{10}$ pounds of the nutrient salt mixture, there was saved $9\frac{1}{2}$ pounds of flour, $4\frac{1}{5}$ pounds of sugar and $5\frac{4}{5}$ pounds of yeast. Considering the millions of loaves made annually, such a conservation, when economy is national policy, is well worthy of careful attention. While the question is primarily an economic one, it has at the same time an indirect interest for the medical profession, since the possibility of harm to health exists. The work so far done does not indicate any probability of physical harm; at the same time it is well to await further developments before reaching any definite conclusion.

PREOPERATIVE PURGATION

The recent communication by Peet¹ in THE JOURNAL, relating to the subject of catharsis before surgical operations, supplements the contentions of Alvarez² of the Hooper Foundation for Medical Research that purgation as a routine preoperative procedure should be abolished. In his studies on the intestine, Alvarez had noted that after vigorous catharsis the isolated musculature is no longer as responsive as normally to stimuli and is fatigued with greater readiness. The bowel as a whole may become unduly filled with gas and fluid, the circulation of the intestine somewhat impaired, and the peristalsis deviated from its usual manifestations. In this way it was believed that much of the gas distention, postoperative ileus, and perhaps the nausea and vomiting may be partially accounted for in patients who have undergone surgical operations.

Peet has accentuated the difficulty thus encountered by asking what is expected to be gained through the preparatory evacuation. We suspect that most surgeons would be compelled to answer this query either by a meaningless platitude or by a confession of ignorance. The evidence for a need of or advantage in the customary "emptying" of the bowel by laxatives is, indeed, not easy to find. Sterilization of the interior of the intestine is out of the question as a practical possibility, and there is little indication that anything seriously toxic is removed by such catharsis. On the other hand, it is not unlikely, in view of these studies, that this procedure, attended by fatigue, and often by loss of sleep, is a positive detriment to the patient and an actual cause of some of the familiar postoperative discomfort, if this mild term sufficiently designates the distress referred to. Peet significantly

comments on the uneventful convalescence of patients after emergency operations for which no preliminary therapy was instituted.

A further item is worthy of consideration in this connection. Catharsis leads to loss of water and intestinal secretion. If this is not compensated there may be distress from this cause. Crile³ has lately remarked, in reference to postoperative feeding, that even at this stage of medical knowledge the supreme value of water is not fully appreciated and its administration is often neglected or mismanaged. How much more serious is this incrimination when preoperative losses are freely induced by purgation. At most, therefore, Peet recommends simple enemas as a means of emptying the bowel before operation. If his contention is correct that, where the more drastic habitual procedure is abandoned, postoperative thirst, nausea and vomiting, abdominal distress and gas pains occur much less frequently, the appeal to abolish something sanctioned by custom deserves to be heeded.

Current Comment

THE SALIVA AND DENTAL DECAY

Decay of the teeth offers a serious problem not only to the dentist but also to the physiologist and pathologist, who are primarily interested in the etiologic factors. The microbiology of the mouth cavity has received special attention since the early days of modern bacteriology. The possible relation of the oral micro-organisms, which include the animal protozoan parasites, intermediate forms, such as spirochetes, and true bacteria, to dental caries has often been suggested without being clearly demonstrated. According to Kligler,⁴ the early stages of caries are characterized by a decided alteration in the relative abundance of types as they occur in deposits on normal teeth. Three forms, the *B. acidophilus*, the *C. placoides* and the *L. buccalis*, are prominent in the carious enamel deposits. In pulp decay an anaerobic, spore-bearing, putrefactive bacillus, *B. putrificus*, is always prominent. The organisms prevalent in primary enamel decay very actively, ferment the common sugars and bring about comparatively great dissolution of powdered tooth. The organisms in deposits on normal teeth and in the later stages of caries exert either slight effects or none at all in these relations. There is, further, the possibility of a systemic factor predisposing to dental caries. This problem has received some attention from Gies⁵ and his collaborators at Columbia University, and they have come to a tentative conclusion: "That the systemic condition of the individual is an important factor in susceptibility to dental caries is a conviction that we cannot dismiss.

1. Peet, M. M.: Rational Preoperative Treatment with Special Reference to Purgation, THE JOURNAL A. M. A., July 20, 1918, p. 175.

2. Alvarez, W. C., and Taylor, F. B.: Changes in Rhythmicity, Irritability and Tone in the Purged Intestine, Jour. Pharmacol. and Exper. Therap., 1917, 10, 365. Alvarez, W. C.: Surg. Gynec. and Obst., 1918, 26, 65.

3. Crile, G. W.: Dietotherapy, edited by W. E. Fitch, 1918, 3, 646.

4. Kligler, I. J.: Chemical Studies of the Relations of Oral Micro-Organisms to Dental Caries, 4, A Biochemical Study and Differentiation of Oral Bacteria, with Special Reference to Dental Caries, Jour. Allied Dental Societies, December, 1915, p. 457.

5. Tr. Dental Soc., State of New York, 1915, p. 161, ff.

Nevertheless, direct external attack upon teeth by micro-organisms appears to be the most important single factor in the carious processes.”⁶ A third possibility in the etiology of dental caries lies in the saliva. This has been the subject of vigorous debate in the past few years. In 1915, Marshall⁷ proposed what he termed a “salivary factor” as an index of immunity from caries. It represented a ratio between the mathematical expression for the total neutralizing power of “normal resting” saliva and normal “activated” saliva—that provoked by special stimulation—in the same individual. Assuming that the saliva is amphoteric, Marshall concluded that for it to be a factor in protecting the teeth it must neutralize either acid or alkaline substances as taken into the mouth, and that it is the degree of this power to maintain a neutrality in the mouth that is indicative of the susceptibility to caries. This hypothesis has been the subject of vigorous differences of opinion.⁸ The tendency has been to discredit the value of any such salivary factor. The most recent investigators⁹ of the problem at the Forsyth Dental Infirmary for Children, Boston, have demonstrated anew that the saliva of persons with teeth immune to decay varies, as does also the saliva of persons with carious teeth; that saliva may neutralize substances taken into the mouth and that the average immune mouth has the greater power of neutralization; but the ratio of resting and activated saliva in immune mouths does not vary enough from that of carious mouths to prove that this ratio is indicative of the production and maintenance of immunity from caries in any individual. Evidently other directions must be sought for new attacks on an ever present problem.

THE INTERMEDIATE HOST OF THE TYPHOID BACILLUS

Last week in *Tonics and Sedatives*—probably where the matter belongs—appeared part of a column of editorial comment called “Today,” written by Arthur Brisbane of the Hearst papers. This column deals with simple and clearly understood matters like government ownership, the proper development of an aeroplane program and the meaning of Prussian peace talk. As a sort of climax were the few paragraphs on the eating of horse meat which the *Tonics and Sedatives* reprinted. After confounding a “scientist,” who was said to have declared that there is no reason for not eating horse meat, by telling him that he was “mistaken,” the omniscient one continues: “The civilized world as a whole opposes the use of horseflesh, and there is usually a substantial reason for a feeling so widespread. The typhoid germ develops in the horse, not elsewhere. Man can get typhoid only from the germ that has lived in the horse’s body.” It is hardly necessary to state that not one of these state-

ments is approximately correct, that no single case of typhoid has ever been traced to infection from the horse, and that there is no evidence whatsoever that the typhoid germ must pass a necessary stage of its development in that animal. The only experiments of which we are aware that bear on this matter are those in which calves were fed large numbers of typhoid bacilli and were entirely unaffected, the bacteria dying out promptly in the alimentary tract of these animals. Reckless misinformation may do harm if confined to unverifiable politics; but if allowed to display itself in the field of natural science, it can only raise ungodly laughter.

UREA CONCENTRATION IN THE TOXEMIAS OF PREGNANCY

It requires more than a slight degree of emboldening confidence to induce even the accomplished investigator to venture into the domain of hypothesis regarding that confusing phenomenon, the toxemia of pregnancy. There is undoubtedly a severe intoxication involved; there is much in the way of chemical evidence as well as symptomatic indications to relate the disorder to a uremia with renal disturbance and impaired excretory functions; and the relief that so often follows removal of the uterine contents strongly suggests the participation of either placenta or fetus or both in the etiology. However, the problem is still in a stage in which more facts, and particularly more accurate as well as new ones, are needed. A contribution in this direction has lately been furnished by Hammett¹ at the Harvard Medical School through the demonstration, in a liberal number of cases, that the placentas from women suffering from a toxemia of pregnancy are generally higher in urea content than are the placentas from women whose course of gestation has been normal. It is unlikely that this represents a purely local accumulation of urea, because the extremely ready diffusion and distribution of urea throughout the body has been clearly demonstrated. The results do argue, however, for a generally increased concentration of urea in the toxemias of pregnancy. It is plain, says Hammett, that they are accompanied by a severe disturbance of nitrogen metabolism, the exact foci of which are yet to be discovered, and which results in an increased urea content of the placenta and in all probability of the body as a whole.

1. Hammett, F. S.: The Urea Content of Placentas from Normal and Toxemic Pregnancies, *Jour. Biol. Chem.*, 1918, **34**, 515.

To Bridge Defects in Nerves.—F. Cahen has had good results from utilizing a sensory nerve to bridge the gap in a nerve. The success was complete in two of four cases in which he thus bridged a 10 or 12 cm. defect in the lower ulnar nerve by severing the cutaneous nerve, opposite the lower stump of the ulnar nerve, and fastening the central end of the cutaneous to this lower stump, and then fastening with a few stitches the central stump of the ulnar to the trunk of the cutaneous. In six months the functions of the ulnar nerve were almost completely restored. He thinks that the results would have been equally brilliant in all the cases if he had been more careful to cut the stumps up into sound tissue. (From summary in the *Correspondenz-Blatt* of his article in the *Zentralblatt für Chirurgie*, 1917, No. 35.)

6. Gies, W. J.: Chemical Studies of the Relations of Oral Micro-Organisms to Dental Caries, 6, *Retrospect and Prospect, Jour. Allied Dental Societies*, December, 1915, p. 464.

7. Marshall, J. A.: The Neutralizing Power of Saliva in Its Relation to Dental Caries, *Am. Jour. Physiol.*, 1915, **36**, 260.

8. Some of these are referred to in the paper by Gies and collaborators: *Jour. Allied Dental Societies*, 1917, **12**, 212.

9. Howe, P. R., and Keniston, M. R.: The Salivary Factor in Relation to Dental Caries, *Am. Jour. Physiol.*, 1918, **46**, 28.

Medical Mobilization and the War

Report on Trench Fever

Dr. Alfred E. Shipley, secretary of the medical advisory committee of the American Red Cross, writes that a cable from Dr. Alexander Lambert gives the following information regarding the trench fever committee: The "trench fever committee headed by Major Richard P. Strong have completed their investigation, and demonstrated beyond facts published in February that trench fever is caused by a resistant filterable virus. Louse can transmit fever by bite alone and also artificially by rubbing into cutaneous abrasions excrement of louse. Virus present not only blood plasma, but also in urine, and sometimes sputum or saliva of trench fever patients. Louse need remain on man but short time and patient come down with disease long after free from lice." The full report will be published later.

Further Facts Regarding the Death of Lieut. A. P. H. Sage

THE JOURNAL published on June 29 a notice of the death of Lieut. A. P. H. Sage, Memphis, Tenn., while on duty with the British field ambulance in France. The *Lancet* for June 29, just received, publishes the death notice of Capt. E. E. Meek, C. A. M. C., and in describing his death states:

"He had been granted transfer to England on account of health and on urgent personal grounds when an incendiary bomb from enemy aircraft struck the hospital building in which he was working. The operating theater was completely demolished and Captain Meek was killed along with Lieut. A. P. H. Sage, M. R. C. (U. S. A.), who was assisting him, as well as the nursing sisters, theater orderlies, and stretcher-bearers. The wreckage burst into flames, but casualties were limited to those caused directly by the bombs."

Women Health Officers for Duty in Munitions Plants

The War Department authorizes the following statement from the Ordnance Department: Women health officers, whose duty will be to see that the thousands of women workers in munitions plants are kept healthy and their output of war materials thus maintained at the peak of production, are to be trained under the direction of the women's division of the industrial service section of the Army Ordnance Department. The work to be done is along entirely new lines. Many of the plants already have physicians and nurses to care for employees when they are ill, but they do not have health experts with a knowledge of the psychology of women workers to do constructive, preventive health work among the women.

Statistics on Medical Teaching and Students

The deans of the well recognized medical schools have been requested to send to the Surgeon-General lists of all teachers appointed in the schools for the session 1918-1919, indicating those considered essential for effective teaching. It is stated that until more definite plans are announced the teachers thus indicated will be included in the reserve list, the members of which, if in the Medical Reserve Corps, will not be called into active service without personal approval by the Personnel Division. Statistics relative to age, degree in medicine, year of graduation, rank in the Army or other government service, are to be furnished. The deans are also instructed to furnish information relative to the number of teachers in each department and the number really considered essential for each department; also a statement of the principles guiding the authorities in their decision as to the choice of essential teachers.

The deans have also been instructed to send to the Surgeon-General's Office before October 30 a list of all students in the schools at that time relative to their status in the Medical Enlisted Reserve Corps or nonenlistment, and whether or not any conditions are standing against individual students. Another report is to be asked for February 10. It is desired not to leave the intellectually incapable or indolent student on inactive status until the end of the school year.

Medical Meetings at Camp MacArthur

Lieut.-Col. A. W. Williams, M. C., U. S. Army, assigned as division surgeon of the Seventh Division at Camp MacArthur, Texas, arranged for a series of medical officers' meetings to be held regularly near the officers' quarters at the base hospital. Programs were constructed that the various medical officers might gain an insight into the medical work of the entire camp. The program for recent meetings has included the following papers: "Tuberculosis Examination Methods in the Army," Major I. S. Kahn, M. R. C.; "War Neuroses," Major Frank E. Leslie, M. R. C.; "Experiences of a Medical Supply Officer in the French Army," Lieutenant Picard; "Abdominal Surgery," Major Howard, M. R. C.; "Demonstration of Bárány Tests for Aviators," Captain Burns, M. R. C.; "Lobar Pneumonia," Lieut. Nathan S. Schiff, M. R. C.; "Medical Treatment of Gastric Ulcer," Major Charles G. Lucas, M. R. C.; "Meningitis," Major Leon S. Medalia, M. R. C.; "Carrel-Dakin Treatment of Wounds," Lieut. Harold B. Markham, M. R. C.; "Gases Used in Warfare and How to Combat Them," Captain Thompson, and "Report of the 1918 Meeting of the American Medical Association," Major Campbell.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES*

From Telegraphic Reports Received in the Office of the
Surgeon-General for the Week Ending July 12, 1918

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):		Last Week
All Troops	992.7	947.6
Divisional Camps	995.0	985.5
Cantonments	1,064.4	926.0
Departmental and Other Troops	966.76	952.5
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:		
All Troops	38.74	37.8
Divisional Camps	41.3	36.5
Cantonments	40.7	37.7
Departmental and Other Troops	37.35	38.9
3. ANNUAL DEATH RATE PER 1,000 (disease only):		
All Troops	3.01	3.19
Divisional Camps	2.64	2.39
Cantonments	3.40	3.87
Departmental and Other Troops	2.50	2.72

*Including Porto Rico.

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending July 12, 1918	Departmental and Other Troops, Week Ending July 12, 1918	Divisional Camps, Week Ending July 12, 1918	Cantonments, Week Ending July 12, 1918	Expeditionary Forces, Week Ending July 4, 1918
Pneumonia.....	6.57	4.8	7.94	7.73	9.02
Dysentery.....	0.73	0.73	1.7	0.34	0.22
Malaria.....	7.3	4.38	13.6	7.22	0.9
Venereal.....	145.09	168.1	105.5	151.68	24.68
Paratyphoid.....	0.03	0.0	0.0	0.08	0.0
Typhoid.....	0.4	0.83	0.19	0.17	0.28
Measles.....	30.22	16.7	39.1	38.77	10.67
Meningitis.....	0.66	0.52	0.19	1.02	0.85
Scarlet fever.....	1.76	1.88	0.56	2.29	2.21

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, and July 13 and 20.

ALABAMA

Anniston—Leyden, H. A.
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King, C. O.
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Lowrey, J. M.
Mason, E. M.
Daleville—Windham, L. A.
Ensley—Gaston, A. L.
Geneva—Vaughan, A. E.
Jasper—Shepherd, R. H.
Lineville—Barfield, J. M.
Lisman—Moore, W. N.
Mobile—Gaines, M. T.
Mount Vernon—Marshall, B. E.
Plantersville—Pickering, A. B.
Prattville—Smith, M. D.
Talledega—Salter, C. L.

ARIZONA

Clifton—McPheeters, E. R.
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Fort Defiance—Monk, J. A.
Globe—Wales, J. L.

ARKANSAS

Arkadelphia—Wallis, C.
Hot Springs—Sanders, T. E.
Melwood—King, J. A.

CALIFORNIA

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Brea—Davis, W. W.
Calexico—Sims, P. N.
Chico—Enloe, N. T.
Dorris—Atkinson, A. A.
Eureka—Chain, J. N.
Pine, J. W.
Fresno—Collins, C. D.
Mitchell, C. O.
Pettis, J. H.
Williams, J. C.
Glendale—Flint, J. L. F.
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Keller, W. F.
Los Angeles—Biggs, E. L.
Cleeves, M.
Hall, E. H.
Hartford, W. S.

Los Angeles—Miller, U. G.
Moore, A. W.
Myers, T. C.
Robinson, T. C.
Ronan, R. R.
Tebbetts, J. H.
Wight, T. H. T.
Monterey—McCauley, M.
Oakland—Koford, H.
Orange—Bradshaw, A. F.
Pomona—Swindt, J. K.
Redlands—Avey, J. L.
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Twitchell, E. W.
San Bernardino—Ham, J. G.
San Francisco—Baronides, R. R.
Hopkins, E. K.
Eaves, J.
Seaforth, E. W.
Seligman, L. L.
Thibodeaux, J. A.
Wilcox, R. W.
San Jose—Atkins, S. M.
Baker, M. D.
Barry, G. L.
Beattie, J. I.
Wisc, P. L.
Santa Ana—Brother, H. N.
Santa Maria—Coblentz, L. B.
Stockton—Hammond, R. R.
Wagner—Graham, L.
Whittier—Miller, B. F.

COLORADO

Boulder—Gillaspie, C.
Canon City—Little, W. T.
Colona—Barclay, H. A.
Colorado Springs—Bortree, L. W.
Denver—Cooper, H. S.
Knoch, N. H.
McCarroll, J.
Philpott, J. A.
Wade, J. H.
Wilcox, H. W.
Pueblo—Woodbridge, J. H.
Seibert—Bensinger, C. H.
Trinidad—Espey, J. G.

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Hartford, Cogswell, E. S.
Purinton, C. O.
Middletown—Melvin, G. M.
New Haven—Blake, E. M.
Sheahan, W. L.

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Quigley, F. L.

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May, H. F.
Mcycr, J.

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Sarma, P. J.
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Shackleton, W. E.
Walk, F. D.
Watterson, W. H.
Wilson, J. W.
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Causey, F. A.
Levitin, E. Z.
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Mueller, A. N.
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Sterling—Van Epps, H. E.
Tuscola—Ingram, G. R.

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Elwood—Shewalter, G. M.
Gary—Schaible, E. L.
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Ohmart, W. A.
Shimp, H. A.
Strickland, C. R.
Walker, H. A.
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Logansport—Holt, E. K.
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Mishawaka—Wyland, B. J.
Muncie—Bowles, H. S.
Muncie—Quick, J. M.
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Knapp, A. L.
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West Baden—Boyd, C. E.
West Newton—McCasky, G. H.
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Dickens—Bruce, J. H.
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Fort Dodge—Mulroney, C. H.
Schultze, A. A.
Fort Madison—Bess, T. F. E.
Granby—Ambrose, E. C.
Granges—Smith, C. G.
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Knoxville—Wright, J. R.
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Lewis—Murphy, W. W.
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Milton—Howe, L. C.
Muscatine—Johnston, W. H.
Pilot Mound—Shane, R. S.
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White, W. M.
Waterloo—Jaynes, E. T.

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Lewis, L. C.
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Topeka—Stewart, R. B.
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Covington—Noble, W. A.
Cynthiana—Wyles, J. P.
Ekron—Stith, S. H.
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Lacenter—Martin, J. W.
Lexington—Mitchell, E. W.
Louisville—Pottinger, S. L.
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Richmond—Williams, D. J.

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Lake Charles—Iles, D. C.
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Bordenave, C. J.
Ruston—Whitc, S. L.

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McKay, R. L.
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Norway—Trufant, L. H.

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Simmons, N. E.
Spaulding, J. D.
Tobey, G. L., Jr.
Vamvas, A. D.
Vose, R. H.
Brookline—Townsend, D.
Chelsea—Gilbert, M. A.
Marnoy, S. L.
Cliftondale—Harris, L. W.
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Foxboro—Bunnell, G. L.
Holbrook—Crawford, F. W.
Holyoke—Hussey, E. J.
Knowlton, E. A.
Lowell—Alling, M. L.
Atkinson, F. C.
Tabor, E. O.
Norwood—Kaufman, M. F.
Somerville—Pillsbury, E. D.
Springfield—Gilchrist, J. M.
Holden, N.
Merritt, R. E.
Schillmander, C. A.
Wellesley—Anthony, G. C. H.
Coleman, D. B.
Stanwood, F. A.
Wiswall, E. H.

West Somerville—Ruston, W. D.
Weymouth—Libby, J. H.
Winchester—Maynard, H. E.
Worcester—Albee, G. M.
Hill, G. H.

MICHIGAN

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Darnall, J. R.
Cadillac—Oden, R. J. E.
Columbiaville—Chapin, C. D.
Detroit—Mayhew, D. P.
McAlpin, A. D.
Ormond, J. K.
Rosen, R.
Schaller, G. J.
Stephenson, F. T. F.
Harbor Springs—Miller, R. R.
Muskegon—Morford, F. N.
Grand Rapids—Peppler, J. F.
Urquhart, R. T.
St. Johns—Buck, R. C.

MINNESOTA

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Atwater—Anderson, L. W.
Blue Earth—Chambers, W. C.
Brainard—Nelson, D. E.
Buhl—Johnson, S. M.
Chatfield—Woodruff, C. W.
Crockston—Daniels, W. H.
Deer Creek—Roskilly, G. C. P.
Ely—Ayres, G. T.
Grand Rapids—Hursh, M. M.
Mankato—Denman, A. V.
Minneapolis—Lynch, M. J.
Mann, A. T.
Nelson, O. E.
Moorhead—Briggs, F. W.
Owatonna—Andrist, J. W.
Pine City—Tofte, A. A.
Red Wing—Smith, M. W.
Spring Valley—Johnson, C. H.
St. Paul—Ball, C. R.
Welch, M. C.
Colvin, A. R.
Maloney, T. J.
Turnacliiff, D. D.
Waseca—Rudolf, A. J.

MISSISSIPPI

Abey Como—Hooper, E. L.
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Brookhaven—Arrington, O. N.
Crystal Springs—Gibson, J. S.
Greenville—Montgomery, D. C.
Hattiesburg—Champenois, F.
Jackson—Plunkett, B. J.
Lambert—Crothers, V. M.
Leland—Gauden, H. D.
Meridian—Bailey, J. T.
Bourdeaux, T. D.
Houston, T. J.
Salem—Rudd, W. E.

MISSOURI

Ashley—Hereford, R. G.
Barry—Alton, G. P.
Bevier—Gronoway, T. P.
Blackwater—Abney, W. L.
Buffalo—Hudson, F. A.
Bunker—Simmons, C. C.
Carterville—O'Kelley, F. M.
Clinton—Beaty, J. G.
Flat River—Cecil, G. E.
Fulton—McCubbin, J. B.
Grand Pass—Coon, E. H.
Hannibal—O'Keefe, C. D.
Hopkins—Maxwell, H. S.
Independence—Twyman, G. T.
Joplin—Chenoweth, J. A.
Kansas City—Cantrell, C. D.
Counsell, C. M.
Lichtenberg, J. S.
Owens, J. L.
Rhodes, C. C.
Roberts, J. L.
Ruhl, I. E.
Van Eman, F. T.
Wehr, C. W.
Weinberg, A.
King City—Blacklock, D. E.
Kirkwood—Werth, D. S.
Linn Creek—Moulder, J. D.
Nelson—Thompson, J. E.
Oakridge—Statler, W. K.
Odessa—Moennighoff, F. J.
Orrick—Kirkham, A.
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Sedalia—Ferguson, W. J.
Springfield—Bradley, E. H.
James, E. F.
St. Joseph—Timmerman, A. R.
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Esselbruegge, F. C.
Gorin, M. G.
Hale, T. H.
Haynes, F. W.
Jacobi, F. E.
Kring, E. V.
Lund, H. G.
Missimore, L. E.
Pfeffer, F. J.
Rassieur, L.
Schuck, A.

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Upshaw, O. T.
Whitaker, G. W.
Wiesner, B. J.
Wobus, R. E.
Sturgeon—McComas, A. R.
Tarkio—Benham, C. E.

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Crow Agency—Townsend, B. I.
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Washu—Beltzer, C. E.

NEBRASKA

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Carleton—Westerhoff, J. G. W.
Fairmount—Ashby, A. A.
Fremont—Buchanan, A. E.
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Haigler—Doods, R.
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Hamil, E. B.
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Haney, W. P.
Keugle, F. H.
Porter, E. R.
Rising City—Vanderhoff, T. J.
Swanton—White, H. E.
Upland—Devers, W. I.

NEVADA

Tonopah—Cunningham, J. R.

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Hoboken—Arlitz, W. J.
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Newark—Harden, A. S.
Markens, E. W.
Preston, P. B.
Quinby, W. O'G.
Sutphen, C. E.
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McDede, F. F.
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O'Gorman, F. M.
Sharp, E. A.
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Cartwright, H. T.
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Marvcl, N. C.
McTague, W. F.
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Shapiro, S.

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Sperry, H. E.

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Reed, R. W.
Schell, H. F.
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Savage, H. J.
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Meek, G. T.
Steinfeld, A. M.
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Courtright, L. T.
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Marion—Sawyer, C. W.
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Humphreys—Lowe, J. T.
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Kinta—Johnson, E.
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Williams, C. O.
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Norman—Ellison, G.
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Bradley, H. C.
Fields, C. H.
Pine, J. S.
Postelle, J. M.
White, A. W.

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Pauls Valley—Shannon, J. B.
Pawnee—Weller, R. E.
Pond Creek—Enos, L.
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Quinlan—Eilers, P. G.
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Sand Springs—Calhoun, C. E.
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Wetzel, G. H.
Shattuck—Newman, O. C.
Rollo, J. W.
Stilwell—Walters, C. A.
Strong City—Russell, B. W.
Sulphur—Davis, P. R.
Supply—Westfall, G. A.
Tulsa—Green, R. R.
Wayne—Dawson, O. O.
Waynoka—Gregg, O. R.
Wirt—Davis, P. R.
Woodward—Davis, C. E.
Yale—Stuck, L. A.

OREGON

Cloverdale—Shearer, J. B.
Portland—Johnston, W.

PENNSYLVANIA

Allentown—Sharp, J. C.
Aspinwall—Ross, W. G.
Avoca—Druffner, L. C.
Bernville—Schloppich, C. E.
Chambersburg—Maclay, J. P.
Easton—Coleman, W. L.
Glenside—Bibighaus, J. R.
Hellam—Horn, J. W., Jr.
Hulmeville—Paxson, R. R.
Jeanette—Miller, W. W.
Watson, J. H.
Lancaster—Kinzer, H. C.
Lock No. 4—Sickman, A. S.
Mahanoy City—Hensyl, G. S.
Mapleton Depot—Campbell, M. D.
McKeesport—Steele, T. A.
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Johnson, W. C.
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Glynn, W. H.
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Mitchell, J. W.
Owens, J. R.
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Sayre—McNamara, J. J.
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St. Peters—Smith, H. T.
St. Petersburg—Wood, A. J.
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Sunbury—Cooper, E. B.
Telford—Paulus, C. A.
Warren—Schuler, F. G.
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Perry, E. H.
West Philadelphia—Humphreys, F. R.
Whiteley—Core, A. R.
Wilkes Barre—Fox, C. C.
Wivell, R. F.
Wyomissing—Lerch, C. E.

RHODE ISLAND

Providence—Hawkes, C. E.

SOUTH CAROLINA

Chester—Abell, R. E.
Malone, H. B.
Greenville—Brown, A. S.
Lancaster—Brown, R. C.
Poovey, G. W.
Rock Hill—Bigger, D. A.
Spartanburg—Wilson, G. D.
Starr—Land, J. N.
St. George—Behling, A. S.
Sumter—Littlejohn, T. R.
Weinberg, M.
Union—McElroy, A. P.

SOUTH DAKOTA

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Whiteside, J. D.
Canton—Parke, L. L.
Frankfort—Gueffroy, H. A.
Kimball—Stewart, F. H.
Mitchell—Bobb, B. A.
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Putnam, F. I.
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Riceville—Cannon, M. E.
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Watanga—Wallace, J. W.

TEXAS

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Canadian—Synder, E. H.
Croshton—Cagle, T. J.
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Kingsbury, H. B.
Terrell, T. C.
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Morris, R. T.
Parker, G. D.
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Stokes, M. B.
Lampasas—Landrum, M. M.
LaPorte—Griffith, C. W.
Pecos—Camp, J.
Port Arthur—Autrey, A. R.
Rockdale—Sessions, I. P.
Rosenberg—Balke, J. W.
San Antonio—Johnston, L. S.
Sykes, E. M.
Taylor, C. W.
Shallowater—Bounds, R. W.
Strawn—Pedigo, W. S.
Texarkana—Smith, J. K.
Thorndale—Lawrence, E. L.
Village Mills—Anderson, W. W.
Waxahachie—Tenery, W. C.

UTAH

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Pace, G. H.
Pugh, W.

VERMONT

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Burlington—Perkins, C. N.
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Waitefield—Howard, W. J.
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Temperanceville—Nevitte, R. R.

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Yost, G.
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Madison—Hodges, P. C.
Taylor, F. B.

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Milwaukee—Durner, U. J.
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Mount Horeb—Ishmael, O. E.
Nazianz—Minahan, J. J.
Oshkosh—Brockway, F.

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Rome—Parker, T. G.
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Buffalo—Conyers, C. A.
Hynds, J.
Powell—Lewellen, J. D.
Sheridan—Steffen, W. A.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

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San Francisco—Visalli, J.
Winnard, W.

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South Norwalk—West, H. B.
Stamford—Wood, C. L.

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Welch, P. B.

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Kuebler, L. W.
Markleville—Williams, F. M.
Pendleton—Smith, C. E.

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St. Paul—Schier, A. R.

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Walker, J. O.

Moberly—Simmons, R. R.
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MONTANA

Helena—Worth, C.

NEBRASKA

Doniphan—Wagoner, L.

NEW HAMPSHIRE

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NEW YORK

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Vorhaus, M. G.
Whisman, H. S.
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West Chazy—Stiles, H. R.

NORTH CAROLINA

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OHIO

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Athens—Goldsberry, B. R.
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Portland—Smalley, R. B.
Strong, H. L.
Warner, D. H.
White, R. F.
Young, R. G.

PENNSYLVANIA

Condersport—Smith, J. H.
Halifax—Smith, F. C.
Philadelphia—Goldburgh, H. L.
Miller, H. M.
Sangmeister, H. J.
Talley, J. E.
Pittsburgh—Callmon, V. B.
Weber, J. J.

RHODE ISLAND

Providence—Matteson, G. A.
Porter, L. B.
Van Benschoten, G. W.
Westcott, C. S.
Wing, E. S.

SOUTH CAROLINA

Woodruff—Woodruff, P. E.

TENNESSEE

Knoxville—Young, F. L.

TEXAS

Cumby—Ward, E.

VIRGINIA

Charlottesville—Waddell, W. W.
Norfolk—Whitlock, S. B.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Jackson, Columbia, S. C., base hospital, Capt. BERTRAM E. MARSHALL, Mt. Vernon.
To Camp Travis, Fort Sam Houston, Texas, base hospital, from New York City, Lieut. EUGENE THAMES, Mobile.
To Camp Wadsworth, Spartansburg, S. C., base hospital, Capt. WILLIAM L. THORNTON, Birmingham.
To Fort Ogelthorpe for instruction, Capt. CHARLES W. HILLIARD, Dothan; MARION T. GAIENS, Mobile; Lieuts. MAURICE H. COHN, Birmingham; THOMAS W. RHOADES, Shoals.
To New Haven, Conn., for duty, from Camp Colt, Lieut. ALBERT D. McFADDEN, Auton.

Arizona

To Camp Cody, Deming, N. M., base hospital, Lieut. GEORGE F. MANNING, Flagstaff.
To Fort Riley, for instruction, Capt. JOHN LER. WALES, Globe.

Arkansas

To Camp Beauregard, Alexandria, La., base hospital, Lieut. HARRY W. BROWNING, Little Rock.
To Fort Ogelthorpe for instruction, Lieut. JACK S. STELL, Fordyce.
To Fort Riley for instruction, Capt. LOENCE J. KOSMINSKY, Texarkana.

California

To Berkeley, Calif., University of California, for duty, Capt. ROBERT T. LEGGE, Berkeley.
To Camp Beauregard, Alexandria, La., base hospital, Capt. THOMAS C. MYERS, Los Angeles.
To Camp Cody, Deming, N. M., base hospital, Lieut. JOHN M. CHAIN, Eureka.
To Fort Riley for instruction, Capt. RAPHAEL MOTHERAL, Hanford; CHARLES H. BENZINGER, Moneta; SAMUEL A. SWENSON, Oakland; Lieuts. IVAN W. KETHH, Beaumont; MYER J. WHARHAFTIG, Folsom; CHARLES W. HARRISON, Loma Linda; WEBSTER F. KELLER, Long Beach; WALTER F. KITTLE, CLARENCE MELLMAN, Los Angeles; CLARK D. FANTON, Riverside; GEORGE L. BARRY, San Jose.
To Mineola, L. I., N. Y., for duty, from San Antonio, Capt. FREDERICK A. BONTIUS, Los Angeles.
To report by wire to the commanding general, Western Department, for assignment to duty, Major HARRY M. SHERMAN, San Francisco; Lieuts. ELMER E. MARTIN, Gridley; FITCH C. E. MATTISON, Pasadena; JOHN T. O'BRIEN, Petaluma; THOMAS E. HUNT, San Francisco.

To Rockefeller Institute for instruction in laboratory work, and on completion to *Army Medical School*, for duty, Lieut. THOMAS L. ROGERS, Long Beach.

To San Francisco, Calif., for instruction, and on completion to *Camp Fremont*, Palo Alto, Calif., base hospital, Capt. GEORGE A. LAUBER-SHEIMER, Los Angeles; HARRY F. MARKOLF, Pasadena; Lieuts. SANFORD W. CARTWRIGHT, Ceres. On completion to *Camp Kearney*, Linda Vista, Calif., base hospital, Capt. CHARLES D. R. GLEASON, San Francisco. On completion to *Camp Lewis*, American Lake, Wash., base hospital, Capt. CLARENCE W. COOK, ULYSSES C. MILLER, Los Angeles; ROBERT R. HAMMOND, Lieuts. LLEWELLYN R. JOHNSON, HARMON E. PRICE, Stockton. *To Letterman General Hospital*, for temporary duty, Lieut. DEWEY R. POWELL, Stockton.

Resignation of Lieut. WARREN W. STRANGE, Sacramento, accepted. The following order has been revoked: *To Fort McPherson, Ga.*, Major HARRY T. SUMMERSGILL, San Francisco.

Canal Zone

To Fort Ogelthorpe for instruction, Lieut. MORRIS JOSEPH, Santa Tomas, Panama.
To report to commanding general, Panama Canal Department, Lieut. LEVIN W. G. ORTON, Ancon.

Colorado

To Biltmore, N. C., for temporary duty, from Denver, Capt. SAMUEL F. JONES, Denver.
To Camp Crane, Allentown, Pa., for duty, from Camp Cody, Major CHARLES F. STOUGH, Colorado Springs.
To Camp Dodge, Des Moines, Iowa, as orthopedic surgeon, from Fort Riley, Lieut. WILLIAM H. HALLEY, Pueblo.
To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. ELWYN R. CLARKE, Fort Morgan.
To Camp Sevier, Greenville, S. C., base hospital, Capt. CHARLES S. MORRISON, Colorado Springs.
To Fort Ogelthorpe for instruction, Lieut. REUBEN SCHACHET, Denver.
To Fort Riley for instruction, Capt. JAMES M. BRADEN, Lafayette; Lieuts. WALTER J. LEROSIGNOL, Rifle; BEN B. BESHOR, Trinidad.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Mineola, Lieut. JOSEPH B. SALBERG, Boulder.

To Plattsburg Barracks, N. Y., for duty, from Camp Bowie, Major FRANCIS M. McNAUGHT, Denver.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. JOHN A. DUNWOODY, Cripple Creek; Lieut. WILLIAM V. WATSON, Plateau City.

Connecticut

To Camp Devens, Ayer, Mass., for duty, from Camp Grant, Lieut. BURTON E. LOVESEY, New Haven.

To Camp Logan, Houston, Texas, for duty, from Camp Sevier, Capt. WILLIAM H. GRAY, Mystic.

To Fort Ogelthorpe for instruction, Capt. BARTHOLOMEW F. DONOHUE, Forestville; JAMES F. ROONEY, Hartford; Lieuts. LEWIS G. BEARDSLEY, Bridgeport; JOSEPH M. HEFFERMAN, Danbury; ROBERT V. BOYCE, WILLIAM P. DALY, Hartford; WILLIAM M. JOYCE, Middletown; LUCIAN A. GERACI, New Haven; VOYLE A. PAUL, Stamford.

To Jefferson Barracks, Mo., with the board examining the troops for cardiovascular diseases, from Camp Beauregard, Lieut. FRED M. SMITH, Willimantic.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Lieut. EDMUND J. O'SHAUGHNESSY, New Canan.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Beauregard, Alexandria, La., for duty, from Fort Sill, Major WILLIAM S. LAWRENCE.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Ogelthorpe, Lieut. WILLIAM B. FOSTER, JR.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Riley, Major EDWARD A. COATES.

To Fort Leavenworth, Kans., for duty, Major WILFRED E. CHAMBERS.

To Fort Ogelthorpe for duty, from Hoboken, Col. HENRY H. RUTHERFORD.

To Williamsbridge, N. Y.; *Camp Merritt, N. J.*; *Fox Hills, N. Y.*, and *Hoboken, N. J.*, for conference, and on completion to his proper station, Lieut.-Col. ALLEN B. KAVANAL.

The following order has been revoked: *To Camp Cody*, Deming, N. M., as assistant to camp surgeon, Major ROBERT E. PARRISH.

To *Vancouver Barracks, Wash.*, for duty, from New Haven, Capt. HAROLD S. ARNOLD, New Haven.

The following order has been revoked: To *New Haven, Conn.*, for duty, from Newport News, Lieut. SAMUEL H. BRAUDE, New Haven.

Delaware

To *Fort Oglethorpe* for instruction, Lieuts. ARTHUR K. LOTZ, SIGMUND B. PAWLIKOWSKI, Wilmington.

District of Columbia

To *Camp A. A. Humphreys, Accotink, Va.*, for duty, from Fort Oglethorpe, Capt. CHAUNCEY L. BARBER, Washington.

To *Camp Jackson, Columbia, S. C.*, base hospital, Lieut. SIMON R. KARPELES, Washington.

To *Fort Oglethorpe* for instruction, Capt. FRANK A. HORNADAY, Washington.

To *Walter Reed General Hospital, Takoma Park, D. C.*, for duty, Lieut. WILLIAM J. G. THOMAS, Washington.

Florida

To *Camp Beauregard, Alexandria, La.*, for duty, from Fort Oglethorpe, Lieut. JOHN C. VINSON, Tampa.

To *Fort Oglethorpe* for instruction, Lieuts. LUTHER W. HOLLO-WAY, Carrabella; BENJAMIN L. PADGETT, Hastings; ROBERT D. MAY, Jacksonville.

Georgia

To *Camp Beauregard, Alexandria, La.*, base hospital, Capt. HERMAN W. HESSE, Savannah. For duty, from Fort Oglethorpe, Lieut. HOMER L. REDD, Atlanta.

To *Camp Gordon, Atlanta, Ga.*, for duty, from Camp Meade, Capt. WALPOLE C. BREWER, Atlanta.

To *Camp Hancock, Augusta, Ga.*, base hospital, from Fort Oglethorpe, Lieut. FRANCIS C. NESBIT, Waycross.

To *Fort Oglethorpe* for instruction, Capt. WILLIAM L. COOKE, Columbus; Lieuts. THOMAS B. ARMSTRONG, Atlanta; FRANK E. DAVES, Blue Ridge; WILLIAM G. WILLIAMS, Jr., Cochran; JAMES H. CARR, Tunnel Hill.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Upton, L. I., N. Y.*, base hospital, Lieut. JAMES R. McCORD, Atlanta. On completion to his proper station, from Camp Upton, Lieut. THOMAS B. KING, Sandersville.

Idaho

To *Camp Lewis, American Lake, Wash.*, base hospital, Capt. WILLIAM S. TITUS, Boise.

To *Fort Riley* for instruction, Lieut. JOHN H. CROMWELL, Gooding.

Illinois

To *Camp Devens, Ayer, Mass.*, for duty, from Camp Grant, Capt. ROBERT S. GREGG, Lieut. JOHN M. BERGER, Chicago.

To *Camp Dodge, Des Moines, Iowa*, base hospital, Lieut. DAVID O. MEADE, Pinkneyville.

To *Camp Gordon, Atlanta, Ga.*, for duty, from Camp Hancock, Capt. GRANT J. GRAY, Chicago; from Fort Oglethorpe, Lieuts. VIRGIL D. GREER, CONSTANTINE J. KOURSOUIMIS, JACOB MEYER, Chicago.

To *Camp Grant, Rockford, Ill.*, base hospital, Lieuts. LAVERN C. BASSETT, Furina; GEORGE H. STACY, Jacksonville; CONRAD G. APPELLE, Thompson. For duty, from Fort Riley, Lieuts. INGEBRECHT JERDEE, HARRY LEWIN, Chicago; from Walter Reed General Hospital, Lieut. EDWARD J. STRICKLER, Chicago.

To *Camp Hancock, Augusta, Ga.*, base hospital, Capt. JAMES W. BARROW, Carbondale.

To *Camp Logan, Houston, Texas*, for duty, from Camp Greene, Lieut. JOHN J. WILKINSON, Springfield.

To *Camp McClellan, Anniston, Ala.*, base hospital, Lieut. WILLIAM H. WEIRICH, Marseilles.

To *Camp Sevier, Greenville, S. C.*, for duty, from Camp Beauregard, Major WILLIAM R. CUBBINS, Chicago.

To *Camp Sheridan, Montgomery, Ala.*, as assistant to camp surgeon, from Fort Oglethorpe, Capt. JOHN E. WALTON, Medora.

To *Camp Zachary Taylor, Louisville, Ky.*, base hospital, Capt. LOUIS L. FRISQUE, NORMAN KERR, Chicago. For duty, from Fort Oglethorpe, Capt. WALTER WALDEN, East Moline.

To *Fort Des Moines, Iowa*, base hospital, from Camp Zachary Taylor, Lieut. RALPH W. CARPENTER, Chicago.

To *Fort McPherson, Ga.*, for duty, from Camp Grant, Major ASHLEY S. MORRILL, Chicago.

To *Fort Oglethorpe*, base hospital, Lieut. JOHN H. MOORE, Chicago. For duty, Capt. JOSEPH M. BLUM, Chicago. For instruction, Lieuts. HENRY J. MCCOY, Amboy; SAMUEL AXELRAD, FRANK L. FORTELA, CLAUDE E. HALE, WILLIAM S. HOWARD, JAY G. JONES, HENRY F. MAY, JOHN T. O'CONNELL, Jr., CARL W. RASMUSSEN, STEPHEN A. SCHUSTER, GEORGE M. SEGAL, HENRY SHACOFF, CLARENCE E. SIDWELL, FREDERICK D. WALK, Chicago; SCOTT GOMIN, Colfax; WILLIAM V. CLARK, Curran; THOMAS C. MCCLURE, Dahlgren; MYRON C. SHENK, Rushville; CHARLES HIBBE, Springfield; ROSCOE L. BARLOW, Walshville; from duty as a private, Lieut. HARRY O. POPE, Latham.

To *Fort Sam Houston, Texas*, for duty, from Camp Grant, Major EGBERT W. FELL, Elgin; from Camp Travis, Major PATRICINNE J. H. FARRELL, Chicago.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. WALTER E. KELLY, GEORGE F. YATES, Chicago; RALPH B. SCOTT, Venice; RICHARD HERRICK, Wyand.

To *Washington, D. C.*, for duty in the Surgeon-General's Office, from Camp Wheeler, Capt. JAMES A. BRITTON, Chicago.

To *West Point, Miss.*, Signal Corps Aviation School, as flight surgeon, from Mineola, Capt. DAVID R. SCOTT, Macomb.

To *Williamsbridge, N. Y.*, for duty, from Fort Oglethorpe, Capt. CHARLES R. SANDERSON, Blooming.

Honorably discharged, Major ARTHUR F. WILHELMY, Decatur. On account of physical disability existing prior to entrance into the service, Lieut. JAMES T. BREAKEY, Mason.

The following order has been revoked: To *Fort Oglethorpe* for instruction, Lieut. PAUL M. HUNTER, Chicago.

Indiana

To *Camp A. A. Humphreys, Accotink, Va.*, for duty, from Fort Oglethorpe, Capt. FLAVIUS J. BECK, Hartsville.

To *Camp Custer, Battle Creek, Mich.*, base hospital, Lieut. CHARLES A. SELLERS, Hartford City.

To *Camp Dodge, Des Moines, Iowa*, base hospital, Capt. EMIL T. DIPPELL, Huntington.

To *Camp Gordon, Atlanta, Ga.*, for duty, Lieut. G. H. PARMENTER, Stewartsville; from Fort Oglethorpe, Lieut. ELI LEVIN, Indiana Harbor.

To *Camp Greene, Charlotte, N. C.*, base hospital, Capt. HUGH J. WHITE, Hammond.

To *Camp Hancock, Augusta, Ga.*, base hospital, Lieut. LUCIAN W. SMITH, Warren.

To *Camp Sevier, Greenville, S. C.*, base hospital, Capt. FRANK A. TABOR, Terre Haute; Lieut. EMIL G. WINTER, Indianapolis.

To *Camp Shelby, Hattiesburg, Miss.*, base hospital, Lieut. CARL V. DAVISSON, West Lafayette.

To *Camp Travis, Fort Sam Houston, Texas*, as orthopedic surgeon, from Fort Oglethorpe, Lieut. JACOB ADER, Danville.

To *Camp Wadsworth, Spartanburg, S. C.*, base hospital, Lieut. CHARLES H. BRUNER, Greenfield.

To *Camp Wheeler, Macon, Ga.*, base hospital, Lieut. HARRY J. LAWS, Lafayette.

To *Fort Benjamin Harrison* for duty, Lieut. THOMAS L. SULLIVAN, Indianapolis.

To *Fort McPherson, Ga.*, for temporary duty, Capt. HEILMAN C. WADSWORTH, Washington.

To *Fort Oglethorpe* for instruction, Capt. STEPHEN L. EGART, Indianapolis; ALLEN L. BRAMKAMP, Richmond; Lieuts. THEODORE S. SCHILT, Bremen; FRANCIS H. FOX, Hammond; ROY L. SMITH, Indianapolis; SOLOMON G. SMELZER, Richmond; GEORGE W. SMALL, Veedersburg; ARTHUR J. BAUER, Lafayette.

Iowa

To *Camp Beauregard, Alexandria, La.*, for duty, from Fort Oglethorpe, Lieut. ARTHUR J. ROSS, Perry.

To *Camp Bowie, Fort Worth, Texas*, base hospital, from duty as a private, Lieut. HARRY H. DILLEY, Des Moines.

To *Camp Cody, Deming, N. M.*, base hospital, Capt. EDWARD L. ROHLF, Waterloo.

To *Camp Custer, Battle Creek, Mich.*, base hospital, Lieut. CHARLES H. MULRONEY, Camp Dodge.

To *Camp Devens, Ayer, Mass.*, for duty, from Camp Custer, Capt. EDWARD S. PARKER, Ida Grove.

To *Camp Gordon, Atlanta, Ga.*, for duty, from Fort Oglethorpe, Lieut. ISAAC H. ODELL, Des Moines.

To *Camp Grant, Rockford, Ill.*, base hospital, Capt. ISAAC E. NERVIG, Sioux City. For duty, from Fort Riley, Lieut. JOHN T. HANNA, Kellogg.

To *Camp Zachary Taylor, Louisville, Ky.*, base hospital, Lieut. JAMES S. COOPER, Burlington; ALBERT E. ACHER, Fort Dodge.

To *Fort McPherson, Ga.*, for duty, from Camp Cody, Lieut. GUS. B. YOUNG, Des Moines; from Camp Dodge, Lieut. JAMES A. PORTER, Hedrick; from Camp Greene, Lieut. ARTHUR E. SHAPPELL, Knoxville; from Camp Lewis, Capt. CARL J. SNITKAY, Belle Plaine.

To *Fort Riley* for instruction, Capt. ROY MOON, Glenwood; JOHN E. BRINKMAN, Waterloo; Lieuts. EDWIN C. YODER, Iowa City; HOWARD L. SIEG, Marshalltown; ROYDON B. YODER, Northwood; MALCOLM D. WINTER, Truro; WELLWOOD M. NESBIT, Waterloo; PAUL G. INGHAM, Whiting.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. EDWARD A. COUPER, Britt.

To *Morrison, Va.*, for duty, from Fort Oglethorpe, Lieut. GEORGE A. BEMIS, Garner.

To *Rockefeller Institute* for instruction in laboratory work, and on completion to *Army Medical School*, for duty, Lieut. SIDNEY J. JONES, Fort Dodge.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. WALTER G. FINLEY, Mondamin.

Kansas

To *Camp Cody, Deming, N. M.*, as assistant to camp surgeon, from Fort Riley, Lieut. ALVAN M. FORTNEY, De Soto. Base hospital, Capt. WILLIAM A. NIXON, Great Bend.

To *Camp Grant, Rockford, Ill.*, for duty, from Fort Riley, Lieuts. WALTER C. KELLER, Athol; CARL C. CULVER, Burlington; GORDON W. HIGGINBOTHAM, Wichita.

To *Fort Oglethorpe* for instruction, Capt. JOHN W. FAUST, Kansas City.

To *Fort Riley* for instruction, Capt. HARRY L. COBEAN, Wellington; Lieuts. ROY M. EDMISTON, Americus; EVERETT W. JOHNSON, Coffeyville; JOHN E. CASTLES, Lawrence; RAYMOND W. SWINNEY, Rosedale; ARTHUR H. HAYNES, Sabetha; JOHN W. NEPTUNE, Salina.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. WILLIAM H. GREIDER, Topeka.

Kentucky

To *Camp A. A. Humphreys, Accotink, Va.*, for duty, from Fort Oglethorpe, Capt. EDWARD C. BARLOW, Georgetown.

To *Camp Gordon, Atlanta, Ga.*, for duty, from Fort Oglethorpe, Capt. JAMES B. SMITH, McKinney.

To *Camp Grant, Rockford, Ill.*, for duty, from Fort Riley, Lieut. CLIVE A. MOSS, Williamsburg.

To *Fort Leavenworth, Kan.*, for duty, Lieuts. WALLER C. COMBS, Kirksville; GROVER S. BRZOSOWSKY, Louisville.

To *Fort Oglethorpe* for instruction, Lieuts. GEORGE W. BOOHER, Berry; WALTER F. McCROCKLIN, Louisville.

To *Fort Riley* for instruction, Capt. JOSEPH M. O'MALLEY, Covington.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. CLARENCE WOODBURN, Central City; WILLIAM A. MCKENNEY, Falmouth; JOHN M. ALEXANDER, Fulton; JAMES McC. HUBBARD, Hickman; THOMAS L. PHILLIPS, Kuttawa.

Louisiana

To *Camp Beauregard, Alexandria, La.*, base hospital, Capt. MAURICE J. COURET, WILLIAM W. LEAKE, New Orleans; Lieuts. AMABLE A. COMEAUX, Gueydan; WILLIAM T. PATTON, PAUL T. TALBO, New Orleans. For duty, from Fort Oglethorpe, Lieut. JOHN C. CHAPMAN, Colfax.

To *Camp Lee, Petersburg, Va.*, for duty, from Camp Dix, Major JAMES B. GUTHRIE, New Orleans.

To *Camp Sheridan, Montgomery, Ala.*, for duty, from Fort Oglethorpe, Lieut. ALLEN B. WHEELIS, Marion.

To *Fort Jay, N. J.*, for duty, from Fort Riley, Lieut. WILLIAM E. BALSINGER, New Orleans.

To Fort Oglethorpe for instruction, Lieut. WILLIAM L. BENDEL, Lake Charles; EDGAR J. BERANGER, New Orleans; WILLIAM E. BARKER, Plaquemine.

To Fort Sam Houston, Texas, for duty, from Camp Travis, Major EDMUND MOSS, New Orleans.

Maine

To Fort Ethan Allen, Vt., for duty, Lieut. HARLAN R. WHITNEY, Windham.

To Fort Oglethorpe for instruction, Capt. JOHN C. HAM, Belfast; HERBERT M. HOWES, Topham; LORENZO W. HADLEY, Union. To give orthopedic instruction, and on completion to Fort Riley, from Fort Riley, Major WILLIAM C. PETERS, Bangor.

Maryland

To Army Medical School for instruction, Lieut. SIDNEY O. REESE, Jr., Baltimore.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. BENJAMIN M. JAFFE, Baltimore.

To Camp Meade, Admiral, Md., as assistant to camp surgeon, from Camp Wheeler, Lieut. EDWARD B. BEASLEY, Baltimore. Base hospital, Lieut. COEN L. LUCKETT, Baltimore.

To Camp Shelby, Hattiesburg, Miss., for duty, from New Haven, Lieut. SAMUEL SNYDER, Maryland State Tuberculosis Sanitarium.

To Fort McPherson, Ga., for duty, Capt. JAMES M. H. ROWLAND, Baltimore; from Camp Wadsworth, Lieut. HOWARD H. JOHNSTON, Baltimore.

To Fort Oglethorpe for instruction, Lieuts. IPOLITAS B. BRONUSHAS, HARRY R. CARROLL, CHARLES C. CHILDS, ARTHUR D. MORAN, Baltimore.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Meade, Capt. THOMAS R. PAYNE, Corbett.

Massachusetts

To Army Medical School for instruction, Lieut. HENRY T. COMPTON, Cuttyhunk.

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. FRANK F. SANDLER, Revere.

To Camp Upton, L. I., N. Y., base hospital, Capt. JOHN W. VOSS, Beverly; WILLIAM H. ALLEN Mansfield.

To Camp Wadsworth, Spartanburg, S. C., with the board examining the command for nervous and mental diseases, Capt. MICHAEL M. JORDAN, Westboro.

To Camp Wheeler, Macon, Ga., base hospital, from Fort Oglethorpe, Lieut. JAMES H. COOK, Quincy.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. CARL A. DAHLEN, Boston.

To Fort Oglethorpe for instruction, Capt. ALBERT A. McCAULEY, Brighton; HOWARD W. JEWETT, Lowell; Lieuts. WILLIAM A. RISHOP, Abington; ARTHUR F. SARGENT, Boston; LOUIS J. GRANDISON, Charlestown; MANFRED E. SIMMONS, Dedham; JOSEPH P. KEARNEY, Lowell; IRVING F. ARMSTRONG, Marlboro; SIDNEY J. SOLOMON, Revere; FREDERICK A. MEAD, Williamsett.

To Fort Worth, Tex., Barton Field, Signal Corps Aviation School, for duty, from Mineola, Lieut. EMMETT E. LIGHT, Springfield.

To New Haven, Conn., for duty, Lieut. CECIL W. CLARK, Newtonville.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Lieut. WALTER F. ROBIE, Baldwinville.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Greene, Charlotte, N. C., base hospital, Capt. EDWARD P. RICHARDSON, Boston.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, and on completion to his proper station, from Fort McHenry, Capt. FRANK A. DAVIS, Boston.

Michigan

To Camp A. A. Humphreys, Accotink, Va., as camp surgeon, from Fort Oglethorpe, Capt. SAMUEL C. CROW, Detroit; CHAUNCEY L. BARBER, Lansing.

To Camp Cody, Deming, N. M., as assistant to camp surgeon, from Fort Riley, Lieut. FORREST R. OSTRANDER, Lansing.

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Boston, Lieut. HARTHER L. KEIM, Ann Arbor. For duty, from Camp Grant, Lieut. EMIL V. MAYER, Detroit.

To Camp Dodge, Des Moines, Ia., base hospital, Major BURTON R. CORBUS, Grand Rapids.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. LYLE O. SHAW, Detroit.

To Camp Meigs, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. ALONZO B. PERSLEY, Detroit.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. MAURICE C. LOREE, Ann Arbor.

To Fort Oglethorpe for instruction, Major NEIL S. MACDONALD, Houghton; Capt. VERNON J. HOOPER, Detroit; JAMES HOUSTON, Swartz Creek; Lieuts. LAWRENCE H. VAN BOCELAERE, DELOS S. BULFORD, STEPHEN G. MOLICA, WILLIAM D. RYAN, Detroit; JOHN T. BURNS, Kalamazoo; GEORGE J. CURRY, Water-sweet.

To New York City, Neuro-Surgical School, for inspection, and on completion to his proper station, Capt. GROVER C. PENBERTHY, Detroit.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. GEORGE H. THOMAS, Holland; HOWARD I. POST, Ypsilanti.

To the inactive list, from Hoboken, Major UDO J. WILE, Ann Arbor. Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EDWARD P. WAID, Salem.

Minnesota

To Camp Custer, Battle Creek, Mich., base hospital, Capt. ANDREW F. MOYNIHAN, Sauk Centre; Lieut. DAVID E. NELSON, Brainerd.

To Camp Dodge, Des Moines, Ia., base hospital, Lieut. CHARLES J. McGUIRE, Altura; ANDREW GULLIXSON, Briceyn.

To Camp Grant, Rockford, Ill., base hospital, Capt. MICHAEL C. WELCH, St. Paul.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. JOHN R. WOOD, Hallock.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. HUGO J. A. J. HARTIG, Minneapolis.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Capt. MATTHEW J. LYNCH, Minneapolis; JAMES W. ANDRIST, Owatonna.

To Fort McPherson, Ga., for duty, from Camp Dodge, Capt. HERBERT A. MORRIS, Minneapolis.

To Fort Oglethorpe for instruction, Capt. CHARLES P. ROBBINS, Winona; Lieut. ROBERT S. FORBES, West Duluth.

To Fort Riley for instruction, Capt. EDGAR R. BARTON, Frazee; GEORGE F. LEMKE, St. Paul; ALBERT A. TOFTE, Pine City.

To Rockefeller Institute for instruction in laboratory work, and on completion to Army Medical School, for duty, from Fort Riley, Lieut. WILLIAM J. EKLUND, Duluth.

To Vancouver Barracks, Wash., for duty, from New Haven, Lieut. LEE W. POLLOCK, Rochester.

Resignation of DONALD L. LANEY, Brown Valley, accepted.

Mississippi

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. SILAS W. PEARSON, Louisville.

To Camp Grant, Rockford, Ill., for duty, from Camp Greene, Lieut. JULIUS M. REYNOLDS, Shabuta.

To Camp Hancock, Augusta, Ga., base hospital, Capt. GEORGE W. REMBERT, Jackson.

To Camp John Wise, San Antonio, Tex., for duty, from Fort Oglethorpe, Capt. JOHN R. KITTRELL, Laurel.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Capt. JAMES S. REID, Lamkin.

To Camp Upton, L. I., N. Y., base hospital, from Camp Abraham Eustis, Lieut. WIRT A. RODGERS, Jackson.

To Fort Oglethorpe for instruction, Capt. JOHN C. McNAIR, Fayette; GEORGE G. ASH, Lexington; Lieuts. SAMUEL F. NEAL, Marks; ARTHUR F. KYGER, Pinola; MONTIEZUMA PORTER, Water Valley.

Missouri

To Camp Beauregard, Alexandria, La., as assistant to camp surgeon, from Fort Riley, Lieut. LANSFORD M. SPALDING, Olean. Base hospital, Lieuts. JAMES M. BLACK, WILLIAM H. CLITHERO, St. Louis.

To Camp Bowie, Fort Worth, Tex., base hospital, Lieut. ANDREW H. CLEVELAND, St. Louis.

To Camp Cody, Deming, N. M., base hospital, Capt. LOUIS RAS-SIEUR, St. Louis.

To Camp Devens, Ayer, Mass., base hospital, from Camp Pike, Lieut. LAWRENCE D. INLOE, Jefferson City.

To Camp Dodge, Des Moines, Ia., base hospital, Capt. WILLIAM T. HIRSCHI, St. Louis.

To Camp Grant, Rockford, Ill., for duty, from Camp Greene, Lieut. CECIL S. CAMPBELL, St. Louis; from Fort Riley, Capt. WILLIAM A. POTTER, Lancaster.

To Camp Sevier, Greenville, S. C., base hospital, from Camp Beauregard, Lieut. VINCENT F. TOWNSEND, St. Louis.

To Camp Sherman, Chillicothe, Ohio, as orthopedic surgeon, from Camp Custer, Lieut. LEON V. URBANOWSKI, St. Louis.

To Fort Des Moines, Ia., base hospital, from Camp Cody, Lieut. JOHN L. TIERNEY, St. Louis.

To Fort McPherson, Ga., for duty, from Camp Beauregard, Lieut. RALPH L. COOK, St. Louis; from Camp Gordon, Lieut. HERBERT H. PRICE, St. Louis; from Fort Oglethorpe, Lieut. OMA R. SEVIN, St. Louis.

To Fort Oglethorpe for instruction, Major MEYER WIENER, St. Louis; Capt. MAX W. MYER, Columbia; JAMES M. RUSSELL, Monett; REINHARD E. WOBUS, St. Louis; Lieut. ALFRED L. SAWYER, Fort Fairchild. For temporary duty, from Colonia, Capt. RALPH F. NIEDRINGHAUS, St. Louis.

To Fort Riley for instruction, Capt. FRED L. OGILVIE, Blodgett; ELISHA H. G. WILSON, Cape Girardeau; HUGH S. ROWLETT, Marysville; OTTO B. ILCH, St. Charles; Lieuts. LAWRENCE L. SMITH, Bethel; OSCAR O. MEREDITH, Breckenridge; FRANK A. HUDSON, CLAUDE B. MEYER, Buffalo; EARL W. NETHERTON, Gallatin; MAURICE E. GRIER, HENRY H. OLSEN, JOHN M. SINGLETON, Kansas City; WILLIAM E. LOCKWOOD, Potts; CHRIS. M. SAMPSON, St. Joseph; CARL J. ALTHAUS, EDMOND BECHTHOLD; THOMAS L. DRANEY, JOSEPH L. FERRIS, LLOYD L. HEID, GEORGE H. MILLER, WILLIAM S. REILLY, WILLIAM J. SALISBURY, JOSEPH L. THURMAN, GEORGE L. TONELLI, OTTO J. WILHELMI, St. Louis; CLYDE W. PARSONS, Sweet Springs.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Upton, Capt. IRA H. MILLER, Louisiana.

To St. Louis, Mo., for duty, from the Surgeon-General's Office, Major HANAU W. LOEB, St. Louis.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. HENRY S. BROOKES, CHARLES H. MILLER, St. Louis. On account of physical disability not incident to the service, Lieut. JOHN N. DARROUGH, Kansas City.

Montana

To Camp Devens, Ayer, Mass., for duty, from Camp Grant, Lieut. ALEXANDER M. MACCAULAY, Great Falls.

To Camp Grant, Rockford, Ill., for duty, from Army Medical School, Lieut. WALTER E. ESTABROOK, Moccasin.

To Fort Riley for instruction, Capt. DUNCAN S. MacKENZIE, Havre.

To San Francisco, Calif., for instruction, and on completion to Camp Kearney, Linda Vista, Calif., base hospital, Lieut. WALTER I. FIREY, Roundup.

Nebraska

To Camp Custer, Battle Creek, Mich., base hospital, Capt. GEORGE B. BRASH, Beatrice.

To Camp Devens, Ayer, Mass., for duty, from Camp Dix, Capt. EARL B. BROOKS, Pawnee City; from Camp Grant, Lieut. ROBERT C. PERSON, Omaha.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. JAMES S. TAYLOR, Fairbury.

To Camp Sevier, Greenville, S. C., for duty, from Camp Dodge, Lieut. DANIEL FRANKLIN, Omaha.

To Chicago, Ill., Northwestern University School of Medicine, for instruction, from Fort Riley, Lieut. J. IRWIN LIMBURG, Walthill.

To Fort Riley for instruction, Capt. ALLAN J. CAMERON, Herman; Lieut. ARTHUR B. CRAMB, Tecumseh.

To Hoboken, N. J., base hospital, Lieut. FREDERICK W. BUCKLEY, Beatrice.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. JOSEPH H. BOYES, Hebron.

Nevada

To Fort Riley for instruction, Lieut. HENRY A. PARADIS, Montello.

New Hampshire

To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. NOEL E. GUILLET, Manchester.

To Fort Oglethorpe for instruction, Lieut. DENNIS L. BLACK, Nashua.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Lieuts. ELMER E. LAKE, Hampstead; FRED C. RUSSELL, Haverhill; CHENEY I. COLE, Henniker.

New Jersey

To Camp Cody, Deming, N. M., with the board examining the troops for tuberculosis, from Camp Hancock, Capt. GRANT THORNBURN, Newark.

To Camp Devens, Ayer, Mass., base hospital, Capt. CLIFFORD R. NEARE, East Orange; JOSEPH A. MACLAY, Paterson. For duty, from New York, Lieut. DAVID C. THOMPSON, Bloomfield.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. WILLIAM O'G. QUINBY, East Orange.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. ALFRED WOODHOUSE, Newark.

To Camp Upton, L. I., N. Y., base hospital, Lieut. CHARLES H. PRATT, Plainfield.

To Fort Oglethorpe for instruction, Capt. EDWARD S. SHARPE, Atlantic City; Lieuts. FRANK E. MASON, Carney's Point; HORACE W. JACK, Collingswood; SAMUEL S. FERN, Elizabeth; WILLIAM L. MADDEN, Jersey City; WILLIAM W. COX, Montclair; JOSEPH G. SAVANNAH, Newark; LOUIS J. BOHL, Paterson.

To Hoboken, N. J., for duty, from Army Medical School, Lieut. WALTER W. SCHMIDT, Cliffside; from Fort Oglethorpe, Lieut. ALBERT G. HULETT, East Orange.

Honorably discharged, Lieut. JACOB L. MATHESHEIMER, Jersey City.

The following orders have been revoked: To Camp Gordon, Atlanta, Ga., for orthopedic instruction, and on completion to Fort McPherson, Ga., for further orders, from Fort Oglethorpe, Lieut. ALEXANDER J. McCRAE, Upper Montclair. To Fort Oglethorpe for instruction, Lieut. MAX KUMMEL, Harrison.

New Mexico

To Camp Grant, Rockford, Ill., for duty, Lieut. HOWE K. RIDDLE, Reserve.

To Fort McPherson, Ga., for duty, from Camp Lewis, Lieut. ALMONT A. HUBBARD, Van Houten.

To report by wire to the commanding general, Southern Department, for assignment to duty, Capt. CHARLES H. JAMESON, Albuquerque.

New York

To Aberdeen, Md., Ordnance Proving Grounds, for duty, Lieut. JAMES S. LYONS, Albany.

To Army Medical School for instruction, from Fort Oglethorpe, Lieut. LOUIS F. SANMANN, New York.

To Baltimore, Md., Johns Hopkins University, for temporary duty, from Camp Lee, Major RALPH A. KINSELLA, Lieut. FREDERICK D. ZEMAN, New York.

To Biltmore, N. C., for temporary duty, and on completion to his proper station, Major EDWARD K. DUNHAM, New York.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Plattsburg Barracks, Lieut. DANIEL A. EISELINE, Sportsville.

To Camp Alfred Vail, Little Silver, N. J., for duty, from Camp Sherman, Lieut. ASA L. LINCOLN, New York.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Sevier, Lieut. WILLIAM H. TAYLOR, Brooklyn; from Fort Oglethorpe, Lieut. JOHN G. F. HISS, New York.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. LESLIE J. ATKINS, Orleans.

To Camp Lee, Petersburg, Va., base hospital, from Camp Meade, Major EDWARD W. PINKHAM, New York. For duty, from Fort Oglethorpe, Lieut. FREDERIC WASHNITZER, Brooklyn.

To Camp MacArthur, Waco, Texas, as orthopedic surgeon, from Army Medical School, Lieut. CHARLES GOLDMAN, Brooklyn.

To Camp Meade, Admiral, Md., for duty, Lieut. PATRICK J. HIRST, Middle Grove.

To Camp Sevier, Greenville, S. C., base hospital, from Williamsbridge, Major WATSON A. LAWRENCE, White Plains. For duty, from Camp Beauregard, Lieut. ROBERT FLANDERS, New York.

To Camp Shelby, Hattiesburg, Miss., for duty, from New Haven, Lieuts. HENRY M. SPOFFORD, Batavia; HENRY A. LATANE, McGregor. With the board examining the command for nervous and mental diseases, from Camp Dix, Capt. JOHN SCOTT RICHARDS, Randall's Island; from Camp Jackson, Lieut. HOWARD W. DAVIS, Poughkeepsie.

To Camp Upton, L. I., N. Y., base hospital, from Fort Oglethorpe, Lieut. HENRY M. SCHERER, New York.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. CHARLES MAGGIO, Rochester.

To Fort Leavenworth, Kans., for duty, from Camp Zachary Taylor, Lieut. EMIL J. PELLINI, New York.

To Fort McPherson, Ga., for duty, from Camp Bowie, Capt. WEL- LINGTON A. LEBKICHER, Fordham; from Camp Wadsworth, Lieut. LOUIS CARP, New York.

To Fort Oglethorpe for instruction, Capt. GEORGE W. WILLCOX, Hamilton; GILBERT D. DARE, Morrisonville; EDWARD T. HIG- GINS, New York; Lieuts. HARRY A. SCOTT, Batavia; LYMAN C. LEWIS, Belmont; WILLIAM PANITCH, Brainard; SAMUEL S. D. ARLUCK, ROBERT BAILIN, HARRY C. HARRIS, ISIDOR H. KUEL, THOMAS J. MCKERNAN, MILTON A. MILLER, MAURICE MORRISON, THOMAS I. M. REID, JR., HAROLD W. SHUTTER, MORRIS WINARD, Brooklyn; HOWARD D. HOEHMAN, VINCENT C. MOSCATO, Buffalo; WILLIAM H. JONES, Jamestown; JOHN V. SWIERAT, Kings Park; KENNETH A. SMITH, EDWARD A. TWIST, Lackawanna; MAX SONKIN, Long Island City; BRUCE M. M. PHELPS, Lowville; MAX ALEXANDER, FRANK A. BIEN, ALFRED F. CALVELLI, JAMES M. CRONK, LEO FUSKE, JOSEPH GOLDSTONE, ALFRED J. HART, KENT W. JARVIS, EDWARD J. LORENZE, NORMAN C. MARVEL, CHARLES MESTER, JOHN J. REID, JR., ARTHUR B. SULLIVAN, MICHAEL J. SWEENEY, ABRAHAM J. WEINGART, New York; EDWARD S. AMSLER, NORMAN J. PFAFF, Rochester; EARLE C. WINSOR, Rockwell's Mills; HARRY S. RENOLDS, Schenectady.

To New Haven, Conn., for duty, Lieut. STANLEY L. WANG, New York.

To New York City, Bellevue Hospital, for instruction, and on completion to Newport News, Va., for temporary duty, Capt. CHARLES E. HAWKES, New York.

To report by wire to the commanding general, Eastern Department, for assignment to duty, Lieuts. OTIS H. BRADLEY, Hudson; ARTHUR BESEMER, Marion; OTTO PFAFF, Oneida.

To Rockefeller Institute for instruction in laboratory work, and on completion to Army Medical School, for duty, Lieut. JOSEPH P. LA- DUCA, Buffalo. For instruction in the treatment of infected wounds, and on completion to Camp Upton, L. I., N. Y., base hospital, Capt. FRANCIS C. GOLDSBOROUGH, Buffalo. On completion to his proper station, from Camp Dix, Capt. EDWARD H. PERSHING, Woodmere.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. RICHARD L. J. KEMEL, New York; from Washington, Capt. HERMAN L. RAYMOND, Collins.

Resignation of Lieut. ABRAHAM SHORR, Brooklyn, accepted.

The following orders have been revoked: To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. LOUIS N. SMERNOFF, Jamaica. To Fort Oglethorpe for instruction, from New York, Lieut. FRANKLIN W. RICE, New York.

North Carolina

To Army Medical School for instruction, Lieut. FRANK J. GAR- RISS, Lewiston.

To Biltmore, N. C., for temporary duty, Major WILLIAM LEROY DUNN, Asheville.

To Camp Jackson, Columbia, S. C., base hospital, Lieut. ROBERT E. ABELL, Chester.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. EVANDER MCN. MCIVER, Jonesboro.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Ogle- thorpe, Lieut. GEORGE F. BULLARD, Elizabethtown.

To Fort McPherson, Ga., base hospital, from Camp Jackson, Major CHARLES S. LAWRENCE, Winston-Salem.

To Fort Oglethorpe for instruction, Capt. ARTHUR F. REEVES, Asheville; Lieuts. WILLIAM T. GIBSON, Batesburg; JUNIUS R. VANN, JR., Fayetteville; EDWARD C. McCLEES, Lake Junaluska.

Honorably discharged, Lieut. JOHN M. BEARDEN, Lawrence.

Resignation of Capt. CHARLES DE W. COLBY, Asheville, accepted.

North Dakota

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. WALTER S. CHERRY, Enderlin.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Capt. BERNARD S. HICKERSON, Mandan.

Ohio

To Baltimore, Md., Johns Hopkins University, for temporary duty, from Army Medical School, Capt. RICHARD D. BELL, Cleveland.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Ogle- thorpe, Capt. SMITH E. McADOO, Akron; Lieut. ALFRED W. BALS- LEY, Findlay.

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Ogle- thorpe, Capt. JAMES N. WYCHGEL, Cleveland; Lieuts. ELI F. RAMBO, Akron; FREDERICK SWING, Harrison; OSCAR H. HEN- NINGER, Ironton; RALPH T. SAUNDERS, Sandusky.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Sevier, Lieut. GEORGE E. FLINN, Amesville; from Fort Oglethorpe, Capt. ZADOK F. ATWELL, Amsterdam.

To Camp Jackson, Columbia, S. C., base hospital, Capt. GEORGE L. CHAPMAN, Toledo.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, Capt. EDWARD C. LUDWIG, Columbus.

To Camp Shelby, Hattiesburg, Miss., with the board examining the command for nervous and mental diseases, Lieut. CARL W. SAWYER, Marion.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. LOUIE C. COSGROVE, Swanton.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. BAR- TON L. GOOD, Van Wert.

To Fort McPherson, Ga., for duty, from Camp Wadsworth, Major FRED FLETCHER, Columbus.

To Fort Oglethorpe for instruction, Capt. EDWARD S. JOHNSON, Cincinnati; ALEXANDER M. STEINFELD, Columbus; CLARK G. AXLINE, Lancaster; WORTH T. GATCHELL, Ravenna; Lieuts. FRANK P. GERACI, MAX MAHRER, DAVID L. REES, Cleveland; GEORGE O. HOSKINS, Columbus; MERRILL D. PRUGH, Dayton; BURT A. MARQUAD, Dover; HARRY W. RECK, Gettysburg; JAMES C. McLESTER, Harrisville; JOHN F. HILL, McConnelsville; FRED E. HALL, Washington.

To Fort Riley for instruction, Lieut. FRANKLIN J. McDONALD, Leadville.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. LEROY B. HUMPHREY, Akron; JAMES A. MCGREW, New Athens; Lieuts. JOHN P. SCHEIB, Columbus; THOMAS E. WALKUP, Dayton; JOHN WOLFE, Delphos; CLEM- ENT L. V. BELL, Fitchville; WILLIAM LEONARD, Fostoria; SHER- MAN MCKENNEY, Fremont; JOHN B. KRING, Galion; EUGENE G. HUSTED, Greenville; JOHN A. GRAFFT, Hamilton; JOHNSON S. HUNTER, Jackson; JOHN D. WATTERSON, Kalida; BENJAMIN C. PILKE, Monroeville; AGNUS A. MACKINTOSH, North Fairfield; JAMES O. WICKERHAM, Rockford; FRANK L. NEWBURG, Toledo; MAURICE L. SMITH, Urbana; FRANK B. GREGG, Wellington; OLIVER T. SPROULL, West Union.

The following order has been revoked: To Camp Grant, Rockford, Ill., for duty, from Hoboken, Lieut. GEORGE S. NUTT, Youngstown.

Oklahoma

To Camp Beauregard, Alexandria, La., for duty, from Fort Ogle- thorpe, Lieut. FRANK THOMASON, Drumwright.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. ORION R. GREGG, Wynoka.

To Camp Cody, Deming, N. M., base hospital, Capt. RALPH E. WELLER, Pawnee; Lieut. GEORGE H. WALLACE, Cheyenne.

To Camp Fremont, Palo Alto, Calif., as assistant to camp surgeon, from Fort Riley, Lieut. HOWSON C. BAILEY, Sulphur.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CHARLES H. MCBURNEY, Clinton.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. RAYMOND R. HUME, Minco. For duty, from Camp Pike, Lieut. CLAUDE E. PUTNAM, Eakley.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Camp MacArthur, Lieut. JOSEPH H. JANSING, Tryon.

To Fort McPherson, Ga., for duty, from Camp Bowie, Lieut. ETHAN E. WAGGONER, Tonkawa.

To Fort Oglethorpe for instruction, Lieuts. BENJAMIN G. JONES, Foss; SHERIDAN W. MATTOX, Marion; HARVEY V. DRESBACH, DUKE W. VINCENT, Oklahoma City; LAWRENCE H. CARLETON, Tulsa.

To Fort Riley for instruction, Lieut. JOEL R. HOLLIDAY, Oklahoma City; ALBERT B. HOLSTED, Temple.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieuts. JOSEPH M. POSTELLE, Oklahoma City; JOSEPH M. THOMPSON, Tahlequah.

Oregon

To Fort McPherson, Ga., for duty, from Camp Lewis, Major PAUL ROCKEY, Portland.

To Fort Riley for instruction, Lieut. CHARLES S. MENZIES, Portland.

To Rockefeller Institute for instruction in laboratory work, and on completion to Army Medical School, for duty, Capt. WILLEY H. NORTON, Portland.

To San Francisco, Calif., for instruction, and on completion to Camp Lewis, American Lake, Wash., base hospital, Lieut. HORACE P. BELKNAP, Jr., Portland.

The following order has been revoked: To Camp Meade, Admiral, Md., for duty, from Fort Des Moines, Lieut. RICHARD J. JAMES, Portland.

Pennsylvania

To Army Medical School for instruction, Lieut. EDGAR W. KEMNER, Philadelphia; from Camp Greene, Lieut. JOHN B. HAINES, Philadelphia; from Camp Jackson, Lieut. PAUL S. SEABOLD, Philadelphia; from Walter Reed General Hospital, Lieut. JOHN HAYES, Crafton.

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Major MALCOLM C. CROW, Media.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. LOUIS W. GROSSMAN, New Castle.

To Camp Meade, Admiral, Md., base hospital, Lieut. FRANK C. CARR, Swarthmore.

To Camp Sevier, Greenville, S. C., base hospital, Lieut. RAYMOND, F. WIVELL, Pittsburgh. For duty, from Camp Sheridan, Lieut. NATHANIEL G. SHAFITZ, Mont Alto.

To Camp Upton, L. I., N. Y., base hospital, Lieut. HORACE C. KINZER, Lancaster.

To Camp Wadsworth, Spartanburg, S. C., with the board examining the command for nervous and mental diseases, and on completion to his proper station, from Camp Jackson, Lieut. WILLIAM C. MILLER, Warren.

To Camp Wheeler, Macon, and Camp Gordon, Atlanta, Ga.; Camp Jackson, Columbia, S. C., and Fort McPherson, Ga., for conference, and on completion to his proper station, from Camp Zachary Taylor, Major HERBERT FOX, Philadelphia. For duty, from Fort Oglethorpe, Lieut. ALBERT P. DUNSMORE, Barnesboro.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Lieut. HARRY ABRAHAM D. BAER, Abington.

To Fort Des Moines, Iowa, base hospital, from Camp Zachary Taylor, Capt. PATRICK J. McDONNELL, Archbald.

To Fort Leavenworth, Kan., for duty, Lieut. NORBERT D. GANNON, Erie.

To Fort McPherson, Ga., for temporary duty, from Camp Hancock, Lieut. DANIEL W. FRYE, Pittsburgh; from Camp McClellan, Lieut. AARON L. BISHOP, Philadelphia.

To Fort Oglethorpe, as assistant instructor in surgery, from Philadelphia, Capt. WALTER E. LEE, Philadelphia. For duty, from duty with the Council of National Defense, Major HENRY D. JUMP, Philadelphia; from Camp Lee, Lieut. REUBEN H. PEARLMAN, Pittsburgh; from Fort Oglethorpe, Lieut. JAMES J. O'CONNOR, Mildred. For instruction, Major WILLIAM C. MILLER, Harrisburg; Capt. JAMES V. HARSHA, Carrick; BRUCE LICHTY, Meyersdale; WILLIAM J. MERRILL, Philadelphia; WILBUR M. HOLTZ, Pittsburgh; JACOB K. LEVAN, St. Marys; Lieuts. CLARENCE C. ROGERS, Allentown; DANIEL F. FREDERICK, Ashley; BROOKLYN B. LEVENGOOD, Bellwood; ANTHONY M. BENNARDI, Bradford; FRANCIS B. EVELAND, GEORGE H. MILLER, Bryn Mawr; WILLIAM P. DODDS, Cabot; JOSEPH M. CORSON, Chatham Run; JAMES R. PARKER, Chester; THOMAS D. MILLS, Clarks Mills; SAMUEL T. McCABE, Defiance; SAM G. BECK, RALPH A. FISHER, Easton; JAMES A. M. RUSSELL, BARNEY B. SMITH, Erie; JAMES S. SEITZ, Glen Rock; PAUL M. BLACKBURN, THOMAS P. COLE, Greensburg; CLARENCE W. McELHANEY, RALPH E. PILGRIM, Greenville; WILLIAM A. BENNETT, Harrisburg; GEORGE C. SNEAD, Lynchburg; CHARLES W. DIXON, McDonald; WILLIAM E. SEIBERT, Fannettsburg; IRA M. HENDERSON, Petersburg; WILLIAM V. COYLE, HARVEY M. HAGSDORN, LOUIS MACKLER, WILLIAM H. PERKINS, REGINALD L. PREES, JOHN H. READING, JR., JOSEPH F. RICHARDS, MORRIS SEGAL, ALFRED R. SERAPHIN, RAYMOND L. SOMMERS, JAMES F. TALLEY, HARRY G. THIGPEN, Philadelphia; PAUL G. ATKINSON, SAMUEL A. BEDDALL, ANTONIO BIANCO, LOUIS C. MECKEL, TIMOTHY J. MORAN, EUGENE J. TRUSCHIEL, CLARK W. WAKEFIELD, Pittsburgh; RALPH L. REBER, Reading; JOSEPH S. MILLER, St. Clair; ALVORDI J. SIMPSON, Summerville; LAWRENCE L. STEPP, Valencia; JAMES S. MCCARTNEY, Washington; A. BURTON SMITH, Wyoming.

To Fort Riley, base hospital, from Camp Dodge, Lieut. THOMAS G. MILLER, Philadelphia.

To Hoboken, N. J., base hospital, from Camp Dix, Lieut. DAVID B. HAWKINS, Philadelphia.

To Lancaster, Pa., for duty, and on completion to his proper station, from Philadelphia, Lieut. CHARLES S. MILLER, Philadelphia.

To report by wire to the commanding general, Eastern Department, for assignment to duty, Capt. WALTER WEBB, West Chester; Lieuts. ELMER A. HUDSON, Carlisle; JOHN F. RUTHERFORD, Cranesville; EDWIN M. McCONNELL, Grove City; HARRY G. HASSENPLUG, Lancaster; ELMER N. PIPER, New Kensington; WALTER J. CATHALL, North Bethlehem; JOHN E. MOORE, HOWARD REED, SAMUEL M. WILSON, Philadelphia.

To Richmond, Va., for duty, from Fort Oglethorpe, Capt. WILLIAM E. KRAMER, Pittsburgh.

To Rockefeller Institute for instruction in laboratory work, and on completion to Army Medical School, for duty, Capt. EARL H. PERRY, Washington. For instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Meade, Capt. SAMUEL

R. SKILLERN, Philadelphia. On completion to Walter Reed General Hospital for temporary duty, Capt. RICHARD BRENNENMAN, Pittsburgh.

To Vancouver Barracks, Wash., for duty, from Markleton, Lieut. URBAN H. REIDT, Westmoreland.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, and on completion to his proper station, from Lakewood, Capt. ROBERT J. HENDERSON, Bowmansville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. OCTAVUS PEARL LARGE, FRANCIS A. STILES, Philadelphia; WILLIAM H. M. IMHOFF, Willow Grove.

Porto Rico

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. MARIANO B. CABALLERO, Humacao.

To Camp Las Casas, San Juan, P. R., for duty, Lieut. JUAN S. MARCHAN, Barceloneta.

Rhode Island

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capt. WINTHROP C. LINCOLN, Lieut. JOSEPH W. BANNAN, Providence.

To Fort Oglethorpe for instruction, Lieuts. ARTHUR J. GAGNON, HENRY J. GALLAGHER, Providence.

To Rockefeller Institute for instruction in the treatment of infected wounds, from New York, Capt. HERMAN C. PITTS, Providence.

The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. ALFRED F. McALPINE, Providence.

South Carolina

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Boston, Lieut. JOHN D. COLSON, St. Stephen.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. MILTON WEINBERG, Sumter.

To Fort Oglethorpe for instruction, Lieut. WILLIAM R. HAYNIE, Belton.

South Dakota

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. OSCAR W. TULISALO, Bellefourche.

To Fort Riley, base hospital, Lieut. DICKNEY W. CRAIG, Sioux Falls.

To Fort Sill, Okla., base hospital, Capt. BYRON A. BOBB, Mitchell.

To Hoboken, N. J., base hospital, Lieut. WILLIAM A. DELANEY, Mitchell.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. FRANCIS E. TOWNSEND, Nisland.

The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. FLOYD D. GILLIS, Mitchell.

Tennessee

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. BARNEY L. McDONALD, Idol.

To Camp Crane, Allentown, Pa., base hospital, from Camp Meade, Lieut. CHARLES P. EDWARDS, Kingsport.

To Camp Grant, Rockford, Ill., base hospital, from Rockefeller Institute, Lieut. JOHN F. BINKLEY, Nashville; from Camp Greene, Lieut. JOSEPH M. CLARK, Spring City.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. JOHN H. REVINGTON, Chattanooga.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Lieut. WILLIAM A. HOWARD, Cookeville.

To Camp Sheridan, Montgomery, Ala., for duty, from Camp Gordon, Major WILLIAM H. BALDWIN, Memphis.

To Fort Benjamin Harrison for duty, Lieut. JULIUS A. HAIMAN, Nashville.

To Fort Oglethorpe for instruction, Capt. JAMES H. McCALL, Huntingdon; JOHN E. HALL, Nashville; Lieuts. COLMAN C. BURNS, OSCAR M. LATEN, Memphis; SAMUEL C. COWAN, JESSE A. SANDERS, Nashville.

Texas

To Army Medical School for instruction, Lieut. OSCAR T. KIRKSEY, Galveston; from Camp Crane, Lieut. EDMUND D. MILLS, Galveston.

To Camp Abraham Eustis, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. JOSEPH E. McDONALD, San Antonio.

To Camp Beauregard, Alexandria, La., base hospital, Capt. ROBERT T. MORRIS, Houston. For duty, from Fort Oglethorpe, Lieut. WILLIAM B. URMSTON, San Antonio.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. ALFRED R. AUTREY, Port Arthur.

To Camp Cody, Deming, N. M., base hospital, Lieuts. EDWARD B. BRANNIN, Dallas; EARL C. AXTELL, Lipan.

To Camp Devens, Ayer, Mass., as orthopedic surgeon, from Boston, Lieut. HALL SHANNON, Dallas. For duty, from Camp Grant, Major CHARLES M. AVES, Houston.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. JOSEPH H. HICKS, Elkhart.

To Camp Grant, Rockford, Ill., for duty, Lieut. ALBERT L. MONDRICK, Bryan.

To Camp Jackson, Columbia, S. C., with the board examining the troops for cardiovascular diseases, from Camp Jackson, Capt. LORNE E. HASTINGS, Dallas.

To Camp MacArthur, Waco, Texas, as assistant to camp surgeon, from Fort Sam Houston, Major JAMES G. FLYNN, Galveston. Base hospital, Lieut. MERCER SWEARINGEN, Port Arthur; from Fort Oglethorpe, Capt. HAROLD E. NICHOLSON, Mobeete.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Lieut. JOSEPH J. ANDERSON, Coolege; from Williamsbridge, Capt. IRA E. PRITCHETT, Houston.

To Camp Sherman, Chillicothe, Ohio, for duty, from Camp Greene, Lieut. WIRT D. FOWLER, Liberty Hill.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Oglethorpe, Capt. JAMES R. GIBBS, Houston.

To Dallas, Texas, for duty, from San Antonio, Lieut. WILLIAM R. JOHNSON, Snyder.

To Fort McPherson, Ga., for duty, from Camp Gordon, Lieut. FREDERIC E. HUDSON, Anson; from Camp Wadsworth, Lieuts. ROBERT S. SUTTON, Bartlett; THOMAS P. McCLENDON, Wortham.

To Fort Oglethorpe for instruction, Capt. FERDINAND C. WALSH, San Antonio; Lieuts. WILLIAM C. WEDEMEYER, Burton; EMMETT C. SCHOOLFIELD, Denton; LOUIS G. PAWELEK, Falls City; EDGAR P. HUTCHINGS, Marlin; ASA B. PRITCHETT, San Marcus.

To Fort Riley for duty, from Rochester, Minn., Lieut. EDMUND C. HANCOCK, Temple. For instruction, Capt. JOSEPH A. DENMAN, Belton; JOHN O. McCALL, Brady. ROBERT A. DINWIDDIE, Clarksville; MARVIN DE BERRY, Cuthand.

To Memphis, Tenn., Signal Corps Aviation School, for duty, from Mincola, Lieut. GEORGE P. RAWLS, San Augustine.

The following order has been revoked: *To Camp MacArthur*, Waco, Texas, as assistant to camp surgeon, from Fort Sam Houston, Capt. LYTTON G. AMENT, Victoria.

Utah

To Camp Cody, Deming, N. M., base hospital, Lieut. WALTER N. PUGH, Salt Lake City.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort McPherson, Lieut. WEAVER A. RUSH, Logan.

To Fort Riley for instruction, Lieut. MAURICE M. CRITCHLOW, Salt Lake City.

Vermont

To Camp Devens, Ayer, Mass., base hospital, Capt. BENJAMIN D. ADAMS, Burlington.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. HARRY H. LAWRENCE, Springfield.

To Camp Upton, L. I., N. Y., base hospital, Lieut. CHARLES N. PERKINS, Burlington.

To Fort Leavenworth, Kan., for duty, Lieut. ALLSTON L. FOGG, Underhill.

To Fort Oglethorpe for instruction, Lieut. CHARLES W. KIDDER, Woodstock.

To Newport News, Va., for duty, from Lakehurst, Lieut. LEONARD B. ROWE, Orwell.

To report by wire to the commanding general, Northeastern Department, for assignment to duty, Lieut. HENRY L. TILLOFSON, Groton.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ALBERT J. GREENWOOD, Springfield.

Virginia

To Camp Meigs, Washington, D. C., for duty, from Fort Oglethorpe, Lieut. ROSCOE F. THORNHILL, Richmond.

To Fort Oglethorpe for instruction, Lieuts. EVERETT R. ALTIMER, Cambria; RANDOLPH G. BROADDUS, Chance; STANHOPE B. BERKLEY, Grafton; GOODLATTEE V. GILMORE, Hampton; STUART D. WILLIAMS, Norfolk; EDWARD T. AMES, Painter; MASON ROMAINE, Petersburg; JOHN S. GILMAN, Richmond; WILLIAM T. GAY, OSCAR R. YATES, Suffolk.

To Hoboken, N. J., for duty, from Camp Dix, Major SAMUEL B. MOORE, Alexandria; from Fort H. C. Wright, Lieut. NATHANIEL F. RODMAN, Norfolk.

To New Haven, Conn., for duty, Capt. ALBERT G. FRANKLIN, Richmond.

To Plattsburg Barracks, N. Y., for duty, from Fort McPherson, Capt. CLAUDE D. KELLAM, Norfolk.

Washington

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. ROSCOE L. GHERING, Spokane.

To Camp Lewis, American Lake, Wash., base hospital, Capt. ARTHUR C. JOHNSON, Spokane.

To Fort McPherson, Ga., for duty, from Camp Lewis, Major HORACE J. WHITACRE, Tacoma; Capt. PAUL I. CARTER, Port Townsend.

To Fort Riley, base hospital, from Camp Lewis, Capt. CHARLES S. WILSON, Tacoma. For instruction, Lieut. WILLIAM E. STEELE, Olympia.

To Mineola, L. I., N. Y., Signal Corps Aviation School, for duty, from Fort Riley, Capt. CLINE F. DAVIDSON, Seattle.

To San Francisco, Calif., for instruction, and on completion to *Camp Cody*, Deming, N. M., base hospital, Capt. GEORGE A. GRAY, Spokane. On completion to *Camp Lewis*, American Lake, Wash., base hospital, Lieut. STEPHEN A. DEMARTINI, Tacoma.

West Virginia

To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. JOHN E. MILLER, Widen.

To Camp Hancock, Augusta, Ga., base hospital, Capt. KARL C. PRICHARD, Huntington.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. THURMAN E. VASS, Bluefield.

To Fort Oglethorpe for instruction, Capt. EDWARD McELFRESH, Point Pleasant; Lieut. HAMLINE N. DEEM, Lubeck.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieut. ISAAC R. LESAGE, Huntington.

Wisconsin

To Army Medical School for instruction, Lieut. EDGAR W. ALBERS, Milwaukee.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. BRAND STARNES, Mauston.

To Camp Devens, Ayer, Mass., for duty, from Camp Grant, Lieut. EDMUND H. MENSING, Milwaukee.

To Camp Dix, Wrightstown, N. J., base hospital, from Camp Crane, Lieut. CHARLES B. RYDELL, Superior.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. JOHN R. SHEEAN, Milwaukee.

To Camp Sevier, Greenville, S. C., for duty, from Fort Oglethorpe, Lieut. ADAM L. CURTIN, Milwaukee.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. FREDERICK J. KORTHALS, Milwaukee.

To Fort D. A. Russell, Wyo., for duty, Lieut. ALBERT J. PULLEN, North Fond du Lac.

To Fort Des Moines, Iowa, base hospital, from Camp Zachary Taylor, Lieut. ERNEST L. HENNIG, Beloit.

To Fort Oglethorpe for instruction, Lieuts. HERMAN C. MEYER, LaCrosse; OTIS W. C. MAERCKLEIN, GEORGE G. WALL, SCHLAEGER, Milwaukee.

To Fort Riley for instruction, Lieut. CLAUDE H. OLIVER, Boyceville.

To Jefferson Barracks, Mo., for duty, from duty as a contract surgeon, Capt. LOUIS M. WARFIELD, Milwaukee.

To New Haven, Conn., for duty, Capt. FRANK BROCKWAY, Oshkosh.

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. THOMAS W. NUZUM, Janesville; WILLIAM A. EDWARDS, LaCrosse; FRANCIS J. DONNELLY, Maches; EDGAR J. KNAPP, Rice Lake.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Personal.—Dr. William P. Hunnicutt, superintendent of the State Hospital for the Insane, Pueblo, has resigned. His resignation will take effect immediately. Dr. Hunnicutt will practice in Pueblo.—Dr. Charles H. Burgin, Delta, was operated on for appendicitis in the Red Cross Hospital, Salida, June 30, and is reported to be doing well.

Health Association Meeting.—At the annual meeting of the Colorado Public Health Association, held in Denver, July 10, the following officers were elected: president, James H. Pershing, Denver; vice presidents, Drs. Charles O. Giese, Colorado Springs; Richard W. Corwin, Pueblo, and Oscar M. Gilbert, Boulder, and treasurer, Charles S. Haughwout, Denver.

CONNECTICUT

Personal.—Dr. Henry N. Costello, Hartford, has been appointed medical examiner (coroner) for the Hartford district, succeeding Dr. Phillip D. Bunce, Hartford, who has entered the military service.—Dr. Henry F. Gill, Hartford, is reported to have been adjudged insane.

Progress in Yale University Medical School.—During the past year Yale University has raised the endowment of \$2,000,000 which secures an additional half million from the general education board for the purpose of putting on the full-time clinical basis, the departments of medicine, surgery, and obstetrics and gynecology. Of this sum, \$250,000 was given by the Carnegie Corporation. While it will not be possible during the war to completely organize the clinical departments mentioned this will be done as far as is possible. The contract with the New Haven Hospital has been amended so as to give the medical school complete control of the public wards. The organization of the New Haven Hospital has been altered as the result of recommendations made by Col. Winford H. Smith, Baltimore, after a survey. A closer affiliation between the Connecticut Training School for Nurses and the medical school has been brought about.

FLORIDA

Health Officers' Meeting.—State Health Officer William H. Cox, Jacksonville, has called a conference of health officers of the state, to be held at Jacksonville, August 1 to 3.

Personal.—Dr. William M. Bevis, Chattahoochee, has been appointed superintendent of the Florida Hospital for the Insane, succeeding Dr. H. Mason Smith, who has been called into the military service.—Dr. Van H. Gwinn, Jacksonville, has been appointed assistant state health officer.—Dr. Peter W. Butler, Leesburg, is reported to be critically ill at his home in Madison, Ga.

GEORGIA

Eugenic Marriage Bill Passed.—The eugenic marriage bill, requiring a man to present a certificate of health before the issuance of a marriage license, was unanimously passed by the state senate, July 10.

Association Headquarters Changed.—The headquarters for the Medical Association of Georgia together with the offices of the journal of the association have been removed from Augusta to 105 Capitol Square, Atlanta.

District Society Meeting.—The annual meeting of the Twelfth District Medical Society was held in conjunction with that of the Laurens County Medical Society at Dublin, July 10. A barbecue was given for the society at Spivis Park, and the following officers were elected: president, Dr. John K. Malloy, Milan; vice presidents, Drs. C. F. Walker, Swainsboro, and William R. Brigham, Dublin, and secretary-treasurer, Dr. Jason H. Moore, Dublin. It was decided to hold the semi-annual meeting with the Telfair Medical Society at McRae, in January.

ILLINOIS

To Uplift East St. Louis Status.—Dr. Grant L. Taylor, Bluford, supervisor of military zones in Illinois, conferred with Dr. Samuel S. Winner, Chicago, and local health author-

ities to bring East St. Louis up to military requirements. After a careful examination several of the cards placed on immoral houses where venereal diseases were suspected were removed and only six such placards remain.

Women's Clinics to Open.—The women's committee has granted to the Social Hygiene Committee of the State Council of Defense \$100 a month for six months to employ a competent woman physician for clinics three times a week in connection with the Red League Dispensary. Dr. Pearlie M. Stetler, Chicago, has been secured and clinics will be held Wednesdays and Saturdays from 11 to 1, and Fridays from 6:30 to 8:30.

Personal.—Dr. Frank P. Norbury, Jacksonville, has been called to New York to serve for six months as acting medical director of the national committee for mental hygiene in war work, in cooperation with the office of the Surgeon-General. —Dr. James M. Hancock, Chicago, who accidentally suffered the loss of an eye in a pistol duel between the police and a number of bandits, in February last, has made a plea before the council finance committee for \$25,000 damages. —Dr. Heber Roberts, Belleville, suffered the amputation of the index finger of the left hand, July 12, because of an infection following the handling of radium.

MICHIGAN

Personal.—Dr. Slocumb R. Edwards, Calumet, has resigned as oculist and aurist to the Calumet and Hecla Mining Company and has also withdrawn from his association with Dr. John G. Huizinga, Grand Rapids, and has located at Stockton, Calif. —Dr. John W. C. Fleming, Pewamo, is said to have pleaded guilty for failure to report a case of chicken-pox and to have been fined \$15.

Tuberculous Soldiers.—The state war board has set aside about \$21,000 for the treatment of tuberculous soldiers. The two pavilions built at Howell to receive tuberculous children, but which had not been opened on account of the lack of funds, have been set aside for soldiers. The money appropriated will be used for furnishing and equipping the pavilions, for supplying the additional help required, and for maintaining about forty beds for a minimum period of about twenty-five weeks.

MINNESOTA

Memorial to Colonel Todd.—The administrative board of the University of Minnesota School of Medicine, July 6, adopted a memorial to Lieut.-Col. Frank C. Todd, N. A., who died in Chicago, recently. Colonel Todd was a graduate of three colleges of the university and head of a department in the School of Medicine.

Health Organizations Merged.—At the meeting held, July 9, in St. Paul, by the Minnesota State Board of Health, Minnesota Public Health Association and the state advisory commission, resolutions were passed constituting the presidents of each of these bodies a permanent committee to be called the Minnesota Joint Health Committee, to correlate the work of these three organizations.

Personal.—Dr. Herbert O. Collins, city physician of Minneapolis and superintendent of hospitals, resigned, July 16, to become superintendent of the General Hospital, Winnipeg. The vacancy will be filled by civil service examination. —Drs. Jennings C. Litzenberg and Julius P. Sedgwick, Minneapolis, have been appointed members of the advisory committee of the newly created division of child conservation in the state board of health. —In the suit, brought in behalf of Willard Henningsen Dalsgaard by his father in which \$10,000 damages were claimed on account of injuries received by the infant shortly after birth by reason of the physician's negligence, the jury is said to have awarded the plaintiff damages of \$1,750. —Dr. Harvey F. Rawlings, of the staff of More Hospital, Eveleth, who was operated on for appendicitis last month in St. Joseph's Hospital, St. Paul, has recovered and has returned home.

MONTANA

Health Officers Meet.—At the annual meeting of the Montana State Health Officers' Association held in Butte, July 8 and 9, under the presidency of Dr. Lawrence Stevens, Laurel, Dr. Patrick H. McCarthy, Butte, was elected president, Dr. George A. Lewis, Roundup, vice president, and Dr. William F. Cogswell, Helena, secretary.

Personal.—Dr. John H. Phillips, Butte, sustained painful contusions of the chest and other injuries by the overturning

of an automobile, July 6, and is under treatment in St. Peter's Hospital, Helena. —Dr. James E. Elliott, Bozeman, has been appointed health officer of Gallatin County, succeeding Dr. Herbert H. Judd, Bozeman, who has entered the military service.

State Society Meeting.—The fortieth annual meeting of the Montana Medical Association was held in Butte, July 10 and 11. Missoula was selected as the place of meeting for 1919, and the following officers were elected: president, Dr. Edward W. Spottswood, Missoula; vice presidents, Drs. Charles C. Wallin, Lewistown; Albert R. Varco, Miles City, and Alfred Karsted, Butte, and secretary-treasurer, Dr. Elmer G. Balsam, Billings. It was announced that there are 551 physicians in the state, 159 of whom have entered the government service.

NEW YORK

Health Insurance in Political Program.—The labor league of New York City is preparing to take a definite stand in the coming fall campaign to insure the welfare of its members and their fellow workers in New York state. In the program prepared for presentation at the Republican convention this organization comes out definitely as favoring the establishment of state-administered health insurance and the creation of a bureau of sickness prevention and health protection within the state labor departments; for the erection and maintenance of a tuberculosis sanatorium in each county, with county management and state supervision, and for old age pensions for citizens who at 60 years of age are without incomes and have been residents of the state for twenty-five years.

Child Health Organization.—A group of specialists in children's diseases met some time ago in the New York Academy of Medicine and organized a committee on the war-time problems of childhood. After a study of the problems involved the need of a larger organization was demonstrated. The matter was referred to Secretary Lane of the Department of the Interior who urged the formation of a national committee. As there are already so many organizations in existence working on these lines it was decided that this committee should be affiliated with the National Child Labor Committee. Accordingly an organization to promote the health of schoolchildren has been formed as one of the branches of the child labor committee. The program of this committee as outlined includes the following lines of activity: 1. To teach health habits to children and to secure adequate health examinations for all children in the public schools of the country. 2. To consider the urgent problem of malnutrition among schoolchildren. 3. To safeguard the health of children in industry. 4. To awaken the public to the necessity of conserving the health of schoolchildren as a basis of national security and stability. 5. To promote or cooperate with other bodies in securing legislation for the attainment of these objects. Among those on the executive committee are Dr. L. Emmett Holt, New York; Dr. Samuel McC. Hamill, Philadelphia; Dr. Godfrey R. Pisek, New York; Dr. Victor G. Heiser, New York, of the United States Public Health Service; Dr. Bernard Sachs, New York, and Dr. Thomas D. Wood, New York. The headquarters of the committee are at 289 Fourth Avenue, New York.

New York City

German Hospital Changes Name.—The German Hospital Society of Brooklyn has unanimously voted to change the name of the German Hospital of Brooklyn to the Wyckoff Heights Hospital.

Personal.—Dr. Abraham Jacobi has been unanimously elected honorary president of the Friends of German Democracy. He was honorary chairman of the German Unit in the Fourth of July parade. This is an organization of Americans of German descent who favor the destruction of the Hohenzollern rule in Germany.

Clinic for Disabled Soldiers and Sailors.—A clinic for the functional reeducation of disabled soldiers, sailors and civilians was opened at 5 Livingston Place, July 15. This clinic has been equipped through private subscriptions and is affiliated with the Cornell University Medical College. Students will be instructed in the methods which have so far been developed through the war as to constitute a new branch of medicine. Beds for thirty patients are provided in the hospital and many others can attend the clinic daily for treatment. The buildings have been leased from the New York Infirmary for Women which has suspended operation tem-

porarily. Dr. W. Gilman Thompson is director of the clinic. Treatment will be free for those unable to pay, but hospital patients referred by the city authorities or by accident insurance companies and the War Risk Insurance Bureau will pay for board, operations or treatment.

OHIO

Conservation of Nurses.—The Council of the Ohio State Medical Association at its quarterly meeting, June 30, in Columbus, adopted resolutions urging all physicians to economize in their demands in the nursing profession so that more nurses may be spared for foreign service under the American Red Cross. The council also voted unanimously to place at the disposal of the Surgeon-General its entire resources and to give government work preference over all other association activities.

Personal.—Drs. Fannie C. Hutchins, Cleveland; Nora Crotty, Cincinnati, and Eleanor S. Everhard, Dayton, have been appointed members of the medical section of the Ohio War Council.—The Common Pleas Court of Franklin County has ordered Dr. William H. White, Columbus, reinstated as medical examiner for the state industrial commission.—Dr. Bushnell R. Reynolds, Greenwich, has been appointed coroner of Huron County, succeeding Dr. Clement L. Bell, Fitchville, resigned to enter the military service.—Dr. Clarence W. Goss, Lancaster, who has been suffering from tuberculosis for several months is reported to be critically ill.—Dr. Robert H. Bishop, Jr., Cleveland, has resigned as health commissioner of Cleveland to take part in the Red Cross Antituberculosis Campaign in Italy. Dr. Richard A. Bolt, Cleveland, chief of the bureau of child hygiene will succeed Dr. Bishop as health commissioner.

PENNSYLVANIA

Personal.—Dr. Regina M. Downie of Beaver Falls has gone to France with the French Red Cross.—Lieut. David Reynolds Morgan, Edwardsville, has won the French war cross.—Dr. Philip Kamin, Pittsburgh, has succeeded Dr. David L. Simon as police surgeon of Pittsburgh.—Dr. John I. Van Wert, Patton, who has been under treatment in the New York Polyclinic since January 1, has returned home greatly improved.—Dr. Elizabeth Reifsnyder, Liverpool, who is home on an extended leave of absence from Shanghai, China, slipped and fell, while descending a flight of stairs in her home, spraining her ankle and sustaining other injuries.

Philadelphia

Personal.—Dr. Ray R. Willoughby has been appointed assistant medical inspector, bureau of health.—Major James P. Hutchinson, Philadelphia, is now commanding officer of American Red Cross Military Hospital No. 1, at Neuilly, France.

To Give Six Ambulances.—Supplementing their previous gift of four ambulances, the fellowship of the Pennsylvania Academy of the Fine Arts will give six additional machines to the service, the funds for which are to be raised by a campaign just started for that purpose by 600 members of the fellowship. Besides the ambulances, the fellowship has given seventy-four of its members to the service. The names to be given the six new machines are: James MacNeil Whistler, Auguste Rodin, Earl Kitchener, Cardinal Mercier, Admiral Sims' Fleet and General Pershing.

Byberry Buildings for Base Hospital.—Five large structures, including an administration building and four dormitories, forming the group of buildings now under construction for the use of the city's insane, at Byberry, have been tendered by the city, through Mayor Smith and Director Wilmer Krusen, of the department of health and charities, to the government as a military base reconstruction hospital. The offer was made by Director Krusen while in Washington on Thursday and was accepted by the Surgeon-General. The five buildings in question are surrounded by a tract of land containing about 200 acres. The four dormitory buildings will have accommodation for about 800 patients, but with a little adjustment the capacity can be increased to 1,000. Each building is about 50 per cent. completed, and fully 95 per cent. of the materials for finishing the structures is now on the ground. The cost of this particular group of buildings is \$1,250,000. It was arranged at the conference that the Surgeon-General will cooperate through the vocational board of the Army, and that the personnel of the base hospital will be under the supervision of the Surgeon-General.

TENNESSEE

New Branches of Hospital.—The extensive improvements planned for the Knoxville General Hospital include three new departments, a contagious disease section, a maternity ward, and a children's department.

Licenses Revoked.—The licenses of Drs. Ben Friedman, Memphis; Warren S. Webb, Memphis, and A. L. Saunders, to practice medicine in Tennessee are said to have been revoked by the state board of medical examiners.

Service Flag Dedicated.—Memphis and Shelby County Medical Society dedicated its service flag, July 16, with appropriate ceremonies. The presentation of the flag was made by Dr. James L. Andrews, Memphis, and the address of acceptance by Dr. John L. Jelks, Memphis, president of the society. The flag bears seventy-nine stars.

WISCONSIN

State Board Election.—At the meeting of the state board of health at Milwaukee, June 26, Dr. George H. Ripley, Kenosha, was elected president, and Dr. John M. Dodds, Ashland, secretary.

Personal.—Dr. Albert M. Benson, Hartford, has been chosen state field agent of the Wisconsin Humane Society.—Dr. Anne I. M. Reed has been appointed senior physician of the Muirdale Sanatorium, Wauwatosa, in order to permit the release of Dr. George Allen for the military service.—Dr. Bartholomew Bantley, Hot Springs, S. D., has been appointed first assistant surgeon of the Northwestern Branch of Homes for Disabled Soldiers, Milwaukee.

Public Health Instructors.—For the last three years the Wisconsin Anti-Tuberculosis Association has been conducting courses for the instruction of public health nurses, admitting to these courses of instruction graduates of recognized training schools and supplementing their nurse's training by special work in public health service. More than fifty nurses have taken these courses and the communities into which they have gone have come to look to the Wisconsin Anti-Tuberculosis Association to supply them with competent health workers. The needs of the military service have drawn numbers of these nurses from community work and the positions left vacant by them have largely been left unfilled. The experience gained through conducting previous courses has shown that for the training of nurses as public health workers, the duties of the social worker, in her contact with the individual family and with the public, needed especial emphasis, and in the planning of the various departments of instruction for the new type of worker, this need has been constantly borne in mind. It has therefore been decided to train a new type of worker who will be termed a health instructor. The health instructor will not be a nurse, for it is evident that to give instruction in the principles of hygienic living, in the methods of preventing and avoiding tuberculosis, in inspecting schoolchildren, or in advising mothers as to the care of infants, training in the technic of bedside nursing is not indispensable; neither will she be a teacher as that term is usually understood. The health instructor will be an individual combining the functions both of the public health nurse and of the teacher in the schools. She will be trained in the fundamentals of social service and after much the same manner that nurses have been given this same instruction in previous courses conducted by the Wisconsin Anti-Tuberculosis Association. In order to provide the most thorough instruction possible, the first class is being limited to fifteen in number. It is the expectation of the Wisconsin Anti-Tuberculosis Association that through this course of training, health instructors competent to do the work now being done by the public health nurse, and with a widened view and greater scope of understanding because of her teaching experience, can be prepared in a year's time, thus saving two of the three years necessary in a nurses' training, and at the same time, release the graduate nurse for her most important duty which demands a longer and more technical training.

CANADA

Hospital News.—By the will of a Mr. Ramsay, resident in Scotland, but who formerly had large financial interests in Toronto, the hospitals in Toronto and other public charities in that city will benefit to the extent of \$750,000.—McGill University Hospital at Étapes, France, is to be removed to England, as it has been bombed from German airplanes on several occasions.—The Province of Alberta has appro-

apropriated \$218,000 for hospital purposes in that province during the present year. There is a proposal on foot for the establishment of a tuberculosis sanatorium in the province to be built conjointly by the Dominion government and the Alberta government at a cost of \$400,000.—Sir Adam Beck has presented to the Byron Sanatorium, London, Ont., a nurses' residence costing \$30,000, in grateful appreciation of the recovery of his only daughter from a very severe illness.

Personal.—Col. Arthur E. Ross, M.D., M.P.P., exmayor of Kingston, Ont., who has been deputy-director of medical services for the Canadian Expeditionary Forces in France, is to be made chief medical officer of the Fifth Canadian Division with the rank of major-general. Recently the British authorities preferred a request for the services of Colonel Ross as director of medical services of one of the British armies in France.—Dr. Ernest A. Hall, Victoria, B. C., has offered to supply the Royal Jubilee Hospital of that city with his own electrical equipment and has also undertaken to supply a medical electrical expert for half a day per week free of charge. This is for the treatment of returned soldiers.—Sir Edward Scott Worthington, a graduate of Trinity Medical College, Toronto, 1897, has been created a Knight Commander of the Royal Victorian Order. From 1899 to 1902, Dr. Worthington served in the South African War, was physician to the Duke of Connaught when governor-general of Canada. He went to the front in 1914.—Dr. C. E. Edgett, Western Canada, has received the D.S.O.—Major Charles Woolard has succeeded to the command of the Vancouver, B. C., military hospital, Col. Charles E. Doherty, New Westminster, B. C., having resigned.—Major A. D. Macdonald, Victoria, B. C., is now deputy commandant and assistant director of medical services of the Invalid Soldiers' Commission in British Columbia, with headquarters in Vancouver.—Lieut.-Col. J. Alexander Hutchison, Montreal, is now consulting surgeon of the Canadian Army Medical Corps, succeeding Col. George E. Armstrong, Montreal.—Major John S. Matheson, Brandon, Manit., senior medical officer at the Canadian Clearing Station at Buxton, England, has gone to France to the No. 3 Canadian Hospital at Étaples.—Capt. Henry Clinton Pearson, C. A. M. C. (Toronto), H. Tozer and E. M. Osborne, C. A. M. C., London, Ont., are reported wounded.

GENERAL

National Dental Association.—This association is to hold its twenty-second annual session in Chicago, August 5 to 9. At the general session of the second day—August 6—addresses will be delivered by Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army, on "Consideration of Some of the Important Changes That Have Been Made in the Medical Department of the United States Army During the Past Four Years"; by Brig.-Gen. Robert E. Noble, on "The Surgeon-General's Plan for Maintaining the Health of Our Soldiers," and by Lieut.-Col. Horace D. Arnold, on "The Benefits to the Medical Profession and Schools from Higher Educational Standards." Col. Charles H. Mayo, Rochester, Minn., also will address the meeting.

Resolution on Antinarcotic and "Soft Drink" Regulation.—On July 13, Senator Frelinghuysen submitted the following resolution, which was ordered to lie over under the rule, and referred to Committee on Contingent Expenses:

WHEREAS, It is openly charged by scientific men and statisticians that the use of narcotic and habit-forming drugs is largely on the increase, not only in the form of opium, morphin, cocain, heroin and kindred opiates, but also certain so-called "soft drinks" charged with caffeine, sold at innumerable fountains to our young men and young women; and

WHEREAS, It is alleged that in the neighborhood of many of our military camps purveyors of these deleterious drugs are to be found, stealthily engaged in the sale of the same to our soldiers; and

WHEREAS, Certain caffeine-charged "soft drinks," so called, notoriously injurious to health, are openly sold to men in uniform; and

WHEREAS, Not only is the morale of soldiers and of our young men and young women in general sensibly lowered by the prevalence of this habit; and

WHEREAS, It is estimated that the actual money loss to the nation, by reason of this state of affairs, amounts to hundreds of millions of dollars annually; and

WHEREAS, The economic loss in wasted lives, in sickness, loss of wages, accidents, incapacity and crime, probably aggregates hundreds of millions of dollars additional; and

WHEREAS, The existence of this evil has a demoralizing effect upon the efficiency of our Army, to a degree not appreciated by the general public: therefore, be it

1. Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the President of

the United States be, and he hereby is, authorized to appoint a commission of citizens of the United States, not exceeding three in number, to make inquiry into the subject of narcotic and habit-forming drugs.

2. The said commission shall investigate the causes which lead to the use of such drugs, the extent of the use of such drugs and the kinds of drugs used, and shall also investigate the subject of the drug addict and such other factors as in its judgment have an important bearing upon the use of narcotic and habit-forming drugs, and shall recommend to the President the best methods in its judgment of regulating the importation, manufacture, sale and use of narcotic and habit-forming drugs, and of solving the problem presented by the drug addict.

3. The said commission shall report to the President on or before the convening of the next Congress, which report shall be transmitted by the President to Congress. The said commission shall select from its members a president and secretary, and shall meet at such places in the United States as it may deem advisable, and it shall have the power to subpoena witnesses and employ necessary assistants, provided the total expenditures under this resolution shall not exceed \$50,000, and that all actual expenses shall be approved by the President of the United States, and he shall fix the amount of compensation to be paid each commission.

4. The sum of \$50,000 be, and it is hereby, appropriated for the purpose above indicated.

FOREIGN

Death of Lesser.—The *Correspondenz-Blatt* states that Prof. E. Lesser, the Berlin dermatologist, director of the service for skin and venereal diseases at the Charité, died, June 6, aged 66. In the nineties, he was professor for four years at the University of Bern, Switzerland. Among his other works, his manual on skin and venereal diseases is perhaps the best known. It has passed through numerous editions.

Typhus and Influenza in Spain and Portugal.—The *Medicina Contemporanea* relates that there were only 159 cases of typhus at Oporto in the week ending June 8, which is a little larger figure than that of the preceding week but still represents a gradual decline of the epidemic. There had been no cases at Lisbon since May 29. The epidemic of influenza at Madrid is said to have attacked 200,000. It has appeared in other cities and in Portugal. The three day course of the fever seems to be the universal type. Certain medical students at Madrid have appealed to have another chance given them for examination as their examinations fell just at the time when they were all sick with the influenza; their request is said to have been granted.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

South American Society for Hygiene, Microbiology and Pathology.—The second conference of this organization is to be held at Rio de Janeiro in September. The first met at Buenos Aires and Oswaldo Cruz was chosen as the president. Prof. Miguel Couto has been appointed to the vacancy left by the death of Dr. Cruz.

Deaths.—Dr. J. T. Henao, a leading physician of Bogota, Colombia, member of the house of representatives where he served on the committee for public instruction.—Dr. C. Wallau, director of the surgical clinic at Porto Alegre, Brazil, honorary member of certain foreign surgical associations and author of works on surgery and neurology.

Eugenics Society Organized at São Paulo, Brazil.—The leading physicians of São Paulo have organized a society to study questions of heredity and means to improve the human race. Its aims and purposes are set forth in an eight-page pamphlet, especially emphasizing the aim to enlighten and educate the public in matters relating to hygiene and eugenics, for the welfare of the individual, of the community and of future generations. The questions of the regulation of prostitution and physical examination of candidates for matrimony are also to be thoroughly studied.

Brazil Introduces State Quinin Service.—The *Brazil Medico* reports that the president of the republic has signed the bills appropriating 400,000 milreis for an "official service of quinin" in prophylaxis of malaria—"necessary for the sanitation of Brazil," and providing for the "organization of commissions of physicians and their aids to initiate the service of rural prophylaxis, combating the endemics which ravage the interior of the country." The president calls on every Brazilian to aid in this great campaign against endemic diseases in general. The success already attained in eradicating yellow fever in Rio, augurs well for the success of the new drive. That it has not been started before, he says, is due to financial reasons. Prof. M. Pereira aroused the country with his cry, "Brazil is a vast hospital," and the movement for prophylaxis on an extensive scale was soon inaugurated and this important step taken.

CUBA LETTER

HAVANA, July 15, 1918.

The Epidemic of Influenza

During the past month, nearly one fourth of the population of Havana was taken ill by an epidemic of a disease similar to the grip. The disease begins suddenly with high temperature, headache and backache, and lasts from three to five days, leaving in most cases a pronounced weakness. Other features are the lack of catarrhal symptoms, the discordance between pulse and temperature and the complete recovery, not a single fatal case being recorded. This condition is not a typical attack of the grip, and while most physicians think it is a mild and unusual form of this disease, others believe it to be the dengue or the three day fever. Dr. Guiteras states that three day fever is transmitted by a fly, the *Phlebotomus papatassii*, which has not been found in Cuba. Every one asks if this is the same disease that appeared in Spain not long ago and if it might have been brought to this country in the Spanish steamers.

Oldest Market in the City Closed

The secretary of sanitation has ordered the evacuation and demolition of the Plaza del Vapor, the oldest market in Havana, its sanitary conditions being very poor. A new temporary market has been opened in the old grounds of the Villanueva Railroad station.

Deficiency of Water Supply

The city of Havana enjoyed until a few years ago the privilege of having one of the finest spring waters in the world. The canalization of the springs of Vento was built in 1889 by Albear, a Spanish engineer; since then the population of Havana has increased from 200,000 to nearly 600,000, and therefore the necessity of more water is very badly felt. In many quarters of the city water does not reach the houses during certain hours, and the pressure is so low that seldom does the water reach the second floor without some pumping device. The shortage of water is becoming a serious problem, and the department of public works is being urged by the sanitary authorities and by the press to increase the supply by utilizing new springs that exist near Vento.

Personal

Dr. J. A. Simpson has been appointed to fill a vacant chair in the Academia de Ciencias.

Dr. B. Saenz has been appointed professor of dermatology of the University of Havana.

Dr. V. Pardo-Castello has been appointed chief of the department of dermatology and syphilology of the Municipal Hospital.

Death of Dr. Sanchez-Toledo

Dr. Miguel Sanchez-Toledo, professor of physiology at the University of Havana, died at his home, July 13.

BUENOS AIRES LETTER

BUENOS AIRES, June 10, 1918.

The State University System

There has been considerable agitation in university circles of late on the long debated question of the reform of the system of government of the different departments of the universities. University instruction is given exclusively by the state, and there can be no independent universities. The system previously in force at Buenos Aires was modified in 1916, and in 1918 a similar change was effected at the University of Cordoba. Before this the government of the different departments was vested in the department itself, and the faculty elected its own members, and the election was for life. The different faculties of the university were represented in a superior council by two delegates and the dean. The faculties held no scientific meetings and limited their work to administrative functions. This undemocratic system elicited protests which culminated in a strike of the student body in Buenos Aires (1906), and this year in Cordoba. The regulations of the universities were modified in consequence. The principle was established that the faculties (*las Academias*) are henceforth to be exclusively scientific bodies, while the administration and the government of the whole university is entrusted to a representative board the members of which are to be elected by the titular professors and serve for four-year terms.

The agitation for reform has not been satisfied with these measures, especially as there are now considerable numbers of supplementary professors teaching complimentary courses. The reform movement demands still more democratic innovations. The principal bases for the various plans proposed for adoption are (1) a limited term and limitations to reelection of the rector of the university and the deans of the faculties, and they are to be elected at an assembly of all the professors. Some of the projects would give the vote in this matter to alumni who are not professors. (2) The executive board to be elected by all the professors without discrimination, with provision that the titular professors should outnumber the others. (3) Some of the projects call for a representation of the student body in the deliberations and vote.

A large number of projects have been drawn up by university advisers, groups of professors, faculties, etc., and they are to be discussed by the Consejo Superior Universitario, after consulting with the various faculties, at a meeting scheduled for June 16. The University of La Plata has already introduced the larger part of these reforms, although this university has no medical department, but has recently organized a preparatory medical course (to relieve the overcrowding at its sister university at Buenos Aires, only 37 miles distant).

The Campaign Against Tuberculosis

The financial means for combating tuberculosis are relatively deficient, not at all proportionate to the sums spent for the care of the insane. Various institutions and organizations have been conducting propaganda to increase the resources destined to combat this plague. Among others may be cited the *Revista Medica del Rosario*, which now publishes a special supplement devoted to and entitled "Prophylaxis of Tuberculosis." The circumstance that the president of the Liga Argentina contra la Tuberculosis, Dr. G. A. Alfaro, has been appointed president of the Departamento Nacional de Higiene signifies that important modifications are about to be realized. As one of the first steps it has been decided to create a special section for the study of this disease. The national government has imposed a 20 per cent. tax on the price of the tickets for the Loteria Nacional de Beneficencia and this additional amount is to be applied to the expenses of the campaign against tuberculosis. It is estimated that this will produce a revenue of more than two millions annually.

LONDON LETTER

LONDON, June 25, 1918.

The Cause of the War

Though the evidence that Germany planned the war and prepared for it for many years was complete even before the revelations of her ambassador in England, Prince Lichnowsky, yet, with incredible mendacity, German writers from the highest downward have always represented it as defensive. It may be remembered that soon after the outbreak the leading German scientists to the number of about 100, including Ehrlich, issued a manifesto to the world proclaiming the innocence of Germany. What their real opinions were one has no means of knowing, as they were evidently "mobilized" by the government to make this declaration. This is, of course, a purely political subject; but it has a special interest for physicians in view of a memorandum just published in the *Times* by the distinguished physiologist, Prof. C. S. Sherrington of Oxford. He made it at the time of a remarkable conversation with the theologian Professor Troeltsch, then prorector of the University of Heidelberg, Aug. 16, 1907. The memorandum shows that Professor Troeltsch said, "Great conflicts which arise when an old world power is destroyed by a new one must always be accompanied by many sad events—the war between Germany and England will be a matter of regret to me, although I recognize it to be a necessity." On being asked why war should be a necessity since no one in England thought of making war on Germany, Professor Troeltsch replied: "The war is a necessity for Germany because England has so much that it is absolutely necessary for Germany to possess in order to fulfil her rôle as a world state." Being asked what were the possessions which Germany so much desired, Professor Troeltsch said: "Ports and colonies in many parts of the world: Australia, South Africa, Hong-Kong, India. England is not really strong, but there has been no strong power to dispute these great sources of wealth with her. These sources of wealth must fall to a new world power, and that is clearly Germany." Professor Sherrington objected that "the age is gone by when one believed that

prosperity for one European nation could be achieved by its spoliation of another." Professor Troeltsch relied that "for Germany it was not merely a question of spoliation," and he proceeded: "Our Germans who go to America lose their tie to Germany; in spite of all our government can do, they cease to aid Germany and its future. We live in an epoch when again, as often in past ages, great movements of a people driven to conquest by the necessity for expansion are in progress. And, though I regret the heavy strokes that have to be given, I recognize that for Germany it is a necessity and that in fulfilling her destiny she will forward the history of the world. For instance, our work people are the best in the world; they know that, and they know also that their army and their navy are the weapons of blood and steel which can open the world and give them wealth and power as the competent directors of workmen who under their supervision would do more for the world than they would otherwise do. They know they can thus become rich masters themselves." Yet soon after the outbreak of war the Berlin correspondent in his letter to THE JOURNAL referred to the war as "an attack" on Germany by Russia, France and England!

Women and the Proposed Ministry of Health

A deputation, organized by the National Union of Women Workers, waited on Dr. Addison at the Ministry of Reconstruction to press for the immediate appointment of a ministry of health and to bring to his notice the following resolution, which had been passed unanimously:

The National Union of Women Workers, realizing the vital importance of preserving the lives of infants and young children and of consolidating and improving the health of the whole community, earnestly urges on the government the immediate formation of a ministry of health, presided over by a minister of cabinet rank, and including in both higher and lower administrative posts men and women on equal terms. Further, it urges that this department should eventually comprise within itself the activities of the other central departments dealing with health, and should simplify and coordinate all local machinery concerned with the same subject.

Dr. Addison expressed sympathy with the movement and said he would favor an important share in the work of the central department being allocated to women. As far as the local authorities were concerned, the matter was largely in the hands of the women themselves who should exercise their votes and endeavor to secure the return of suitable women to the local authorities. The extension of the franchise to women would probably lead to increased activity in this direction. The help of women was specially valuable on the housing and health committees. It was due only to the war that further progress had not been made with regard to the formation of a ministry of health.

The Influenza Epidemic

An epidemic of influenza is raging in London and throughout the country generally. It is so prevalent that business is affected and a considerable proportion of the workers are absent from factories, shops, etc. It is the fashion to describe the disease as "Spanish influenza" because it has been heralded by a report of a mysterious epidemic in Spain which is supposed to be influenza. However, influenza is also reported as prevalent in the German army and the symptoms in the present epidemic differ in no way from the usual ones—fever, general aches, and irritation of the conjunctival, nasal and bronchial mucous membranes. The latter is slight and in some cases absent. The disease runs its course to recovery in a few days and is not attended by serious complications. Influenza is by no means a new disease, though when in modern times it first became epidemic in this country in 1889-1890 it was new to the majority of physicians, and was described as "Russian" influenza because it was supposed to have originated in Russia.

PARIS LETTER

PARIS, June 27, 1918.

Pupillary Reactions to Severe Shock in War Wounded

According to Dr. Lacroix, who read a paper on this subject at a recent meeting of the Société de chirurgie de Paris, the pupillary phenomena observed in shock occurring in the war wounded are as follows: Immobility of the pupil, persisting no matter how intense the light reflected into it; contraction of the pupil, more marked in nervous shock than in shock incident to hemorrhage, and in the latter instance it may be replaced by dilatation. This, moreover, is encountered in all forms of shock just before death takes place.

Le Comité d'assistance for Tuberculous Soldiers

The Comité national d'assistance aux anciens militaires tuberculeux recently held its annual meeting in the course of which the general secretaries read two reports detailing the work of the committee during the past year. The gross receipts of the *Journée des tuberculeux* exceeded 2,000,000 francs. Nearly 100 dispensaries and half a score of sanatoriums have been established in France. Many of these, following the example of Paris, have provided hospital accommodations for the tuberculous. All of these agencies have assisted a total of about 25,000 invalided tuberculous soldiers and they have instituted prophylactic measures, being assisted in this work by other organizations, notably the American.

The Lariboisière Hospital

At the time of the Courneuve catastrophe, March 15, 1918, when American assistance was given so freely, the personnel of the Lariboisière Hospital displayed exceptional devotion; therefore this hospital has been awarded the *médaille d'honneur* of the Assistance publique.

Swedish Gift to the French Red Cross

The central committee of the French Red Cross has received from Count de Cyldenstolpe, the Swedish minister, 70,000 francs which was raised in Stockholm at a *fête de bien-faisance*. Sweden in that way manifests its sentiments and sympathy for France in its relief work.

Death of Dr. Régis

The death is announced of Dr. Régis, professor of mental diseases at Bordeaux. This chair was established for Dr. Régis in 1913. His work, *Précis de psychiatrie*, has had several editions. He has also published interesting articles on general traumatic paralysis, the education of the abnormal psychic, the mental state of regicides, insanity in dramatic art, etc. In 1910 Régis was elected national correspondent member of the Academy of Medicine.

Marriages

COL. MATTHEW A. DE LANEY, M. C., U. S. Army, in command of the Pennsylvania Hospital Unit on the western front in France, to Miss Elizabeth R. Voltz of Philadelphia, in London, England, recently.

MAJOR ROBERT CLARENCE McDONALD, M. C., U. S. Army, Englewood Station, Mo., on duty in Kansas City, to Miss Chlora Hortense Charles of Independence, Mo., June 20.

LIEUT. WILLIAM HENRY JOSEPH O'BRIEN, M. R. C., U. S. Army, New York City, on duty at Camp Shelby, Hattiesburg, Miss., to Miss Helen Isabel Carter, at Brooklyn, April 3.

LIEUT. WAVERLY STAFFORD TUCKER, M. R. C., U. S. Army, to Miss Emma Maude Martin of Newark, N. J., at Chattanooga, Tenn., June 15.

LIEUT. CLAUDE A. FRAZIER, M. R. C., U. S. Army, Knoxville, Tenn., to Miss Nina Frances Toney of Indianapolis, in New York City, June 22.

LIEUT. JOHN IGNATIUS MEAGHER, M. R. C., U. S. Army, Montclair, N. J., to Miss Jane Hoey of New York City, June 29.

LIEUT. FRANCIS JOSEPH McCAULEY, M. C., U. S. Navy, Washington, D. C., to Miss Eileen Berry of Newark, N. J., June 25.

ASST. SURG. EDWIN PETERSON, U. S. Navy, to Miss Inez Augusta Willson, at St. Thomas, Virgin Islands, June 15.

JOSEPH WILLIAM ROWNTREE, Waterloo, Iowa, to Miss Marie van Engelken of Ocala, Fla., March 11.

LEWIS DEWITT HEWS, Rockwell City, Iowa, to Miss Jessie Pritchard of Spokane, Wash., July 3.

THOMAS GUSTIN ALLER, Philadelphia, to Miss Natalie E. Walton of Torresdale, Pa., June 1.

ANNY MERYA CAROLINE ERNESTINE PETERSEN to Mr. P. O. Saunders, both of Chicago, recently.

WESTLEY CINTRA COX, Brooklyn, to Miss Maxine Larson of Washington, D. C., June 1.

DON B. BIGGS, Findlay, Ohio, to Miss Eva Swope, at Felicity, Ohio, July 9.

PAUL VINCENT JOYCE to Miss Edna Callahan, both of Chicago, July 16.

Deaths

Major Morris Jacob Karpas, M. R. C., U. S. Army, New York City; Long Island College Hospital, Brooklyn, 1904; aged 39; a Fellow of the American Medical Association; a member of the American Medico-Psychological Association; chief of clinic of the New York Neurological Institute; assistant alienist to Bellevue and Allied Hospitals; adjunct neurologist to the Montefiore Home and assistant physician to the neurological department of Cornell Dispensary; on duty with the American Expeditionary Forces in France; is reported to have died from disease by the list of American Overseas casualties which appeared in the daily press of July 22.

Holt Couch Wilson, Portland, Ore.; University of Virginia, Charlottesville, 1876; Bellevue Hospital Medical College, 1877; aged 62; a member of the Oregon State Medical Association; professor of surgery in the University of Oregon Medical School; a member of the staff of the Good Samaritan Hospital, and medical director of the Columbia Life Insurance Company; who was operated on in the Good Samaritan Hospital, July 3; died in that institution, July 7.

Richard Wash Salter, New Orleans; Tulane University, New Orleans, 1892; aged 50; a Fellow of the American Medical Association; a specialist in ophthalmology and a member of the visiting staff of the Eye, Ear, Nose and Throat Hospital, New Orleans, for ten years; lecturer on diseases of the eye in the New Orleans Polyclinic; visiting oculist to the Charity Hospital; died at his home, July 7, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent, while suffering from nervous breakdown due to overwork.

Capt. George Tupper, M. R. C., U. S. Army, Thief River Falls, Minn.; Northwestern University Medical School, Chicago, 1899; aged 46; a specialist in diseases of the eye, ear, nose and throat; who later practiced in California and Mexico, and was in Europe when the war broke out, and became attached to the medical division of one of the allied nations; is reported to have died recently in France.

Edward J. McOscar, Fort Wayne, Ind.; Jefferson Medical College, 1884; aged 57; a Fellow of the American Medical Association; local surgeon for the Grand Rapids and Indiana Railroad; physician and surgeon to St. Vincent's Orphan Asylum; who had been suffering from insomnia, due to a nervous breakdown, was found dead in his home, July 11, from an overdose of chloroform taken to induce sleep.

Capt. Addison John Provost, M. R. C., U. S. Army, Oshkosh, Wis.; Hahnemann Medical College, Chicago, 1891; aged 45; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; who had been on duty at Fort Riley, Kan., and later at Fort Bliss, Texas; died in the Army and Navy General Hospital, Hot Springs, Ark., July 7.

Samuel Thomas Day, Port Norris, N. J.; University of Maryland, Baltimore, 1889; aged 59; a Fellow of the American Medical Association; formerly president of the Cumberland and County (N. J.) Medical Society, and a member and physician to the board of health of Commercial Township; died at his home, July 12, from gallstone disease.

James L. Watson, Toledo, Ohio; Toledo (Ohio) Medical College, 1891; aged 61; a member of the Ohio State Medical Association; formerly president of the Toledo Academy of Medicine; chief medical director of the Toledo Traveler's Life Insurance Company; died at his summer home, Clear Lake, Ind., July 11, from malignant disease.

Augustus William Potter, Lisbon, Me.; Bowdoin Medical School, Brunswick and Portland, 1884; aged 64; for six years superintendent of schools; for fifteen years chairman of the board of selectmen, and for several years town moderator; died at his home, July 11, from cerebral hemorrhage.

Lieut. Arthur Murray Clare, C. A. M. C., Neepawa, Manit.; Manitoba Medical College, Winnipeg, 1917; aged 24; who left for the western front soon after graduation and was assigned to duty with the Durham Light Infantry; was instantly killed in the Aisne front in France, May 28, by a machine-gun bullet wound of the heart.

John Miller Stephens, Pasadena, Calif.; University and Bellevue Hospital Medical College, 1903; aged 39; a specialist on diseases of the eye, ear, nose and throat; while motoring between Santa Barbara and Paso Robles, Calif., was killed by the overturning of his automobile near Santa Maria, July 10.

Capt. Walter Souldard Johnson, M. R. C., U. S. Army, San Francisco, on duty at Camp Kearney, Linda Vista, Calif.; Long Island College Hospital, Brooklyn, 1899; aged 49; a Fellow of the American Medical Association; died in San Francisco, April 26, from suppurative meningitis.

Earl Bigham, Grand Rapids, Mich.; Rush Medical College, 1885; Long Island College Hospital, Brooklyn, 1893; aged 60; a Fellow of the American Medical Association, and once president of the Kent County (Mich.) Medical Society; died at his home, July 5.

Charles I. Groves, Louisville, Ky.; University of Louisville, Ky., 1889; aged 53; a member of the Kentucky State Medical Association; coroner of Jefferson County from 1907 to 1909; died at his home in Kenilworth, July 2, from a congestive chill.

John Conrad Lemmer, Wilkesburg, Pa.; University of Maryland, Baltimore, 1885; aged 56; a member of the Medical Society of the State of Pennsylvania; the first medical examiner appointed by the Pennsylvania Railroad; died at his home, July 9.

Charles E. Doyle, Galesburg, Mich.; Detroit College of Medicine and Surgery, 1893; aged 56; at one time a Fellow of the American Medical Association; a member of the Michigan State Medical Society; died at his home, July 8, from cerebral hemorrhage.

James R. Lewis, Louisville, Ky.; Louisville (Ky.) Medical College, 1901; aged 57; until ten years ago a practitioner of Louisville, and since that time office manager of the Standard Printing Company; died at his home, July 3, from tuberculosis.

Alfred Drury, Princeton, N. J.; New York Homeopathic Medical College, New York City, 1900; aged 46; visiting physician to St. Mary's Hospital, Passaic, N. J.; died in Ocean Grove, N. J., July 9, from pneumonia.

Nelson Curtice Holt, Webster, N. Y.; Bellevue Hospital Medical College, 1896; aged 65; formerly financial secretary of the Rockefeller Institute for Medical Research; died suddenly at his home, July 8.

James Fleming Walker, Anniston, Ala.; University of Louisville, Ky., 1892; aged 71; a member of the Medical Association of the State of Alabama; a Confederate veteran; died at his home, July 10.

Jacob Pinckney Killian, Salem, Va.; New York University, New York City, 1871; aged 69; a member of the Medical Society of Virginia; died at his home, July 5, from cerebral hemorrhage.

Gideon B. Thomason, Alphretta, Ga.; Atlanta (Ga.) Medical College, 1882; aged 72; a Confederate veteran; was struck and instantly killed, July 5, by a Georgia Railroad locomotive.

Samuel Carlisle Meredith, Philadelphia; Jefferson Medical College, 1888; aged 63; also a druggist; a practitioner for thirty-five years; died at his home, July 12.

John James A. Doyle, Philadelphia; Jefferson Medical College, 1897; aged 43; died in Atlantic City, N. J., July 6, from the effects of overwork.

Aron A. Mendel, New York City; University of Jassy, Roumania, 1896; aged 50; died at his home, July 12.

Frank McAvinnue, Lowell, Mass.; University of Vermont, Burlington, 1889; aged 64; died at his home, July 7.



Died in the Service
IN FRANCE
LIEUT. WILLIAM G. HERRINGTON,
M. R. C., U. S. ARMY,
1884-1918

(See The Journal, last week, page 214)

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

DEPENDABILITY OF DOSAGE IN TABLETS

The tablet form of administering medicines is popular among many physicians because of its convenient availability and dosage. There is no doubt about the convenience of tablets, but the accuracy of the dosage content is not always to be depended on. One reason for this is that the demand for palatable and convenient "medicaments has led manufacturers to attempt to produce in tablet form mixtures which, from the nature of the case, are not suited to that method of compounding." In a series of painstaking experiments¹ on Bismuth, Opium and Phenol tablets, conducted a number of years ago in the A. M. A. Chemical Laboratory, it was shown that no tablets on the market then contained the amount of phenol the label indicated, the variation being from 12.3 to 112.5 per cent. Similarly the laboratory found that in the case of several different brands of Aromatic Digestive Tablets,² the amount of hydrochloric acid present in these absurd combinations was true to label in only one half of the specimens notwithstanding the fact that the amounts claimed to be present were ridiculously small; in two specimens there was no hydrochloric acid whatever present, while a third contained only a trace. These examples illustrated clearly the very evident unwisdom of attempting the pharmaceutically impossible merely for the sake of convenience or pharmaceutical "elegance."

Another reason for doubting the accuracy of dosage, irrespective of the characteristics of the drugs composing the tablets, has been the manifest lack of care in their manufacture. In 1914, Kebler³ reported the results of a far-reaching investigation of tablet compounding in which he pointed out that tablets on the market were not as uniform or accurate as was generally believed, the variations being "unexpectedly large in numbers and amount." During the past year, the Connecticut Agricultural Experiment Station⁴ undertook the examination of tablets—proprietary and nonproprietary—taken from the stock of dispensing physicians. The variations found in *weights* of the tablets were strikingly similar to those reported by Kebler.

VARIATION IN WEIGHTS OF TABLETS

Variation	Kebler Per Cent.	Connecticut Per Cent.
Less than 10 per cent.	43	44
More than 10 per cent.	57	56
More than 12 per cent.	44	35
More than 15 per cent.	28	26
More than 20 per cent.	9	10

The determinations of the *composition* of the tablets when compared with that claimed for them showed wide variation—from 54 per cent. above to 70.5 per cent. below; in almost two thirds of the tablets examined, the variation amounted to more than 10 per cent.; in three fifths of the tablets, the variation was more than 15 per cent.; in one fourth, more than 20 per cent., and in one twentieth, more than 50 per cent.; only in one eighth of the tablets was the variation less than 5 per cent. Allowing a tolerance in composition of 10 per cent., one or more products of the following manufacturers were found deficient: Buffington Pharmacal Company; Daggett and Miller Company; Drug Products Company; The Harvey Company; National Drug Company; B. F. Noyes

1. Puckner, W. A., and Clark, A. H.: Examination of Tablets of Bismuth, Opium and Phenol, *THE JOURNAL A. M. A.*, July 25, 1908, 330. Puckner, W. A., and Hilpert, W. S.: Tablets of Bismuth, Opium and Phenol, Dec. 17, 1910, p. 2169, May 6, 1911, p. 1344. Unreliable Pharmaceutical Products, editorial, May 6, 1911, p. 1335.

2. Puckner, W. A., and Warren, L. E.: Aromatic Digestive Tablets, *THE JOURNAL A. M. A.*, Aug. 20, 1910, p. 710.

3. Kebler, L. F.: The Tablet Industry, *Jour. Am. Pharm. Assn.*, 1914, 3, 820, 937, 1062.

4. Bull. 200, Connecticut Agricultural Station, Food and Drug Products, 1917, p. 161.

Company; Progressive Chemical Company; Tailby-Nason Company, and John Wyeth & Brother.

The Connecticut investigators substantiate once again the work previously reported, namely, that there are a number of firms who are either incompetent or careless. For tablets of simple composition, a variation from the declaration of 10 per cent. should be amply sufficient to compensate for the errors of careful manufacture. It may be added that the best tablets originate generally from firms having competent chemical control.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DRAFTING OF PHYSICIANS—BUREAU OF NURSING

To the Editor:—1. Would a physician within the draft age, unmarried, classified in A-1 but placed in "limited service" classification on account of an ankle which was sprained fifteen years ago but which gives no trouble now, be inducted into service? 2. Is the government school for nurses now in operation? If so, to whom can one make application?

C. O. J., Texas.

ANSWER.—1. Physicians drafted into the service are held as privates in the line. Division surgeons in the camps are instructed to receive the applications of such men for membership in the Medical Reserve Corps and to examine them. If successful, the candidate may be given a commission; if unsuccessful, he continues to serve in the department of the Army to which he has been assigned.

2. Yes. Apply to your Division Director of the Bureau of Nursing of the American Red Cross, Gulf Division, Post Office Building, New Orleans.

BISMUTH IODOFORM PETROLATUM PASTE

To the Editor:—Please give me the formula for the bismuth iodoform and paraffin paste now being used by Dr. Rutherford Morison; also his technic, if possible, of its use, and the reference to any articles on the subject.

R. A. BOWDLE, M.D., East Ely, Nev.

To the Editor:—A recent newspaper despatch describes the use of a preparation of bismuth iodoform and paraffin paste in the treatment of wounds in France. It was spoken of as "bipp." If this has been authentically reported, please advise me as to where it can be found.

D. W. McLEAN, D.D.S., Mount Vernon, N. Y.

ANSWER.—Bismuth iodoform petrolatum paste was introduced by Rutherford Morison as a surgical dressing to check and remedy the spread of infection of wounds (*Lancet*, London, 1916, 2, 268; *Brit. Jour. Surg.*, 1917, 4, 659; *Brit. Med. Jour.*, 1917, 2, 503; *Internat. Jour. Surg.*, 1918, 21, 33). In Europe, the mixture is often termed "bipp," the word formed by the initials of the constituents. Until last October the formula generally given for the preparation of the paste was:

Iodoform, 16 ounces; bismuth subnitrate, 8 ounces; liquid petrolatum, 8 fluid ounces or a sufficient quantity. The powders are mixed together in a mortar, and the liquid petrolatum incorporated. The quantity of liquid petrolatum required varies according to the bulk of the powders, the bismuth in particular being liable to a considerable variation in bulk. A sufficient quantity should be added to form a paste. It is then advisable to rub down the paste, in small quantities at a time, on a slab with a spatula, to insure freedom from grit and dry particles of powder.

The formula, as revised by S. Dunstan, and also recommended by Morison is:

Iodoform	440 gm.
Bismuth subnitrate	220 gm.
Petrolatum	220 gm.

The bismuth and petrolatum are sterilized by dry heat at a temperature of 120 C. for half an hour, the bismuth after cooling is mixed with the iodoform in a mortar that has been sterilized by means of boiling water and solution of formaldehyd. The petrolatum is added to the mixture at a temperature of 90 C. and thoroughly mixed. Care must be taken in sterilizing that the temperature does not rise too high, otherwise nitrous fumes will be evolved.

A paste made by this method is found to be fairly solid in consistency, shows no signs of separation or decomposition, and is sterile, as certified by Dr. Slade, bacteriologist.

Should a paste be required of a softer consistency, the formula may be modified thus:

Iodoform	440 gm.
Bismuth subnitrate	220 gm.
Paraffin base	220 gm.
Petrolatum	19 parts
Liquid petrolatum, specific gravity 0.880.....	40 parts

Morison in his recent book on "Bipp Treatment of War Wounds" (Henry Frowde Hodder and Stoughton, London, 1918) gives the following directions for its use:

1. Under an anesthetic, usually open ether, cover the wound with gauze wrung out of 1:20 phenol (carbolic acid), and clean the skin and the surrounding area with the same lotion.

2. Open the wound freely and, if possible, sufficiently to permit of inspection of its cavity. A guide—a finger is the best if the size of the wound permits of it, and if not a thick probe—should be introduced to the bottom of the wound and held there and fully exposed. In doing this special regard must be paid to nerve trunks and muscular branches of nerves, since the division of blood vessels, excepting the largest, and of muscles themselves does little harm as compared with that of the disability following nerve damage. Cleanse the cavity with dry sterile gauze mops, Volkmann's spoon, etc., and remove all foreign bodies.

3. Mop the surrounding skin and the wound cavity with methylated spirit and dry it.

4. Fill up the whole wound with bipp, and rub it well in with dry gauze. Then remove all excess, leaving only a thin covering over the wounded surface. Dress the wound with sterile gauze and cover all with an absorbent pad, which is held in position by adhesive plaster and a bandage. This dressing requires no change for days or weeks if the patient is free from pain and constitutional disturbance. Should, however, discharge come through, the stained part must be soaked in spirit and a gauze dressing wrung out of it applied as a further covering.

Redressing is very simply done. After removal of the old dressing the wound is covered with a pledget of cotton soaked in spirit, and the sticky, dirty-looking discharge is wiped off the surrounding skin until it is clean.

A great number of favorable reports have been published on the use of bismuth iodoform petrolatum paste; also unfavorable reports have appeared, as the procedure is not without danger of bismuth and iodoform poisoning.

The following are some of the references on this subject:

Brander, H. S.: Bismuth and Iodoform Paste after Bone Grafting, *Brit. Med. Jour.*, 1917, **1**, 360.

Freilich, E. B.: Bismuth Poisoning Following Bismuth Paste Injection, *THE JOURNAL*, Jan. 13, 1917, p. 111.

Chambers, H., and Goldsmith, J. N.: Bacteriological and Chemical Action of Bismuth-Iodoform-Paraffin Paste, *Lancet*, London, 1917, **1**, 333.

O'Connor, Vincent, and Kreutzmann, H. A.: The Use of Bismuth Iodoform Paste in Outpatient Work, *THE JOURNAL*, Dec. 15, 1917, p. 2010.

Morison, Rutherford: The Treatment of Infected Suppurating War Wounds, *Brit. Jour. Surg.*, 1917, **4**, 659.

Hepworth, F. A.: Toxic Symptoms after Use of Bismuth-Iodoform-Paraffin Paste, *Lancet*, London, 1917, **1**, 573.

Phillips, John: Bismuth Poisoning and Nitrite Poisoning from Use of Bismuth Subnitrate, *Cleveland Med. Jour.*, 1917, **16**, 419.

Anderson, Louisa G., and Chambers, Helen: The Treatment of Septic Wounds with Bismuth-Iodoform-Paraffin Paste, *Lancet*, London, 1917, **1**, 331.

Colledge, L., and Drummond, Hamilton: Treatment of Recent Gunshot Wounds with Reference to Bismuth-Iodoform-Paraffin Paste, Compound Fractures, *Lancet*, London, 1917, **2**, 49.

Walker, E. H.: Treatment of Wounds with Bismuth Iodoform Paraffin Paste, *Brit. Med. Jour.*, 1917, **2**, 80.

Emerson, M. L.: Bismuth Iodoform Petrolatum Paste in the Treatment of Recent Wounds, *THE JOURNAL*, Jan. 12, 1918, p. 79.

Besley, F. A.: Treatment of War Wounds; Aseptic and Open-Air Treatment as Compared with Antiseptic Treatment, *Surg., Gynec. and Obst.*, 1918 **26**, 8; abstr., *THE JOURNAL*, Jan. 19, 1918, p. 195.

THE HARRISON NARCOTIC LAW AS APPLIED TO MEDICAL OFFICERS

To the Editor:—Will you kindly answer the following question: I am licensed to practice under the laws of the state of Ohio; I am also an assistant surgeon in the regular Navy. I wish to give a prescription for an opiate to the wife of a sailor whom I am called to treat in the regular discharge of my duty. I no longer pay the tax required by the Harrison law. Does this law permit the civilian druggist to fill my prescription? This question has come up several times, as the naval station is several miles from the town where most of the families of the enlisted men live, and an emergency often arises when the local druggist could supply the drug if permitted by law. Please omit my name.

T. E. W.

ANSWER.—We are informed by the local commissioner of internal revenue that a surgeon in the United States Navy can prescribe opiates without registration under the Harrison Narcotic Law if in discharge of his official duties; but in private practice he must qualify in the state in which he intends to practice.

A SAMPLE LETTER

To the Editor:—I am examining applicants of several counties for officers' commissions in the Medical Reserve Corps. Almost every one asks questions which are answered in your booklet "Information Regarding Appointment in the Medical Reserve Corps of the United States Army." If you would care to send a hundred copies, I can use them giving one to each applicant.

W. B. JONES, M.D., Rochester, N. Y.

ANSWER.—They have gone.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.

HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Kansas February Examination

Dr. H. A. Dykes, secretary of the Kansas Board of Medical Registration and Examination, reports the written examination held at Topeka, Feb. 12, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Four candidates were examined, all of whom passed. Twenty-one candidates, including 1 nongraduate, were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University	(1908)	80
Rush Medical College	(1917)	80
College of Phys. and Surg., Kansas City	(1903)	79
University of Pennsylvania	(1917)	78

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
College of Phys and Surg., Los Angeles	(1917)	California
Atlanta College of Physicians and Surgeons	(1910)	Oklahoma
Bennett Medical College	(1916)	Illinois
Northwestern University	(1912)	Iowa
Rush Medical College	(1905)	Illinois
Coll. of Phys. and Surg., Keokuk (1890) Nebraska; (1895)	(1902)	Missouri
Keokuk Medical College, College of P. and S.	(1902)	Iowa
University of Louisville	(1916)	Kentucky
University of Michigan Medical School	(1916)	Michigan
American Medical College	(1887)	Missouri
Missouri Medical College	(1896)	Missouri
University Medical College of K. C.	(1899) (1900)	Missouri
Washington University	(1917)	Missouri
Lincoln Medical College	(1917)	Nebraska
Jefferson Medical College	(1895)	Missouri
Memphis Hospital Medical College	(1892)	Missouri
University of Tennessee	(1915)	Texas
Western University	(1912)	Iowa

Illinois March Examination

Mr. F. C. Dodds, superintendent of registration, Department of Registration and Education, reports the practical and written examination held at Chicago, March 25-28, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 33 candidates examined, 20 passed and 13 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1916) 77.2, 79.1; (1917) 76.9, 78.6, 78.8, 85.3.	
Chicago Hospital College of Medicine	(1917)	81.7
Loyola University	(1917) *; (1918) 75.8, 80.8	
Northwestern University	(1917)	83.6
Rush Medical College	(1885) 75.7; (1917) 80.7, 81.6; (1918) 79.4 82.1 84.2, 86.7.	
Keokuk Medical College	(1898)	81.1
Queen's University	(1913)	75.1

College	FAILED	Year Grad.	Per Cent.
Bennett Medical College	(1914)	+
Chicago College of Medicine and Surgery	(1917) 56.7, 62.6, 70.5, 71.2, 72.7.	
Chicago Hospital College of Medicine	(1916)	74.6
Jenner Medical College	(1916)	64.8
Loyola University	(1916) 72.9; (1917) 63.6, 72	
Indiana Medical College (Purdue Univ.)	(1907)	71.0
University of Buffalo	(1882)	63.9

* No grade given.

+ Failed in practical examination.

New Mexico Reciprocity Report

Dr. W. E. Kaser, secretary of the New Mexico Board of Health and Medical Examiners, reports that 6 candidates were licensed on credentials and 2 candidates were licensed through reciprocity at the meeting held April 8-9, 1918, at Sante Fe. The following colleges were represented:

College	LICENSED ON CREDENTIALS	Year Grad.	Total No. Licensed
University of Iowa School of Medicine	(1905)	1
Beaumont Hospital Medical College	(1900)	1

St. Louis University	(1905)	1
University Medical College of K. C.	(1904)	1
Miami Medical College	(1903)	1
McGill University	(1897)	1
<hr/>		
College	LICENSED THROUGH RECIPROCITY	Year Grad. Reciprocity with
Drake University	(1908)	Iowa
Baylor University	(1916)	Oklahoma

Book Notices

LORD LISTER. By Sir Rickman John Godlee, Bt., K.C.V.O., M.S., F.R.C.S. Cloth. Price, \$6. Pp. 676, with illustrations. New York: Macmillan Company, 1917.

If there is one name in the annals of medicine that towers above all others, it is that of Lister. This is especially true if the judgment is made on the basis of work resulting in the greatest benefit to humanity. Certainly the work of no other man, in medicine at least, has proved so epoch-making. The life of such a man is worth knowing, and Sir Rickman Godlee is to be congratulated on his successful presentation of this biography. It is more a review, step by step, of the work, than of the life, of the man: in a man of such accomplishments his work is his life. If any one had the impression that Lister's achievements were the result of chance or accident, that impression would be quickly removed on reading this biography, for it is clearly shown that Lister's final results were founded on hard research work that had its beginnings in his student days. In 1853, when only 26 years of age, he published a paper on the muscular tissues of the iris, and in the same year one on the muscular fibers of the skin. Two years later he was reporting on his investigation of the early stages of inflammation. Shortly after this he published papers on cutaneous pigmentation of the frog, on coagulation of the blood, and on spontaneous gangrene. From the beginning his letters, as well as his published papers, reflect the hard, painstaking research work of a genius. This early research work laid the foundation for that which was to follow. It was one step after another, leading up to the final grand results. His real surgical experimental work did not begin until he went to Edinburgh. Here he immediately came under the influence of Syme, whose daughter he later married.

There are those who would minimize the effect of Lister's work on the revolution in surgical methods and technic that occurred during the latter half of the last century, and would give the greater credit to Pasteur. It would, of course, be little more than guesswork to say what would have been the ultimate outcome of Lister's work if Pasteur's discoveries had not been made. As Pasteur himself said, "Chance only favors the mind that is prepared." Lister's mind was certainly prepared. He, and he only, was in a position to see and grasp the one thing he had been seeking—the real cause of suppuration. Sir John Batty Tuke, writing to Lord Lister in 1907, calls his attention to an incident that occurred in 1854. "You took down the dressing 'of a popliteal case' and found the wound healed except where the ligature was, and you said 'The main object of my life is to find out how to procure this result in all wounds; but why is it not healed around the ligature?' Boy-like, I said 'the irritation of the silk.' 'No,' you replied, 'not of, but in, or on.'" Lister did, to a certain extent, succeed in preventing putrefaction in noninfected wounds, but he had not learned why. Pasteur's work showed him why.

A former biographer—Wrench—in his "Lord Lister, His Life and Works," devotes a long chapter to an arraignment of those who have departed from "true listerian methods," and seems to regard any modification as unwise, if not sacrilegious, and to be deplored. Wrench is extremely harsh in his criticisms of those who are "devoted to that most modern, rather than to the most inspired, treatment" and ridicules what he regards as the unnecessary and extremely detailed methods of cleanliness of the moderns. While more conservative in discussing the subject, Sir Rickman Godlee also regards as regrettable the departure from Lister's teachings and practice. These discussions carry one back to the early

days when Thomas Keith, Bantock, Lawson Tait and others, while recognizing the germ theory of infection, opposed the use of chemical antiseptics, claiming equally good results from rigid cleanliness and aseptic surroundings. The controversy at that time was bitter, and Tait was accused of misstatements of facts when publishing his results. But those who saw him operate were always ready to defend him. While not entering into the controversy, Thomas Keith reported equally good results by the aseptic methods. Our present biographer refers to the Carroll-Dakin "antiseptic" treatment of wounds as a harking back to true listerism, and regards this success as proof of the superiority of Lister's antiseptic over the modern aseptic methods. This, of course, is open to argument. However, the point the reviewer wishes to emphasize is that no man was more open-minded, more ready to acknowledge an error, or more anxious to adopt suggestions for improvement than Lord Lister during the time he was in active work, and it may be presumed that his views regarding phenol (carbolic acid) and other chemical antiseptics would have been decidedly modified as time went on, and as he saw what others were doing. For a number of years the spray was regarded as a necessary adjunct to every operation, or at least as an important factor; but as soon as Lister became convinced that it was not essential, it was discarded.

As the book was written for laymen it was necessary for the author to adopt a simple style and to use language which a medical man might regard as elementary, and to explain or describe conditions and technic in more detail than would otherwise be necessary; but this cannot be regarded as a fault, even from the point of view of the physician. On the contrary, the simplicity of language that is called for here and there, and the explanatory sentences and paragraphs that occur when necessary to make the matter understandable to the intelligent layman, make for easier and more satisfactory reading. Godlee's "Lord Lister" is a book that should be read by every physician. It shows what one man, by hard work and close application to one subject, can accomplish. But especially should it be read because it literally presents the contrast between the time when suppuration, hospital gangrene and often death were the accompaniments of surgery—even of the best surgeons—with the present time, when suppuration is practically banished, hospital gangrene has become unknown, and death seldom occurs.

REAGENTS AND REACTIONS By Edgardo Tognoli, M.D., Professor in the University of Modena. Translated from the Italian by C. Ainsworth Mitchell, B.A., F.I.C. Cloth. Price, \$2 net. Pp. 228. Philadelphia: P. Blakiston's Son & Co., 1918.

In past years, the chemical profession was not very different from the medical profession of those times, or certain proprietary interests of today, as the scientific names of chemical composites, whether they were reactions or mixtures, were relegated to the background, in order that the personal name of the sponsor might be capitalized. Thus, to the confusion of students and practitioners of chemistry, there exists today as a heritage a vast number of tests and solutions, differentiated in the literature by meaningless proper nouns. Tognoli has collected the tests and has cross-indexed them in such a manner that the publication will serve as a useful reference epitome. He has not attempted, however, to alleviate the difficulty by giving the reactions sensible names. Certain purity tests for reagents are described, most of which are unnecessary to one who employs the U. S. P. test solutions. The book is recommended to those who need such a reference book, and who do not have the same material in larger works.

THE PRACTICE OF PEDIATRICS. By Charles Gilmore Kerley, Professor of Diseases of Children in the New York Polyclinic Medical School and Hospital. Second edition. Cloth. Price, \$6.50 net. Pp. 913, with 136 illustrations. Philadelphia: W. B. Saunders Company, 1918.

In his preface to the second edition, Kerley says that twenty-five new articles have been added, sixteen chapters largely rewritten, and lesser changes made in many others. One of the advantages of this textbook is that there are numerous illustrative cases; among the disadvantages are some of the methods of treatment advocated by the author,

including, for the condition which he calls acute enteric intoxication, medication with 20 minims of brandy and 1 drop of the tincture of strophanthus for a child 6 months of age, and in colic, from 5 to 10 drops of gin in 3 teaspoonfuls of hot water to be repeated in ten minutes. When prescribing liquid petrolatum, he invariably refers to it as liquid albolene aromatic, thus specifying the preparation of a single firm. On the whole, the book is well worked up, contains a mass of material, and may be regarded a valuable reference work. Of course, the chief value of such textbooks depends on the material which is distinctly individual with the author; for instance, under the treatment of poliomyelitis he says: "The intraspinal use of human serum of those who have recovered from poliomyelitis has its advocates. My own observations do not warrant an endorsement of this form of treatment." Under pneumonia he makes no mention of the various types of organisms or of the serum treatment.

A DIABETIC MANUAL FOR THE MUTUAL USE OF DOCTOR AND PATIENT. By Elliott P. Joslin, M.D., Assistant Professor of Medicine, Harvard Medical School. Cloth. Price \$1.75. Pp. 187, with 17 illustrations. Philadelphia: Lea & Febiger, 1918.

This little manual will be found of great service by every practitioner who essays to treat diabetes. Its value lies in its stating in simplest form, stripped of all perplexing theories and confusing chemical formulas, the few cardinal facts that should be known regarding the nature of this disease in order that it may be intelligently and scientifically managed. This management, almost entirely dietetic, is clearly discussed, with all necessary detail, including illustrative cases and numerous tables and many recipes, so that the book is valuable for ready reference. The ordinary chemical tests of the urine that are employed in the cases are also described. The work is designedly elementary and can easily be understood and utilized by any intelligent patient as an aid in treating his own illness.

The book is so excellent and fills such a definite want that we refrain from making certain criticisms that seem justified, for after all, they concern rather questions of taste, protection and propriety than the real content of the work, which deserves only commendation.

RECLAIMING THE MAIMED. A Handbook of Physical Therapy. By R. Tait McKenzie, M.D., Professor of Physical Therapy, University of Pennsylvania. Cloth. Price \$2. Pp. 128, with 115 illustrations. New York: The Macmillan Company, 1918.

This is a small, pocket-size book showing in very condensed forms what may be done by means of physical exercise to reclaim the maimed. The directions are brief and simple, and excellent illustrations contribute much toward making the meaning clear. The author has had abundant opportunity for study of these problems in the war hospitals of England and Canada. Many physicians will probably smile at his optimistic faith in the curative powers of some of the methods, as when he describes the simple way of handling shell shock by electricity; or disposes of the much discussed soldier's heart—D. A. H.—by 'dismissing it as clearly of nervous origin and readily yielding to "faradic or high frequency current through the thyroid, the sedative bath, gentle massage and rest," followed later by light gymnastic exercise and walking. The subjects discussed in the various chapters are: medical electricity; the faradic current and high frequency; radiant heat and light; hydrotherapy; massage; reeducation; gymnastics and athletic games; treatment by occupation, and masking of facial deformity.

LABORATORY METHODS OF THE UNITED STATES ARMY. Compiled by the Division of Infectious Diseases and Laboratories, Office of the Surgeon-General, War Department, Washington, D. C. Medical War Manual No. 6. Authorized by the Secretary of War and under the Supervision of the Surgeon-General and the Council of National Defense. Leather. Price, \$1.50. Pp. 256, with 5 illustrations. Philadelphia: Lea & Febiger, 1918.

This manual has been compiled by members of the Surgeon-General's staff, utilizing many standard textbooks. It is a collection of formulas and technical methods as a guide in carrying out laboratory examinations in stationary and field laboratories. It is a most practical, compact working handbook.

Social Medicine, Medical Economics and Miscellany

PSYCHOLOGY OF THE NATIONS AT WAR

Hon. James M. Beck, LL.D., New York, in the annual address before the Medical Society of the State of New York, traced an analogy between the war and the works of Shakespeare. "The master of analogy of all time was Shakespeare," he said. "Of all his analogies, those drawn from history are most notable, yet he never put on the stage such a stupendous tragedy of history as that which is now being enacted. This great drama now being enacted is one which has been drawn by this great portrayer of character in his 'Hamlet.' If one takes the nations today and the characters of 'Hamlet,' the analogy is perfect. Prussia is the usurping king of Denmark, who, in the summer of 1914, found the whole world sleeping in the garden of civilization. There was never a brighter outlook for the fraternity of nations than at this time; there was not the least cause for international friction. It was then that Prussia poured into the ear of the sleeping nations the cursed henbane which has cost the world the loss of at least 10,000,000 men, women and children. Shakespeare did not make the brother of the king of Denmark altogether bad. Claudius still had a consciousness that heaven was not deluded when he said, 'My words fly up, my thoughts remain below; words without thoughts never to heaven go.' Prussia has today a gnawing remorse at its soul of souls, as is shown by the words of the kaiser on three occasions, 'God knows I did not will it,' although he knows well that God knows he did will it; but this is as nothing as compared with the verdict the world has brought. It has put the brand of Cain on the brow of the German people, and in virtue of this verdict the cause of the Allies has already triumphed, for it has rendered an irrevocable verdict against Germany. Gertrude in the play is Germany in contradistinction to Prussia. Prussia is the royal family of Germany, the diplomatists, the professors, capitalists, and those in high places. Germany is the great people, the chemists, biologists, laboring people, small traders and so forth. It is vital that we should make this distinction between Prussia and Germany and the people. In dealing with Germany, it is necessary to go further than merely the Potsdam gang, we must say to Germany, as well as to Prussia, 'So long as you sit at the bar of the world cynical and unashamed, just so long we will not buy from you, we will not sell to you, and we will drive you as Cain was driven by the flaming sword of the angel from the gates of Paradise.'

"Who is Laertes? Laertes was a character in Hamlet who acted on his passionate impulse. He never started to reason or to think like men. Laertes is Austria. When the whole history of this war comes to be written, what a pitiful object Austria will be. Austria is the tool master of Prussia, and like Laertes, it has perished in its own poisoned foil. If Germany should be triumphant, Austria becomes merely a vassal state.

"The Rosencrantz and Guildenstern, whom Hamlet would just as soon trust as friends, are Bulgaria and Turkey. Who is Polonius? He was a precise old formalist, once a very able statesman, but unfortunately his brain had ossified into maxims and phrases. Although he discoursed most wisely, it was of the graphophone type of oratory. The Polonius of this world tragedy is Russia. There is one of the most notable tragedies the world will ever know. There crept into Russia those wise maxims and phrases that were the undoing of Polonius. It was peace without annexation and indemnities; down with capital; universal freedom; no order or discipline; peace without victory. All these specious phrases ran through the heart of Russia as poison, with the result that this mighty colossus of the north crumbled as no nation ever crumbled before.

"We now come to Horatio. One of the marvelous arts of Shakespeare is the fact that he could take a minor character and like a skilful surgeon, or an artist with a few sweeps of

the brush, can hold the mirror up to nature in a most extraordinary manner. In this minor character of Horatio, Shakespeare represents one of his noble characters. Besides the temperamental, emotional facility of Hamlet, he put this well poised, serene, steadfast soul, always true to his ideals, always loyal to his friends even unto death, and with a clarity of vision and keenness of insight that made him not only the noblest character in the play, but by all odds the one who had been given high rank and would have worked redemption without tragedy. Who has been the Horatio in this tragedy? I but anticipate your thoughts when I say France. What a world of apology the Anglo-Saxon races owe to France. The French people are so noble, so transfigured in the glory of self-sacrifice that words are powerless to say what you and I now think of France.

"Ophelia caught in the vortex of this world tragedy is obviously Belgium. Belgium can say with Ophelia, we know what we are, but we know not what we may be. There is one dissimilarity in this analogy because Ophelia is marked by weakness of character. No one would impute weakness of character to Belgium which, with a standing army of 100,000 men, with 750,000 Germans pouring into the frontiers, with a certainty of annihilation for the time being, held the gate as the Greeks did at Thermopylae, and it required the German army sixteen days to go through Belgium whereas the schedule prescribed six. All honor to Belgium, as we honor the Greeks.

"Who is Fortinbras? Fortinbras is the son of a Norwegian viking, who in 'Hamlet' comes in and marks the end of the play. Fortinbras is England, who saw no reason for entering a quarrel the issue of which was not clearly defined. It is England that made 'mouths at the invisible even.' On the night of the fourth of August, 1914, England said she was not concerned with the Belgian quarrel; that she was obliged to wait for some definite issue; but when Belgium, through the words of its noble king, appealed to the king of Great Britain for aid against the threatened invasion of the Germans, think of what that meant to England. There was no possible direct benefit to her in entering a quarrel, the ultimate outcome of which no human being could foresee. She had an incomparable fleet—yes, but her army consisted of only 250,000 men, one half of which was scattered to the four ends of the world, with which to defend her far flung empire, and how could she tell that India, with 250,000,000 of that race, might not rebel? How could she tell that South Africa, conquered ten years ago, might not rebel? How could she tell what would happen in Australia, New Zealand, Canada, or any of her far flung possessions? How could she tell if any disaster came to her fleet, what would happen? Yet England never hesitated when the king of Belgium appealed for aid. She sent her reply to Berlin that unless by midnight of August 4 she had a positive revocation of the order for the Germans to enter Belgium, she would fight at all hazards. No, she declared war, August 4, and by August 8, nearly 10,000 men were crossing the channel, and it was the Belgians and the British in taking their positions to the left of the French army that held like a stone wall at Mons and developed finally into the Battle of the Marne. It was that little army that by attacks and counterattacks put up a stone wall defense all the way back and gave General Joffre the opportunity to perfect his masterly strategy that culminated in the Battle of the Marne. England's honor was pledged to the defense of Belgium, and she 'made mouths at the invisible even' and staked her whole army on the issue of the struggle with twenty-four hours' deliberation after crossing the Belgian frontier.

"Who is Hamlet? In my judgment Hamlet is our own country, and in saying this I do not wish to be uncomplimentary to the United States. Hamlet is one of Shakespeare's greatest characters and his favorite child. He is the scholar, the courtier, the soldier, but he has one fundamental fault, and that fundamental fault America possesses. It is hard to tell what the character of this country may be in the future, but there was one fundamental fault in this country during the period which preceded our entry into the war. America, in its personality of a living citizenship,

is composed of 100,000,000 human beings. In its historical personality America is the result of its history from the landing of the Pilgrim fathers, through the War of the Revolution, the War of 1812, and on through the Civil War. In its personality of a living citizen, America is swollen with material prosperity. The lesson of history is that material prosperity and luxury is the cause of national decay. We came out of the Civil War a strong and vigorous people, but of later years we have become surfeited with material things, just as Hamlet came from Wittenberg 'fat and scant of breath.' This was the position we found ourselves in at the beginning of the war. In our tradition and outlook we were provincial so far as world politics was concerned. History will record with horror our attitude during the early years of the war. If we had met the crisis that confronted us at the time of the sinking of the *Lusitania*, it is not too much to say that the cause of the Allies would have triumphed, and that the history of Russia would be very different. Our failure to be prepared and to meet the crisis in 1914 was not alone the fault of the government, but it was due to a psychologic defect in national character, to excessive development of the introspective faculty, to having centered our observation on internal affairs until it was almost too late. Hamlet perished because he was dilatory. It is to be hoped that the analogy will not be carried to the end in our case, but that we will awaken ourselves to vigorous action and save our national life."

The Child Delinquent in War Time

The story of child training in war time is more or less a story of enforced parental neglect, according to the reports that come from social workers, juvenile court judges, and students of criminology in the various European countries. Everywhere juvenile delinquency is growing, both in the number and the seriousness of the children's offenses. Everywhere the condition may be traced back to the same leading cause: The father is in the army, the mother is in the factory, and the usual safeguards of the home are broken down, depriving the child of the necessary discipline and protection. From every country, too, comes disquieting news of the collapse of various social agencies that supplement the work of the home. In England, the use of many school-buildings as hospitals, the overcrowding of the remainder, and the half-time reduction of school hours have played havoc with juvenile education. Young people's clubs have been left without leaders, school medical officers have been drawn into military service, and manual training in some of the schools has almost disappeared because of the absence of instructors. Parks and playgrounds have been closed, the probation system has suffered through the loss of many of its most experienced officers, and many children have entered industry, to become more or less demoralized by the abnormally high wages and the unusual freedom from discipline. From France come reports of the great increase of prostitution among young people, and of a relaxation of vigilance on the part of the courts and the police. Efforts are now being made to extend the powers of the French juvenile courts, which at present confine their attention exclusively to the child delinquent, so that the unoffending child dependent also may come under their jurisdiction. The new war-orphan law provides a kind of social guardianship for the child deprived of his natural guardians by the war. In Germany, economic conditions and antieducational influences are the chief reasons for the alarming increase of juvenile crime, which is committed almost exclusively by the poorer classes of children whose family life has been laid waste by the war. In Italy, where a reconstructive code for minors has been awaiting adoption since 1912, much has been said, but apparently little done, to solve the problem. One notable step toward the prevention of delinquency, however, was taken last July when the government adopted as wards of the nation the children whose parents or guardians have been killed in the war. In Russia, children's offenses take largely the form of vagrancy, theft and prostitution, the chief contributing causes being homelessness, evil industrial con-

ditions, and the absence of legal protection for girls. The army of homeless children is recruited from the following classes: soldiers' orphans, for whom the government has tried to make special provision; child volunteers, many of whom have found their way to prison, and refugee children, who are crowded together in cities amid appalling conditions. In short, the whole disastrous chapter of juvenile delinquency in Europe should serve as a warning to our own country to provide adequately for its children in war time, regardless of expense or sacrifice.

Medicolegal

Power of County Health Commissioners to Appoint Physicians to Take Charge of Cases of Smallpox

(*Board of Commissioners of Pike County v. Kime (Ind.)*, 118 N. E. R. 595)

The Appellate Court of Indiana affirms a judgment for \$102.50 in favor of plaintiff Kime, a physician, who was by the health commissioner of the county appointed in writing to take charge of a family in which there was smallpox, notwithstanding the defense was made that competent and duly licensed physician had been provided to render all medical services to the paupers and indigent persons of the township in which the family resided. The court says that the facts of the case brought it within the provisions of the statutes enacted to prevent the spread of infectious and contagious diseases and to protect and promote the health of the public. In carrying out the measures deemed necessary to protect the public health, the county health commissioner may act either in person or by deputy and may completely isolate the entire family afflicted with any disease liable to affect the public health. The fact that an indigent person was involved, and thereby items of expense were charged against the county that under ordinary conditions would have been charged to and paid by the individual citizen or by the township, did not change the character of the case or render the statute inapplicable.

The law takes cognizance of the fact that worthy, though indigent persons, as well as persons who belong to the pauper class and likewise those who are financially well to do, may be the victims of contagious or infectious diseases, and that their prompt isolation, care and treatment may be reasonable and necessary means of preventing the spread of the disease and protecting the public health. It is not the purpose of the law to pay for the care and treatment of afflicted persons who are amply able to pay such expenses for themselves, but it is the humane purpose of the health laws of Indiana to draw no fine distinctions which may prevent prompt action and delay efficient means designed to stamp out dangerous diseases and safeguard the public health. Where persons are so afflicted and so situated as in the case at bar, and are indigent and unable to pay for their necessary care and treatment, and the health commissioner has taken cognizance of the situation and appointed a competent physician to care for and treat the persons so isolated, maintain the quarantine and protect the public health, the jurisdiction and control of the health commissioner is complete, and the county may be held liable for all expense reasonably necessary to the protection of the public health. The decision of the health commissioner with reference to the necessity for action and the means to be employed, in the absence of connivance or fraud, is conclusive and final. The dominant purpose of the law is to protect and promote the public health. The fact that the means employed to accomplish the end in view incidentally benefits indigent persons unable to pay for their necessary care and treatment does not change the application of the law, but is clearly within the humane purposes of its enactment.

The changes in the statutes have centralized authority in the county health commissioner, and draw a clear line of distinction between indigent persons afflicted and quarantined as in the case at bar and the poor of the township under usual and ordinary conditions. There is no necessary conflict

in the statutes when the purposes to be accomplished by the different laws are kept in mind and the emergencies are recognized which are necessarily encountered in protecting the public health. In this opinion the court is dealing with a case in which the afflicted persons were poor and unable to pay for medical treatment; but even in cases in which the afflicted and quarantined persons are able to pay for their care and treatment, under the present law, the decision of the health commissioner as to the means to be employed to protect the public health, including the care and treatment of such afflicted persons, is final and conclusive and binding on the county, unless the commissioner has abused the discretionary power lodged in him by the statute.

Refuses to Change Ruling Against Liability of Hospitals

(*Magnuson v. Swedish Hospital (Wash.)*, 169 Pac. R. 828)

The Supreme Court of Washington affirms a judgment that dismissed the action brought by the plaintiff, a child, to recover damages alleged to have been sustained by him in that, after having been taken to the hospital and having had what was termed a severe surgical operation performed on him for a severe injury and physical malformation, the nurses negligently failed to guard him, by reason whereof he removed his hands from the bandages in which they had been placed and tore away the wrappings of the lacerated parts and otherwise seriously injured himself, so that the effectiveness of the operation was wholly destroyed and it was rendered impossible ever to cure the affliction from which he was suffering. The court says that the single question for determination was whether a patient admitted to a hospital maintained for charity can recover against such hospital for injuries caused by the negligence of nurses therein employed; but the judgment appealed from could not be reversed unless the former decisions of this court on the subject were overruled. Distinguished counsel for the plaintiff, with great earnestness and ability, insisted that the court should pursue the latter course, and adopt the rule announced by the Supreme Court of Alabama in *Tucker v. Mobile Infirmary Association*, 191 Ala. 572, 68 So. R. 4. But since it was conceded that the contrary rule is the one supported by the great weight of authority, and this court, unlike that one, is not free to act without constraint from former decisions on the subject, this court deems it better to adhere to its former decisions, which are confessedly in keeping with the rule announced in the vast majority of cases dealing with the question.

It must be admitted that there is some contrariety of opinion as to the true principles on which the rule of nonliability rests. One line of cases bases the doctrine on what is called "the trust fund theory," that is to say, that all funds of charitable corporations and associations are held in trust for the particular purpose for which the charity was founded, and it would amount to a breach of trust to apply them to other uses; that to give damages out of a trust fund would not be to apply it to the object which the author of the fund had in view, but would be to divert it to an entirely different purpose. Other cases lay stress on the idea that the rule of respondeat superior or let the master or superior answer does not apply to such institutions for the reason that the servants in the discharge of their duties are not engaged in work which is for the benefit or profit of the master. Still others proceed on the thought that one who accepts the benefit of the institution is taken impliedly to have assented to assume the risk of negligent injuries caused by servants properly selected and retained, or to have waived liability for such injuries. But regardless of the reasons on which the result is worked out, it cannot be doubted that the rule of nonliability is supported by the overwhelming weight of authority.

The question here involved seems peculiarly to have engaged the attention of the bench and bar of the country. The problem has been scrutinized from every conceivable point of view. The arguments for and against have well-nigh been exhausted, and little, if anything, now remains to be advanced. The doctrine now obtaining in this jurisdiction is undeniably in harmony with the consensus of judicial thought on the subject, and this court is not disposed to change it. While the application of the rule to individual cases may

sometimes seem harsh and the result regrettable, there are very few doctrines of the law of which the same may not be said with equal truth. When viewed in the light of a broader vision, however, this court is convinced that the individual hardships wrought are offset many times over by the encouragement and stimulation which the rule of nonliability gives to the establishment and maintenance by private charity of institutions devoted to the care of the halt, the lame and the blind, and to the relief of those suffering from physical or mental disease and affliction.

Loss of Sight from Embolus Not Accidental

(*Salinger v. Fidelity & Casualty Co. of New York (Ky.)*,
198 S. W. R. 1163)

The Court of Appeals of Kentucky says that the plaintiff, a merchant 60 years old and apparently in good health, while in the act of lifting a bundle of boxes filled with corsets, and weighing about 24 pounds, to a shelf somewhat higher than his head, noticed that he could not distinctly see the numbers on the boxes, and found that he had lost the sight of one of his eyes. The physicians agreed that he lost his eye from embolus, or a floating clot in the blood vessels, which caused the blindness by lodging in the central artery of his eye, thus cutting off the blood supply and preventing circulation. The court holds that his injury was not caused by accidental means within the terms of a policy of insurance against bodily injury sustained through accidental means and resulting directly, independently and exclusively of all other causes in total or partial disability, and that in this action on such a policy held by the plaintiff in the defendant company the jury was correctly instructed to find for the defendant.

Society Proceedings

AMERICAN PEDIATRIC SOCIETY

Thirtieth Annual Meeting, held in Lenox, Mass., May 27-29, 1918

(Concluded from page 222)

Erosion of the Blood Vessels in the Course of Scarlet Fever

DR. JOHN HOWLAND, Baltimore: A child, aged 5½ years, was brought to the hospital with a diagnosis of diphtheria. The child developed no characteristic eruption during its illness. Subsequently albumin was found in the urine, and it was thought that the child had postdiphtheritic diphtheria. Twenty-three days after the onset, the child became very ill and a necrosis of the right tonsil was found, with a very foul secretion and a characteristic scarlet fever desquamation. There was a mass the size of an egg in the right side of the neck from which 2 ounces of pus were evacuated, but no blood. In the middle of the night the child was found exsanguinated, lying in a pool of blood. It was given salt solution subcutaneously and transfused with 250 c.c. of the mother's blood intravenously. An attempt was then made to examine the abscess cavity, when there was a gush of blood, apparently from the external carotid or the lingual. These vessels were ligated and the hemorrhage controlled. Another transfusion was given, and after that the child improved for two weeks, when there was a second hemorrhage, the result of the sloughing of the suture on the external carotid. After this the child went on to recovery, though convalescence was complicated by a psychosis.

DISCUSSION

DR. HOWARD C. CARPENTER, Philadelphia: At the Municipal Hospital of Philadelphia we had a case of cervical adenitis which seemed to be progressing satisfactorily. While the intern was in an adjoining ward the child had a sudden hemorrhage, apparently from the carotid, and within two minutes it was dead.

A Case of Hirschsprung's Disease

DR. WALTER LESTER CARR, New York: A girl, aged 6 years, was brought to the hospital in a condition of shock. The

history stated that she had been constipated for five years and had vomited for twenty-four hours. The patient was cyanosed, the eyes staring, the temperature 97.5 F. and the pulse 120. The abdomen was distended, and there was a constant involuntary discharge of feces. The thirst was intense. Colonic irrigations of physiologic sodium chlorid solution were given with stimulation, heat, etc. The blood was viscid and not absorbed by Tallqvist paper. The child died eleven hours after admission. The anatomic diagnosis was Hirschsprung's disease, with secondary calcification of the lower part of the sigmoid and the upper part of the rectum.

A Case of Intussusception

DR. FRANK X. WALLS, Chicago: This case is reported to record an observation that was made in the fluoroscopic examination of the lower bowel which revealed a picture of great diagnostic value that is not dwelt on in the literature of intussusception. The patient showed the typical symptoms suggestive of intussusception. Fluoroscopic examination after the injection of a barium buttermilk enema from a height of 18 inches disclosed the barium entering the bowel, filling it from below upward, until the mass reached the middle of the transverse colon. Here the column of barium halted a moment; then a small stream of barium trickled from the heavy column along the periphery of the colon for a distance of about an inch, and after this the column did not advance or alter its position. The arrested barium then looked like a solid mass with a very decided, concave U-shaped termination. The boy was operated on immediately after, and an ileocolic intussusception about 3 inches long was found and reduced. A long appendix that was engaged in the tumor mass was removed. Recovery was prompt.

Death From Tuberculous Meningitis in a Breast-Fed Infant at Ten Weeks of Age

DR. DEWITT H. SHERMAN, Buffalo: This child was born in the winter, was breast fed, was not on the street, and the family history was negative as to tuberculosis. The child was taken ill at the age of 10 weeks and died seven days later. According to the statement of the child's father, a physician, the child showed no stupor or dullness. When I saw the child on the third day of its illness, the left eye was ptosed and the pupil of the left eye was larger than that of the right eye. The pupillary reaction was sluggish. There was some bulging of the anterior fontanel, slight rigidity of the neck, doubtfully exaggerated patellar reflexes, and the child could be aroused but made no further response. All other signs and symptoms of meningitis were wanting, except for slight twitching of the angle of the mouth. A specimen of the spinal fluid stained for tubercle bacilli showed only eight bacilli of the human type. The colloidal gold test gave no reaction that was significant in any way. A second lumbar puncture was done, and three guinea-pigs were injected. The findings in the three animals were practically the same, showing extensive tuberculous involvement of the liver, spleen and abdominal lymph glands. The lungs showed only a few scattered tubercles.

Use of Vegetable Milk

DR. HENRY DWIGHT CHAPIN and DR. LUDWIG KAST, New York: This milk is prepared from almonds which are first ground fine, covered with water, and allowed to stand in the icebox over night. The following day they are pressed out with a potato ricer or a fruit press, or they may be pressed out by hand through four layers of gauze. One hundred gm. of nuts may be covered with 200 gm. of water, and when they are pressed out they may be diluted up to 300 c.c. with water. The almond milk possesses certain advantages. It ferments much less easily than ordinary cow's milk; it has a higher fat ratio in the form of almond oil, which is sufficiently emulsified to render it easily digestible; the proteins contained in this milk are much less apt to undergo putrefaction than in the casein of cow's milk; almond milk contains a large amount of phosphorus and a small quantity of sodium chlorid, which would suggest its favorable employment in such conditions as rickets and nephritis; from its low carbohydrate content it will readily be seen that it is less likely to cause sugar fermentation. It has been tried in more than 1,000 adults, and

while some dislike it, actual disturbances have never been caused. So far no patients have shown an idiosyncrasy to it. This preparation is rich in vitamins. While we do not recommend its permanent use, it is desirable and useful as a temporary substitute, and has served a good purpose in such conditions as nephritis, typhoid, intestinal putrefaction, malnutrition, and secondary anemia.

Are the Present Frequency of Acute Otitis Media and the Subsequent Mastoid Operation in Some Measure a Reproach to Pediatrics?

DR. THOMAS S. SOUTHWORTH, New York: During the past winter I have had twenty-five cases of acute otitis media in a service averaging eighty infants under 15 months of age. These have been under the supervision of a visiting otologist, who has found in five of them indications of mastoid involvement; yet all have escaped operation, and discharge has ceased under treatment in all of the infants save one, which is nearly well now.

DISCUSSION

DR. SAMUEL S. ADAMS, Washington, D. C.: The preparations usually employed for allaying earache are a preparation of phenol, epinephrin and cocain. I have found that a 5 or 10 per cent solution of phenol in glycerin frequently allays earache, where there is inflammation of the middle ear; that is, where the membrane is red and inflamed but not bulging. When the membrane is bulging I believe we ought to call a skilled otologist.

DR. GODFREY R. PISEK, New York: Some otologists tell us that every discharging ear is partly a mastoid infection and that drainage of the external ear does little good, the only way to get proper drainage being to open the mastoid. I think the otologist often leans more to the side of operation, feeling that he takes fewer chances by so doing.

DR. FRITZ B. TALBOT, Boston: The problem of prevention lies in the prevention of colds, which are the cause of most ear troubles. There is one other thing important in the prevention of ear troubles. The baby's nose should be wiped and not blown, and the same applies to older children.

DR. I. A. ABT, Chicago: The membrane should be punctured only when there is bulging of the drum or a reasonable suspicion that there is pus in the middle ear. In the exanthemas and grippal diseases the pathologists tell us that there is more or less inflammation of the mastoid and antrum, and many of these patients recover without operation. One pathologist in Europe states that as many as 90 per cent. of children with exanthems and grippal infections have mastoid inflammation.

DR. HENRY HEIMAN, New York: I used to have three or four mastoid operations a year, whereas I now have only about one in ten years. Blowing of the nose in children tends to cause infection of the middle ear. It should also be remembered that snuffing salt water is a very dangerous procedure. Some teach that every red drum membrane should be opened. Frequently it is better to wait a little if one can see the patient every day. I have seen as many mastoids follow incision of the drum as in cases in which I have allowed the membrane to remain red for some time.

DR. L. E. HOLT, New York: It is wise to protest against too many mastoid operations. In the Babies' Hospital we have otitis all the time, perhaps twenty-five or thirty cases, and I think we have had only one mastoid operation in three years.

DR. ALFRED F. HESS, New York: In an institution in which there are 400 children, in the last five years we have had four cases of mastoiditis and we have had no cause of sinus thrombosis. The plan we have carried out is to puncture red and bulging ear drums.

DR. HERBERT B. WILCOX, New York: Many ear drums have been devitalized by douching with hot water, and the superficial layer of epithelium may be raised like a blister. Such an ear we need at times only incise through the outer layer and not through the drum. There is one point that the pediatrician frequently neglects; he may open the drum and evacuate pus and neglect to take a culture. Later if an otologist

is called in he may have difficulty in interpreting the condition because he does not know what organism is causing it.

Relative Morbidity of Breast and Bottle Fed Babies

DR. H. M. McCLANAHAN, Omaha: A questionnaire was sent to all the members of the American Pediatric Society and to thirty-nine other physicians in various parts of the United States asking their experience as to the relative susceptibility of breast and bottle fed infants, in reference to contagious and infectious diseases, and in reference to general infection. Questions were also asked as to the relative rate of growth and development, physical and mental, of breast and bottle fed infants, and requests were made for literature on the subject. An analysis of the seventy answers received may be thus summarized: 1. Superiority of breast milk may be due to chemical and biologic differences which render it more readily usable by the infant. As a result it has a more natural energy which it can apply to the invading organisms. 2. Breast milk may contain natural antibodies or protective ferments, both specific and nonspecific. 3. Breast fed infants are less susceptible to infections, the two exceptions being influenza and tuberculosis. 4. Breast fed infants resist infection more quickly and with less injury. 5. Breast fed infants have less morbidity than properly fed bottle infants; the larger group of badly fed infants have a still greater disadvantage.

Disadvantages of Low Fat Percentages

DR. ALFRED HAND, Philadelphia: Anything less than 2 per cent. is a low fat percentage; from 2 to 3 is moderately low; from 3 to 3.5 is a fair percentage; from 3.5 to 3.8 is normal, and anything above 4 is a high fat percentage in the artificial feeding of infants. If a low fat percentage is given over a long period, the general nutrition of the child is more or less permanently damaged. Children brought up on condensed milk and other proprietary foods with low fat and high carbohydrate content as a rule show distinct evidence of rickets. Constipation and failure to gain in weight are the two conditions that may be troublesome with the low fat percentages, and low protein as well, unless the carbohydrates are raised considerably above the amount existing in either human or cow's milk. As a temporary measure this may be of value, but it has always appeared to me as of more lasting benefit to overcome the constipation and increase the weight by raising the fat percentages as rapidly as possible. Several factors that seem to influence the handling of fat in the dietary are climate and the breed of cows. A child that may show intolerance to fat in the summer will handle, when cooler weather comes, even a high fat percentage with ease. The milk of cows containing 5 per cent. of fats is not as suitable for infant feeding as that containing 4 per cent. Cases are cited in which low fat percentages have been given evidently to the detriment of the baby.

DISCUSSION

DR. HENRY DWIGHT CHAPIN, New York: I am thoroughly in accord with Dr. Hand that there seems to be a sort of fat "phobia," because, I think, there has been an undue stressing of the fat percentages. While we may substitute one food element for another for a short time, we cannot make this substitution for any length of time without injury to the infant.

DR. THOMAS S. SOUTHWORTH, New York: Children who have had difficulty in digesting fats should not be deprived of fats for a long period; but when a child has been given a normal amount of fat for an individual of his age, and digestive disturbances have occurred, and when the child has improved after the withdrawal of the fat, it is well to remember that certain risks are run by giving excessive amounts of fat. I have increased fats and improved the condition of the child, and I have lowered the fats and improved the child's condition.

DR. JOHN LOVETT MORSE, Boston: I feel very strongly that babies are not given sufficient amounts of fats in artificial foods for their best good. One reason for feeding low fats is the inherent laziness of some physicians, who find it easier to give whole milk mixtures rather than to figure out the propor-

tion of fat and examine the stools. While babies should have fat in reasonable amount, it is only in exceptional instances that they can take over 4 per cent.

A Protective Therapy for Varicella, and a Consideration of Its Pathogenesis

DRS. ALFRED F. HESS and LESTER UNGER, New York: Thirty-eight children, between 3 and 4 years of age, were vaccinated intravenously with varicella vaccine. None of these children developed any local or general signs or any eruption suggestive of varicella, though all were in contact with one or more cases of varicella, with the exception of one child who developed the disease thirty-six days after the inoculation. Vaccinations of this kind induce neither local nor general reaction.

DISCUSSION

DR. FRITZ B. TALBOT, Boston: Since we do not know how the virus of varicella is transmitted, I should like to know how Dr. Hess knows that the thirty-eight patients were exposed to varicella. Again, how many children, as controls, had the same exposure? I do not feel convinced that the point has been proved.

DR. CHARLES HERRMAN, New York: Is Dr. Hess certain that the children that were not born in the institution never had varicella? If immune bodies are formed, one would expect to see some febrile reaction, and Dr. Hess says there was no such reaction.

DR. ALFRED A. HESS, New York: These thirty-eight children were in a ward in which there was chickenpox on two or three occasions and only one child developed chickenpox. It is possible that some of these children may have had the disease, but we had the history of all the children, and we looked for pox marks in every instance. However that may be, the number of vaccinated children that contracted the disease was in striking contrast to the number that usually take the disease. As to the absence of a febrile reaction, it is to be remembered that there is not a very marked febrile reaction in the disease itself, and if antibodies are being formed it is not to be expected that the reaction will be sufficient to cause fever.

Intrathecal Injections of Normal Horse Serum in the Treatment of Chorea

DR. LANGLEY PORTER, San Francisco: Intrathecal injections of horse serum have been administered to seven children suffering from chorea, and another patient has been treated by the method which Mahrtens of Stanford University is using in the treatment of cerebrospinal syphilis; that is, the injection of arsphenamin from six to twelve hours after the initial intrathecal dose of horse serum. One-half hour after giving an initial 0.5 c.c. of horse serum in order to find out whether the patient is hypersensitive to horse serum, 20 c.c. of normal inactivated horse serum were injected intrathecally. Five of the patients received a second injection on the fourth, fifth and sixth days following the initial dose. These injections have been instrumental in gaining striking and rapid improvement in most cases, but no improvement has been such that a cure could be claimed on the basis of "absolute" cessation of all twitching within a week. In fact, only in the mild cases was the twitching absent after two weeks. Our experience, however, has been such that we have a right to hope that further investigation will establish the serum as a valuable measure in the treatment of selected cases of chorea.

DISCUSSION

DR. OSCAR M. SCHLOSS, New York: We used this serum treatment in twelve cases, and those twelve patients did not do better than twelve control patients that did not get the serum. Some choreics may become better after the first, the second or the third dose, but frequently one sees the same thing in children treated by the usual means.

DR. CHARLES HERRMAN, New York: Was a certain amount of spinal fluid removed before the serum was employed? Was there an improvement after the withdrawal of the spinal fluid? It is possible that improvement may result from the relief of intraspinal pressure.

DR. L. E. LAFETRA, New York: In giving the serum treatment for chorea, it is not altogether a simple matter to draw off the blood, keep it sterile, and then inactivate it. For some reason we did not get brilliant results from the treatment Dr. Goodman recommends, and we did not feel that we were justified in continuing to use it.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

June, 1918, 46, No. 3

- 1 Regulation of Renal Activity. Balance Between Regulation by Epinephrin and Pituitary Extract. T. Addis, A. E. Shevky and G. Bevier, San Francisco.—p. 129.
- 2 Effect of Holding Breath and of Rebreathing on Rise of Carbon Dioxid Tension in Lungs, and Determination of Carbon Dioxid Tension of Venous Pulmonary Air. H. Laurens, New Haven, Conn.—p. 147.
- 3 Location of Epinephrin Vasodilator Mechanisms. F. A. Hartman, L. G. Kilborn and L. Fraser, Toronto.—p. 168.
- 4 Metabolic Gradient Underlying Intestinal Peristalsis. W. C. Alvarez and E. Starkweather, San Francisco.—p. 186.
- 5 Secretin. Its Mode of Action in Producing an Increase in Number of Corpuscles in Circulating Blood. A. W. Downs and N. B. Eddy, Montreal, Canada.—p. 209.
- 6 Response of Vasomotor Mechanism to Reflex Afferent Nerve Stimulation. C. M. Gruber and O. S. Kretschmer.—p. 222.
- 7 Action of Autonomic Drugs on Surviving Stomach. M. I. Smith, Omaha.—p. 232.
- 8 Experimental Studies on Regulation of Body Temperature Normal Temperature Variations and Temperature Effects of Operative Procedures. L. M. Moore, San Francisco.—p. 244.
- 9 Id.: Relation of Corpus Striatum to Regulation of Body Temperature. L. M. Moore, San Francisco.—p. 253.
- 10 Nursing Mother as Factor of Safety in Nutrition of Young. E. V. McCollum and N. Simmonds, Baltimore.—p. 275.
- 11 *Shock and Circulatory Failure Following Trauma. C. J. Wiggers, New York.—p. 314.

11. Shock and Circulatory Failure Following Trauma.—Wiggers investigated the question whether pain and trauma can produce shock in experimental animals and compared the dynamics of the circulation in this condition with that following intestinal exposure. He found that a state of shock involving the central nervous system can be produced experimentally by trauma. This state may persist from two to five hours, after which recovery sets in; or it may be fatal. Prolonged sensory stimulation may cause a temporary depression of the functions of the central nervous system but in itself does not lead to permanent changes or death. Central nervous system shock never occurs without circulatory involvement which is always clearly indicated in optically recorded pressure curves from the arteries but is not necessarily evident in the mean pressure variations as given by the mercury manometer. In the milder cases of shock, that is, in those terminating in recovery, the circulatory derangement corresponds essentially to that described as characteristic in the initial and early progressive stage of circulatory failure in abdominal shock. Optical arterial pressure tracings show that a diminished volume of blood is contained in the arterial trunks and that the peripheral flow is thereby reduced. In most instances this is solely due to a reduction of the total arterial resistance while the effective venous pressure becomes somewhat increased through the mechanical effects of prolonged deep breathing. In a few cases only was the effective venous pressure reduced somewhat and constituted the main cause of arterial depletion.

In severe forms of shock, that is, in those terminating fatally, the initial stage in which reduced peripheral resistance plays a rôle is of short duration, the effective venous pressure falls early, reaches a low level and by reducing the cardiac discharge, is the chief cause of complete circulatory failure. The dynamic changes of the circulation which lead to progressive and complete circulatory failure are not essentially different in shock produced by trauma and that produced by intestinal exposure. The differences, if any, are in

degree and duration of the respective phases but not in the character of the disturbance. Considering all the available evidence, two factors may be said to be concerned in circulatory failure accompanying shock: (a) the reduction of peripheral resistance; and (b) the fall of effective venous pressure, decreasing the systolic discharge.

American Review of Tuberculosis, Baltimore

June, 1918, 2, No. 4

- 12 *Medical Aspects of Framingham Community Health and Tuberculosis Demonstration. D. B. Armstrong.—p. 195.
- 13 Tuberculosis Survey of Residents of Saranac Lake, New York. F. B. Ames, Boston.—p. 207.
- 14 Tuberculosis Among Immigrants. W. L. Rathbun, Otisville, N. Y.—p. 237.

12. **Medical Aspects of Framingham Demonstration.**—The general death rate, corrected for nonresidents, has averaged 13.65 per thousand for the last ten years in Framingham (1906 to 1916). In 1917 the general death rate was 11.1. The infant mortality rate in Framingham for the previous ten year period was 81 per thousand born. In 1917 it was 73. The tuberculosis death rate, corrected for nonresidents and for errors in death certifications, averaged for 1906 to 1916 approximately 121.5 per hundred thousand. In 1917 the rate was 99.6. Armstrong says that the Framingham Community Health and Tuberculosis Demonstration aims to be not only an investigation and an experiment in community disease control; it should be also a demonstration of a community method, successful or not, as events prove, of disease prevention and health administration. The latter aspect especially will be of wide interest.

An accurate presentation of the findings of this social laboratory, is therefore of value. It may be that the *results* of the Framingham, experiment will be more important than the *result*. In any event, knowledge of the progress of the work may stimulate similar studies elsewhere. Thus far the health experiment has apparently demonstrated the importance of sympathetic cooperation from local and outside agencies, as a basis for community social control over disease producing factors. It is the hope and anticipation of the committee that further developments will demonstrate that on a community basis, disease may be prevented and health created, thereby laying a permanent physical foundation for future social economic and spiritual evolution.

Annals of Surgery, Philadelphia

June, 1918, 67, No. 6

- 15 Congenital Variations in Peritoneal Relations of Ascending Colon, Cecum, Appendix and Terminal Ileum. S. C. Harvey.—p. 641.
- 16 *Multiple Myelomas and Their Ability to Metastasize. D. Symmers, New York.—p. 687.
- 17 Prognosis and Treatment of Empyema. J. Homans, Boston.—p. 697.
- 18 Treatment of Penetrating Gunshot Wounds of Chest with Hemorrhage into Pleura. L. W. Hotchkiss, New York.—p. 707.
- 19 *Relation of Gastric Ulcer to Cancer. J. Ewing, New York.—p. 715.
- 20 *Cautery Excision of Gastric Ulcer. D. C. Balfour, Rochester, Minn.—p. 725.
- 21 Relief of Umbilical Hernia by Condemin-Ransohoff Technic. H. B. Delatour, Brooklyn.—p. 732.
- 22 Congenital Idiopathic Dilatation of Colon or Hirschsprung's Disease. S. Graves, Louisville, Ky.—p. 734.
- 23 Mechanical Derangement of Knee Joint. M. S. Henderson, Rochester, Minn.—p. 738.

16. **Metastasis of Multiple Myelomas.**—Symmers says that his case and a case recorded by Christian represent the only really indisputable examples of genuine metastatic myeloma, effectually violating the generally accepted dictum that the myelomas do not metastasize by cell transplantation. His patient, a man, aged 51 years, was admitted to the hospital in a semicomatose state with the classical signs of cardiac decompensation. Eight years before the patient suffered a fall, striking the right shoulder. For a year thereafter the shoulder was more or less swollen and painful. For three months previous to admission the patient complained of rheumatic pains in the right shoulder, and finally lost the use of the arm entirely, but whether suddenly or not the history does not state. Physical examination showed marked enlargement of the heart and a double murmur at the base. The

head of the right humerus was markedly enlarged and crepitation was felt. The urine revealed no Bence-Jones protein. The man died.

On the side of the head, about 3 cm. back of the external angle of the left eye, was a slightly elevated, circular growth which projected directly through the outer table of the skull and was delimited by a rim of bone. The skin over it was intact. The upper third of the right humerus was greatly enlarged and the bone was fractured. The medulla of this part of the humerus was occupied by a quantity of grayish red, soft tumor material. In the medulla of the third rib on the right side about an inch from the costochondral junction was a small, reddish nodule, soft in consistence, the hard bone on either side being intact. In the intercostal muscles between the sixth and seventh ribs on the right side was a mass of reddish tumor tissue, the ribs on either side being intact. Lying in the fat tissues immediately adjacent to the left suprarenal capsule was a soft reddish nodule which was rounded and measured 1.5 by 2 cm. The vertebrae were intact throughout.

Microscopic examination of the tumors in the humerus, in the third rib, in the intercostal muscles and in the fat around the suprarenal revealed growths composed, for the greater part, of rather large, rounded or polygonal cells, each of which enclosed an excentrically placed nucleus with a fine chromatic reticulum and coarser chromatic particles arranged at irregular intervals against the cell membrane. The cytoplasm was pale or slightly pinkish in color and smooth. Scattered among these cells, which were of the type usually described as myeloblasts, were fairly large numbers of cells whose nuclei presented slightly different structural characteristics in that the chromatic network was stippled with coarse granules, thus corresponding to the nuclei ordinarily encountered in the so-called plasma cell. In certain sections a third type of cell was found, likewise in fairly large numbers. These cells varied in size. Each was provided with a densely staining, small nucleus, often excentrically placed, and with very finely granular, reddish staining cytoplasm. They were evidently degeneration forms.

19. **Relation of Gastric Ulcer to Cancer.**—According to Ewing the cancerous transformation of peptic ulcer is rather infrequent and probably does not exceed the incidence of 5 per cent. originally established. This proportion would be much smaller if only those cases were included in which the evidence is demonstrative, namely, a long history of gastric ulcer, the limitation of the tumor to isolated foci or one portion only of the ulcer, and freedom of the base from infiltration.

20. **Cautery Excision of Gastric Ulcer.**—The low operative risk of cautery excision and gastro-enterostomy is shown by the fact that in the 186 cases in which this was the major operation there were two deaths, giving a mortality in the series of only 1 per cent. The necropsy findings in each of these two cases demonstrated that the field of operation was in perfect condition; the cause of death in one being pulmonary embolus on the eighth day and in the other pneumonia on the twentieth day. In comparing these statistics with those of knife excision and gastro-enterostomy Balfour finds that in the eighty-nine cases in which operation was done by this method three deaths occurred, a mortality of 3.3 per cent. The convalescence of the patients in whom cautery excision and gastro-enterostomy are done is uniformly smooth, and the clinical postoperative course bears out Carman's observation that better gastric motility is attained than in those operations (particularly excision of a V-shaped segment in the lesser curvature) which entail greater damage to the musculature of the stomach.

The reports of the late results are most favorable. Of the sixty-one cases in which the cautery was used in 1914-1915 Balfour has positive information in fifty-five. In this number there have been four deaths from all causes since operation, two already mentioned following operation, the other two of unknown causes at their homes in the three or four years after leaving the clinic. Of the remaining fifty-one cases operated on in the two years 80 per cent. of the patients report a satisfactory result (cured and greatly improved),

18 per cent. were improved in the sense of amelioration of symptoms present previous to operation, while in no instance did a patient report that he had not obtained relief from the operation. The cases of knife excision and gastro-enterostomy in this period show corresponding figures of 70 and 15 per cent., while 15 per cent. of the patients state they are no better. These figures of mortality and late results have more force when it is remembered that the knife excision cases are essentially selected, inasmuch as this operation is done only when conditions are favorable, while the cautery is often employed in the very case in which excision is unwarranted because of the size, fixity and situation of the ulcer.

The apparent advantages of the method may be summarized as follows: 1. The cautery efficiently destroys the focus of infection in gastric ulcer without the sacrifice of Nature's protective induration surrounding the ulcer crater. 2. It may be applied in a large percentage of gastric ulcers. 3. It entails a minimum of operative risks. 4. Clinical and roentgenologic evidence show better motility and function than follow knife excision and gastro-enterostomy. 5. It has a particular efficiency in obviating early and late postoperative hemorrhage. 6. The late results are better than those obtained with any other method. 7. It can be used in cases in which no other means of direct attack on the ulcer is justifiable. 8. It is probable that in gastric ulcer cautery, like knife excision, should always be combined with gastro-enterostomy.

Archives of Internal Medicine, Chicago

June, 1918, 21, No. 6

- 24 *Renal Glycosuria. A. H. Beard and F. Grave, Minneapolis.—p. 705.
- 25 Salt Metabolism in Diabetes Mellitus. A. H. Beard, Minneapolis.—p. 716.
- 26 *Eggleston Method of Administering Digitalis. S. M. White and R. E. Morris, Minneapolis.—p. 740.
- 27 *Antigen-Antibody Balance in Lobar Pneumonia. F. G. Blake, Minneapolis.—p. 779.
- 28 *Brain Changes Associated with Pernicious Anemia. H. W. Woltman, Minneapolis.—p. 791.

24. Renal Glycosuria.—So-called renal diabetes has been reported at various times in the literature. The term is now recognized as a misnomer and the condition should be called renal glycosuria. True cases of renal glycosuria are rare and many so diagnosed are open to question, being mild or atypical diabetes mellitus. The lesion is apparently renal and due to a constant excretion by the kidney of a small amount of sugar while the blood sugar is normal. The tissues can still utilize carbohydrates, and as a result on any diet the percentage of sugar excreted does not vary to any great extent. The glycosuria is usually found by accident or routine examination, the patient reporting for life insurance or irrelevant illness. Most of the patients do not present any of the clinical symptoms of diabetes mellitus and are apparently in good health. Pathologically, the glycosuria seems to be due to a lowered kidney threshold for carbohydrates.

Beard and Grave report a case which on admission was thought to be one of atypical diabetes and the usual routine treatment was given in preparation for starvation, namely, the fats were first eliminated from the diet. After four days' starvation, glycosuria was still present and the blood sugar remained at the same level as on admission. A low caloric diet was next administered and starvation was later repeated. The glycosuria still persisted and the blood remained unchanged to any great extent. On account of this fact the dextrose-nitrogen ratio was determined. After a constant diet of protein and fat for six days, the glycosuria disappeared. The next few days, on starvation, glycosuria was absent, this being the only time during her stay in the hospital that the patient was sugar-free. It was thought the case might correspond to the usual diabetic treatment, but on a diet containing 7 gm. of carbohydrate the sugar output was 7 gm. The blood sugar still remained fairly constant. The diagnosis of renal glycosuria now seemed to be confirmed, and during the remainder of her stay in the hospital the patient was treated for this condition.

26. Digitalis by Eggleston Method.—White and Morris are of the opinion that the Eggleston method is a valuable addition in digitalis therapy, that it gives confidence in the use

of the drug, and that the shorter time necessary for securing digitalis effects should give the method wide use. The method must be used with care to select cases in which these effects are desired. Cases of acute or chronic infections, with the probability of the presence of endocardial infections, should be given the method—if at all—only after careful study, because of the possibility of embolism and of associated myocardial changes predisposing to block. The Eggleston method, in cases of decompensation with auricular fibrillation, gives strikingly favorable results. The Eggleston method, with 3 or 4 c.c. or more of the tincture daily for several days, has resulted, once in partial and once in complete heart block.

27. Antigen-Antibody Balance in Pneumonia.—Blake found that there is a definite relation between the excretion of soluble pneumococcus antigen in the urine and the development of precipitins in the blood in lobar pneumonia. The development of agglutinins in the blood bears no definite relation to the excretion of soluble antigen in the urine. The curve of concentration of precipitins does not parallel the curve of concentration of agglutinins. Pneumococci disappear from the blood prior to or coincident with the appearance of agglutinins. The balance between antigen and antibody bears a definite relation to the course and outcome of lobar pneumonia, (a) in that cases developing an excess of precipitins and agglutinins have invariably recovered shortly after or coincident with the appearance of these antibodies; (b) in that cases showing a progressive increase in the excess of antigen without the development of demonstrable antibodies have invariably been fatal. Daily estimation of the concentration of soluble antigen excreted in the urine and of the number of pneumococci per cubic centimeter of blood have been of great prognostic value in the individual case.

28. Brain Changes and Pernicious Anemia.—Woltman examined the brains of seven persons who died of primary idiopathic pernicious anemia. The most salient features in the pathologic anatomy of these brains, were the following: 1. Not only do degenerated areas of the Lichtheim type, such as are typically found in the posterior and lateral funiculi of the spinal cord in pernicious anemia patients, occur in the medullary portions of the brains of these cases, but they occur with about the same frequency, though their demonstration may be rendered more difficult. 2. Patients who show degenerative changes in the spinal cord at necropsy, usually show the same type of lesion in the brain also. 3. In addition to these focal degenerative areas found in the white matter, which may or may not be associated with blood vessels, one also finds a diffuse degeneration, which, though it is, as a rule, somewhat more striking in the long association tracts, also occurs in the short commissural fibers passing from one gyrus to another, thus rendering the view untenable that it is the distance of these fibers from their trophic centers which is instrumental in causing the degeneration. 4. The gray matter is by no means immune from the destructive process. This is usually focal in character, and begins around the pyramidal cells of the marginal gray layer, the cells themselves being ultimately destroyed in the process, this, in turn, giving rise to a secondary and very diffuse degeneration of the medullated fibers in the white matter. 5. Though some degeneration was noted in the fibers of the internal capsule and in the long tracts passing through the pons, the degeneration at this level was less intense than that seen either in the cord or in the brain. 6. The appearance of these plaques, not only around the blood vessels but also around some of the larger pyramidal cells, seems additional evidence that lymph stasis is an important factor in the production of these foci. 7. Well marked psychoses, such as are occasionally associated with pernicious anemia, probably have little or nothing to do with these destroyed areas. 8. The milder mental manifestations such as somnolence, apathy, and terminal delirium, are probably in a measure dependent on these lesions, though the chief causative agent of these symptoms is probably the toxin itself.

Arkansas Medical Society Journal, Little Rock

June, 1918, 15, No. 1

- 29 War and Sanitation. R. Blue, Washington, D. C.—p. 4.

Boston Medical and Surgical Journal

June 27, 1918, **178**, No. 26

- 30 Get Lean and—Homely. G. Van Ness Dearborn, Cambridge.—p. 887.
- 31 Hearing Test Apparatus. J. Prenn, Boston.—p. 896.
- 32 Idiopathic Epilepsy a Sympathicopathy. E. A. Tracy, Boston.—p. 897.

July 4, 1918, **179**, No. 1

- 33 *Sugar in Its Relation to Infant Feeding. L. W. Hill, Boston.—p. 1.
- 34 Dental Diseases in Relation to Diseases of Nose and Throat. K. H. Thoma, Boston.—p. 17.

33. **Sugar in Its Relation to Infant Feeding.**—Sugar is necessary to life. The importance of sugar for fuel is shown in breast milk, of which 48.7 per cent. of the calories are furnished by the sugar. The feeding of large amounts of sugar may cause a rapid increase in weight, provided the sugar is well digested. The stools of a breast fed baby are normally quite strongly acid in reaction, due to the large amount of sugar and fat in breast milk. A baby takes relatively much more sugar than does an adult, and the assimilation limit is much higher in infancy than it is in later life. Two things are necessary for sugar fermentation; undigested sugar free in the intestine, and bacteria in sufficient quantity to attack it. Overfeeding with sugar, either given as too much food as a whole or as a too high sugar percentage, may cause fermentation. Overheating is of great importance in bringing about sugar fermentation. Infections of various sorts in other parts of the body than the digestive tract are important as a cause of sugar fermentation. Nervous exhaustion and excitement may also bring about sugar fermentation by suppressing the secretion of the intestinal juices, and possibly by increasing intestinal peristalsis, in which case time is not given for the proper digestion of the sugar in the small intestine, and it proceeds to the large intestine, where it ferments. As a last and important cause of sugar fermentation, constitutional weakness of the baby is to be considered. Inasmuch as lactose is the natural sugar which a baby gets in breast milk there is no reason for feeding normal babies on any other sort of sugar. Babies vary immensely in the amount of sugar that they can take. The usual rule is not to exceed 7 per cent. of sugar in the formula. Many cases of mild sugar fermentation may be controlled by simply diluting the food for a few days or by omitting all added sugar. The more severe cases will require further treatment; castor oil or calomel. Feed a low percentage of sugar; never let a baby with sugar fermentation get into a "dried out" condition.

In severe cases of sugar fermentation, when the breathing is of the hyperpneic type, alkali administration is advisable, as acidosis probably exists. Sodium bicarbonate is the best alkali to use, and should be given either by mouth or intravenously; 30 grains every two hours can be given to most babies. Soda should be pushed until the urine becomes alkaline. If the baby is unable to retain soda by mouth, which is very likely, it must be given intravenously. A 4 per cent. solution may be used, and, depending on the size of the baby, from 75 to 150 c.c. of this may be given. Intestinal irrigations with normal saline used at the beginning of the attack may be of considerable value in emptying the colon of toxic products. They have, however, little place in the latter treatment, and in most cases when used as a daily routine do more harm than good, by irritating and disturbing the child. In most cases of sugar fermentation drugs are of little value. Chalk mixture or bismuth may be given. Intestinal antiseptics, such as salol, calomel, etc., are of no value, and should not be given, as it is quite impossible to sterilize the intestine, or to influence its bacterial flora enough to amount to anything in this way.

Opium in some form, usually as paregoric, has a definite place in the treatment of some cases of sugar fermentation.

It should never be given as a routine, but only when the watery diarrhea and tenesmus are so excessive as to exhaust the child. Stimulants may often be needed. The most valuable are caffein camphor in oil, epinephrin and brandy. Hill prefers caffein citrate, or caffein sodium benzoate, subcutaneously, given in rather large doses. The subcutaneous injection

of 1 or 2 minims of a 1:1,000 epinephrin chlorid solution may be of service where there is circulatory collapse with very low blood pressure. Its action is, however, only fleeting. Briefly, the two most important things in the treatment of sugar fermentation are proper feeding, and plenty of water; most cases may be controlled by these alone, without the use of any other special methods of treatment.

Indiana State Medical Association Journal, Fort Wayne

May, 1918, **11**, No. 5

- 35 Public Health Work in Indiana. J. N. Hurty, Indianapolis.—p. 181.
- 36 Diagnosis of Heart Disease. G. W. McCaskey, Fort Wayne.—p. 187.
- 37 Step Forward in Use of Army Litter. G. B. Kent.—p. 191.

Kentucky Medical Journal, Bowling Green

July, 1918, **16**, No. 7

- 38 Skin Lesions Due to Focal Infection and Septicemia. M. L. Ravitch, Louisville.—p. 288.
- 39 Diagnosis and Treatment of Paresis by General Practitioner. G. P. Sprague, Lexington.—p. 290.
- 40 Diagnosis of Gallbladder Disease. A. W. Nickell, Louisville.—p. 292.
- 41 Brain Surgery. J. G. Sherrill, Louisville.—p. 298.
- 42 History and Present Status of Birth and Death Registration in Kentucky. P. E. Blackerby, Bowling Green.—p. 306.
- 43 Valvular Heart Disease. E. D. Turner, Cave City.—p. 307.
- 44 Smallpox; Report of Cases. E. L. Palmore, Hiseville.—p. 309.
- 45 Treatment of Chronic Conjunctivitis. R. H. Cowley, Berea.—p. 311.
- 46 Pneumonia. C. D. O'Hara, Williamstown.—p. 311.
- 47 Empyema. T. J. Marshall, Bardwell.—p. 313.
- 48 Fractures of Skull. W. W. Tarvin, Covington.—p. 314.
- 49 Extensive Burns of Body. J. F. Dunn, Arlington.—p. 316.
- 50 Malignant Ulcers of Cervix. O. W. Brown, Lenoxburg.—p. 318.
- 51 Clinical History and Symptoms of Abdominal Tumors, Especially Ovarian Cysts; Report of Case. W. F. Gardner, Carrsville.—p. 320.

Medical Record, New York

July 6, 1918, **94**, No. 1

- 52 *Thoracic Surgery. S. J. Meltzer, New York.—p. 1.
- 53 Relation of Internal Secretions and Faulty Metabolism to Mental Perversions. B. C. Keister, Roanoke, Va.—p. 4.
- 54 Death and Its Semitic Traditions. J. H. Marcus, Atlantic City, N. J.—p. 7.
- 55 *Treatment with Digitalis Preparations. E. Zueblin, Cincinnati.—p. 13.
- 56 Vaccine Dosage in Elimination of Systemic Effects of Mouth Infections. J. Head, Philadelphia.—p. 17.

52. **Thoracic Surgery.**—Meltzer says that the most desirable object in thoracic surgery is the proper development of exploratory thoracotomy with the object of using it in the same manner and for the same purpose as exploratory laparotomies are used, that is, in the first place for making a proper diagnosis. He believes that in some conditions the exploratory incision in itself may even exert a therapeutic effect. On the other hand, Meltzer would rather counsel conservatism in the attempts to perform untried and unstudied methods of operation. Occasional success rapidly leads to repetitions and numerous failures, and this discredits thoracic surgery. Patient, practical, and experimental studies should be the means of paving the way to the final success in thoracic surgery. He also proposes that large intercostal incisions should be made for the treatment of pulmonary tuberculosis. If the procedure does not interfere with the respiration, that is, if it proves that the mediastinum sufficiently protects the respiratory activities of the lung in the opposite cavity, steps should be taken to keep the incision open for a longer period. If the lung of the opposite side is also affected, the same procedure should be followed out later when the first incision is healed. The idea underlying this suggestion has nothing in common with the method of treatment by means of insufflation of nitrogen in the pleural cavity. Meltzer's suggestion is stimulated by the experience of the curative effect of laparotomy on tuberculous peritonitis; the introduction of nitrogen or oxygen into the peritoneal cavity exerts no such curative action. Meltzer throws out the further hypothesis that the moderate distentions of the partly adherent exposed lung may rather prove to be a favorable factor in the possible therapeutic action of a thoracotomy.

55. **Treatment with Digitalis Preparations.**—Zueblin's investigation has shown that the cardiovascular remedies are not constant in their physical properties; that they undergo changes as they become older, particularly as regards the ionization studied by means of the fontactoscope. It was found that notwithstanding a careful storage, excluding light and humidity, these changes take place. Furthermore, by exposing digitalis preparations to the action of high frequency waves, these drugs present a higher degree of ionization after such treatment.

Michigan State Medical Society Journal, Grand Rapids

July, 1918, 17, No. 7

- 57 Surgical Conditions of Knee Joint. R. C. Andries, Detroit.—p. 291.
- 58 Relation of Medical Profession to Municipally Controlled Medical School of Detroit. A. P. Biddle, Detroit.—p. 295.
- 59 Severed Right Femoral Artery. D. L. Stilwell, Detroit.—p. 296.

Minnesota Medicine, St. Paul

July, 1918, 1, No. 7

- 60 Gastric Crises and Related Abdominal Pain. E. L. Tuohy, Duluth.—p. 241.
- 61 Fractures of Skull. R. Earl, St. Paul.—p. 247.
- 62 Lithiasis with Bilateral Renal Involvement. W. F. Braasch, Rochester.—p. 252.
- 63 Responsibilities of Medical Practitioner to State, Profession and Patient, as Related to Malpractice. A. F. Schmitt, Mankato.—p. 256.
- 64 Cesarean Section. H. T. McGuigan, Red Wing.—p. 262.

Missouri State Medical Association Journal, St. Louis

July, 1918, 15, No. 7

- 65 Medical Aspects of War. R. E. Schlueter, St. Louis.—p. 243.
- 66 Responsibility of Medical Profession to Crippled Soldier. G. C. Robinson, St. Louis.—p. 250.

Modern Hospital, St. Louis

July, 1918, 11, No. 1

- 67 Planning of Small Tuberculosis Sanatorium Buildings. J. D. Burt, New York.—p. 1.
- 68 Standardization of Hospitals for Insane. W. C. Sandy, Middletown, Conn.—p. 6.
- 69 Occupational Treatment in Nervous Disorders. J. Luther, Providence, R. I.—p. 11.
- 70 Hospital Housekeeping, Its Worries and Cares. M. A. Jamieson, Columbus, Ohio.—p. 15.
- 71 Self-Government for Resident Medical Staff. C. B. Bacon, New York.—p. 17.
- 72 Memorial Hall of Buffalo General Hospital. E. F. Stevens, Boston.—p. 20.
- 73 Little Journeys to Places and People Worth Knowing. M. J. Robinson, Chicago.—p. 23.
- 74 Hospitalism; Its Cause and Treatment. P. O. Clark, Wheeling, W. Va.—p. 53.
- 75 Standardization of Hospitals. C. A. Drew, Worcester, Mass.—p. 56.
- 76 Community Hospital as Viewed by Nurse. M. Harrison, Kerrville, Texas.—p. 58.
- 77 Visitors and Visiting in Hospitals. J. Geffen, Philadelphia.—p. 61.
- 78 Who Should Be Dispensary Patients? M. M. Davis, Jr., Boston, and A. R. Warner, Cleveland.—p. 64.

New Orleans Medical and Surgical Journal

July, 1918, 71, No. 1

- 79 Thrift and War Savings Stamps and Liberty Bonds. C. Janvier, New Orleans.—p. 6.
- 80 Medical Reserve Corps. I. Dyer, New Orleans.—p. 11.
- 81 Medical Profession and Great War. H. Page, Fort Oglethorpe, Ga.—p. 14.
- 82 Medical Reserve Corps and Medical Military Activities. F. Simpson, Washington, D. C.—p. 19.
- 83 Bass-Watkins Agglutination Test for Typhoid. F. M. Johns, New Orleans.—p. 22.
- 84 Treatment of Eclampsia. H. E. Miller, New Orleans.—p. 28.
- 85 Importance of Early Diagnosis and Treatment of Middle Ear Diseases of Children. M. P. Boebinger, New Orleans.—p. 36.

New York Medical Journal

June 22, 1918, 107, No. 25

- 86 Some Unusual Surgical Experiences. A. Vanderveer, Albany.—p. 1161.
- 87 Relation between Lupus Erythematosus and Tuberculosis. F. Wise, New York.—p. 1164.
- 88 Prognosis in Pulmonary Tuberculosis. M. Fishberg, New York.—p. 1167.
- 89 Diagnosis and Treatment of Anthrax. N. Schwartz, New York.—p. 1171.
- 90 Otogenous Temporal Abscess with Hemiplegia. O. Glogau, New York.—p. 1174.

- 91 Roentgen Ray as Diagnostic Aid in Backache. M. K. Fisher, Philadelphia.—p. 1176.
 - 92 Plan for Prevention of Venereal Diseases in New York State. E. H. Marsh, New York.—p. 1178.
 - 93 Occupational Mercury Poisoning. G. S. Bangert, East Orange, N. J.—p. 1179.
 - 94 Treatment of Compound Fracture of Femur at Casualty Clearing Stations. H. M. W. Gray, Aberdeen, Scotland.—p. 1181.
- July 6, 1918, 108, No. 1

- 95 Device for Roentgen Ray Location of Bullets and other Foreign Bodies in Wounds. S. Tousey, New York.—p. 1.
- 96 *Unusual Hyperpyrexia in Pneumonia; Recovery. J. P. C. Griffith, Philadelphia.—p. 3.
- 97 Action of Radium on Cataract. I. Levin and M. Cohen, New York.—p. 4.
- 98 Case of Dyspituitarism. H. Climenko, New York.—p. 5.
- 99 Plaster of Paris Bandage Roller. W. H. Bennett, Atlantic City, N. J.—p. 6.
- 100 Mechanical Commminution of Food in Therapeusis of Acute Alimentary Disturbances of Infancy and Childhood. H. Lowenburg, Philadelphia.—p. 7.
- 101 Analytic View of Psychic Factor in Shock. G. M. Parker, New York.—p. 12. To be concluded.
- 102 Dispensary Abuse. I. S. Wile, New York.—p. 17.
- 103 Brief Biblical Evolution of Medicine. J. H. Marcus, Atlantic City, N. J.—p. 21.
- 104 Epidemiology of Trench Warfare. V. Bardou, France.—p. 24.

96. **Hyperpyrexia in Pneumonia.**—In a typical case of bronchopneumonia with increasing and finally rather extensive consolidation involving parts of both lungs in scattered areas, although the patient was evidently severely ill, the heart sounds throughout remained fairly good; the patient never appeared to be in any immediate danger, and a guardedly favorable prognosis was given at all times. The most interesting feature was the continued tendency to high fever, with a daily maximum of 104 to 107 F., and one occasion 108 F., with rapid drops to 100. The patient was 2½ years of age. The second case was at first an ordinary typical croupous pneumonia in a boy of 5¼ years. The temperature had been not unduly elevated, the mind entirely clear, the cardiac strength excellent. This favorable condition continued until the seventh day of the attack, when an unusual degree of drowsiness developed, and the temperature became higher. On the tenth day, instead of the convalescence which had been fully expected even earlier, the temperature began to rise, the pulse grew very weak, and the child appeared to be rapidly sinking. The fever had risen to 109 F., as recorded by two different thermometers. A warm mustard bath had been given, and the temperature had fallen to 106, yet with the pulse still rapid and no improvement in the general condition of the child, who was unconscious and evidently extremely ill. In twelve hours, however, the temperature had dropped nearly 12 F., and the general condition, although still very bad, was better. By the thirteenth day of the disease convalescence appeared established. There was no further return of fever.

Ohio State Medical Journal, Columbus

July, 1918, 14, No. 7

- 105 Night Pay Clinic; Its Development at Lakeside Hospital. A. R. Warner, Cleveland.—p. 404.
- 106 Use of Nitrous Oxid in Production of Painless Childbirth. M. Salzer, Cincinnati.—p. 406.
- 107 Perforation of Abdominal Viscera. E. H. Chapin, Columbus.—p. 409.
- 108 Predisposing Cause of Cancer in Women. G. E. McCullough, Troy.—p. 411.
- 109 Certain Special Fractures. J. D. Smith, Akron.—p. 413.

Philippine Journal of Science, Manila

May, 1918, 13, Sec. B, No. 3

- 110 Virulence of Certain Body Organs in Rinderpest. W. H. Boynton, Manila.—p. 127.
- 111 Use of Organ Extracts in Place of Virulent Blood in Immunization and Hyperimmunization Against Rinderpest. W. H. Boynton, Manila.—p. 151.
- 112 Comparative Study on Natural Hemolysins in Inactivated Human and Monkeys Serum. C. Monserrat.—p. 159.

South Carolina Medical Association Journal, Greenville

June, 1918, 14, No. 6

- 113 Application of Military Sanitation in Small Towns and Rural Districts. F. L. Parker, Charleston.—p. 144.
- 114 Military Medicine and Surgery. G. A. Dillinger, Camp Hancock.—p. 147.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Surgery, London

April, 1918, 5, No. 20

- 1 Surgical Pathology of Peripheral Nerves. S. M. Cone.—p. 524.
- 2 *Study of Series of Wounds Involving Brain and Its Enveloping Structures. H. Cushing.—p. 558.
- 3 Bone Growth and Bone Repair. I. A. Review. A. Keith.—p. 685.
- 4 Two Cases of Strangulated Retroperitoneal Hernia into Pouches in Broad Ligament. C. H. Fagge.—p. 694.

2. See abstract in THE JOURNAL, April 6, 1918, p. 1038.

British Medical Journal, London

June 15, 1918, 1, No. 2998

- 5 *Gunshot Wounds of Chest. J. F. Dobson.—p. 661.
- 6 War Scars and Their Pains. E. M. Corner.—p. 665.
- 7 *Emergency Treatment of Wounds. A. J. Hull.—p. 667.
- 8 Temporary Cecostomy in Resection of Distal Portion of Colon for Nonobstructive Conditions. G. Taylor.—p. 667.
- 9 Local Application of Liquid Glucose in Treatment of Certain Superficial Bacterial Infections. T. H. C. Benians.—p. 669.
- 10 *Intravenous Injection of Eusol in Chronic Arthritis. H. Fairclough.—p. 670.

5. **Gunshot Wounds of Chest.**—The recognition of penetrating wounds of the chest Dobson points out is not always easy, and the most careful examination of the chest should be made in wounds of the upper arm, neck, shoulder and lumbar regions. He cites cases to emphasize the danger of evacuating a case in which the chest has been primarily closed until such time as the possibility of infection has passed. The best preventive of sepsis is early and thorough operative treatment with complete closure of the chest. In some the infection is derived from the lung, and may not be prevented by primary operative treatment, however early and thorough. The results of drainage are undoubtedly bad. Many patients succumb to sepsis, despite a free and dependent opening. This is to be prevented by treating the infected pleura and lung as other infected wounds are treated, namely, by washing the whole of the infected area with an antiseptic fluid at regular intervals, the progressive sterilization of the wound previously described by the author combined with efficient drainage. The results of drainage and irrigation by this method are striking. The general condition of the patient improves rapidly. The amount of discharge is much lessened, and in many cases there is practically none. The lung expands quickly and undoubtedly much more rapidly than in cases treated by drainage alone.

7. **Emergency Treatment of Wounds.**—The ideal treatment for infected gunshot wounds, Hull says, is to excise them during the preinflammatory stage, that is, within twenty-four hours of the infliction. The exigencies of war will more often than not make this impossible. The question therefore arises whether it is possible to prolong the preinflammatory stage. The only treatment which a wound at present receives in war previous to being excised or otherwise dealt with at a casualty clearing station is the application of a first field dressing. In spite of the advances in surgery, particularly in the treatment of wounds, Hull states that the emergency treatment is no more efficacious than it was in the days of the Trojan wars. The dressings applied to wounds before the arrival at a casualty clearing station have no influence whatever on the infection in the depths of the wounds. Improved results of the treatment of wounds can only be achieved by some method of either excising the wound during the preinflammatory stage or by prolonging that stage, and research in the latter direction appears to be most desirable. The old first field dressing appears to be totally inadequate. It is suggested that, as soon as practicable after the infliction of a wound, it should be instilled with some nonirritating antiseptic, in order to inhibit the growth of micro-organisms. Within the first few hours, unless septic foreign matter remains in the depths of the wound, pathogenic organisms are found to be few in numbers and confined to the surface of the wound.

Several reagents which are nonirritating inhibitors of septic organisms are available. Flavine in 1:1,000 solution or

dichloramin-T would appear to be suitable antiseptics for the purpose. Brilliant green is frequently used as an antiseptic stain. Eusol and Dakin solutions would be too evanescent and too transient in their action for this purpose, as, in fact, they are for any wound treatment during transport. If a 5 per cent. solution of salt be combined with the antiseptic reagent, the micro-organisms will not only be inhibited in the wound, but an outpouring stream of serum will be produced which will carry infection from the wound, and prevent the ingress of organisms. The technic of wound instillation is simple. The chosen solution is instilled by means of a fine glass nozzle attached to a Higginson's syringe, care being taken to inject fluid into the depths of the wound. This treatment is not beyond the scope of an advanced dressing station. There is also indication for the use of this method in casualty clearing stations. In times of pressure a patient may have to wait a day or more before an operation can be performed. The preliminary instillation of the wound with an inhibiting antiseptic solution may make the difference of the wound being operated on in the preinflammatory stage, or when suppuration has commenced. By beginning wound instillation within an hour or so a wound is bacteriologically as sterile as an excised wound, and but for the tissue necrosis which follows gunshot wounds the early instillation of a suitable antiseptic might replace wound excision.

10. **Injection of Eusol in Chronic Arthritis.**—The solution used by Fairclough contains 0.5 per cent. free hypochlorous acid, and was prepared according to the directions of James Graham, namely, 12.5 gm. boric acid, and 12.5 gm. chlorid of lime are shaken up with 1 liter water, allowed to stand for some hours, filtered, and 8.5 gm. of common salt added; dose, 100 c.cm. He reports good results.

Dublin Journal of Medical Science

June, 1918, 145, No. 558

- 11 Rodent Ulcer. W. Beatty.—p. 329.
- 12 Syphilis and the State. T. P. C. Kirkpatrick.—p. 339.

Journal of Laryngology, Rhinology and Otology, London

June, 1918, 33, No. 6

- 13 Paralysis of Left Vocal Cord. H. Tilley.—p. 161.
- 14 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 166. To be continued.

Journal of Tropical Medicine and Hygiene, London

June 15, 1918, 21, No. 12

- 15 Classification of Mycetomas. A. J. Chalmers and R. G. Archibald.—p. 121.

Lancet, London

June 15, 1918, 1, No. 4946

- 16 *Sterilization of Wounds by Physiologic Agency. A. E. Wright, A. Fleming and L. Colebrook.—p. 831.
- 17 *Method of Dealing with Divided Ureters. W. B. Bell.—p. 838.
- 18 *Warfare Injuries of Larynx. W. D. Harmer.—p. 839.
- 19 *Cecoplication. W. W. Cheyne and A. Edmunds.—p. 842.

16. **Sterilization of Wounds.**—Wright and his associates claim that (1) it has been erroneously inculcated that every wound should be sterilized before closure; and that, therefore, primary suture should be avoided and secondary suture undertaken only after a course of antiseptics. They state that there is now no question, with respect to primary suture, that the wound taken after early surgical cleansing and resection is as good as sterile; and, with regard to secondary suture, undertaken with a wound in good condition and a purely serophytic infection, that such operative procedure, provided it leaves behind no infected dead spaces, directly contributes to sterilization. (2) It has been taught that the authors should judge of the fitness of the wound for closure by necropycultures and direct microscopic examination of the pus. According to the authors it would be infinitely more reasonable to base the judgments on the results of biopyoculture: (3) It has been taught that suture cannot be successful in a wound containing a hemolytic *Streptococcus pyogenes*. The authors found that leukocytes can, given proper conditions, successfully combat this, and of course all other streptococci; and that these conditions can be realized in connection with the suture of wounds. (4) It has been taught

that for the removal of sloughs from foul wounds chemical solvents are required. However, sloughs can be removed by tryptic ferment set free from disintegrated leukocytes, and the liberation of this ferment can be greatly accelerated by breaking down the leukocytes in the discharges with hypertonic saline solution. (5) Lastly, it has been taught in connection with antiseptics that sterilization is obtainable only by continuous or very frequently repeated application. According to Wright and his associates there is nothing to prevent any part of a wound surface which has been washed quite clear of albuminous matter being sterilized by a single application of antiseptics.

17. Method of Dealing with Divided Ureters.—When implantation into the bladder is impossible, or when that viscus is absent Bell proceeds as follows: At the first operation laparotomy is performed through a central subumbilical incision. The anterior branch of the internal iliac artery is tied on either side to diminish the blood supply to the pelvic organs, and so to facilitate the subsequent procedures. Next, a loop of the lower ileum, about 18 inches in length, with its mesentery, is isolated, and an anastomosis is made to carry on the function of the intestinal tract from which the loop has been excised. The apex of the isolated piece of bowel is not superficially attached to the fundus of the bladder, and the two ends of the loop are brought out through stab wounds, in the iliac region on either side and fixed in position. The central incision in the parietes is then closed. The dressings over the open ends of the bowel should be changed frequently, as there is a good deal of discharge, especially from the distal end, for a few days. When the attachments at these orifices are quite firm swabs are taken from the interior of the bowel with precautions against superficial contamination. Subsequently the loop of the bowel is washed out twice daily with a 1:30 solution of Milton fluid. Within ten days the bowel is sterile or practically so. The irrigation is continued for a few days longer, at the end of which time, if all the cultures are negative, the next step is undertaken.

At this second operation a self-retaining catheter is first placed in the bladder, and, after the abdomen has been reopened, the apex of the loop of bowel is detached from the fundus of the bladder. The ureters in turn are divided at the pelvic brim and are implanted into the isolated loop in the manner described by Stiles. The whole pelvis is then cleared; the genitalia with the upper part of the vagina, the parametrial glands and connective tissue, together with a large diamond shaped piece of the base of the bladder—the largest area of which is situated over the front of the cervix—are removed. The aperture in the bladder is closed with two layers of continuous sutures. The apex of the isolated loop of the bowel in which the ureters have been implanted is now anastomosed with the fundus of the bladder. The self-retaining catheter should be utilized for a week to keep the bladder empty. The operation is completed by the closure of the abdominal wound and of the open ends of the isolated loop of intestine, unless it be judged advisable to keep one or both ends open for the purposes of lavage. In this case the openings are closed subsequently at a third operation. The main point emphasized by Bell is that a loop of bowel in the living human subject can quickly be rendered sterile and kept sterile.

18. Warfare Injuries of Larynx.—Investigations have been carried out by Harmer and others on 245 patients. It has been noted that wounds of the larynx are infinitely rarer than injuries to the jaws; that the entry wound may be situated in any part of the neck (jaw and chest rare) and is generally smaller than the exit injury; that the commonest place of entry is the anterior triangle of the neck, especially the region of the thyroid cartilage; that transverse wounds (61) are more common than oblique (24); that entry wounds in the middle line in front are very rare (8) and never occur posteriorly, doubtless because the spine is always involved with fatal results; that the track of the missile may be horizontal, from above downward or occasionally from below upward; that the lower jaw may be struck first; that injuries of the larynx between the level of the vocal cords and the cricoid are the most serious; that tracheal wounds are rare

(12); that the pharynx or esophagus is often included; that extralaryngeal wounds are very common on account of the mobility of the air passages, the missile often passing obliquely by the side of the thyroid cartilage or transversely behind the larynx without penetrating into its cavity.

In many of the cases examined the classical symptoms were remarkable by their absence. Although missiles had undoubtedly perforated the air passages, the patients declared that very little trouble had been experienced. Cough, dyspnea, blood spitting, dysphagia, and, later, bruising, edema, or inflammation may never occur. In general, however, the voice is immediately lost. Cough supervenes for a time. Hemoptysis (twenty-five cases) is common and may be severe, statements being made by the patients that they had lost "at least 2 quarts of blood" after being wounded. Severe bleeding may be due to injury of the carotid arteries (3) or internal jugular vein (2). It may also originate from the mucosa of the air passages without injury to any large vessel. Hemorrhage may continue for a few minutes or for long periods, such as two to seven days. Recurrent and secondary hemorrhages are rare at the base. Dysphagia (twenty-nine cases) is common, but generally of a transient nature for a day or two, and is caused more often by general soreness of the tissues than by obstructive inflammation in the gullet. Even after severe wounds involving the food passages there may be no dysphagia. Thus, a bullet which passed through the pharynx behind the larynx is said to have caused no dyspnea, dysphagia, or hemoptysis. Dyspnea (28 cases, tracheotomy in 18) seems very variable, and is often absent even in severe wounds. It may, however, develop unexpectedly after apparently simple injuries and at almost any period.

In two thirds of the gunshot injuries of the larynx that survive for more than a week recovery is complete, and no ill effects are produced beyond alteration of the voice. A small proportion of the cases of abductor paralysis recover. In a small number of patients total paralysis supervenes. Although the majority of larynx wounds recover after a time, one third of the patients are less fortunate, and in battle many lives are undoubtedly lost owing to wounds of the neck and larynx. Even the survivors may be crippled by complications, such as paralysis of the brachial plexus, bronchitis, loss of voice, and injury to health. Harmer says that considering that the uniform of a soldier at the front includes a collar reaching to the jaw, it should be a simple matter to insert in it a band of steel which would have the same effect as a helmet.

19. Cecocolic.—In a patient with pain in the right iliac fossa occurring in attacks or as a dull ache, with tenderness at or near McBurney's spot, irregularity of the bowels, and vague digestive disturbances, the diagnosis of chronic appendicitis is usually made. Appendicectomy, in the large majority of cases, leads to relief of the symptoms and great improvement in the patient's general condition. There is, however, a residuum of cases in which this operation fails to relieve the patient, the pain continuing as before. Cheyne and Edmunds believe that the explanation of this in some of these cases may be, that the appendicitis was only part of a general colitis; in others, that some other organ, as, for example, the ovary or tube, kidney or ureter, was at fault. These symptoms are sometimes loosely diagnosed as due to adhesions. While adhesions may account for pain in this region if they obstruct the passage of the intestinal contents, this explanation will not meet the whole case. Many patients, for example, after a severe suppurating appendicitis, in whom it is certain adhesions are abundant, are perfectly comfortable, while in other cases in which the symptoms have been attributed to adhesions laparotomy often proves that none are present. But even when all such sources of error are eliminated there is still a group of patients which present all the symptoms commonly ascribed to a chronic appendicitis, in spite of the fact that this organ has been removed. It is pretty generally recognized that in such cases there exists some affection of the cecum, which is usually found to be voluminous and abnormally mobile. This condition has been called by a variety of names, such as cecum mobile, typhlatony, typhlectasis and voluminous cecum. Many sur-

geons have come to the conclusion that this prolapse and mobility of the cecum are the cause of the train of symptoms mentioned above, and that the size of the lumen should be diminished by "cecoplication," that is, by sewing together the anterior and posterior bands.

When, therefore, a case of chronic appendicitis exhibits a long lax cecum it is a good plan to combine cecoplication with appendectomy. This adds practically nothing to the risk of the operation, and the postoperative discomforts of the patient are, if anything, diminished, so that there need be no hesitation in performing it in any case. Chcyne and Edmunds commence the suture where the stump of the appendix is invaginated, using a fine catgut. The needle is passed through the adjacent edges of the anterior and posterior bands, which converge at this point, and these edges of the bands are then united by a continuous suture extending upward for 3 or 4 inches toward the hepatic flexure. If there is any tendency of the bowel wall to bulge over the end of the suture line, this can be counteracted by picking up the bowel wall, between the bands, in the last stitch. The suture is then reversed and carried downward toward its starting point, this time, however, picking up the edges of the bands which were originally farthest from each other, the suture is continued until the starting point is again reached. In this way the whole of the bowel wall between the bands is invaginated and held in place by union between the surfaces of the bands which have been sutured face to face.

Medical Journal of Australia, Sydney

May 25, 1918, 1, No. 21

- 20 Syphilis. L. E. Ellis.—p. 427.
- 21 Results Obtained from Examination of Eight Thousand Mental Patients by Bordet-Wassermann Test. O. Latham.—p. 429.
- 22 Pathology in Wartime. A. H. Tebbutt.—p. 433.
- 23 Agglutination after Administration of Typhoid and Paratyphoid Vaccines. W. K. Inglis.—p. 434. To be continued.

June 1, 1918, 1, No. 22

- 24 Id. W. K. Inglis.—p. 449.
- 25 Fifty Cases of Rectal Ether Anesthesia. H. W. Sweetnam.—p. 452.

Archives de Médecine et de Pharmacie Militaires, Paris

March, 1918, 79, No. 3

- 26 *Transfusion of Citrated Blood. G. Giraud.—p. 369.
- 27 *Tourniquet Gangrene. Bertein.—p. 394.
- 28 *Traumatic Shock. A. Monéry and P. Lombard.—p. 401.
- 29 Pathogenesis of Gas Gangrene. A. and J. Chalier.—p. 415.
- 30 Causticity of Hypochlorite Solutions. W. Mestrezat.—p. 429.
- 31 General Paralysis as Invaliding from Service. A. Paris.—p. 434.
- 32 *Pignet's Index of Physical Fitness. Besson.—p. 438.
- 33 The Work of the Medical Department in the Cantonments. (Vue d'ensemble sur le service de santé dans les dépôts des corps de troupe.) L. Netter.—p. 455.

26. **Hematologic Study of Transfusion of Citrated Blood.**—Giraud examined the blood of both donor and receptor both before and after the transfusion, and compares his findings with those that have been reported by others in respect to hemoglobin, coagulability, hemolysis, agglutination and anaphylaxis. He has had no experience with anaphylaxis, but cites the case reported by Jeanbrau last year in which a wounded man who had been given antitetanus serum three weeks before had blood transfused from a man who had been given an injection of antitetanus serum that very morning. The transfusion was followed at once by white syncope on the part of the receptor, mydriasis and rigor, with death in a few seconds. The assumption of anaphylaxis from the antitetanus serum and the antitetanus serum in the blood of the donor seems the only explanation of this occurrence. On the whole, Giraud remarks, his research seems to have raised a number of questions without settling any.

27. **First Aid Treatment of Hemorrhage.**—Bertein insists that the tourniquet is far from being the only means to arrest hemorrhage. To begin with, he says, few with external hemorrhage from a large artery survive to reach the first aid station. Under other conditions he advocates applying a bandage around the limb with a roll of gauze, or any foreign body equivalent, over the artery itself. The bandage is drawn tight enough to ensure that this large roll of gauze interrupts the circulation in the artery under it, but this does not interfere with the circulation in the rest of the limb. If

the limb is so crushed that most of it has been detached, it is better to amputate it at once and apply hemostasis to the stump. To tampon the stump effectually takes scarcely any more time than to apply the tourniquet.

28. **Traumatic Shock.**—Monéry and Lombard declare that the study of the blood pressure is the only means for appreciation of the degree, the gravity, of traumatic shock. The blood pressure cannot be estimated with the finger, but with the Pachon oscilometer the exact state of the circulation can be told with precision. There is a point below which it is impossible for the heart to recuperate, that is, below 4 for the minimal and 7 for the maximal pressure as shown by the oscilometer. Any operative intervention merely hastens death. With shock from hemorrhage, the limit is not so absolute as with traumatic shock. The latter is more frequent during offensives than during quiet periods, and the association of injury of bones and of a large trunk nerve seems to predispose most to traumatic shock. The arterial hypotension and hypotension of the eyeballs are the essential elements for its diagnosis. In treatment, they lay great stress on having the *shockés* assembled in the quietest available quarters, kept darkened, the beds the most comfortable possible, and the men undressed and isolated, with a personnel trained in care of traumatic shock. The darkness, quiet and silence are important aids, supplemented by heating the bed with a cradle heated by electricity or an alcohol lamp, the arterial pressure taken every hour with the oscilometer. Morphine is given systematically as this seems effectual in raising the arterial pressure in traumatic shock just as it prevents its fall during abdominal operations. Subcutaneous injections of saline, with epinephrin, complete the treatment, and the man sleeps. When the blood pressure has risen to 4 and 7 or 8, then the operation is to be considered, and they emphasize that experience is confirming the justness of Crile's views in regard to the necessity for local as well as general anesthesia. The region to be operated on must be thoroughly blocked with the local anesthetic, having the trunk nerve, the vessel sheaths and the periosteum actually swimming in the anesthetic. They give an illustration of the wooden sheath to protect the alcohol lamp and chimney for heating the cradle which they have found useful, as it protects against danger of fire while it enables the heat to be regulated and kept at a constant figure with the minimum of alcohol.

32. **Pignet's Index of Physical Fitness for Service.**—Besson remarks that this *coefficient de robusticité* must be regarded as only one element in deciding as to the candidate's fitness, but that it is proving a most valuable aid. The figures representing the weight and the chest measure (metric system) are added together and the sum is subtracted from the height in centimeters. For example, the candidate weighs 60 (kg.) and his chest measure is 90 (cm.). The sum of these figures—150—is subtracted from his height, which is 170 (cm.), leaving 20, which is the index in this case. This index is applicable only to the young. After the growth has been solidly attained, it does not represent to the same extent the physical fitness. The higher the index the less the fitness. Above 25 the question of fitness is dubious, and 35 or over should entail the rejection of the candidate unless he is exceptionally short, which calls for some modification of the formula. The index is useful also as a means of keeping oversight of the physical condition of young recruits in the service; any notable increase in the index should attract the medical officer's attention.

Bulletin de l'Académie de Médecine, Paris

May 28, 1918, 79, No. 21

- 34 Sialophagia of Central Origin. G. Hayem.—p. 400.
- 35 *Leishman Cirrhosis of Liver. L. Nattan-Larrier.—p. 402.
- 36 *Traumatic Shock. Brechot and Claret.—p. 404.
- 37 *Acetonemic Syndrome in Children. A. Rémond and Poux.—p. 405.
- 38 *War Fractures. P. Reynier.—p. 409.

35. **Leishman Cirrhosis of Liver.**—Nattan-Larrier has seen cirrhosis of the liver develop with chronic kala-azar in India.

36. **Traumatic Shock.**—As an aid in prognosis, Brechot and Claret mention that of seven wounded men with intense shock, but with a variation of 3 or more between the maximal

and minimal tension with the Pachon oscillometer, six of the men recovered and the other succumbed to other causes. In another corresponding group with a variation of only 2.5 or less, only one recovered, and this was the one with the highest figure. A difference of 2.5 or more seems thus to be a favorable sign while below 2.5 the patient seems to be doomed. The lowering of the arterial tension seems to be a constant phenomenon in shock; it is due to a vasomotor paralysis, and this is responsible also probably for the rise in pressure in the cerebrospinal fluid which they found constantly in seven cases of severe pure shock.

37. Acetonemic Syndrome in Children.—Rémond and Poux assert that the disturbances in children known as periodical vomiting with acetonemia are only one form of the acetonemia-acidosis syndrome. In other forms the acetonemia may be associated with symptoms simulating meningitis, typhoid or jaundice. The liver, small intestine and pancreas bore the brunt of the attack, and the reaction in other organs imparted great variety to the clinical picture in their twenty cases. The syndrome may prove fatal, but they found that the symptoms, no matter how menacing, promptly subsided under treatment of the defective peristalsis by subcutaneous injection of pancreatic juice (total extract of the fresh gland), with sodium bicarbonate to combat the acidosis. In one exceptionally grave case in a girl of 8 they injected a 1 per cent. solution by the vein. In the other cases they gave from 20 to 60 gm. in the twenty-four hours by the mouth and bowel (drip method). Their success justifies the conclusion that acetonemia from insufficiency of the pancreas is a much more important element in the pathology of children than has hitherto been realized. Search for acetone should be a routine procedure in the first hours of sickness of an intestinal or nervous form in children. This acetonemia syndrome displays a marked tendency to recurrence. It should be warded off by abstention from cooked fats and too much meat, while an alkaline drinking water should be systematically used. A course of treatment at Vichy seemed very effectual. The first sign of trouble is the arrest of peristalsis. No feces are passed along from the small into the large intestine. The stools consist exclusively of the mucous secretions of the colon. Within five or six hours, acetone and diacetic acid appear in the urine, and by the twenty-fourth or forty-eighth hour the breath smells of acetone. The acetone and diacetic acid content of the urine may increase from about 0.10 gm. the first day to 4 or 5 gm. per liter in forty-eight hours, and the urine grows scanty and may look greenish. Thirst is great, and vomiting may occur, but there was no vomiting in 50 per cent. of their cases. The temperature may drop; one child had a rectal temperature of only 35 C. In others there was high fever.

38. Treatment of War Fractures.—Reynier devotes seventeen pages to a profusely illustrated description of the various apparatus to correct functional impotence devised, he says, by the inventive genius of Miss Gassette, technical director of the Franco-American Committee, whose training as an artist facilitated the task. He pays high tribute to her skill in inventing and modifying apparatus for suspension, extension, etc., and describes the principles so that others can apply them. He speaks with deep gratitude of her work and the American generosity which financed the whole, saying, "*Au nom de tous nos blessés, merci.*"

Bulletins de la Société Médicale des Hôpitaux, Paris

April 26, 1918, 42, No. 14

39 Lethargic Encephalitis in England. A. Netter.—p. 384.

40 *Convergence of the Eyeballs after Shell Concussion. P. Descomps, J. Euzière and P. Merle.—p. 385.

41 *Syndrome of Jugular Foramen. Rimbaud and Vernet.—p. 389.

42 Rotating Table for Roentgen Work. Lorgnier.—p. 393.

43 The Oscillometer Curve of the Pulse. J. A. Barré.—p. 397.

44 *Fixation of Complement in Skin Diseases. Desaux and Roehrich.—p. 402.

40. Convergence of Eyeballs After Shell Concussion.—At one of the army *centres de neurologie* it was noticed that the eyeballs were found intensely converging after the rotation test, and from ten to ninety seconds elapsed after the close of the test before the eyes resumed their normal position. In

the nine cases described here, in four this convergence of the eyeballs was the only sign of anything wrong in the oculomotor sphere, but in the other five cases there was paresis of some of the neuromuscular apparatus of the eyes. The writers of the report regard the convergence as the equivalent of paralysis, and theorize to explain its mechanism, saying that it is a mistake to think that all the symptoms elicited by the rotation tests are referable to the internal ear. All these men were *commotionnés*, and some had traces of evident organic central lesions from the shell concussion. The probability is, they think, that this convergence sign is a manifestation of some minute focal lesion in the brain.

41. Pneumogastric and Spinal Nerves Syndrome.—As these nerves emerge together through the jugular foramen, an injury at this point is liable to damage them all, and the resulting complicated set of symptoms has been called the syndrome of the jugular foramen. A typical case is described and the numerous causes liable to injure this vulnerable region are enumerated. Hypertrophied glands are one of the most frequent causes of compression of the set of nerves at this point. It is easy to differentiate the syndrome by the characteristic paralysis of the superior constrictor of the pharynx, evident when the tongue is held down with the spatula. In phonation, the mucosa of the posterior wall of the pharynx is drawn toward the sound side like a curtain. This objective symptom should be sought whenever there is complaint that swallowing of solid food is difficult. The paralysis may be so complete that swallowing is so difficult that stenosis of the esophagus may be assumed. In the typical case described the young man bent and twisted his head toward the side affected, to help in swallowing. His disturbances had followed a shrapnel wound in this region but there did not seem to be any direct injury of these nerves. Compression from a hematoma seems more probable.

44. Fixation of Complement in Certain Dermatoses.—The Wassermann reaction was positive in some cases of various types of skin disease but analyses of the cases showed that the skin disease was connected with the ingestion of meat. It was also determined that the antibody giving the reaction was present much more abundantly in the stools than in the blood serum. The reaction was very faint with the serum while very pronounced with the extract of the stools. This confirmed the other findings which incriminated the ingestion of beef as the predominant etiologic phenomenon. Otherwise the blunder would have been made to ascribe to syphilis the positive fixation of complement.

Journal de Médecine de Bordeaux

May, 1918, 89, No. 5

45 *Transfusion of Blood. J. Guyot.—p. 119.

46 Welfare Work for Children in Combating Depopulation of France. Chambrelent.—p. 124.

47 Sterilization with Hot Vapors of Formaldehyd. E. Rousseau.—p. 130.

48 Can Saliva be Used in Treatment of Wounds? Grevin.—p. 140.

45. Transfusion of Blood.—Guyot lauds the Jeanbrau-Hédon method of transfusion of citrated venous blood. Three inspirations transform the venous blood into oxygenated blood, and sodium citrate is not an aphysiologic substance, as it is found in breast milk. Only the exact amount of blood required need be drawn from the donor. In the emergency cases requiring immediate transfusion there is no time to apply the Wassermann test and test for hemolysis to the donor, but in Jeanbrau's experience no mishaps have resulted except that in one case malaria was transmitted to the wounded man. Jeanbrau does not like to use for donor a man who has recently been injected with antitetanus serum, fearing to induce phenomena of anaphylaxis in the receptor; he had a rapidly fatal case of this kind last year. R. Monod's recent research has confirmed that transfusion of blood actively stimulates the blood-producing function. He cites David and Curtiss' experience with dogs almost completely drained of their blood. One lot were given saline infusions, the other blood transfusion. The immediate effects were identical in all, but by the end of the eighteenth hour 70 per cent. of the saline dogs had died, and only 6 per cent. of those given the transfusion of blood.

Journal de Radiologie et d'Electrologie, Paris

January-February, 1918, 3, No. 1

- 49 *M Unit in Roentgen Work. H. Guilleminot.—p. 1.
50 Dissociation in Radial Paralysis. P. Charpy.—p. 9.
51 *Sign of Penetrating Wound of Heart. Costantini, Vigot and Gosselin.—p. 12.
52 *Electric Treatment of Tuberculous Ulcer. Bonnefoy.—p. 14.
53 *Transactions of the Réunions des radiologistes.—p. 18.

49. **Dosage in Roentgen Work.**—Guilleminot describes a new unit of intensity, M, which represents certain factors disregarded in the present units in use. He also gives a table of calculations for ready reference showing the effectual dose under different conditions.

51. **Immobility of Heart Shadow as Sign of Penetrating Wound.**—When the outline of the shadow of the heart persists immovable after a wound of the chest, it can be confidently assumed that the heart itself has been directly wounded. In two of the three cases described the immobility was absolute; it seemed as if the heart had stopped beating. In the other case there was slight undulation at one point, but the immobility of the rest of the heart gave the indication for the operation. It revealed a scrap of shell in the heart wall in each case.

52. **Electric Treatment of Tuberculous Ulcer.**—The large ulceration on the neck of the young woman had begun during her first pregnancy. It extended from the front of the neck to back of the ear, and proved resistant to all treatment, including heliotherapy. As a last resort it was submitted to daily application of the high frequency current, a total of 191 sittings in the course of about eight months, with final complete healing and no disfigurement except what could be covered with a collar.

53. **Work of the Army Radiologists.**—The government has arranged for monthly meetings of the radiologists in each army, in each military region, and the *Journal de Radiologie* is to publish the transactions. Thirty pages are devoted to this department in this issue, many roentgenologists relating their experiences, their innovations and their modifications of established instruments and methods. Twenty-three different communications are reproduced or summarized.

Lyon Médical

May, 1918, 127, No. 5

- 54 *War Bread. R. Lépine.—p. 193.
55 *Prophylaxis of Tuberculosis. Mouisset.—p. 200.
56 *Chronic Spondylitis with Tendency to Ankylosis. Péhu and Daguet.—p. 206.
57 Dosage in Radium Treatment. T. Nogier.—p. 217.

54. **War Bread.**—Lépine has been making a special study of the gluten content and other features of war bread, and he asserts that it is impossible to make good bread with more than 20 or 25 per cent. of flours other than wheat flour. It is the gluten in wheat flour that makes the dough rise, and other flours do not yield gluten. Whatever flours are used, the proportion of the bran should be reduced to the minimum, but some means should be found for extracting from the bran the substances capable of being assimilated, and these substances should be added to the bread. The bran renders the dough more acid, possibly by its diastases or microbes, and this extra acidity checks the activity of the yeast cells, besides detracting from the palatability of the bread. This is the reason why Lapique and Legendre advise the use of lime water instead of ordinary water. With this, light bread can be made even with flour bolted at 85. Their theory has been combated by some, but experience seems to be confirming the advantage of using lime water, although the practice is still open to discussion. The extra acidity when there is large admixture of bran alters the gluten even when the acidity is neutralized with the lime water. In conclusion Lépine urges practical study on a large scale of Pointe's method of making bread directly from the grain. The wheat is macerated for twelve or fifteen hours in tepid water, and is then crushed into a paste which is passed through a wire sieve to exclude the bran. The paste is then ready to make the bread dough.

55. **Prophylaxis of Tuberculosis.**—Among the practical suggestions offered by Mouisset is that closer cooperation

between the various public health agencies would materially improve the outlook. Energy is wasted in overlapping, and many fields are left neglected. He urges that anemic older girls and pregnant women should be regarded from the standpoint of official prophylaxis of tuberculosis. Anemic girls and frail children should be sent to the country; children with bone and joint tuberculosis should be given a chance for repose in country air. These alone may cure without the seashore, the mountains or other therapeutic elements. Specific institutions founded by gifts or legacies in rural districts or in towns often fail in their purpose because it is not realized that old people are not contented unless they are near their friends, while country surroundings are indispensable for the young with tuberculous lesions.

56. **Chronic Spondylosis with Ankylosis.**—Péhu and Daguet have encountered within a year ten cases of this kind in soldiers, and they are convinced that many cases reported by others as persisting lumbago, rheumatism, or sciatica, in reality are various phases of spondylosis with tendency to ankylosis. In their ten cases the men were about 40 years old, free from clinical signs of tuberculosis and gonorrhea. The first symptom is pain, at first in the lumbar sacral region. The pains keep up for a time, usually several months, and then subside for a time to reappear later and gradually extend the length of the spine. The rachialgia declines as ankylosis becomes installed. Roentgen examination shows a constant ligamentitis; the ligament becomes infiltrated with calcium salts. The chronic spondylosis seems to start always in the upper lumbar region or lumbodorsal. The lime deposits in the lateral ligaments cast a shadow resembling a hook or beak, but the vertebrae themselves show no essential modifications.

Paris Médical

June 1, 1918, 8, No. 22

- 58 *Shock in the Wounded. F. Masmonteil.—p. 419.
59 *Plastic Operations on Urethra. F. Legueu.—p. 423.
60 *Discontinuous General Anesthesia. H. Chaput.—p. 427.
61 *Vocational Reeducation of the Wounded. G. Anceau.—p. 431.
62 Cancer of the Breast. Potherat.—p. 436.
63 Prostheses after Disarticulation of the Shoulder. A. Tréves.—p. 441; Ditto for Paralysis of External Popliteal. L. Lamy.—p. 443.

58. **Shock in the Wounded.**—Masmonteil's general review of this subject confirms that the pathogenesis of shock varies in different cases, and treatment can be only symptomatic, practically empiric. Until recently it was taken as a matter of course that the operation must be deferred until the patient has recovered from shock. But this doctrine has been much battered of late, and several varieties of shock are now disregarded. In shock from hemorrhage, the vessels must be ligated. In shock from toxemia or septicemia, the focus for the intoxication must be suppressed without delay by amputation of a crushed limb or excision of muscles; if the condition is too grave for this, the wound can be sprayed or injected with Menciére's fluid or a formaldehyd solution. In nervous shock, usually with multiple wounds and concussion, intervention is not needed so much at once. If an operation is done in shock, it must be as rapid as possible (not more than three or four minutes for amputation of the thigh). The intoxication from the anesthesia must be reduced to the practicable minimum; at the same time it must be remembered that the anesthesia must be complete, as pain aggravates the state of shock. Early intervention is thus very promising, and the results are more brilliant, he says, the shorter the interval since the wound.

59. **Rebuilding the Urethra.**—Legueu has now a record of three cases in which he made a permeable passage after a war wound of the urethra. The success was complete in two cases and fair in the others. He obtained the mucosa for the purpose from female patients requiring colpoperineorrhaphy. The strip of mucosa was wound around a bougie, the raw surface outside, and was held in place with fine silk, the needles being those used for suturing blood vessels. It was introduced into a tunnel bored for it in the subcutaneous cellular tissue. The mucosa tube is introduced into the cannula after withdrawal of the trocar with which the tunnel was made. If the diameter of the cannula is too small, the

latter is withdrawn and the bougie in the mucosa tube is pushed into the tunnel. The dilatation of the new urethra is commenced the seventh or eighth day. No retention catheter should be used as this, being a foreign body, is irritating.

60. **Interrupted General Anesthesia.**—See Paris Letter.

61. **The Rehabilitation Centers.**—Each center for rehabilitation of maimed and of disabled soldiers consists of the service for making and fitting artificial limbs, etc., the service for physiotherapy, and the service for vocational training. Anceau describes the workings of the whole system. The men are not sent to the rehabilitation centers until entirely healed of their wound. Workers in plaster, iron, wood, cork and leather all do their part in the manufacture of the prostheses. Eight illustrations show the application to numerous types of artificial feet, legs and arms of the main mechanical principles involved in each form of deformity.

Presse Médicale, Paris

May 16, 1918, 26, No. 28

64 *Sequels of Skull Wounds. A. Pitres and L. Marchand.—p. 253.

65 Continuous Extension and the Cast. H. Mayet.—p. 255.

66 *Gonorrhea in Women. P. Chevallier.—p. 256.

June 6, 1918, 26, No. 31*

67 *War Dyspepsias. G. Mouriquand and L. Bouchut.—p. 281.

68 Absorption of Air by Serous Membranes. P. E. Weil and Leiseleur.—p. 283.

69 Bacteriologic Diagnosis of Tuberculosis. F. Dumarest.—p. 283.

64. **Subjective Sequels of Skull and Brain Wounds.**—Pitres has examined 470 men who had apparently recovered from their skull wounds, but all had had at some time or still have headache, vertigo, physical and psychic depression and inability to stand noise, a true *syndrome commotionnel*. Some of the men presented this syndrome up to twenty-two or thirty months after their injury, but this long duration is rare. As a rule these subjective symptoms disappear almost entirely by the end of a year, but even then the men are extremely sensitive to noises and to any work that requires stooping over. Marie has warned that such men should never be utilized as aviators or drivers of automobiles. Repose is the main thing in treatment, rest of body and mind. Daily tepid douches and phosphated or arsenical medication seemed to benefit in his experience. Many men apparently cured and resuming active service have had to be sent back from the front, as they were unable to stand the noise of the big guns.

66. **Gonorrhea in Women.**—Chevallier gives minute directions for treatment of acute, prechronic and chronic cases in which the cooperation of the patient cannot be relied on. Tincture of iodine and silver nitrate solutions are the physician's weapons, while the patient is given potassium permanganate and a nightly ovule of ichthyol, to use herself.

67. **War Dyspepsias.**—In 200 cases of dyspepsia among the soldiers, 110 were of the type with flatulence while in the others pain or vomiting predominated in the clinical picture. All were young and most of them had been previously robust. The great majority were from rural districts, and the change from their former tranquil life, plus homesickness, had evidently been important factors in their digestive disturbances. There were few city men in these war dyspepsia cases. Emotional factors, defective teeth, and debility from wounds or gastroenteritis likewise cooperate, but the nervous element is the predominant note. The roentgen findings are normal as also the chemistry of the stomach. These details should be plainly stated on a card which should accompany the man, giving the diagnosis and the decision as to the true nature of the disturbances, which are practically hysteria of the stomach. The infirmary and hospital doctors would thus know how to manage the case when the man returns. The medical officers, once sure of the diagnosis, can aid the men in recovering their nervous and mental poise and soon make of them vigorous and excellent soldiers, instead of their dragging from hospital to hospital with their interminable complaints of dyspepsia. If it is allowed to last too long it becomes inveterate, and the men are absolutely unfit for service except possibly limited service. When too much debilitated for this, dismissal from the army may be the only means to cure them of their gastric "sinistrosis."

Progrès Médical, Paris

May 18, 1918, 33, No. 20

70 *Choliform Gastro-Enteritis. C. Lesieur and P. Jacquet.—p. 173.

71 *Frequency of Vincent's Angina. J. Chalié.—p. 174.

72 *Face Mask in Prophylaxis. A. Bernard.—p. 175.

73 A Doctor Captain. P. Voivenel.—p. 176.

70. **Choliform Gastro-Enteritis Simulating Poisoning.**—In the case described the man of 43 was brought to the hospital in an algid condition, cold, with cyanosis of the extremities, the radial pulse imperceptible, intense pains in the stomach region and cramps. These symptoms developed suddenly in the night after a farewell dinner. They were ushered in with bloody vomit and profuse serous diarrhea. He improved immediately after intravenous infusion of saline, but died in collapse eleven hours after the first symptoms. The urine had been examined two months before and only 1.5 gm. urea found per day and liter. This with the known abuse of alcohol and the necropsy findings explained the case as the result of extreme fatty degeneration of the liver. The precarious balance had been upset by the excess at table superposed on a subacute proteus infection of the bowel. In a second similar case, the man died in a house of prostitution and the large amount of alcohol found in the stomach was probably responsible for the fatal upset.

71. **Prevalence of Vincent's Angina.**—Chalié warns that ulceromembranous sore throat is growing more common among the troops at the front. In the last twenty-two months he has encountered it in 26 per cent. of the forty-six cases of infectious sore throat necessitating hospital treatment, among the 2,500 men that have passed through his service. He insists on relative isolation of the men whenever Vincent's angina is suspected. When treatment can be begun early, the cure is usually complete in from eight to twelve days. He has found particularly useful extensive washing out of the throat, using for the purpose 2 quarts of boiled water to which a little hydrogen peroxid has been added, repeating the procedure three times a day. After these lavages he applies methylene blue copiously, in powdered form, filling the ulcer craters with it.

72. **Gauze Mask in Prophylaxis.**—Bernard comments that the use of netting over the beds, glass cubicles, etc., fails to do away with the vulnerable point of the nasopharyngeal secretions of the attending personnel. With this, infection may be spread from bed to bed and elsewhere. He cites Weaver's article in THE JOURNAL, Jan. 12, 1918, relating experiences with face masks, as a great advance. It promises to protect the attending personnel against becoming carriers or contracting the diseases they are tending, but many observations will have to be made before the exact value of the gauze mask in the prophylaxis of contagious diseases can be definitely determined.

Correspondenz-Blatt für Schweizer Aerzte, Basel

May 25, 1918, 48, No. 21

74 Semicentennial of Obstetric-Gynecologic Clinic at Basel. A. Labhardt.—p. 673.

75 *Biology of Pregnancy Toxicoses. P. Hüsey.—p. 691.

76 *Uterine Cancer at Basel. F. Egli.—p. 699.

77 *Pregnancy Anemia. M. Weidenmann.—p. 702.

78 *Torsion of Tubal Fibroma. Herde.—p. 706.

75. **Pregnancy Toxicoses.**—Hüsey has been making a comparative study of the serum of normal women, pregnant and nonpregnant, and of women with severe pregnancy toxicoses. He tested them in particular on the surviving rabbit ear, as he shows in an illustration. A glass tube is introduced into the artery and another into the vein of the ear and the serum in question is allowed to flow through. The number of drops per minute issuing from the vein is recorded on a drum—an index of the vasoconstricting or vasodilating action of the serum. The influence of various drugs was also studied. The absolute number of the drops was not regarded, as this varied with the different specimens of ears. The important point was the difference between the drops yielded by the normal serum, the pregnant serum and the toxicosis serum. In the twenty tests made comparing the serum from normal pregnant and nonpregnant women, the number of drops was always more numerous with the pregnant than with the non-

pregnant serum. This Krawkow rabbit ear technic thus can be utilized as a rather complicated biologic test for pregnancy. The serum from a pregnant woman with eclampsia displayed a very marked vasoconstricting action; the number of drops fell to 5 in comparison to the 25 drops with pregnancy serum and the 13 drops with nonpregnant serum in a given period. After the eclampsia had subsided, the number of drops was found normal again. Even smaller numbers of drops were obtained in pregnancy toxic kidney disease or dermatoses, confirming the presence in the blood of some substance with an intense vasoconstricting action. With the uncontrollable vomiting of pregnancy, a similar action was evident but it was much less pronounced than with any of the other pregnancy toxicoses. This suggests that the etiology of pregnancy hyperemesis is different from that with eclampsia and other pregnancy toxicoses. Tests on the surviving intestine confirmed the abnormal vasoconstricting action of the blood serum in pregnancy toxicoses. Normal pregnancy serum, on the other hand, has the opposite action, dilating the vessels, as is evident from the nearly double number of drops per minute. The toxic substances inducing the vasoconstriction seem to stand in close relation to the amines. They are probably connected with the pituitary body; they do not seem to have anything to do with the suprarenals and thyroid.

76. Uterine Cancer.—Egli gives the present status of 80 women who had had the uterus removed on account of cancer during the ten years before 1911. The operability of the 325 cases of uterine cancer was 50.7 per cent. Of the group of 80, 33.75 per cent. had no recurrence for over five years. Of this group of 27 surviving for over five years, the operation in the 14 cervix cases had been exclusively vaginal, as also in 12 of the 13 corpus cancers. The vaginal and abdominal technics were applied in about an equal number of cases, but only one of the abdominally operated on is known to be living over five years afterward.

77. Severe Anemia in Pregnant Women.—Weidenmann does not declare that the pregnancy was the cause of the pernicious anemia in the two cases described, but this is suggested by the marked improvement which followed delivery in one case, and by the return of the anemia at each pregnancy in the other case.

78. Tubal Fibroma.—Herde has found records of only twenty cases of tubal fibroma and none in which the growth was on the abdominal end of the tube as in the case he reports. It had not induced any symptoms until torsion of the pedicle caused sudden severe illness and an operation under the diagnosis of appendicitis.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 5, 1918, **39**, No. 36

79 Variola in Pregnant Women. C. Fino.—p. 355.

May 9, 1918, **39**, No. 37

80 *Tuberculosis of the Genital Organs. F. R. Varaldo.—p. 365.

81 *Brittle Bones with Blue Sclerotics. A. Marconi.—p. 367.

May 12, 1918, **39**, No. 38

82 *Skull Wounds. E. Santoro.—p. 373.

80. Genital Tuberculosis.—In the case described by Varaldo, the diagnosis of gonorrheal salpingo-ovaritis seemed plausible at first, but the insidious onset, the youth of the patient, and the absence of any history of abortions or gonorrhea suggested the possibility of tuberculosis. With tuberculous salpingitis there are none of the attacks of violent pain common with ordinary inflammatory processes in the adnexa. Granulations or other signs of tuberculosis on the uterine cervix or scrapings from the uterus may suggest the true nature of the trouble. Tuberculosis should always be suspected when a virgin develops bilateral ovary and tube disease, especially when menstruation has been scanty and the genital organs seem to be backward in their development. In the case described there had been vague symptoms from the internal genitals for over five years, sacrolumbar pains and pains in the lower bowel, leukorrhea and occasionally frequent and somewhat painful micturition, but limp urine and never high fever. The adnexa were enlarged and adherent to uterus, intestines and pelvic walls. On one side the mass felt the size of a mandarin orange. The uterine cervix seemed to be

normal except for a small erosion and the greenish yellowish dense secretion. Panhysterectomy by subtotal amputation of the uterus was followed by smooth recovery.

81. Blue Sclerotics.—The young soldier had brittle bones, with numerous fractures, and visible hypotrophy of the circulatory apparatus besides the blue sclerotics. Marconi theorizes that some arrest in the development of the mesenchyma from inherited or acquired causes would explain the three features of such cases, the defective development of the sclerotics, bones and circulatory apparatus.

82. Skull Wounds.—Santoro gives the details in turn of his forty-seven cases of skull wounds. In one case there was hemiplegia on the same side as the wound evidently from injury of the brain on its impact against the opposite side of the skull at the time of the fracture. The focal symptoms usually became accentuated after the operation, but then they subsided as recovery progressed. When they persisted and became progressively accentuated, some infectious complications were always found.

Pediatrics, Naples

June, 1918, **26**, No. 6

83 *Associated Infections. S. Maggiore.—p. 321.

84 *Nitrogen Metabolism in Idiots. G. Caronia.—p. 336.

83. Associated Infections.—Maggiore describes a number of cases in young children of typhoid plus malaria or Malta fever, of measles plus dysentery, and of leishmaniasis plus Malta fever. The differential diagnosis is practically impossible without laboratory aid, as the associated infections modify each other to a remarkable extent. The general influence also is to aggravate each. Specific serotherapy and vaccine therapy proved remarkably effectual in some, especially in the typhoid plus Malta fever group, and, with quinin, in the typhoid-malaria group. No benefit from vaccine treatment was evident in the measles-dysentery cases, the three children dying. The one infant also died that presented mixed internal leishmaniasis and Malta fever.

84. Nitrogen Metabolism in Idiots.—Caronia's tabulated findings of the nitrogen metabolism in mongoloid idiocy and in myxo-idiocy confirm the different nature of these two forms of idiocy. The mongolian idiocy was distinguished by notable retention of nitrogen and increased elimination of amino-acids. Under the influence of thyroid treatment, the metabolism seemed to be whipped up to an actual process of disintegration, the phenomena resembling those in exophthalmic goiter. With myxo-idiocy, on the other hand, the metabolism is decidedly irregular, but under the thyroid treatment it became regular, and the metabolism findings approximated those in normal subjects. No tendency to hyperthyroidism was observed. This behavior of myxo-idiocy under thyroid treatment confirms the great influence exerted by the thyroid in myxedematous idiocy, and justifies anew systematic thyroid treatment.

Policlinico, Rome

June 2, 1918, **25**, No. 22

85 *Intravascular Tamponing of Artery. A. Caucci.—p. 509.

86 *Initial Syphilitic Lesions in Nasal Fossas. G. Basile.—p. 510.

87 *Universal Pincers. A. L. Soresi.—p. 514.

85. Intravascular Tamponing of Artery.—In two cases Caucci succeeded in arresting hemorrhage from an artery by plugging the lumen of the artery with a wad of gauze introduced from below. In the first case the common carotid was thus plugged after a gunshot wound of the internal maxillary. The external carotid had supplicated after it had been ligated and the common carotid had been ligated and supplicated also. The recurring hemorrhage was arrested with the finger, and then the plug of gauze was introduced directly into the carotid artery just above the sternoclavicular articulation. The gauze plug was held in place with a tight dressing and there was no further hemorrhage. The gauze was removed the twelfth day; the whole procedure had been aseptic. In a second case the internal carotid was ligated and, through an opening made just above the ligature, the gauze plug was introduced into the artery and pushed up toward the bleeding point. The artery was then ligated with the plug inside. Hemorrhage was definitely arrested. Twenty

days later the plug was removed; it was found putrid, probably from microbial invasion from a suppurating otitis media, although the wound had healed by primary intention, and there were no further disturbances. The fact that no more blood escaped from the ear as the plug was pushed up in the artery confirms that the hemostasis was due to the plug as, before this, compression of the artery did not suffice to arrest the hemorrhage from the ear, and tamponing the ear had no effect as the blood poured through the eustachian tube into the mouth. Tests on the cadaver showed that a plug of gauze introduced into the internal carotid in this way can be pushed up to and reach beyond the angle of the carotid canal. The principle seems thus established that it is possible to plug an artery from sound tissue below the bleeding point by pushing a long and slender roll of gauze up in the lumen of the vessel until it plugs and closes the opening in the artery wall. The method is adapted for arteries when the bleeding point is inaccessible, or when from changes in the artery wall the thrombus forming after ligation softens and drops off, thus entailing repeated secondary hemorrhage. Experiments since on dogs have confirmed the feasibility of the method and its reliability in appropriate cases.

86. Primary Syphilitic Lesion in Nose.—Basile reports three cases in which the primary lesion developed in the nose. In one man of 30, it assumed a diphtheroid-erosive form, with intense headache and profuse nasal secretion, all on the left side, with fever, and nocturnal exacerbations. No benefit was derived from two injections of diphtheria antitoxin, and the appearance of skin lesions elsewhere three weeks later cleared up the diagnosis of syphilis. In another case a girl of 12 developed a neoplasm in the nose. It was excised and found to be of syphilitic nature, with spirochetes. The child had the charge of an infant who proved to have inherited syphilis. The initial syphilitic lesion may assume a form suggesting impetigo, and this is difficult to recognize; it is extremely rare. The presence of a few enlarged glands hard, elastic and indolent, in the submaxillary region is suspicious. There is usually a tendency to anemia and headache on the side affected. The syphiloma is generally found on the outer wall of the nasal fossa but it may be on the septum. It subsides as the disease approaches the secondary phase, and there is none of the destructive action of a tertiary nasal lesion. The rapid development excludes cancer. The Wassermann reaction is seldom positive with these initial lesions.

87. Universal Spring Pincers.—The pressure of the thumb on the top of the slender metal tube, about 20 cm. long, releases three hooks which emerge from the other end, spreading and seizing any object whatever its shape. This *pinza pigliatutto* is proving very useful for seizing foreign bodies in wounds, in the air passages, etc., or picking up articles of any kind.

Riforma Medica, Naples

May 18, 1918, 34, No. 20

88 *Cobra Venom Reaction in Cancer. C. B. Farmachidis.—p. 382.

89 Bronchopulmonary Spirochetosis. S. Fichera.—p. 384.

90 Crystals in Urine from Magnesium Metabolism. A. Cavazzani.—p. 387.

91 *Complications of Wounds of the Brain. E. Aievoli.—p. 390.

88. Cobra Venom Reaction in Diagnosis of Cancer.—Farmachidis' new series of tests sustain his previous assertions that the activation by cobra venom of the hemolytic action of the serum in the deviation of complement test occurs only with serum from persons with malignant disease. With rabbit red corpuscles, a positive reaction was pronounced in his total of fifty-three out of sixty-four persons with carcinoma. In all the other eleven cases, the reaction occurred, but not until after the twentieth hour (between the twentieth and the thirty-fifth hours), and consequently he lists these responses as negative. In sixty-two persons with tumors of benign character, fibromas, cystomas, etc., there was no trace of a positive reaction. He now uses 0.10 c.c. of a 1 per twenty thousand solution of the cobra venom, that is, one part of a 1 per five thousand solution of cobra venom in three parts physiologic saline. In his previous research he used always the 1 per five thousand solution of the cobra venom, but found that this alone sometimes hemolyzed guinea-pig red corpus-

cles, and now he uses one fourth of this strength. His conclusions are all in favor of the value of the cobra venom reaction as an aid in the diagnosis of malignant disease.

91. Complications of Brain Wounds.—Aievoli reviews some recent literature on the subject of brain wounds thus analyzing a total of 2,357 in British and 6,664 in French hospitals. Aside from the transient cerebral manifestations at first, there seems to be no question that a man who has been trephined for a wound of the skull and brain is often left with reduced mental or professional capacity, and there may be symptoms ranging from headache to vertigo, from asthenia to amnesia, with diminished power of attention and association of ideas, and exaggerated emotivity. Hyperemia of the papilla, hypertension, abnormal albumin content of the cerebrospinal fluid, and labyrinth disturbances are also common. At the same time, Marie has not known of a single instance of general paralysis or dementia developing as a consequence of a brain wound, and Tuffier has only encountered 0.64 per cent. cases of serious mental impairment. The outlook is more favorable with hemiplegia from injury of the prefrontal lobe and the rolandic region and vicinity, gradual improvement being not infrequent.

Anales de la Facultad de Medicina, Montevideo

March-April, 1918, 1, No. 2

92 *Tabes. E. Odriozola.—p. 119.

93 *Single Kidney R. P. Varela.—p. 125.

94 *Peruvian Verruca. J. Arce.—p. 130.

95 *Urease Test for Urea in Urine. M. A. Velasquez.—p. 162.

96 *Hysteria versus Epilepsy. H. Valdizan.—p. 169.

97 Psychanalysis. H. F. Delgado.—p. 186.

92. Spontaneous Fractures in Tabes.—Odriozola's patient is a tabetic of 36 with spontaneous fractures of the left ilium. The first insidious symptoms of the tabes dated from about two years before.

93. Hydronephrosis in Single Kidney.—The girl of 16 had right hydronephrosis with hematuria and fever, and the bladder was scattered with tubercles. The right ureter was easily catheterized but the mouth of the left ureter could not be located. The catheter was left in the right ureter for ten hours, and the urine accumulating in the bladder was assumed to come from the left ureter. The right kidney was consequently removed and proved to be almost completely destroyed. When the anuria had persisted for twenty-four hours and no opening into the left ureter could be detected, the left side was opened and the complete absence of any kidney was determined. After the nephrectomy the condition was excellent for four days. Then there were some false desires to urinate, coinciding with the hot enemata given. The pulse kept good and there were no disturbances till the twelfth day, when fatal coma developed.

94. Peruvian Verruca.—Arce's presentation of the present status of our knowledge of Peruvian verruca is accompanied by photographs of a number of typical cases. There was associated malaria in nearly every case and other complications are common. Without complications spontaneous retrogression is the rule.

95. Urease Test for Urea.—Velasquez is professor of medical chemistry at the University of Lima, and he confirms the recent statements by Marshall, Van Slyke and others in regard to the reliability and accuracy of the urease test for determination of urea in the blood serum and urine.

96. Neuroses in Early History of Peru.—Valdizan is compiling the history of hysteria and epilepsy in the seventeenth and later centuries in Peru as recorded in the writings of the priests and other historians of those days. Some of the cases are described as cures wrought by miracles, but most of them were brought into prominence by self-confessed crimes, an actual epidemic of confessions of preposterous crimes by priests and others who were duly penalized or executed in consequence. The history of these *locos de la colonia* forms an interesting page of the ledger of hysteria and epilepsy.

Prensa Medica Argentina, Buenos Aires

May 10, 1918, 4, No. 34

98 *Gastric and Duodenal Ulcer with Tardy Inherited Syphilis. M. R. Castex and A. Mathis.—p. 495.

99 *Prophylaxis of Malaria. A. Barbieri.—p. 507. G. A. Alfaro.—p. 508.

98. **Tardy Inherited Syphilis in Relation to Gastric and Duodenal Ulcer.**—Castex and Mathis do not hesitate to affirm on the basis of their personal observation that, before the age of 30, tardy inherited syphilis can be incriminated for 90 per cent. of gastric and duodenal ulcers, and acquired syphilis for the remaining 10 per cent. After the age of 30, the proportions are reversed, 90 per cent. being due to acquired syphilis and 10 to the inherited taint. A year ago they declared that syphilis was a frequent cause of gastric and duodenal ulcer, but later experience has convinced them that it is the exclusive cause. The gastroduodenal disturbances begin between the ages of 14 and 38, and males furnish the largest contingent. Severe constipation often accompanies them; possibly the same cause is responsible for both. In one of the fifteen cases reported in detail, perforation occurred soon after the first symptoms had been noted; in the others the disturbances had kept up for from one to nine years in the ten cases given operative treatment, and in from three to twelve years in the cases without anatomic corroboration. In every one of the ten operative cases, the intervention had failed to relieve, but seven were completely cured with mercurial treatment, and the others materially improved. The operation disclosed in each case an adhesive membranous plastic peritonitis, circumscribed or regional. The disturbances during the first three years displayed a tendency to periodicity. This is a feature common to a number of the manifestations of tardy inherited syphilis. Exacerbation at night is also a feature of syphilitic lesions, and explains the "night pains" with an ulcer in stomach or duodenum. Dieting and medical measures have only palliative action outside of specific treatment. This should not be delayed till irreparable lesions become installed. In diagnosis, the stigmata of inherited syphilis are more reliable than laboratory tests.

99. **Prophylaxis of Malaria.**—Alfaro is the new president of the national Departamento de Higiene, and Barbieri is chief of the section on malaria in the service. They outline ways and means for the more vigorous campaign planned to control malaria.

Revista Medica del Uruguay, Montevideo

April, 1918, 21, No. 4

- 100 Traumatic Hernia? J. May, J. Iraola and F. A. Olivera.—p. 149.
101 *Congestions with Hypothyroidism. J. C. M. Fournier.—p. 155.
102 Anemia with Splenomegaly and Paratyphoid A. V. Zerbino.—p. 164.

101. **Congestive Form of Thyroid Deficiency.**—Fournier's patient is a woman of 35 who presents an extremely complicated clinical picture from disturbances in the glands with an internal secretion, the thyroid predominating. Her mother had had cerebral congestion with hemiplegia, as also two of her mother's brothers. The clinical history shows that there have been a succession of morbid processes of the nature of acute congestion affecting different tissues at different times. The numerous operations confirmed the congestive character of the morbid processes in bones, kidneys, intestines, etc. The various manifestations had been diagnosed in turn as subacute osteomyelitis, kidney stones, tuberculosis in bowels, kidneys or lungs, hysteric anuria, and syphilis of the nervous and cardiovascular systems. During the twenty years since these disturbances first became manifest at the age of 15, treatment had been applied on these various diagnoses until finally their transient nature was recognized, and the occasional simultaneous appearance of several morbid processes of the kind pointed to a single cause. Tentative thyroid treatment arrested the hematuria, tendency to obesity, and somnolency, falling of the hair, attacks of pains suggesting angina pectoris, and edema of the limbs, and confirmed the hypothyroidism as the main factor in the multiple manifestations. Specific treatment as for syphilis, had not modified them in the least except possibly to aggravate them. A special and misleading feature of the case described was the slight fever which often accompanied the congestive phenomena. Fournier suggests that the tendency to apoplexy in her mother and two uncles may have been also a manifestation of hypothyroidism of this congestive type. Thyroid deficiency as a possible factor in certain cases of angina pectoris is also

suggested by this case. The nonrecognition of the thyroid deficiency for so many years allowed arteriosclerosis to become installed early. In conclusion, Fournier calls attention to the paradoxical reactions in the case, the bradycardia after ingrafting of thyroid tissue, and the glycosuria after iodine treatment.

Revista de Medicina y Cirugia Practicas, Madrid

May 7, 1918, 120, No. 1505

- 103 *Emotional Stress as Factor in Tabes. E. F. Sanz.—p. 129.

May 14, 1918, 120, No. 1506

- 104 Pediculosis and Skin Diseases. E. A. S. de Aja.—p. 161. Concluded in No. 1507, p. 193.

103. **Emotional Stress as Factor in Tabes.**—Sanz is convinced that emotions play a large part in the development of tabes. Besides traumatism, getting chilled through, and sexual excesses, emotional stress is capable of serving as the occasional, accessory, subordinate factor which may start the avalanche. In a recent case a robust man of high standing in his profession had a dispute with a subordinate who threatened to shoot him. The next day he presented gastric symptoms with jaundice and in a few days the symptoms of severe tabes became apparent.

Revista Sud-Americana de Endocrinologia, Buenos Aires

May, 1918, 1, No. 5

- 105 Case of Slow Endocarditis. A. C. Grapiolo and Spada.—p. 115.

Semana Medica, Buenos Aires

May 2, 1918, 25, No. 18

- 106 Destructive Sun-Burn. N. V. Greco.—p. 449.
107 Vaccination in Army against Typhoid. R. D'Ovidio.—p. 503.
108 Public Health Service Should Equalize Supply of Physicians throughout the Country. E. Accame.—p. 512.
109 *Differentiation of Gallstones and Cancer. Giacobini.—p. 514.
110 Persisting Headache May be Symptom of Thyroid Insufficiency. G. Giacobini.—p. 516.
111 Death Rate from Infectious Diseases at Buenos Aires, 1868-1917. E. R. Coni.—p. 517.
112 Prophylaxis of Tuberculosis and Venereal Disease. E. R. Coni.—p. 517; p. 518.

109. **Differentiation of Obstruction from Gallstones and from Cancer.**—Giacobini has often found it difficult to distinguish between the symptoms caused by cancer of the head of the pancreas and by obstruction of the common bile duct by gallstones. The symptoms are practically identical with each, he says, but the urine findings may throw some light on the true condition. With cholelithiasis and with pancreatitis inducing stenosis, he found uric acid abundant in the urine with both, but there was steatorrhea, besides, with the latter. With a calculus in the duct of Wirsung there is both uric acid in excess and steatorrhea, but no jaundice. With a gallstone impacted at the ampulla of Vater, there were always all three, uric acid in excess, steatorrhea and jaundice. On the other hand, with cancer of the head of the pancreas the uric acid content of the urine keeps within normal range until finally it becomes subnormal, while with gallstone trouble it was always above normal.

Siglo Medico, Madrid

April 20, 1918, 65, No. 3358

- 113 *Duration of Life in Living Beings. G. Hurtado.—p. 302.
114 Cooperation of Home and School. C. Juarros.—p. 303.

April 27, 1918, 65, No. 3359

- 115 The Wassermann Reaction. E. M. Villapadierna.—p. 322. Continuation.

113. **Duration of Life.**—Hurtado thinks there is a close connection between what has been observed in Loeb's and others' researches on parthogenesis, the metamorphosis of tadpoles, etc., and the phenomena of hibernation. The environing temperature seems to have a decisive influence on the duration of each phase of life under these conditions. The temperature seems to act by checking or promoting certain chemical reactions, and these reactions in turn originate hormones or toxins which are able to terminate the existing phase and initiate the next phase. If this proves to be the fact, it may yet be possible to produce certain hormones at will, hormones capable of reviving the creative power of

aged cells, keeping up a series of renovations. This would make it possible to prolong the phases of life and thus extend the duration of life far beyond the limits we know now. Experimental research is the only key to these problems.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

July 9, 1917, 18, No. 1

- 116 *Acute Lymphatic Leukemia. S. Tachigara.—p. 1.
- 117 The Acetabulum in Japanese and Chinese. K. Shiino.—p. 23.
- 118 Physiology of Sweat Secretion. K. Muto.—p. 39.
- 119 Spontaneous Rupture of Intracranial Portion of Right Internal Carotid. Y. Kurosawa.—p. 51.
- 120 Asthenic Anemia. M. Kanno.—p. 69.
- 121 Localization of Rabies Virus. T. Koyano.—p. 91.

116. **Acute Lymphatic Leukemia.**—Tachigara states that four cases of this disease have been encountered in the course of ten years at the Tokyo medical clinic. He here reports the details of a case in a student previously healthy except that tonsillectomy had been required three years before. After a month of swelling of the glands in the neck, high fever, thirst, hemorrhagic diathesis and other signs of sepsis, the disease proved rapidly fatal, death occurring in a week, from hemorrhage in the pons region. Lymphocytes formed over 90 per cent. of the leukocytes.

120. **Asthenic Anemia.**—The clinical course and necropsy findings confirmed that the asthenic or hyporegeneration anemia in the man of 47 was the result of long continued undernourishment. The course was subacute until there came a sudden aggravation. Ulceration in the tonsils and gums seemed only aggravating, not causal, elements in the clinical picture.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 20, 1918, 1, No. 16

- 122 *Paresis of Malarial Origin. B. M. Van Driel.—p. 1076.
- 123 *Periodicity in Ferment Action. J. T. Groll.—p. 1085.
- 124 *Cure of a Sick Coolidge Tube. C. H. Kok.—p. 1093.

122. **Paresis of Malarial Origin.**—In Driel's three cases the discovery of the parasites of tertian malaria in the blood seemed to be the only possible explanation of the focal symptoms observed. In one they took the form of attacks of jacksonian epilepsy with consecutive facial paresis. In the others there was spastic spinal paralysis or symptoms suggesting an abscess or tumor in the rolandic area. In the latter case an operation was considered before the blood findings cleared up the diagnosis. In all the cases the cerebral or spinal manifestations subsided under quinin, confirming the malarial origin. In the first two the malaria was in a masked form at first, but later threw off all disguise and appeared as a typical severe tertian. The train of symptoms in the first two cases certainly belong in the category of false brain tumors, but Driel says he does not know of any textbook on neurology that mentions malaria as a possible cause for such a syndrome. Wherever there is a chance for malaria to occur, it should be suspected, whatever the clinical manifestations may be, and the blood should be examined.

123. **Periodicity in Ferment Action.**—Groll recalls that in his laboratory, in 1914, De Jonge noticed that pancreatic juice kept on ice displayed fluctuations in its ability to digest lipase. Groll has been studying urease and ptyalin, and has confirmed that their catalytic power waxes and wanes. This periodicity is very distinct with pancreas lipase, kept in a refrigerator, and with urease, at 35 and 45 C. These periodic fluctuations occur also with ptyalin and with colloidal metals, but the fluctuations occur so rapidly with these that it is difficult to trace them, especially as the range of variation is less with them. Hence differences in the intensity of the ferment action at different times need not be ascribed to defects in the technic, as it seems to be a common property of ferments, possibly a consequence of their colloidal condition.

124. **Cure of a Sick Coolidge Tube.**—Kok relates that his Coolidge tube was not acting properly, and the cause of its "sickness" he traced to a small crater in the tungsten with minute scales of metal projecting from it. As the current was slowly turned on up to 4 milliamperes these scraps became white hot before the tungsten around was even red hot. By

rapidly increasing the current up to 20 or 25 milliamperes, these minute flakes became fused, and he has had no further trouble with the tube with 1,200 ten minute 4 amperes' exposures since.

Ugeskrift for Læger, Copenhagen

May 23, 1918, 80, No. 21

- 125 *Xerophthalmia and Dystrophy in Infants. II. C. E. Bloch.—p. 815. Continuation.
- 126 Lye in Laundering Does Not Sterilize. M. Christiansen.—p. 827.
- 127 *Roentgen Treatment of Brain Tumor. S. Nordentoft.—p. 829.

125. **Dystrophy and Xerophthalmia in Infants.**—In this second communication on the dystrophy and xerophthalmia developing in infants fed on separator milk, or other defective diet, Bloch says that his experiences in 1917 confirmed his previous statements (summarized in THE JOURNAL, May 19, 1917, p. 1516). Among the 23 cases of his 1917 series, there were 11 cases in which the eye symptoms had lasted for only a few weeks and only xerosis had developed. Six had been under his own observation in a children's home for over a year. They were known to have been previously normal, and the development of the xerosis under his eyes was as distinct and free from complications as in a laboratory experiment on an animal. The xerosis developed in half of the 16 infants in one dormitory, all about the same time, in May and June, but there were no cases among the other 78 infants in the other departments of the home. All the infants got food supposed to be good and nourishing, with albumin, vegetable margarin, carbohydrates and salt, potato soup and fruit juices, but the one group getting separator milk lost weight, and half of them developed xerosis. The vegetable margarin used in the institution evidently is not capable of supplying the substances lacking in the separator milk. But the children began to thrive at once and the xerosis subsided when cod liver oil was given the infants. All the milk used in the establishment was pasteurized, so this could not have been responsible for the xerosis group, although it may have aided in destroying the scanty valuable properties left in the separator milk, as this required extra long cooking in the gruel form. In another group of 8 cases, from the Rigs-hospital, the children were from 9 months to 10 years old, there was hemeralopia in 3 and keratomalacia in 3, bilateral in one case. Separator milk had been used for most of these children, with likewise a lack of lipid elements, although the food otherwise was nourishing and varied. All this group showed general dystrophy of the type Bloch entitles alipogenetic or centrifuged-milk dystrophy, but 3 of these children had been fed on whole milk and one with canned cream besides, prepared with long cooking. The deficiency in certain fats was thus responsible for the xerophthalmia, the checking of the growth and the dystrophy.

Bloch's last group of 6 cases presented the typical picture of what Czerny calls *Mehlnährschaden* but Bloch's term for it is carbohydrate dystrophy. Three of the infants were under 6 months and only one was over a year old. The xerophthalmia was far advanced in all, with total necrosis of the cornea in one case and of both corneas in another. In addition to the symptoms presented by the fat-deficiency cases, the tissues were edematous and puffy, and the muscles were rigid; in 3 this amounted to actual hypertony of the muscles. On a change to whole milk or breast milk plus cod liver oil, with restriction of the carbohydrate intake, all the symptoms subsided, including the edema. "War edema" seems to be a similar deficiency phenomenon. One of the 23 infants died, the others recovered without loss of sight, except in one child with necrosis of both corneas when first seen.

127. **Roentgen Treatment of Brain Tumor.**—The young man presented symptoms suggesting a rapidly growing glioma in the frontal brain but it was impossible to locate it. Roentgen treatment was applied to the sides, vertex of the skull and the forehead, hoping thus to hit on the tumor at some point. The sitting was long and tedious as the patient's hands had to be held to keep him from grabbing at the light or wires. The condition grew worse in the following five days, with incontinence of stools and urine and subfebrile temperature. Then came a turn for the better which amounted to a clinical cure, and the man is still well a year later.

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PRESENT STATUS OF THE UROLOGY OF WAR *

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FRANCE

It is the fortune of war that great renown is the lot of those who happen to be among the first of the wounded or the killed. But after these first few the names are lost in numbers. To this rule the members of the Medical Corps and notably of the Medical Reserve Corps of the United States Army have been a glorious exception. They were literally the first at the front, they were the first to shed their blood for their country. Hundreds of them were sent silently to the support of the British as early as May and June of last year, and from that time to this they have paid their toll of dead and wounded—they have been gassed, they have suffered the interminable daily hardships of mud and privation, of gas and shell fire. Their valiant action, their fidelity to duty are unrecorded. We may well hope that the glorious histories of these first American victims and heroes of the Great War shall find a place on the first page of the volume that shall commemorate the undying heroism of the surgeons of the United States Army in the war for Liberty.

Those of us who arrived later in France, after the American Expeditionary Forces had begun to establish themselves there, looked around for work to occupy a urologist. The situation we found was unexpected. In the armies of our allies there is practically no urologic surgery as such. Among the English the urologic surgeons have all become general surgeons. Cuthbert Wallace is a general in France. Pardoe and Freyer are doing general surgical and administrative work for the army in the British Islands. Among the French this history repeats itself: Heitzboyer is especially interested in fractures; Marion is famous for his work in roentgen localization of foreign bodies; Legueu, to be sure, retains his place at Necker in a purely urologic service; Cathelin devotes most of his time to urologic work; Rochet has published a series of operations for the reconstruction of damaged genitals. Those men in both countries whose qualifications were chiefly in the treatment of venereal diseases have ceased being surgeons altogether and are working in hospitals for the treatment of venereal and skin diseases, for venereology in France is almost if not quite synonymous with syphilology.

The reason for this situation is to be found in the material that presents itself to the surgeon's hand. At the front and even at the evacuation hospital (the casualty clearing station of the British army) there is no genito-urinary surgery as such. Penetrating wounds of the abdomen which involve the kidney or the ureter usually inflict wounds of far greater importance on such adjacent organs as the lung, the gastrointestinal tract, the liver or the spleen. Intraperitoneal wounds of the bladder are said to be always associated with wounds of the intestine. Extraperitoneal wounds are only a part of an injury which may be a compound fracture of the thigh or of the pelvis and which not infrequently involves the rectum as well. Even the genitals are scarcely ever wounded without grave injury about the thigh or pelvis. Moreover, wounds of the urinary organs are relatively rare. Thus, 232 wounds of the abdominal viscera are classified by Rouvillois¹ as: extraperitoneal visceral wounds, 15, of which 8 involved the kidney; wounds of both thorax and abdomen, 48, of which 4 involved the kidney; intraperitoneal wounds, 169, of which 6 involved the kidney, a total of 18, or 7.7 per cent., of kidney wounds. Among 2,121 cases of abdominal wounds reported by English authors and tabulated in the Manual of the Division of Urology of the American Expeditionary Forces, there were 155 kidney wounds, or 7.3 per cent. of the total. Bladder wounds are relatively even rarer. They constitute only 4 per cent. among the 965 laparotomies reported from casualty clearing stations by General Cuthbert Wallace, and, in 1917, Legueu was able to report only forty-three cases of bladder wounds.

Thus, at the front, the wounds of the urinary organs inevitably fall into the hands of the general surgeon, and at the base the services of Legueu and Cathelin are, I believe, the only ones to which wounds of the genito-urinary tract are especially directed. Nevertheless, the total number of wounded in this war has been so great that our specialty, like every other one, has benefited by the experience. I shall try to enumerate some of the conclusions that have been reached thus far, although I must admit at the outset that my experience is all by hearsay. I have no personal experience to record, and although it is the intention of the Army authorities to establish such special centers as may be necessary for the skilled treatment of lesions of the genital and urinary tract, the occasion for this has not yet arisen.

WOUNDS OF THE KIDNEY

The war injuries to the kidney may be classified as shell wounds, bullet wounds (including shrapnel), stab wounds and ruptures. Shell wounds as a class

* Chairman's address, read before the Section on Genito-Urinary Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Rouvillois: Bull. de la Soc. de chir. de Paris, 1916, 42, 708.

are large and destructive and almost invariably associated with other graver visceral injuries, for even though the kidney is completely disorganized, the primary danger to life is not usually from bleeding of the vessels of this organ. They usually require primary nephrectomy.

Bullet wounds, if they involve the hilum, usually sever the vessels of the pedicle and call for nephrectomy. If parenchymal, they either simply traverse the kidney, in which case it may usually be saved by excision of the tract of the wound followed by packing; but bullets may also cause rupture of the kidney requiring nephrectomy.

Stab wounds are extremely rare, and the few reported cases have been characterized by severe primary hemorrhage.

Subcutaneous rupture of the kidney is similar to the like conditions as seen in civil practice. The proper treatment appears to be conservative at first with a later operation to evacuate the perirenal hematoma and to forestall secondary infection.

Pathology.—Parenchymal wounds are classified as perforating, tangential or explosive (causing rupture of the kidney). The kidney tissue immediately about the wound is contused, but more remote portions of the kidney remain normal. It is not to be forgotten that the arteries of the kidney are terminal; hence division of an artery implies death of the portion of the kidney tissue distal to the point of arterial rupture. As has been stated above, wounds of the kidney pelvis and of the kidney pedicle are almost synonymous. A few bilateral kidney wounds have been recorded; they were all fatal.

Clinical Picture.—The patient arrives at the evacuation hospital labeled "wound of abdomen," or of chest, or of buttock, or of thigh. The patient's general condition is of more immediate importance than his local one. Shock, hemorrhage, evidence of injury to intestine or lung, or even the intraperitoneal hemorrhage from spleen or kidney are the surgeon's immediate concern. A wound of the kidney is suspected if the entrance or exit of the bullet has been through the loin or if there is hematuria; but the accurate diagnosis is usually only made on the operating table. In times of push the roentgen ray is relatively little used, and even when it is used neither the roentgen ray nor the wounds of entrance or exit give an exact idea as to the course of the bullet, which may have been deflected by contact with bone.

Symptoms.—Apart from the symptoms due to shock, exposure and complicating injuries, free hemorrhage from a wound in the loin is suggestive of injury to the kidney, and hematuria is absent only if a ureter is completely divided or obstructed by clot or missile or if the wound does not invade the renal pelvis. The hematuria seems never to be so severe as to cause clotting of blood in the bladder. Retention of urine is common. The later symptoms are due to

infection. Gas gangrene, sepsis, extravasation of urine and secondary hemorrhage are the causes of death at the base hospital. Secondary hemorrhage is not uncommon in the second or third week, and may occur as late as two months after the injury. It is much more formidable than the primary bleeding because of its severity, its marked tendency to recurrences and the association of sepsis. I have seen one case of renal stone as a result of infection following the wound in the kidney.

Diagnosis.—All patients with abdominal injuries should be catheterized at the first opportunity unless they can urinate freely. The urine thus obtained should be examined for blood. As stated above, wounds of the loin, especially if they bleed freely, are suggestive of injury to the kidney. When the diagnosis is obscure, it is cleared up by exploratory operation. In quiet times the cystoscope may be used with advantage at the evacuation hospital; but during a push there is no time for the employment of such instruments of precision and cystoscopy is generally employed only at the base. •

*Treatment.*²—1. Inspect urine for blood (catheterize if necessary).

2. Treat shock in the usual manner, by warmth and transfusion.

3. If in doubt whether or not to operate, the most prudent decision is usually the wisest.

4. If in doubt whether to open the abdomen or loin first, open the loin (see No. 6).

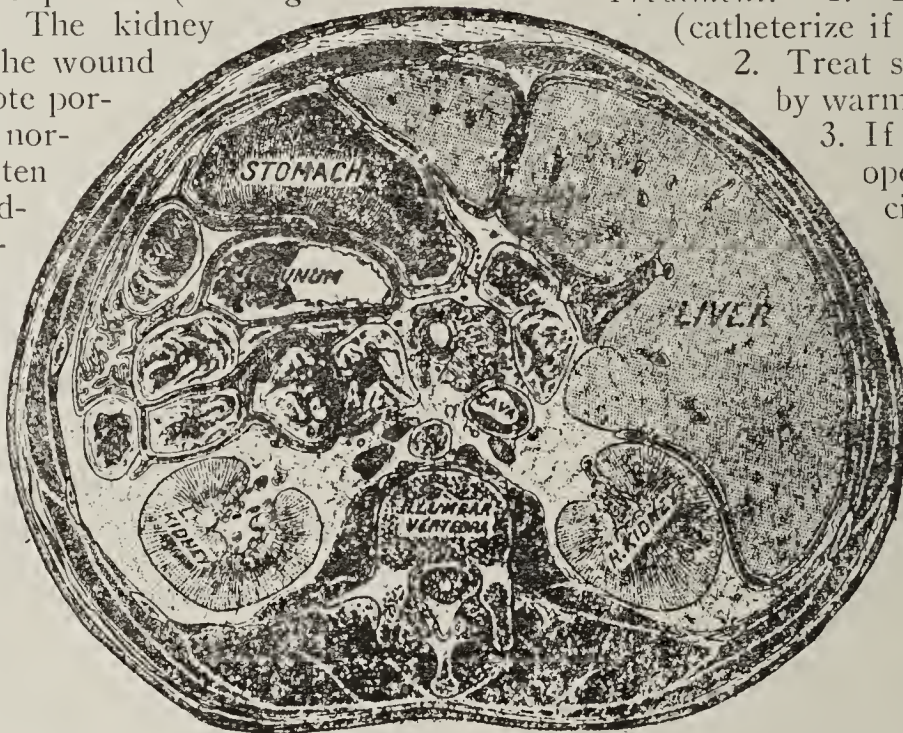
5. The loin incision should be transverse and extend approximately to the edge of the rectus. It may be enlarged by a vertical transrectus incision or by vertical incision along the outer border of the erector spinae muscle long enough to permit division of all muscular and ligamentous attachments to the last rib. The

twelfth dorsal nerve and artery may be avoided by placing the transverse incision a finger's breadth below the rib. Thus also one avoids the danger of inadvertently entering the pleura, through mistaking the eleventh for the twelfth rib.

6. If there is a wound of the loin and hematuria, or if the wound plainly leads to the kidney, enlarge it transversely, deliver the kidney and examine the hilum for lesions of the renal vessels.

(a) If the main artery or vein, or the upper main branch of the artery is wounded, perform nephrectomy.

(b) If smaller arteries or the lower branch of the renal artery are wounded or the renal wound is a relatively slight one, there are three alternatives. For wounds that are not very extensive or ragged and do not involve any great destruction of the arterial system of the kidney it may be wise to do nothing more than pack the loin down to the kidney. But in case



Cross-section through second lumbar vertebra, showing relations of kidneys.

2. The paragraphs on treatment are quoted from the Manual of the Division of Urology, A. E. F., at present in press, in the writing of which the director of the division of urology, Major Hugh H. Young, M. R. C., has kindly attributed to me a certain share and to which I am indebted for many other observations in this paper.

of persistent hemorrhage, extensive contusion, presence of foreign bodies or division of arteries, the kidney demands the surgeon's attention; the renal wound may be packed or a portion of the parenchyma excised and sutured. At the evacuation hospital where such primary operations are usually performed, conditions are often such as to prohibit prolongation of the operation for the purpose of resecting and suturing the kidney or searching for shell fragments or bullets. Resection is, however, the ideal operation in such cases—an ideal which has been realized in a few cases and one which the surgeon should always bear in mind. When partial nephrectomy is performed, the excised portion should include all that part of the kidney parenchyma which is deprived of circulation by the division of its artery.

(c) A small tube should be left in the pelvis of the kidney two days, if this has been opened, in order to evacuate blood clots and to hasten the return of kidney function by removing intrapelvic pressure.

(d) Always open the peritoneum in front of the colon in order to examine the adjacent viscera.

(e) Drain and suture the wound in the usual manner.

7. If more than one third of the kidney is contused, perform complete nephrectomy. If less, resection may be considered.

8. If hematuria suggests renal injury, but the wound is remote from the loin, the decision in favor of or against immediate operation should be based on the following data:

(a) If the patient is going to die of primary renal hemorrhage, he is likely to do so before reaching the dressing station.

(b) Though exploration of renal wounds usually starts a fresh parenchymatous hemorrhage, it discloses the fact that the primary bleeding has already stopped.

(c) Therefore, unless an external wound leads directly to the kidney region, the presence of hematuria or of retroperitoneal hematoma is no indication for immediate operation.

9. A retroperitoneal hemorrhage discovered in the course of a laparotomy may be disregarded (it often does not arise from the renal vessels at all) unless it is of enormous size, in which event it should be evacuated extraperitoneally, *before* the intestines are much handled, for it has been found that immediate grave shock results from turning the patient over and operating on his loin after laparotomy.

10. Transperitoneal nephrectomy is generally condemned.

Treatment at the Base.—All secondary operations should be preceded by *cystoscopy* to ascertain the condition of the opposite kidney and *fluoroscopy* to locate fragments of bone or missile.

Large hematomas should be evacuated to forestall infection.

Secondary hemorrhage calls for transfusion and usually for prompt nephrectomy unless other complications prohibit this; for the hemorrhage is likely to recur and the effect of each return of bleeding is cumulative.

Sepsis is combated according to general principles of drainage and antisepsis.

Persistent *urinary fistulas* in the loin should be treated by the insertion of a ureteral catheter up to the pelvis of the kidney. In a number of cases this treatment, with daily injection of the kidney pelvis by

1 per cent. silver nitrate solution has resulted in closure of the fistula. The catheter may be left in place for an indefinite period if changed every fourth or fifth day. If healing is to occur, this may be expected within ten days.

If the fistula fails to heal, the kidney may be explored for the purpose of reestablishing the urinary flow by plastic operation or for nephrectomy, if the opposite kidney is proved sound.

The immediate mortality of operations at British casualty clearing stations for uncomplicated renal wounds has been about 25 per cent. due to shock and hemorrhage, and the added shock of anesthesia and operation. The milder, unoperated cases doubtless have a very low immediate mortality. The complicated cases have an immediate mortality of 65 per cent.

The late mortality is due to secondary hemorrhage, sepsis, renal infection and stone, and various wound complications not referable to the kidney. Apparently at least 20 per cent. of renal wounds reaching the base result in grave permanent renal lesion, or the patients die septic.

An extraction of missiles is performed after the usual localization. Any doubt as to whether the missile is actually within the kidney pelvis or not may be settled by pyelography. It is not to be forgotten that the disturbance of old adhesions about a wounded kidney may result in a tear of the colon or of the diaphragm.

WOUNDS OF THE URETER

Wounds of the ureter are usually complete and are disclosed some days after the injury either by extravasation of urine or the appearance of urine in the discharges from the wound. In a few cases a divided ureter has been found in the course of operation. As other lesions predominate, the procedure followed has been to drain the ureteral wound or at most to dislocate the severed end of the ureter up to the parietal wound. Suture of the ureter has not been attempted, and the loss of tissue is likely to be such as to render it impossible.

In a few instances urinary fistula due to partial division of the ureter has been healed by the indwelling catheter with daily pelvic lavage. In one such case, Heitzboyer diagnosed the existence of a ureteral fistula from the fact that the ureteral catheter passed to the kidney pelvis and fluid injected through this simply filled the pelvis without issuing from the wound. The fistula healed in eight days with the ureteral catheter tied in.

Primary nephrectomy is not advisable for wounds of the ureter, since it is an unnecessary added shock. Secondary nephrectomy may be performed after functional tests have been made of the other kidney.

BLADDER WOUNDS

The Manual of Urology classifies bladder wounds as:

I. Intraperitoneal Injuries.

(A) Wounds.

I. Uncomplicated.

II. Complicated by:

(a) Perforations of other viscera.

1. The small intestine.

2. The colon.

(b) Fractures or injuries of bones.

(c) Injury to large blood vessels.

- (B) Ruptures by concussion.
 - I. Complicated.
 - II. Uncomplicated.
- II. Extraperitoneal Injuries.
 - (A) Wounds.
 - I. Uncomplicated.
 - II. Complicated by:
 - (a) Injury to rectum.
 - (b) Injury to deep urethra or prostate.
 - (c) Fractures of the bony pelvis or femur.
 - (d) Injury to important blood vessels.

They may be due to shell, bullet, stab or rupture. The distinction between intraperitoneal and extraperitoneal wounds is an artificial one, for in many if not in most cases the missile causes both types of injury. Intraperitoneal wounds are almost always overshadowed by associated visceral injury, usually to the small intestine and sigmoid; extraperitoneal wounds, by the injuries tabulated above.

Symptoms.—There is usually an irritability of the bladder, a frequent desire to urinate as the result of which the patient either passes no urine at all or only a small amount of bloody urine in which feces may be found if there is an injury to the rectum. Later the signs of peritonitis or pelvic cellulitis appear.

Diagnosis.—As in the case of abdominal wounds, the operation on all pelvic wounds should be preceded by catheterization if the patient is unable to urinate. Exploratory operation confirms the diagnosis of wound of the bladder. Cystoscopy is usually not practicable at the evacuation hospital. Indeed, in many cases, the wound of exit is so large as to render the diagnosis of bladder injury obvious enough and at the same time to prohibit the filling of the bladder for the purpose of cystoscopy. All exploratory abdominal operations include an examination of the vault of the bladder. The injection test for the diagnosis of either wound or rupture of the bladder has been discarded as both deceptive and dangerous.

Treatment.—The toilet of the wound is performed in the usual manner and such accessory incisions made as seem necessary to disclose all of the injuries. The wounded bladder should be carefully swept with the finger in order to clear it of clots, foreign bodies or shell fragments. Intraperitoneal wounds should be closed tight and no suprapubic drainage employed unless the wound is so large and irregular as to preclude satisfactory closure. The irregularities of treatment inevitable in transport from the evacuation hospital to the base make the indwelling ureteral catheter extremely unsatisfactory.

Patients have done well after intraperitoneal wounds when not catheterized at all. In most instances, however, the catheter has been employed every four hours for four days after operation. Extraperitoneal wounds are drained either through the tract of the wound itself or by suprapubic cystostomy. Wounds involving the rectum have in many instances healed under simple suprapubic drainage. Twelve of Legueu's fifteen cases healed in this manner. The English prefer to perform a temporary colostomy of the transverse colon (in order to keep the colostomy wound well away from the bullet wound). Extraperitoneal wounds cannot usually be sutured satisfactorily.

Prognosis.—The mortality of bladder wounds is even higher than that of kidney wounds. Cuthbert Wallace reports a mortality of 56 per cent. in twenty-five cases. Patients die of shock, of hemorrhage

from the iliac or femoral vessels, of peritonitis due to intestinal injury or of pelvic cellulitis, which is very difficult to control on account of fracture of the pelvis, which is a common complication.

PARALYSIS OF THE BLADDER DUE TO SPINAL INJURY.

Notable progress has been made in the treatment of cases of paralysis of the bladder due to spinal injury. It is well known that most of these patients die under ordinary circumstances by the so-called "ascending" urinary infection, and we all realize that catheterization does not prevent this type of infection. Indeed, the indwelling catheter was at first the instrument of choice for many surgeons until they learned that the paralyzed bladder usually behaves very badly under this form of treatment, immediate and severe infection being the usual result. The next step was to attempt suprapubic drainage, but this prevents ascending infection little better than does the catheter.

Thomson-Walker has pointed out that although the immediate result of paralysis of the bladder is only a retention of urine, this retention gives place to a complete incontinence of urine after an interval. This interval averages sixty days, the extreme limits being, as observed by Thomson-Walker, twenty-four hours and eighteen months. Such being the case, Major Besley, M. R. C., as a result of his experience with the British army, suggested that the patient would be safer if not catheterized at all, and such is the accepted form of treatment today. The patient with a paralyzed bladder should absolutely not have a catheter passed. The bladder will promptly distend and overflow. It will not rupture, and although infection may occur, this is likely to be mild. In due course the retention gives place to incontinence, and in spite of the effects of back pressure on the kidneys and ureters, these patients are said to do very much better than those that are catheterized.

WOUNDS OF THE URETHRA AND PROSTATE

Perineal wounds of the urethra are likely to carry away the whole perineal body, leaving a cloaca which in most instances defies repair. No new surgical practice has developed in the treatment of these wounds, whether large or small, excepting that in addition to the colostomy which is employed to keep the rectal wound clean, suprapubic cystostomy is favored in order to encourage the healing of the urethral wound. Suprapubic drainage is, indeed, much more satisfactory than any perineal drainage in most cases.

WOUNDS OF THE EXTERNAL GENITALS AND ANTERIOR URETHRA

Cathelin and Rochet have reported truly extraordinary results in the preservation of the partially amputated penis. They advise the most conservative surgery until the wounds have granulated. Then the two cut surfaces of the penis are freshened by incision of all scar in such a manner that the penis is reconstituted by suture of the cut surfaces of corpora cavernosa and corpus spongiosum and the urethra. A suprapubic fistula is established in order to encourage prompt healing of the wound. In one such case Rochet was able to save the glans penis, although this had been completely severed and was attached only by the preputial skin. At the time of the plastic operation it lay embedded in a mass of granulations in a large

wound in the region of Scarpa's triangle about 10 cm. distant from the extremity of the penis. In another case the completely amputated penis had become adherent in a very bad position under the pubes. It was freed by division of the suspensory ligament and transplanted into the scrotum, thereby producing a satisfactory urinary channel.

Scrotal and testicular wounds are treated with the utmost conservatism. After the casting off of sloughs, the scrotal skin rapidly covers over the testicles in a manner with which we are familiar in civil practice.

IRRITABILITY OF THE BLADDER

The one medical condition (apart from trench nephritis) that is of interest to the urologist is bladder irritability. This is an extremely common condition in military organizations whose members are exposed to privation and cold for any length of time. The symptoms may, of course, be due to gonorrhea, tuberculosis, stone, etc., but it is usually purely functional and is relieved by rest in bed for a week or two, aided by sounds and instillations.

CONCLUSIONS

This sketch of the present status of the urology of war will doubtless have no more than a temporary value. It is only within the past six months that surgeons have learned to employ the primary suture of wounds, and the extraordinary results obtained from this in all kinds of wounds will certainly react on our department of urology. In the future, many kidneys will doubtless be saved by immediate resection and many lives saved by immediate suture of the bladder in cases which up to the present time have been subjected to the dangers of prolonged drainage and the resulting infection.

Throughout this war, however, the specialty of surgery of the genito-urinary organs will doubtless continue in large measure as a province of general surgery. The expert knowledge of the specialist will be chiefly useful at base hospitals; but the urologist himself will be the chief gainer, for he will be pushed into general surgery of the most active sort and will thereby broaden his horizon and his surgical capacity. For us, as for all other surgeons, this is a glorious day. The miseries of the present generation will react happily on the generations to come, in surgery as in many other departments of human activity. Not one of you, I am sure, but feels a thrill of pride and joy at his privilege in taking a part, however small, in this renaissance of our art. Indeed, the American Expeditionary Force is a force of crusaders. One of the chief results of the war will unquestionably be a more intimate commingling of the civilizations of Europe and America, illuminated by the new knowledge which we are all acquiring while fighting shoulder to shoulder in the Army of Liberty.

Lutz Completes the Biologic Cycle of the Schistosomum.—After three years of extensive research in northern Brazil, Prof. A. Lutz has traced the life cycle of the *Schistosomum mansoni* from the lateral-spined ovum to the adult parasite, through the intermediate hosts, fresh-water snails, to the definite host, rabbits, guinea-pigs and man, and reproduced the clinical picture anew. The work was started at the Instituto Oswaldo Cruz, and the detailed report is soon to be published in the *Memorias* of the institute. As this parasite is not known in southern Brazil, the commission had to seek it in its haunts along the rivers of the north. Bahia is a stronghold of this parasite.

NERVOUS AND MENTAL SYMPTOMS IN EXOPHTHALMIC GOITER *

LEWELLYS F. BARKER, M.D.

BALTIMORE

The intimate interrelationship of the endocrine glands and the nervous system is nowhere better illustrated than in the symptomatology of exophthalmic goiter. Though it is now generally agreed that in exophthalmic goiter we have to deal with a thyro-intoxication, it is not surprising that the syndrome has been and still is described as a nervous disease, since many of the symptoms recognizable in this disease are admittedly due to disturbances of the neural and psychic functions. Of the four cardinal symptoms of exophthalmic goiter—tachycardia, struma, tremor and protrusion of the eyeballs—no less than three are due to abnormal innervations; and when the host of less striking manifestations of the disease is considered, it is clear that neuropathic and psychopathic phenomena predominate. Even in the disturbances often looked on as non-neural in origin—the changes in the blood, the metabolic disturbances, the disorders of endocrine glands other than the thyroid—there may later be found to exist a neural link. At any rate, at the present time, any study of the symptoms of exophthalmic goiter involves, in addition to a study in metabolism, an extensive inquiry in the domain of the pathologic physiology of the nervous system.

SYMPTOMS REFERABLE TO DISTURBANCES OF THE VEGETATIVE NERVOUS SYSTEM

Though in exophthalmic goiter both the cerebro-spinal nervous system and the vegetative or autonomic nervous system (including the sympathetic system and autonomic system) exhibit deviations from normal function, it is to the latter system that the larger number of pathologic-physiologic phenomena are referable. This system, it will be recalled, through its neurones of mesencephalic, bulbar and spinal locations, synapsed with neurones the cell bodies of which are more peripherally situated in the ganglions of the sympathetic trunks and in the viscera themselves, innervates all the smooth muscle of the body, the heart muscle and all the secreting glands. Any symptom, therefore, in which there is neural disturbance of contractions of smooth muscle, or of heart muscle, or in which there is neural disturbance of glandular secretion, must be looked on as a symptom appearing in the domain of the vegetative nervous system.

Of the symptoms often met in exophthalmic goiter, let me recall to you some that come in this category. They include the following:

(a) In the head and neck:

1. Von Graefe's sign.
2. Dalrymple's sign.
3. Protrusion of the eyeballs.
4. Epiphora in some, dry eyes in others.
5. Loewi's phenomenon.
6. Excess, or lack, of saliva.

(b) In the respiratory system:

1. Asthmatic attacks.
2. Dyspnea, or tachypnea.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

(c) In the circulatory system:

1. Tachycardia.
2. Pulsus irregularis respiratorius.
3. Vasomotor angina.
4. Subjective palpitation.
5. Transitory changes in blood pressure.
6. Vasomotor symptoms, especially temporary erythemas and dermographism.

(d) In the digestive system:

1. Gastrospasm and pylorospasm.
2. Gastric hyperacidity or hypacidity.
3. Spastic constipation.
4. Unmotivated watery, painless, diarrheas and unmotivated vomiting.

(e) In the urogenital system:

1. Pollakiuria, polyuria and oliguria.
2. Certain disturbances of menstruation and of lactation.
3. Certain disturbances of sexual libido and potentia.

(f) In the cutaneous glandular system:

1. Profuse sweating (and Vigouroux's sign, which is probably dependent on it).

This list is long enough and its contents are familiar enough to convince us of the prevalence of autonomic symptoms and signs in exophthalmic goiter. I might have added to it certain changes in the blood and certain metabolic changes that many believe depend on abnormal autonomic innervation.

Though any one or several of the preceding symptoms may be present in a patient suffering from exophthalmic goiter, they are never all present in the same patient. Indeed, many of the symptoms (for example, epiphora and dry eyes, sialorrhea and xerostomia, constipation and diarrhea) are opposites, the presence of one excluding that of the other. As everyone knows since the researches of the great English physiologists, Gaskell and Langley, there is a double innervation in all autonomic domains; each bit of involuntary muscle and each secreting gland is controlled by two sets of neurons, the two sets being apparently reciprocally antagonistic in their effects when stimulated. Thus, stimulate one set of fibers and the heart-rate is accelerated, stimulate the other and the heart-rate is slowed; or stimulate one set of nerves supplying the salivary glands and sialorrhea results; stimulate the other set and xerostomia results. Similar findings might be cited throughout all the domains under autonomic control. Normally, there seems to be a fairly stable balance between the innervations of one set and those of the other set of fibers, this balance being temporarily and adequately upset from moment to moment by certain stimuli correspondent to physiologic needs. That in some persons, constitutionally inferior, there may be a special sensitiveness to one set of innervations at the expense of the other set seems very likely from the careful studies that have been made by clinicians; the conception of vagotonia on the one hand and that of sympathicotonia on the other, postulated by Eppinger and Hess, are doubtless by this time well known. Certain stimuli we know will pick out one set of fibers and leave the other set relatively unaffected; thus epinephrin is generally sympathicotropic, increasing the susceptibility to sympathetic innervation in practically all domains, whereas pilocarpin and atropin are vagotropic, the former favoring stimulation in most craniosacral autonomic domains, the latter, in large doses, paralyzing the same fibers.

In exophthalmic goiter we meet with very peculiar conditions. We may find in one and the same patient

some symptoms referable to stimulation of sympathetic fibers (tachycardia and protrusion of the eyeballs) and some symptoms referable to stimulation of craniosacral autonomic fibers (profuse sweating; unmotivated watery diarrhea). In other words, we often meet with a mixture of the phenomena of sympathetic stimulation in one domain with the phenomena of craniosacral autonomic stimulation in another domain. At times, it is true, patients are met with in which the unusual phenomena appear predominantly due to sympathetic stimulation; or, again, others are met with in which the craniosacral autonomic innervations seem to be greatly in excess and relatively unmixed. These represent the so-called sympathicotonic types and vagotonic types, respectively, of exophthalmic goiter, as described by contemporary writers, types the origin of which is now the subject of much speculative consideration, as may be gathered from the interesting contribution by Pottenger.¹ Though the facts are as yet insufficient to warrant any dogmatic assertion regarding the pathogenesis of the symptoms referable to autonomic domains in exophthalmic goiter, it is very certain that the careful analysis of these symptoms and the consideration of their relations to one another have awakened an entirely new interest in visceral neurology and bid fair to stimulate researches in a region in which further investigation promises to be particularly rewarding.

PHENOMENA REFERABLE TO THE PERIPHERAL NEURONS OF THE CEREBROSPINAL NERVOUS SYSTEM

Toxic-degenerative processes involving the peripheral neurons (both motor and sensory) of the cerebrospinal nervous system are only occasionally met with in exophthalmic goiter in a degree that arrests the attention of clinical observers. That such processes do sometimes arise in the course of exophthalmic goiter, however, is clearly shown by a study of the literature of the subject. Thus Diller has reported a rapidly developing and fatal case of toxic multiple neuritis, the patient suffering from general hyperesthesia and exhibiting an extensive atrophy of the voluntary musculature. The concomitant exophthalmic goiter may, of course, have been merely coincidental rather than causal, though Diller evidently favored the view that he was dealing with a thyrotoxic neuritis.

In the domain of the cerebral nerves, palsies have been met with not infrequently in exophthalmic goiter. The literature on the subject has been analyzed by Sattler (1909), by Kappis (1911) and, more recently, by Heuer (1916). Though any one of the cerebral nerves (except, possibly, the nervus accessorius) may be injured in exophthalmic goiter, it is the nerves innervating the eye muscles, namely, the nervus oculomotorius, the nervus trochlearis and the nervus abducens that are most frequently involved. Thus Kappis has collected about forty cases in which ophthalmoplegias of varying grade were encountered in exophthalmic goiter in the absence of any other involvement of the cerebral nerves. Isolated palsies of the nervus facialis are sometimes observed. Most interesting of all in the disease are the cases of palsy in the domain of several cerebral nerves, yielding the clinical picture of an acute, a subacute, or a chronic, bulbar paralysis. It has sometimes been difficult, apparently, to differ-

1. Pottenger, F. M.: A Study of the Symptoms of Exophthalmic Goiter, *Endocrinology*, 1913, 2, 16.

entiate cases of "bulbar paralysis with anatomic lesion" from the cases of myasthenia gravis (or "bulbar paralysis without anatomic lesion") not so very infrequently met with in association with exophthalmic goiter. Further study is needed to decide the importance or unimportance of thymus hyperplasia in these groups of cases. What has always surprised me most in the study of patients exhibiting exophthalmic goiter, as far as the peripheral nerves are concerned, has been the constant presence of extensive evidence of disturbed function of the peripheral autonomic nerves in contrast with the apparent absence of evidence of disturbance of function (except in rare instances) of the peripheral cerebrospinal nerves.

PHENOMENA REFERABLE TO THE NEURON SYSTEMS OF THE BRAIN AND SPINAL CORD

Of the grosser organic lesions of the brain and spinal cord occasionally encountered in the course of exophthalmic goiter, none seems to stand in any direct relation of effect to thyrotoxic cause. Thus, tabes, myelitis, cerebral apoplexy, or brain tumor may sometimes occur in a patient who has exophthalmic goiter but no one would think of any other than an accidental relation existing. The same may be said also of diseases like chorea and epilepsy, when they occur in patients who suffer from exophthalmic goiter. With regard to epilepsy, however, it may be well to speak with some reserve. Despite clinical impressions, the evidence for an epilepsy of thyrotoxic origin is still too incomplete to permit of safe judgment. The remarkable fine tremor that is so characteristic of exophthalmic goiter is doubtless cerebral in origin, but we are as much at a loss further to explain its pathogenesis as we are to account for other pathologic tremors.

Most interesting to every internist are the neurotic and psychotic symptoms manifested by patients with exophthalmic goiter. The frequency of neurasthenic states, of anxiety states, and of phobic and obsessional states in patients suffering from the disease is notorious. Indeed, it is on account of the symptoms of such states that the patient most often applies, or is brought by a member of the family, to the physician for relief.

Outspoken psychoses (maniacal, melancholic, paranoid) are by no means uncommon in exophthalmic goiter, especially when there is a psychopathic heredity. Even in milder cases of exophthalmic goiter, complaints of nervousness, irritability, inability to concentrate, headache, insomnia, pains in the eyes, pressure in the head, throbbing of the vessels, internal quivering, hot flushes, fatigability, dyspnea, anorexia and nausea are very common.

The behavior of the patient is always more or less abnormal. Of this he may not himself be cognizant, though the abnormality is obvious to his family and friends and to the physician. The restlessness, the haste of movement and the overalertness of the patient are characteristic. It has often appeared to me as though the fundamental instinctive mechanisms on which the whole personality depends were functioning abnormally. Each instinctive mechanism has, as we know, a cognitive, an affective and a conative component; it involves a knowing, a feeling, and a striving. In exophthalmic goiter, it would seem as though the affective-conative processes were more involved than the cognitive.

And this view agrees well with what I have said regarding the marked involvement of the autonomic innervations of the blood vessels and the viscera in the disease. The intimate relations that exist between emotional states and visceral and blood-vascular innervations have long been appreciated; they form the basis of the James-Lange theory of the origin of the emotions. In how far the nervous symptoms and especially the pathologic emotivity of patients with exophthalmic goiter depend on a direct intoxication of the brain itself, and in how far on indirect effects on the higher nervous apparatus through an intoxication of the vegetative nervous system or of all the body cells in which the ultimate metabolic processes go on, we are too ignorant as yet to judge. I am personally inclined to lay more and more stress on injury to the lower and more primitive mechanisms.

ABSTRACT OF DISCUSSION

DR. JOSEPH BYRNE, New York: Regarding the simpler manifestations, as, for instance, the tachycardia, we are without explanation. We have explanations which seem to be nothing more than a crystallization of a difficult problem into a more or less simple form of statement to suit the needs of textbooks, but when we really want to get an explanation that explains we have to go farther into the subject so that no one would be interested, except, perhaps, the man who studied it himself. In regard to mechanisms, some of the work that I have done has been in connection with the paradoxical pupillary phenomenon. In experiments on the autonomic system, if we paralyze the sympathetic by removal of the supercervical ganglion we get a most extraordinary phenomenon. During the first twenty-four hours after removal of the ganglion we get nothing. The pupil is smaller than the other, but under certain conditions it becomes the larger of the two, and that is why it is called paradoxical. This phenomenon has not been explained to date and some of the best physiologists have worked on it. Anderson has given the explanation you will find in the books today, and he simply says that it is due to increased muscle irritability, which is merely evasion of the question. A curious thing that I found out about these mechanisms is that if you cut the sympathetic in the neck it takes seven days before this paradoxical phenomenon will appear, whereas, if you cut the long ciliaries, the length of time required will be the same as when the ganglion has been removed, viz., twenty-four hours. In my experiments I attempted to induce this phenomenon by applying stimuli directly to the nerves of the iris and ciliary body, but could not get any results. This corroborates other men's work. This thing is not different from the phenomena that take place in the vessels of the rabbit's ear after section of the sympathetic. Immediately after the section there is dilatation of the vessels, which, under certain conditions, gives place to constriction, which seems to be due to the hyperactivity of neurons situated peripherally near the effectors. One word about the existence of these peripheral neurons: Are they there? Anatomists say yes; but when we get farther with the anatomy we find that they are not neurons at all, but a network or syncytium. Then we ask again: What are the myoneural junctions? and we are up against the same question all the way through. To me it seems that the tachycardia, exophthalmos and other signs in hyperthyroidism may find explanation along lines similar to those hinted at here for the explanation of the paradoxical pupillary and vascular phenomena.

DR. F. M. POTTINGER, Monrovia, Calif.: The subject which Dr. Barker has ably presented in his paper interests me greatly. However, I wish to confine my remarks mainly to the question of tachycardia. The old conception of exophthalmic goiter, in which emphasis is laid on protruding eyeballs, rapid heart and an enlargement of the thyroid, is wholly inadequate. While these three symptoms are prominent, yet the disease is something entirely different. The work of Plummer and

Kendall, of the Mayo Clinic, shows that the toxic element of the thyroid (thyroxin, isolated by Kendall) is one which acts not on the nervous system directly, but on the tissue cells themselves. It acts as a catalytic agent and controls the energy output of the cells. An increased thyroid action, therefore, means an increase in metabolism, the rate being increased sometimes to 100 per cent. or more. Since the heart responds to all calls for increased energy, and is influenced by nervous and psychic states, it is but natural that the heart should be rapid in this disease, even without there being any specific direct stimulation of the cardiac fibers of the sympathetic nerves. We must look on this disease as being one of metabolic disturbance accompanied by a general disturbance of nerve balance and psychical equilibrium.

PITUITARY DISTURBANCE IN ITS RELATION TO THE PSYCHOSES OF ADOLESCENCE*

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One should always be cautious in exploring a more or less new field, but not so excessively prudent that the gathering of material and the discovery of truths become impossible.

Quickly to orient ourselves, we must deal briefly with the pituitary gland and some of its disorders, then with adolescence in general and some of its mental disturbances, and after this consider the bearing the one may have on the other.

Function.—Each of the three parts of the pituitary body has been endowed by investigators with separate functions. Among the functions of the anterior lobe are body growth and the development of secondary sex characteristics. It may also have to do with the regulation of the menstrual period in the female. Two of the chief functions of the posterior lobe are the control of carbohydrate metabolism and an influence on blood pressure stability. It seems also to play a part in uterine tonicity and probably that of other involuntary muscles. The functions of the intermediate lobe are not settled.

Schmidt and May¹ believe that the active principle of the posterior lobe is derived from the tethelin produced by the anterior lobe, and we know that the pituitary gland is actively connected with most of the other endocrine glands. The anterior lobe of the pituitary is said to be derived from the epithelium of the oral cavity, and the posterior lobe, from the cells of the interbrain.

Disorders.—Total extirpation of the pituitary gland is fatal, and of the anterior lobe is fatal, but of the posterior lobe is not necessarily so. Cushing has apparently shown that either undersecretion or oversecretion of the pituitary may be associated with hydrocephalus. Cushing, myself² and others have shown that hypopituitarism seems the responsible factor in certain cases of epilepsy. The pituitary gland may be functionally disordered by illness, injury, tumor, adolescent changes, or pregnancy.

In general, hypopituitarism beginning before puberty exhibits obesity, smooth skin, lessened

perspiration, diminished body hair, undersized genitalia, and in the male a tendency toward feminine appearance, or in the female diminished menstruation or amenorrhea. If the anterior lobe is especially affected, we usually have in addition slow pulse and voracious appetite. If the undersecretion especially affects the posterior lobe, we note lowered blood pressure, increased sugar tolerance and adiposity.

On the other hand, hypersecretion occurring before puberty may account for precocious mental and sexual development, excessive body hair, long bones and early puberty. One of my patients has menstruated regularly since her second year and had fully developed pubic hair at the age of 6 years. If the anterior lobe is especially affected by hypersecretion, the sex characteristics are prominent and an increased libido is often present. Hyperactivity of the posterior lobe will account for decreased carbohydrate tolerance and at times increased blood pressure.

In discussing certain mental changes connected with pituitary secretion, Cushing, in his book, noted temperamental changes, wakefulness, lack of concentration, indecision, irritability and distrust occurred with hypersecretion. With hyposecretion, he found disturbances ranging from mild psychoses to extreme mental derangement, epilepsy, inability to concentrate, impairment of memory and, at times, drowsiness. In 1914, I³ also described certain mental conditions and changes in personality due to disturbance of the pituitary gland.

Adolescence.—Now that the field has been briefly prepared, it will be well to consider some of the general characteristics of adolescence, which, as Stanley Hall says, is "a new birth—for the higher and more completely human traits are now born."

At this period, in a few years, the boy and the girl crystallize into the man and the woman. Adolescence is especially marked by development in physical and sex characteristics; by changes in emotion, love, conduct, ambition and domestic relations; by an elaboration of tastes, desires, dress, social instincts and religious views; by self-consciousness and self-analysis.

During the course of these and other changes, many what we may term physiologic-psychic upsets occur. In both sexes the imagination is overstimulated, judgment is not logical, sex attraction is based on passing fancies, extremes of fashion are indulged in and superstition is rampant. There is a craving for the dramatic and the mysterious. Most actors begin their profession during adolescence and secret societies flourish with adolescent members. Extremes of opinion and excesses of every kind are more common to adolescence than to any other period.

There is little wonder, therefore, that during this time, when the mental balance is upheld by so unsteady a hand, that it should frequently topple over. When this does occur, emotional instability becomes pathologically manifest by sexual perversions, crime, suicide, hysteria or dipsomania; menstrual disturbance, illness, injury, or shock may develop latent psychoses; and preexisting defects of development or bad heredity may now be recognized as dementia praecox, manic-depressive states, or paranoia.

It has been shown that there are definite changes in the pituitary gland at puberty, manifested clinically by changes in bone growth, fat, sugar tolerance, sex characteristics, body hair and in personality. Cushing

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Schmidt, C. L. A., and May, E. S.: Jour. Lab. and Clin. Med., 1917, 2, 708.

2. Tucker, B. R.: South. Med. Jour., 1914, 7, No. 8, 608; Virginia Med. Semi-Month., April 7, 1916.

3. Tucker, B. R.: South. Med. Jour., 1914, 7, No. 8, 9608.

cites an instance in which there were two distinct types, descended through the males, traced for several generations: a "virile type," with early hirsuties; and a smooth skinned comparatively hairless, and what the patient called a "girlish type," in which adolescence is delayed usually until the seventeenth or eighteenth year. Sudden growth at this period may be taken, in certain instances, as an index of the activity of this gland. One of my patients grew 9 inches during the summer of her sixteenth year and afterward died of a neighborhood pituitary tumor; a boy with congenital syphilis grew 13 inches in thirteen months, beginning at his sixteenth year; and an undeveloped boy grew seven-eighths inch in five weeks on pituitary feeding.

such predomination was noted. Also, for the reason that in all cases both lobes appeared to be more or less affected, the secretion of the gland was considered as a whole.

GROUP 1

CASE 1.—In a woman, white, aged 26 when seen, the psychosis began at 12½, without cause except adolescence. The menses appeared at 11. The father showed evidence of hypopituitarism. Her development was precocious mentally, physically and sexually. The cheek and jaw bones were prominent. The body hair was so much increased that at 15 she had to shave her entire arms when she put on short sleeve dresses. This hair was afterward removed by a chemical. The breasts were fully developed when she was 9 years of age. The pulse was 70; the blood pressure 125 systolic, when 26. A radiograph showed a large fossa, with smooth, clinoid processes.

FINDINGS IN PITUITARY PSYCHOSES OF ADOLESCENCE *

Classification	Clinical Findings	Roentgen-Ray Findings	Psychosis	Incidence
GROUP 1 Preadolescent oversecretion, with further increase during adolescence	Increase in body hair and sexual development and mentally precocious	Large sellae, with regular contour and smooth clinoid processes	Prejudices and infatuations, increased libido, psychomotor acceleration, sudden changes in temperament and usually transient hallucinations	Rather frequent
GROUP 2 Preadolescent oversecretion, with decreased secretion during adolescence	Same as Group I, with apparent arrest at puberty	Large sellae, with probably irregular outline and some thickening of posterior processes	Drowsiness or probably trance states, with disturbance of pulse and blood pressure; other endocrine glands usually also affected	Rare
GROUP 3 (A) Preadolescent normal secretion, with increased secretion during adolescence	Previous history normal, or practically so, with marked increased libido and sex characteristics during adolescence	Not definite	Increase in libido and general nervousness, but rarely amount to definite psychoses.	Common in moderate degree, but mental changes rare
GROUP 3 (B) Preadolescent normal secretion, with decreased secretion during adolescence	Previous history normal, or nearly so, with delayed adolescence, frequently increase in fat and sugar tolerance; appetite voracious; pulse often slow and blood pressure low	General size of sellae about normal, but thickening and enlargement of clinoid processes, especially the posterior; encroachment on fossae usually shown	Dull, seclusive, self-absorbed; repetition of movement common; difficulty in expressing themselves in writing; unemotional, unaffectionate, obstinate, irritable; may or may not have hallucinations and delusions; resembles dementia praecox	Frequent
GROUP 4 Preadolescent undersecretion, with further decrease during adolescence	Previous history normal, usually increase in fat and sugar tolerance, underdevelopment of genitalia, lack of body hair, lessened perspiration, voracious appetite, delayed adolescence and often amenorrhea in female	General size of sellae small, contour irregular, processes enlarged and encroach on fossae and club or tend to bridge	Psychosis is usually not very profound; have dullness, irritability, tardiness, lack of ambition, often truancy and sometimes epileptoid convulsions	Rather frequent

*Usually these psychoses are preceded by illness, injury or great change in environment.

Pituitary Psychoses of Adolescence.—In studying this subject, I divided my cases into the following groups:

Group 1. Those cases which gave evidence of preadolescent hypersecretion, with an apparent increased hypersecretion during adolescence.

Group 2. Those cases which gave evidence of preadolescent hypersecretion with an apparent marked decrease in the secretion occurring during adolescence.

Group 3 (a). Those cases with a preadolescent approximately normal history, in which during adolescence the secretion was increased.

Group 3 (b). Those cases with apparently normal preadolescent secretion, which during adolescence seemed to have a decided decrease in the pituitary secretion.

Group 4. Those cases in which there had been preadolescent hyposecretion and, in which during adolescence the secretion appeared to be still further decreased.

It was thought that our present clinical knowledge was too indefinite to attempt to separate into groups the cases in which symptoms of the anterior or posterior lobe seemed to predominate, although at times

Mental symptoms began at 12½ and consisted of hypersensitiveness, night rigors, wondering what the people she saw would look like when dead, transient hallucinations, loss of affection for her mother and sudden changes from gaiety to solemn intenseness.

CASE 2.—In a girl, white, aged 15½ when seen, the psychosis began at 14½, after a spell of homesickness. The mother was neurotic, and one sister had hyperpituitary symptoms. At the age of 15, she looked as if she were 20. The menses began at 13 and occurred every two weeks with excessive flow. She was precocious in her studies and sex characteristics, and her body hair was excessive. The blood pressure and pulse were normal. There was no history of drowsiness. The thyroid was enlarged, but there were no other hyperthyroid symptoms. A roentgenogram showed a large sella, 10 mm. wide and 12 mm. deep, with smooth anterior and posterior clinoid processes. Mental symptoms began at 14½, and consisted of "baby talk," hysterical seizures, writing up and down on paper instead of across, tantrums, loss of affection for mother, carrying on imaginary telephone conversations, playing imaginary basketball, infatuations for various men and women and persecutory ideas. These symptoms gradually disappeared, and she is now a well-ordered young lady of 19 but still has menorrhagia.

The roentgenograms in this group show large sellae with smooth clinoids. The most prominent of their mental symptoms are unreasonable prejudices for some people and infatuations for others, increased libido, psychomotor acceleration, transient hallucinations and sudden changes in temperament. The psychosis of this group may be said to resemble more or less what has been called profound hysteria.

GROUP 2

CASE 3.—In a girl, aged 15 when seen, the psychosis began at 14½, after a fever. The family history was negative. She was overdeveloped sexually, although about normal size and with normal features. The body hair was increased, and she was precocious in her studies. She had marked vasomotor mottling and flushed easily. The blood pressure was 148 systolic and 95 diastolic. The pulse was 130, and the thyroid was slightly enlarged. The menses were free and began at 12½. A roentgenogram showed that the clinoids were enlarged and the fossa was encroached on, although it was not small in general contour. The psychosis consisted of periods of a trance state, lasting days, in which she refused food, sighed deeply and would not talk. Out of these trance states, she would come suddenly. She had no delusions or hallucinations. She was affectionate to her family and very fond of dress. She was given anterior lobe pituitary gland extract and became well in about three months. With this feeding, the blood pressure dropped from 148 systolic to 130, and her pulse came down from 100 to 80. The urine was entirely negative. The hyperthyroid symptoms disappeared.

I am of the opinion that this group is very small. Only a few cases could be separated, of which the foregoing is the best example.

GROUP 3 (A)

There are a great many normal preadolescents who show marked signs of hyperpituitary symptoms during adolescence. In fact, a moderate extent of this is usual and normal. It is possible for this increased pituitary secretion to cause pathologic symptoms, but this is probably infrequent, for we could separate only a few cases belonging to this group. In consequence, we hardly feel justified in describing it.

GROUP 3 (B)

CASE 4.—In a boy, aged 14 when seen, the psychosis began at 13 without known cause, except adolescence. The family history was negative. The patient was rather a thin boy somewhat small for his age. At 14, the genitals were rather small and showed no signs of enlarging, and there was no sign of body hair. He complained of considerable headache. He had done very well in his studies until recently. There was no history of drowsiness. A roentgen-ray examination of the fossa showed a sella of about normal size, but with enlarged anterior and posterior processes, which showed clubbing at the ends.

The psychosis was interesting, in that he had marked repetition of movements, in which he would go up and down the front steps as many as 14 or 15 times before he could start to school; he would cross and uncross his legs until stopped by his parents and repeat many other acts. He could not concentrate enough to write a postal card, although the letters he would make were perfect. He could not dress himself. He would make grimaces, jump up and whirl and was excitable and irritable. His thought processes were slow. No definite delusions or hallucinations could be made out. He was put on whole gland pituitary extract and gradually became normal.

CASE 5.—In a woman, aged 18 when seen, the psychosis began at 16. There was no precipitating cause but adolescence. Her father's people were large, one sister had myxedema, and two brothers were very stout. She was about average size for her age, and her features were rather small. The genital and body hair was negative except for a fine,

fuzzy growth of hair on her back. She had a headache which was corrected with glasses. The blood pressure and pulse rate were normal. She had some drowsiness. She was a good student till 16, and then became a poor one. The menses began at 13 and were regular. The thyroid was rather full, but she had no hyperthyroid symptoms except a fine hand tremor. A roentgenogram showed the sella was about normal in size, but both the posterior and anterior clinoids were rough and enlarged and tended to bridge. The psychosis consisted of very poor memory, dulness at school and hallucinations of faces peeping at her and of hearing voices. She had become indolent, unaffectionate and indifferent and could not concentrate in writing. She was obstinate and appeared most of the time wrapped in her own thoughts. She recovered with whole gland pituitary feeding for three months.

This group, we believe, is the largest of all. The psychoses resemble dementia praecox. The preadolescent pituitary symptoms are negligible. The patients begin to be dull in their studies, seclusive and self-absorbed. Repetition of movement is common. Hallucinations and delusions may or may not be present. Difficulty in expressing themselves by writing is common. The patient is usually unemotional and unaffectionate, and obstinate and irritable if disturbed. The roentgenograms show thickening and enlargement of the clinoid processes, but the general size of the sella is about normal.

GROUP 4

CASE 6.—In a boy, aged 15 when seen, the psychosis began at 14½. The family history was negative. The boy was very fat, belonging to a mild dystrophia adiposogenitalis type. He had never been a very good student. Six months previous, he had an epileptic convulsion and two others in the next few months. The psychosis began with loss of ambition, inattention, laziness, obstinacy, lack of emotion, irritability and wanderlust. Once he ran away from home and was found after many weeks in a distant city. A roentgenogram showed a very small sella, with the posterior clinoids rough and large and bridging across the fossa to the anterior clinoids. In less than a year of feeding with whole gland pituitary extract, the patient went to college and has been there for a year. He stands well in his class, his conduct has been exemplary and he has had no more convulsions.

Quite a number of cases belong to this group, although the psychosis does not seem to be very profound. It consists chiefly of irritability, mental dulness, tardiness, truancy and general lack of ambition. In some cases, epileptic convulsions occur. The roentgenographic findings are those of a small crowded fossa.

CONCLUSION

There seem to be definite reasons for believing that pituitary adolescent psychoses exist; that these psychoses may be divided into groups according to the clinical preadolescent status in comparison with the adolescent symptoms; that the roentgenographic findings correspond to the clinical type of the case, and that, in cases which show decreased pituitary secretion, the response to pituitary feeding is prompt and satisfactory.

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ABSTRACT OF DISCUSSION

DR. ARCHIBALD CHURCH, Chicago: On reviewing my own material I am disposed to feel that Dr. Tucker's classifications are not only suggestive, but likely to lead to a more definite conception of these conditions. I recall at least three patients with pituitary disease, young persons, in all of whom the pituitary condition was verified either by postmortem or at operation. They presented the symptoms of pituitary deficiency in the lack of development, and especially in sexual

retardation, and a mental picture that was practically parallel. All three of these boys showed decided precocity. One was a draftsman of high order at the age of 12, and one showed mechanical ability of an unusual constructive degree. But in association with these particular aptitudes there was a deficiency in other directions that notably placed these boys below the average of their mental age. I was enabled to detect the third case, so to speak, by my association with the first two because of the parallelism presented by the mental attributes as well as the symptomatic manifestations. This elaboration of the disturbances associated with pituitary defect which Dr. Tucker has given us in a sense confirms the heterogeneous recollections I have of cases of this character. I do not know that I am at the present time disposed to accept without considerable reserve the generalizations at which he seems to have arrived, but as suggestive of work in this field I look on his paper as of a very high order.

MEDICAL SERVICE IN THE CONSERVATION OF INDUSTRIAL MAN POWER*

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It must be realized that a decisive victory can not be gained by the Allies until the resources of the United States in men and supplies are made available for that purpose.

Our national war problems are (1) to mobilize and train for military purposes approximately 5,000,000 men, (2) to manufacture the supplies necessary to provide them with facilities for fighting, and (3) to transport men and supplies to France quickly and safely.

The production and transportation of supplies enough to maintain a fighting force of 5,000,000 men, it is estimated, will require the work of at least 25,000,000 people in the mines and on the farms, in the factories and on the railroads and the ships. This means a tremendous industrial expansion. It has already begun. Small factories have become large establishments, and rural communities have become centers of industry.

CONDITIONS OF INDUSTRIAL EXPANSION

Labor was not prepared to meet the requirements incident to this expansion. Our foreign supply has been cut off for four years. The men for the Army are being removed chiefly from the existing supply. To meet the deficiency, women are now doing the work of men, and men are leaving clerical and other less gainful occupations for more arduous but better paying jobs in the war industries.

There is much shifting of labor, probably due to the unusually high wages offered by certain of the war industries, as well as the fact that the recruits do not readily find occupations for which they are suited. This shifting of labor, or "labor turnover" as employers call it, is fraught with possibilities for wastage and expense.

Parenthetically, it may be said in explanation that the term labor turnover expresses the relation of the number of employees who leave to the average number

necessary to maintain the working force, and it implies the replacement of those who leave by the hiring of new people. A turnover of 400 per cent. a year, which is by no means unusual, indicates that a number equal to the whole working force leaves every three months and that an equal number must be hired during the same period.

To develop and maintain a capable man power is a national problem, on the solution of which depends, to a considerable degree, the effectiveness of our expeditionary forces. Although this is a national problem, the position occupied by the manufacturers of war supplies confers on them the obligation of leadership. If they desire to have their establishments manned by stable, capable working forces, they must at least provide the organizations and equipment necessary to select efficient workmen and to maintain them as such.

One hundred and seventy industrial establishments have recently been visited for the purpose of studying the activities of physicians in the industries. These studies have naturally led to a consideration of all activities used by modern industry to stabilize and make efficient the working forces.

It has been observed that the modern employer has these facts in mind: that the most capable workman is (1) healthy, (2) free from worry, and (3) engaged in work he likes and is able to do rapidly and well. Such an employer, so far as possible, selects as his workmen people who are healthy and contented and assists them to remain so; assigns them to work for which they are fitted or trains them for work they may be able to do; and provides them with such supervision, methods and facilities as will enable them to reach and maintain their greatest productivity.

DUTIES OF THE EMPLOYER

The specific duties of an employer who wishes to develop a permanent, capable working force are to provide: (1) a safe, healthy place in which to work; (2) machinery, tools, methods and processes which permit rapid work of good quality, with health and body hazards reduced to a minimum; (3) competent supervision; (4) the organization and equipment necessary to ascertain the type of work an applicant for employment is temperamentally, physically and by training fitted to perform; (5) special facilities for training inexperienced help when qualified workers are not available; (6) physical supervision; (7) protection from communicable diseases; (8) medical and surgical treatment when the employer is responsible; (9) medical and dental prophylaxis; (10) adequate nourishment at cost, or otherwise, during the working days; (11) periods and facilities for relaxation and recuperation when the work is monotonous, concentrating or exhausting; (12) instruction in keeping well and avoiding injury; (13) opportunities for education and advancement; (14) assistance in adjusting difficult social and financial relations, and (15) encouragement of thrift, domesticity, morality and sobriety.

THE PHYSICIAN'S PART IN THE PROGRAM

The special knowledge and skill possessed by physicians peculiarly fit them to assist employers in carrying out the foregoing program, and the most useful industrial physicians are those who are most able to use their abilities to that end. Their activities in so doing are named and discussed under the following headings:

* Read before the joint meeting of the Section on Preventive Medicine and Public Health and the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. *A Safe, Healthy Place in Which to Work.*—By frequent and regular tours of inspection of the establishment and its premises, the physician may assist the employer materially in avoiding the occurrence of insanitary and unhealthy conditions. When this duty is delegated to an engineering or safety department, as it occasionally happens, the physician should arrange to accompany and tactfully to aid the regular inspector. During the tour, observations should be made concerning waste and sewage disposal, washing and toilet facilities, ventilating, illuminating, heating or cooling systems, suction devices, sweeping and cuspidor service, etc.

Bacteriologic analyses of the drinking water should be made frequently and regularly, unless the source of supply is unimpeachable. If the establishment has an installation for regulating the temperature of the drinking water, occasional temperature tests at the faucet should be made.

2. *Machinery, Tools, Methods and Processes Which Permit Rapid Work of Good Quality, with Health and Body Hazards Reduced to a Minimum.*—Certain industrial processes require the use of chemicals which are known to be inimical to health. A knowledge of the effects of these processes on the human body enables the physician to aid the employer in safeguarding the processes in which such chemicals must be used.

Data obtained by the medical department in recording injuries should be made available for the purposes of accident prevention. In this manner, attention may be directed to machines or tools or methods that are repeatedly the cause of injuries.

Research into the physiologic effects of monotonous, concentrating or exhausting operations will qualify the physician to act with the employment department in the placing of new operatives. Such research will also serve to elevate the practice of industrial medicine to a higher scientific level.

3. *Competent Supervision.*—Employers are frequently unable to obtain a maximum of productivity out of their establishments for the reason that they overload some and underload others of their operatives. The intimate information that comes to a physician permits him to supplement the technical knowledge of the employer, and together they are able to distribute equitably the work to be done.

Good will is essential to competent supervision. The industrial physician finds himself many times in a position in which he can bring both employer and employee to an understanding of each other. While this is not a function of medicine, listening to other folk's troubles has become an obligation to physicians whether in the home or the factory. It is a tribute which the whole world pays the physician. The industrial physician should betray no confidences. He should at all times be fair. His position as adviser to the employer and "big brother" to the employees, though delicate, has opportunities which he must recognize in order to succeed as an industrial physician.

4. *Organization to Ascertain the Kind of Work an Applicant for Employment is Fitted to Perform.*—In modern establishments the qualifications of an applicant for employment or reemployment are analyzed before he is assigned to work, and physical fitness is one of the qualifications considered. As the physician is trained to detect bodily impairments, this part of

the analysis is delegated to him. The usual procedure is an inspection designed to bring out the obvious defects, such as cardiac lesions, hernia, varicocele, hydrocele, varicose veins, deformities, imperfect vision and the communicable diseases, including the venereal.

Because of the conditions imposed on employers by the compensation acts, physical impairments that are at all likely to result in incapacity of a disputed origin, or are apt to influence the cause or severity of accidental injuries, are regarded as sufficient causes for rejection. This policy is not in conformity with the most advantageous use to which the information gained by a physical examination could be put, and were the policy continued, eventually some very capable, though physically imperfect, workmen would be kept permanently out of industry.

Fortunately, the urgent need for labor in the manufacture of war supplies has caused a relaxation in the stringency of the rejection of impaired applicants for employment, and the knowledge gained by physical inspection is used for the purpose of defining their limitations rather than as cause for their rejection. The presence of a communicable disease or an obviously disqualifying defect is still considered sufficient to justify rejection. Some establishments have given up physical examinations for the present, because of the shortage of labor.

In one large plant, the following routine was used by the medical department in making inspections of the many applicants for employment: The prospective workman was weighed and measured for height by a clerk. Another clerk tested his vision, one eye at a time, by holding aloft one or more fingers. The applicant then joined a long line of his fellows, and passed, with shirt and trousers unbuttoned in the front, before a doctor who applied a stethoscope to the chest and palpated the external inguinal rings. The query quickly arises. Is it worth while for a physician to do this kind of work? If the physician is to be of use in the selection and the assignment of employees to work, he should make his examinations sufficiently thorough to uncover the true conditions. He should, further than that, gather data that would enable him to make scientific studies of the relations of physical impairments to capacity for work. He should, still further, study conditions under which employees work, in order that he may intelligently advise with the employer as to the effect of working conditions on the health of the workers, to the end that those conditions which impair the health and efficiency of the workers may be eliminated. This he cannot do without full knowledge of the physical defects of the employees when they enter the establishment.

5. *Special Facilities for Training Inexperienced Help When Qualified Workers Are Not Available.*—Employers are finding it increasingly necessary to equip and maintain schoolrooms in their establishments, where apprentices and other untrained applicants for employment may be taught special trades. For instance, a woman is taught to run a machine that was formerly operated by a man.

Here is a splendid opportunity for a physician to tell the new employees how they may avoid illness and injury, particularly if their work involves a hazard, and also what to do when they become sick or injured.

6. *Physical Supervision.*—If the industrial physician is to supervise the health of the employees, he

should examine them with sufficient frequency to keep thoroughly familiar with their conditions of health. Process workers subjected to special hazards, such as lead, should be examined at least monthly. If an employee's production has fallen off, he should be reexamined, unless the reason is evidently not physical. When an employee does not feel well, or has the appearance of illness, the doctor should ascertain the reason by a reexamination. When pathologic conditions have been found they should be checked up by an occasional reexamination. In justice to both employer and employee, a process worker who expects to leave the service of the company should be given a reexamination before being permitted to do so.

7. *Protection from the Communicable Diseases.*—While it may not be practical for a physician to visit personally every employee in the establishment each morning, it should be understood among the foremen and the employees that any person who has a breaking-out, or does not feel well, should be sent to the physician. This service is very necessary during epidemics. There should be thorough cooperation between the public health authorities and the industrial medical department.

8. *Medical and Surgical Treatment When Responsible.*—Laws have placed the responsibility for injuries sustained by employees while engaged at work on the employer, and inasmuch as the employer has to pay the cost, he finds it to his advantage to secure the service of a physician experienced in emergency surgery. The physician obtained his introduction to industry in this manner, and the modern industrial medical department is the creation of the pioneers who saw possibilities for usefulness in the industries beyond the treatment of accidental injuries. It is regrettable that there are still physicians in the industries who do not seem to realize that the repair of injuries is but a small part of the work they are capable of performing.

In a few states, lead poisoning and certain other occupational diseases are compensatable and employers in these states provide medical service for patients suffering from those diseases.

The care of injured employees involves a wide range of professional activities and the further a man develops in industrial medicine, the more he delegates to the specialists. He is rapidly evolving, in a sense, a clearing station for the special practitioners. In fact, the dispensaries of the establishments in large cities have already become industrial casualty clearing stations, and the time will come when many large industries will have sanitarians, epidemiologists, internists, surgeons, oculists, dentists, orthopedists, roentgenologists, bacteriologists and laboratory technicians attached to the staff of their medical departments, even as some of them do now to a limited extent.

This does not indicate that the industries will enter into competition with the individual practitioners of medicine. On the contrary the plan will disseminate a knowledge of the value of competent medical service and stimulate a demand for service of that character outside the industries.

9. *Medical and Dental Prophylaxis*—This is health education by practical demonstration. It consists in the treatment of the many trivial illnesses that occur among industrial people through ignorance or through a lack of a realization of the necessity for the care of the human body. It is applied only under those con-

ditions for the alleviation of which the average person would not seek professional advice. It is limited to the treatment of headache, constipation, colds, the cleaning of neglected teeth, etc.

10. *Adequate Nourishment During the Working Day.*—To obviate the depressing effects of a cold lunch washed down by cold water, employers are now providing restaurants or cafeterias for the noon luncheon and milk, coffee and soup stations for morning and afternoon refreshment.

The physician is in a position to suggest menus that are adapted to the type of employees and the character of their work. Through cooperation with the public health authorities, he is also able to assist in the selection of safe food and milk supplies. He should exercise supervision over the sanitation of the kitchen and watch for the presence of communicable diseases among the food handlers.

11. *Periods and Facilities for Relaxation and Recuperation.*—Many establishments have rest rooms for the use of their employees, especially those industries in which women are engaged. What employees need relaxation, rest or exercise, when they should have it, and for how long a period, are proper questions for a physician to decide.

A few large concerns have country clubs and sanatoriums where run-down people may be placed for restoration. To whom this privilege should be extended, and under what conditions the restoration period should be spent are also questions for the physician to decide.

12. *Instruction in Keeping Well and Avoiding Injury.*—The safety-first movement has impressed employers with the value of education in the prevention of accidents. They also perceive the value of education in the prevention of sickness, and they must rely on their physicians to conduct the instruction.

Whether this should be done through the medium of bulletins, lectures or personal talks depends on conditions and the personality of the physician. This is a field that has wonderful possibilities for usefulness to the physician.

13. *Opportunities for Education and Advancement.*—Special courses planned to prepare industrial workers for advancement are very popular, and the public schools, the Y. M. C. A. and the correspondence schools are all conducting such courses. They provide the doctor with an excellent opportunity to impress the ambitious workman with the value of his own health and to convince him that his ability to advance depends on his physical well-being.

14. *Assistance in Adjusting Difficult Social and Economic Relations and Encouragement of Thrift, Domesticity, Morality and Sobriety.*—There is a tangible relation between a man's home and community life and his industrial efficiency. The greatest sources of worry that beset a workingman are those which belong to his private affairs, yet they are of definite interest to the employer, who realizes that worry is capable of absorbing a tremendous amount of an employee's attention to his job.

Because of the fact that the problems involving the lack of thrift, domesticity, morality and sobriety sooner or later terminate in health problems, the doctor eventually becomes professionally interested. But before these problems become health problems, they are brought to the physician, if he is the type of prac-

tioner who encourages confidences, and he does not need to be a busybody to become interested and to assist.

It must be remembered that when these troubles come into the life of a workingman, they are big and engrossing, and the person who lends sympathetic assistance at that time gains a lifetime of affection. As the one person in an industrial organization to whom the workers may go with their troubles, the physician has an opportunity to do something for the employees that no employer can do, and he has the opportunity to gain for the employer the good will that the latter so much desires and is otherwise unable to acquire.

ON THE FIRING LINE OF INDUSTRY

It is evident from the foregoing that there is much work for the medical profession to do in connection with the movement to conserve our nation's industrial man power. If our country's integrity demands that the energy of our working population be brought to its highest degree of efficiency and maintained at that degree, then physicians are just as greatly needed on the firing line of industry as they are on the firing line of battle.

Unfortunately, when the United States recognized a state of war as existing, the value of industrial medical service was not realized. It was said that the industrial surgeons were just the type of physicians the Army needed, and they were urged to leave the industries for the uniformed service, and now, even though competent medical work is known to be necessary to the adequate production of war supplies, employers are finding it increasingly difficult to obtain the services of qualified industrial physicians.

There are three important causes for this condition. 1. Many industrial physicians have gone into the Army and Navy. 2. The medical men who have the courage to remain in industrial work are crucified on a slacker's cross by popular opinion. They are gradually going into the military service. 3. Other physicians, however well educated they may be for the practice of medicine, have not been trained to apply their knowledge to the purposes for which the manufacturing establishments exist, and are consequently poorly adapted to perform industrial service.

Either the industries must be content with a limited medical service consisting in that which can be rendered by first aid men, nurses, and physicians called in on emergency cases, or there must be devised for them a plan to attract physicians to and train them for industrial service.

SPECIAL TRAINING FOR INDUSTRIAL MEDICAL SERVICE

Such a plan should have government authorization and supervision. Industrial medical service should be recognized as a patriotic service. Competent men should be attracted to it. They should be given intensive courses of training and assigned to industries on request or detailed to industrial districts where several small establishments can be served by one man.

Provision should also be made for the training and assignment of first-aid men, so called, and nurses, who may act as assistants to the physicians.

Conditions outside the industrial establishments which influence the health and stability of the workers should also be considered. If, for instance, it is

necessary to surround the cantonments by zones in which liquor may not be sold and vice may not be trafficked in, it is equally necessary that the working people in the industrial centers be similarly protected.

In times like the present when our national integrity depends on the virility of our national man power, medicine is offered its supreme opportunity. The profession has recognized the opportunity. To win the war is the physicians' supreme purpose; to serve humanity is their supreme privilege.

If great demands appear to have been exacted of the medical profession, they have been inspired by the profession itself. If there have been sacrifices, they were voluntary. If there are to be more sacrifices, they likewise will be voluntary. Medicine is determined to share in the glorious privilege of destroying the "iron cross."

Physicians prefer to serve on the battle front where personal danger is forgotten in the splendid work of restoring our fighting men who become injured to fighting condition. But if the call comes for physicians to enlist in our country's service in order to restore to working condition the working men who become sick or injured, then physicians will just as readily and patriotically offer their services for that purpose.

I have always been proud of my profession—I glory in it now.

656 Spitzer Building.

MODERN INDUSTRIAL MEDICINE *

C. G. FARNUM, M.D.

PEORIA, ILL.

Industrial medicine, in its modern acceptance, is a new field of endeavor. Within the past half decade we have seen it develop from a discredited branch to one deserving and receiving the highest respect and recognition. We have, during this time, seen the day of the old-time company physician pass and the day of the modern, highly trained, industrial medical specialist arrive.

This transition has been so rapid, the growth so wonderful, and its establishment so speedy, that the term modern industrial medicine does not mean industrial medicine as it was practiced a year or two ago. Our ideals of yesterday are obsolete today, and we have vision and faith to believe that our dreams of today will be realized tomorrow.

It is only a few years ago that there came on the industrial horizon a few physicians of a new type. These men possessed foresight. They had a perspective of life. They had courage. They saw more to industrial medicine than the dressing of wounds and the reduction of fractures. It was they who first lost sight of the mass and saw the individual.

It has been this fundamental principle of the value of the human, applied honestly and justly by these men of high ideals and clear vision, that has raised industrial medicine out of the rut of the commonplace and has put it in its present exalted position, where it represents the very essence of human con-

* Read before the joint meeting of the Section on Preventive Medicine and Public Health and the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

servation and stands out as one of the greatest contributions of the present generation to civilization.

Medical men are more or less familiar with the work of a well organized department of medical supervision in a modern industrial plant. They know its scope and its *modus operandi*, but there is one particular phase of that work that I should like to emphasize at this time for clearly obvious reasons. Every applicant is given a complete and painstaking physical examination before he begins work in the plant, and the labor he is asked to perform is largely influenced by the physical findings in his individual case.

The number of physically perfect specimens is not great in normal times, and with the withdrawal from industry of large numbers of men for military service, the physically perfect ones are becoming fewer each month. This matter of physical defects has been emphasized for some years by industrial medical men and has been very strikingly reemphasized by the recent draft examinations. Therefore, since the bulk of the work in the industries is and has been done by men of greater or less degree of physical deficiency, how important it becomes that each worker shall be placed at work compatible with his physical condition in order that he may be able to utilize to its utmost the talent he possesses, and that his days of productivity shall not be shortened!

In these days of industrial stress, when every energy is strained for the realization of adequate war export surplus production, this is vitally important. We are facing the twofold problem of the need of greatly increased production with a greatly decreased number of producers, most of whom are defective.

Conservation is the slogan of the day, and we men of industrial medicine are clamoring for the conservation of the worker. We cry out against the wanton wastefulness of the old days and the old methods. We break boldly with the false philosophy of burning the candle at both ends and of tossing the burned-out remnant aside when it is no longer useful. We maintain that every man who is not a menace to his fellow workers by contagion is capable of doing some work safely and of doing it well. Our task is to get the man and the job mated up. This, then, is the work of the department of medical supervision and its correlated departments of employment, safety and welfare.

I have walked through industrial plants and in an hour have seen a hundred jobs filled by apparently able-bodied men, which could have been done equally well by a cripple or a defective. And the same day the employment department of that plant was refusing employment to the very cripples who could have done that work. Is that industrial conservation? Is it strange that the so-called irreducible minimum of unemployment is still so large?

In our plant, the superintendent of safety has but one leg and by that very token is more valuable as a safety man than if he had two legs. Recently eight men came into my office at one time for examinations. One was minus an arm, two were each minus one leg, and one was minus both feet. Did we utilize them? We certainly did, and these men are doing the work they were given to do as efficiently and are receiving the same wage for it as though they possessed all their extremities.

In a really modern industrial plant, where the department of medical supervision is worthy of the

name and where the safety engineer and the superintendent of employment are alive to modern needs, the individual jobs are classified and indexed as to availability for physical defectives. How simple the whole procedure then becomes! What matters it how many arms, or legs, or eyes, or ankylosed joints a man chances to possess?

I need not go further into this problem. Its scope and application are obvious. But the men must be constantly watched, frequently reexamined, unceasingly supervised.

Some of us have statistics concerning a period of years that bring out two striking facts in connection with this work: first, that the labor turnover varies inversely as the physical defects of the laborer, and second, that the worse the physical defect, the less the accident incidence. These statistics may be considered the measure of the physical and mental compatibility of the man with his job.

Of late we have heard much of the problems of the returned crippled soldier, of what can be done with him, of how he is to be reestablished in industry and society. The men of modern industrial medicine believe that they have contributed much to the solution of this problem of the crippled soldier. The Army officials have accepted the responsibility for his reconstruction and education. His reestablishment in the industrial world lies in the hands of the industrial medical men and the industries they represent. Their plan has been developed and in some of the plants has been in active use for a few years. They have proved its worth among industrial defectives and are ready for the added task of the war cripple. The industries in which this work is being done are waiting to prove their capacity and those plants in which such work is not done must be modernized.

This, then, is the thing for which industrial medical men ask: the safe utilization of all workers, the conservation of the energy and strength of every worker. We must have it, if the reduced and defective army in the industries is to maintain our growing army overseas.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SELBY AND FARNUM

DR. J. W. SCHERESCHEWSKY, Washington, D. C.: The point Dr. Farnum made, that it is necessary to utilize all sources of man power, is one that should be impressed on the mind of the managers of all industrial plants. In the past, owing to the provisions of our compensation laws, we have used the method of medical examination as a selective process by which we could induct into the industry those best fitted, from a physical standpoint, to yield the largest return from a production standpoint on the wages they earned. As in many other cases, we have gone on the supposition that the most perfect physical specimen was necessarily the most efficient man. When we proceed on these premises we lose sight of the fact that we create from those who suffer from one physical defect or another a special class, against whom we discriminate. Although one possess a defect, that fact need not affect adversely his ability to produce. Certainly, a man who has lost a leg may not have his physique impaired thereby. His digestive apparatus and vascular system may still be far superior to that of one who possesses all his limbs. When we refuse employment to such men we disregard a source of potential energy which might be used to great advantage in industry. We thus omit an important way by which our labor forces can be made much more effective than they have been in the past. I cannot commend too greatly the necessity of utilizing to the fullest extent, no matter what their physical impairment, all the men we can.

Dr. Selby has given us a most comprehensive résumé of the problem which confronts the profession in conserving the man power of the nation and the means by which this can be carried out effectively. I agree with him that in the medical profession there are two things essential to winning the war. The first is the care of the military forces. Like Dr. Selby, I cannot too greatly express my pride in the way the medical men of the nation have responded to the call for that service. But behind that, is the conservation of the industrial group of the population. There, too, is a field in which the medical profession can give its services toward the increasing of efficiency, and it is at present freely doing so. It is only right that the industrial physician should receive from the medical profession and the public a proper recognition of their services.

DR. CHARLES G. FARNUM, Peoria, Ill.: There used to be talk of the number of rejections that we make among the applicants for the work. In some cases, these rejections ran over 18 per cent. When a man tells me that he rejects 18 per cent. of all applicants, I know he is doing poor work. He has not classified the work of his industry so as to utilize the men. You cannot take men with smallpox, malignant syphilis or tuberculosis, of course; but you cannot classify these men as on the labor market. They belong in an isolation hospital. Yet with these cases included, our rejections run much less than 1 per cent. If they run higher, your jobs are not classified as they ought to be; because practically every man is able to do some job safely and correctly. How many plants will put an epileptic to work? Yet places can be made even for epileptics.

I should like to bring out again forcibly the two points I made in this paper: The importance of a careful physical examination, and the importance of an improved classification of the jobs, in order to get the man and the job together.

DR. CLARENCE D. SELBY, Toledo, Ohio: The obligation of the profession toward the industrial man power is not alone the obligation of the industrial physician, but of the orthopedist as well. That was my object in reading the paper. The accidents that occur in the industries can be influenced materially by the adaptation of orthopedics to the care of the men injured. The specialists and all of the medical profession have obligations toward the industrial life. The health officer, which I have been, has the best opportunity of all to reach the productive masses over which he has authority; and the health of the community and the activities in the industry are essential to maintaining the man power and creating a new industrial man power. Those engaged in child welfare work also have wonderful opportunities.

Vaccination Against Smallpox and Typhoid Fever.—The Secretary of the Treasury Department recently issued the following notice to persons in charge of establishments manufacturing war materials: From the standpoint of health conservation and labor efficiency, it is imperative that such communicable diseases as smallpox and typhoid fever be prevented in all establishments manufacturing materials for the federal government. This is of special importance at the present time in view of the constant movement of labor from one locality to another, which facilitates so greatly the spread of disease. The experience of every civilized country shows that complete protection is furnished against smallpox by vaccination, and temporary immunity against typhoid by inoculation with typhoid vaccine. In order to prevent such diseases, on the recommendation of the Surgeon-General of the United States Public Health Service, persons in charge of plants engaged in the manufacture of war materials are urged to require every person employed under them to be vaccinated against smallpox and inoculated against typhoid fever, as now done in the case of our military forces. The need for them has already been demonstrated by the occurrence of isolated outbreaks of smallpox in establishments engaged in the production of war materials through imported labor. The Public Health Service is ready to cooperate in enforcing these measures, and any persons calling at any of the service stations will, on request, be vaccinated against smallpox or typhoid fever free of cost.

DIAGNOSIS IN TRAUMATIC NEUROSIS *

WALTER F. SCHALLER, M.D.

SAN FRANCISCO

Opinions regarding the outlook for recovery in accident neuroses, commonly known as "traumatic neuroses," vary widely by the writers on this subject. Formerly this question of prognosis was studied in the subsequent medical history of persons injured in railway accidents, and afterward developing a neurosis. In this connection, the often quoted and striking statistics of Braun are interesting. This investigator studied the relative frequency of the neuroses following railway accidents in the ten years preceding and the ten years following the Austrian accident insurance law of 1895. Whereas in the period preceding the enactment of the law no case of disability was noted attributable to a purely nervous state, in the ten years following forty-six such cases were observed. From this investigation, traumatic neurosis and accident compensation appeared to be very intimately related. Pearce Bailey¹ cites Page, who studied the proportion of recoveries in 234 persons injured on the London and Northwestern Railway and found that considerably more than one half of the patients recovered eventually, although recovery was often delayed. His inquiries were made in the larger number of cases after two years' time following the accident. Bailey himself intended to investigate the prognosis in railway accidents on American railways, but found the plan impracticable. In another communication of this writer,² eight cases of traumatic hysteria were studied from the standpoint of prognosis and based on the subsequent history of these cases. Rumpf and Horn³ at a later period (1912) on the continent reported the outcome of 136 cases of railway accident neuroses, where compensation had been settled on a cash basis. Seventy per cent. of these were cured; 16 per cent. improved. Contrasted with this type of compensation, the pension method in 172 cases quoted from Stursberg showed 25.5 per cent. cured or improved. These authors classify the accident neuroses by etiologic considerations, and speak of direct and indirect causes corresponding to primary and secondary neuroses. To the primary neuroses belong the fright neuroses, the shock neuroses, the local neuroses, the neuroses following general shock commotion, and those due to combined effects. To the secondary neuroses belong the manifold causes and manifestations growing out of the struggle for a pension, and other psychic influences, not necessarily dependent on trauma. The prognosis is considered in relation to the different primary group forms for recovery and duration of disease; also in relation to the physical condition and to a neurotic disposition previously existing.

The prognosis as regards industrial disability is attempted from the purely clinical standpoint by Paul Schuster (Lewandowsky's system). The following types are classified: (1) simple neurasthenic type, disability, 25 per cent. or less; (2) neurasthenic type,

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Bailey, Pearce: *Diseases of the Nervous System Resulting from Accident and Injury*, New York, D. Appleton & Co., 1908.

2. Bailey, Pearce: *The Prognosis of Traumatic Hysteria*, etc., *Med. Rec.*, Aug. 24, 1901.

3. Rumpf and Horn: *Sechste Jahresversammlung der Gesellschaft, Deutscher Nervenärzte*, *Ztschr. f. Nervenhe.*, 1912, 358.

with prominent spinal symptomatology, disability from 40 to 75 per cent.; (3) hysterical type with contractures, disability in the neighborhood of 50 per cent.; (4) type of neuroses occurring in psychic constitutional inferiority (psychopaths, mental defectives), disability complete or very resistant to treatment; (5) vasomotor type, disability 33.5 per cent.; (6) tremor type, disability in serious forms (pseudospastic paresis), complete or 75 per cent. impaired; (7) type with outstanding psychic depression, in severe forms, disability complete; (8) hypochondriacal querulous type, disability in severe cases complete, especially when based on desire of compensation. In such cases, compensation has been denied by legal decision.*

Naegeli,⁵ in Switzerland, reviewing the recent literature regarding the prognosis of traumatic neurosis discerns a tendency toward an unfavorable outlook (Kraus, Aschaffenburg, Bruns, Huguenin). His own investigation (138 cases) shows a most favorable outlook for recovery after settlement of compensation. In fact, Naegeli has not observed a case of pure traumatic neurosis of persisting, serious, industrial disability in an uncomplicated traumatic neurosis, and without denying the possibility of such cases, challenges his colleagues to produce such cases.

Dercum,⁶ in studying the outcome of a series of litigated cases after settlement, emphasizes the rapidity of recovery after monetary adjustment of their claims. He speaks of "indecent haste" of their restoration. Mayer,⁷ in an excellent discussion of the subject of traumatic neurosis, in the chapter on "Incidence and Recoverability," reviews important recent opinions regarding outlook for recovery. Zenner⁸ quotes Putnam (25 per cent. or less invalided); Knapp (improvement in not more than half of cases).

The American literature dealing with the question of recoverability is quite sparse. The importance of this aspect and the considerations which determine it are evident, particularly at this time. Industrial insurance and compensation is in effect in many of the states and will ultimately extend to all of them. The war psychoneuroses known as shell shock, which are essentially a group under this heading, must receive attention and disposition in increasing numbers. With the return of our sick and wounded soldiers, there will be many claims for pensions in those suffering from functional nervous disorders, and it is in these cases that secondary neuroses are particularly prone to develop by reason of the ready sympathy for the disabled man who has served his country and the suggestion of the very term shell shock interpreted to mean something akin to physical shock. Colonel Colin Russell of the Canadian Medical Department has recently stated that soldiers returned from the front with so-called "shell shock" bear a diagnosis of "nervousness—sick," "nervousness—wounded." It is, therefore, urgent that inquiry be made as to the final outcome in such cases of accident neuroses that are available at present for investigation. With these points in view, as referee medical examiner for the Industrial Accident Commission of California, I

recommended that a study be made of the subsequent course of all industrial accident neuroses which had occurred since the enactment of the California Compensation Act, Jan. 1, 1914. Through the efforts of C. B. Hensley, statistician of the commission, a special agent was appointed and started his investigation of these cases in June, 1917, continuing until April 1, 1918. During the months of July, August, September and October, 1917, this special agent, G. F. Hensley, a senior medical student of the Stanford University Medical School, especially selected for this work, was able to investigate fifty cases out of a total of 105 in the records of the commission and from my own personal records. In all but four of these fifty cases, the patients were personally seen (the four being communicated with by writing), and in all but two of them the factor of recompense for disability was present. It is due to the accurate and conscientious work of Hensley that this thorough investigation was made possible. Six thousand miles were covered, mostly in automobile, from Eureka to Los Angeles. Of these fifty cases, thirty-four have been previously personally examined and diagnosed by the writer. The complete records of these cases and other details not mentioned in this article may be found in the graduation thesis of G. F. Hensley, Stanford University Medical School, Lane Library, 1918, "Prognosis of Traumatic Neurosis." Each case history was abstracted after the following form:

Name of injured. Address. Sex. Age. Nationality. Married. Wage. Occupation. Employer. Date of Accident. Causes of Accident and Injury (objective). Indirect causes (subjective). Nature of injury. Status of injured immediately following injury. Symptoms of neurosis and onset of same. Disability resulting from injury. Improvement and decline. Medical or surgical treatment. Attitude of injured toward treatment. General examination. Special neurologic examination.

On a separate form, the results of the investigation were made in the character of a questionnaire:

A. Name, date.

B. Complete outline.

Dependents: Nature and amount of compensation; insurance payments promptly made? Is compensation or settlement satisfactory? Present medical treatment; was former treatment satisfactory? Employed now? If idle, why? Present occupation, wage, employer? Detail course of disability, with jobs held, wage, etc. How is money need? Belief of seriousness of trauma. Unfavorable suggestion by relatives and friends. General environment. Evidence of simulation or exaggeration. Psychic status of patient; cheerful or depressed. Detail present condition in reference to previous examinations. Photos taken. Permission to publish.

From the foregoing records a table was compiled with reference to cases recovered, cases industrially rehabilitated—able to resume work satisfactorily, but still troubled by symptoms of neurosis—definitely improved, but not yet restored to usual earning power, and cases not improved. Under these headings a percentage was figured on an analysis of the different factors having an influence on the establishment and continuation of the disease. These were age, sex, character of original injury, number and nature of symptoms, clinical classification, predominant mood, residual organic lesions, unfavorable environment, unfavorable suggestion, fixed ideas and nature of compensation—whether periodic payments or final settlement. Finally, a consideration of the entire series was made in reference to average, minimum and maximum

4. Schuster, Paul: *Handbuch der Neurologie*, 5, Spez. Neurologies, IV, p. 1105.

5. Naegeli: *Cor.-Bl. f. Schweiz. Aerzte*, 1910, 40, 33.

6. Dercum, F. X.: *Hysteria and Accident Compensation*, Philadelphia, G. T. Bisel, 1916.

7. Mayer, E. E.: *The Traumatic Neuroses*, *THE JOURNAL A. M. A.*, Sept. 22, 1917, p. 958.

8. Zenner, Philip: *Traumatic Neurosis*, *THE JOURNAL A. M. A.*, April 13, 1907, p. 1260.

time between injury and investigation; average time from injury and recovery from symptoms; from injury till return to work, and from final settlement till return to work. A study of the accompanying table will enable the reader to more clearly follow the opinions and conclusions deduced from this study. Although this series of cases is not a large one, yet in my opinion

different types of neurosis. Also, primary and secondary neuroses were not definitely separated but indicated in the general headings of unfavorable environment, unfavorable suggestion and the all important consideration of wish fulfilment regarding compensation. The foregoing considerations would justify the opinion that a study of the individual case by a person or persons experienced in these cases is necessary to an exact prognosis, if at all possible. However, from the practical standpoint it seems imperative that we must in some way classify and attempt to fix the probable duration of disability in cases of neuroses at their onset for the benefit of not alone the insurance carrier, but also from other economic reasons, and particularly from the standpoint of the benefit to the patient himself. Although the question of simulation deals particularly with diagnosis, it may be here stated that we have found frank simulation a rare condition, although exaggeration not infrequent.

The following comment may be made in an analysis of the tabulations:

Entire Series: Seven cases (14 per cent.) show satisfactory recovery; thirteen cases (26 per cent.) are industrially rehabilitated, although still somewhat complaining of their symptoms; eighteen cases (36 per cent.) definitely improved; twelve cases (24 per cent.) not improved. Or, 40 per cent. show complete restoration or earning power.

Age: Age is apparently unimportant, but it is to be remarked that of the twelve cases of under 30 years of age, no one case has recovered completely.

Sex: Although the women show a greater tendency to partial recovery, not one is entirely relieved of symptoms.

Original Injury, Character of: The severity of the original injury apparently bears no relation to the outlook for recovery. In fact, in those whose injury was classed as severe, more have been restored to industrial efficiency than those classed as mild cases.

Symptomatology: An attempt has been made to divide the cases into major groups of hysteria and neurasthenia, although often there is a mixed condition present. Those cases, however, showing predominantly hysterical symptoms, show a much more unfavorable prognosis compared with the neurasthenics, or compared to the total series.

Psychic State: The cheerful patients as compared with the depressed ones show a marked contrast in the percentages of complete and partial recovery in favor of the cheerful cases; conversely, a large percentage of unimproved cases (43 per cent.) in the depressed. In the unrecovered patients, the psychic condition may be logically assumed to be one of depression, but the psychic status was considered at the first examination, when obtainable.

Residual Organic Lesion: Visible effects of injury, such as scars, bony deformities and deficiency of soft parts influence the outlook unfavorably, as is clearly shown in the table.

Unfavorable Suggestion; Discontent: Confirmed belief of the seriousness of the injury and disability, improper treatment and unfair settlement usually appear in the same case. In thirty-four such cases the percentage of recovery for work is quite small, 235 per cent. The reason for this state of mind is not always due to unfavorable environment or suggestion, in the usual surroundings of the patient, including solicitous and sympathetic friends and relatives, but may be due in far greater measure to a mistaken diagnosis and direct suggestion of serious and perhaps permanent disability from the attending physician; improper treatment due to a mistake in diagnosis, the condition being considered organic and treated as such; or, indeed, no treatment at all, as patient is referred from one physician to another for opinion incidental to ratings, etc. Finally, compensation, while not being denied, is withheld pending a rating, or for other reasons and the patient, a wage earner in need of the necessities of life, becomes discouraged and believes himself a victim of unfair treatment. Or depressed and fearful that by resuming work

PROGNOSIS OF TRAUMATIC NEUROSIS

	Number of Cases	Recovery, Satisfactory per Cent.	Industrial Rehabilitation (Able to Resume Work Satisfactorily, but Still Troubled by Symptoms of Neurosis), per Cent.	Definitely Improved but Not Yet Restored to Usual Earning Power, per Cent.	Not Improved, per Cent.
Entire series	50	14	26	36	24
Under 30 years of age.....	12	0	42	58	0
From 30 to 50 years of age....	23	22	22	22	31
Over 50 years of age.....	15	13	20	40	27
Male	42	17	19	36	28
Female	8	0	62.5	37.5	0
Original injury negligible or mild	12	8	33.5	25	33.5
Original injury severe	28	21.5	28.5	36	14
Symptoms few, closely related..	18	16.5	16.5	44.5	22.5
Symptoms many, widely variant	30	13	30	30	27
Symptoms of neurosis, diagnosed "hysteria"	28	7	18	39	36
Symptoms of neurosis, diagnosed "neurasthenia"	22	23	36	32	9
Psychic status cheerful.....	18	28	50	22	0
Psychic status depressed.....	28	0	11	46	43
Residual organic lesion present	19	5	26	32	37
Residual organic lesion not present	23	22	35	30	13
Unfavorable environment or suggestion	23	4	35	35	26
Confirmed belief of seriousness of injury and disability, improper treatment, unfair settlement	34	9	14.5	44	32.5
Nature of Settlement:					
Periodic payments till termination of disability.....	14	7	21.5	28.5	43
Periodic payments for 6 mo. or longer, but final lump sum settlement	10	30	10	50	10
Periodic payments for defined period, now ended.....	13	0	54	38	8
Periodic payments for defined period not yet ended, but injured man may resume work	4	0	0	0	100
Early lump sum settlement..	6	33½	33½	33½	0
Entire series	50	Mo.	Mo.	Mo.	Mo.
Average time between injury and investigation .....	..	21	24	25	27
Maximum time between injury and investigation.....	..	39	37	41	45
Minimum time between injury and investigation.....	..	7	7	12	9
Average time elapsed between injury and recovery from symptoms of neurosis.....	4	11			
Average time from injury till return to work.....	..	6 eases 11	10 eases 8	7 eases 18	
Average time from injury till return to work for all eases, where known, 11.8 mo.	23				
Average time from final settlement till return to work.....	..	4 eases 7	4 cases 9	5 cases 4½	
Average time from final settlement till return to work for all eases, where known, 6.7 mo.	13				

the investigation is of distinct value. Etiologic considerations and clinical types are considered in this table in their general aspects only, as it was not thought advisable to further complicate the table by an analysis of the initial injury respecting emotion (fright) and bodily injury, which later factor might be further subdivided into bodily traumata of different sorts, leaving in their wake, after recovery from somatic symptoms, suggestion by psychic fixation, which would lead to the definite establishment and perpetuation of the

he will aggravate his condition and be unable to continue, thereby losing compensation, he is either unwilling to begin or is soon discouraged by his hypochondriacal symptoms. This group is in striking contrast in percentage of recoveries to that of the cheerful psychic group.

Nature of Settlement: Of all the factors which enter into the course and duration of the accident neuroses, the question of compensation is one of the most important, and its great psychic influence in a considerable proportion of cases cannot be denied. There is almost a consensus of opinion that in the mental make-up of certain persons an accident neurosis may be unfavorably influenced, even perpetuated and aggravated by the pension system. However, that this is not true in all cases is seen in an analysis of fourteen cases, in which the patients received payments until termination of disability, three recovering industrially under the periodic payment plan. On the other hand, six patients out of the fourteen were not improved, which confirms the original contention. The cases showing lump sum settlement proved the most favorable for recovery, early lump sum settlement (six cases) being more favorable than in those cases (ten) where the patients had received periodic payments and a final lump sum settlement. As regards the question of compensation in general, it may be stated that in the group of patients showing industrial rehabilitation, but still presenting some symptoms of neurosis, classifying these cases as undoubtedly accident neuroses there were two patients not receiving nor having received industrial compensation.

Duration:

(a) Between injury and investigation: In the entire series of fifty cases, the lapse of time was about two years on an average, in the different headings, as regards progress. The longest period was three years and nine months; the shortest, seven months.

(b) Between injury and recovery from symptoms of neurosis: In all only four cases were available, and the average of these was eleven months.

(c) Between injury and return to work: Average time for all cases (twenty-three) where known was 11.8 months. For various reasons, this time could not be set in a number of cases.

(d) Between final settlement and return to work: Average time for all cases (thirteen) where known was 6.7 months. In these cases, however, the average total disability was 15.8 months.

The following abstracts are from illustrative cases in the series.

Case of Complete Recovery Following Early Lump Sum Settlement.—S. O., man, aged 40, a machine worker, making \$21 a week, was injured Oct. 16, 1916, when a staging gave way, so that he fell 70 feet down a steep slope. He received several scalp wounds and probably had a concussion of the brain; in addition, he had contusions of the body, both shoulders and the left ankle. He was unconscious for several hours after the accident. On examination by a neurologist, Dec. 1, 1916, he complained of the following symptoms: dizziness on stooping over and when lying down; continual pain in the head and neck; insomnia; excess of sweating, and weakness of the left foot and ankle. He was noticed to be well developed and well nourished. His hand grips registered by dynamometer: right, 28 kg.; left, 24 kg. The only findings were slight tenderness in the left parietal region on percussion and deafness in the right ear, which, however, had been present from childhood. The diagnosis of traumatic neurosis was made, and a complete recovery was predicted within one month. Final settlement was made the injured man, Dec. 26, 1916, when he was awarded \$49.78 as full compensation. Frequent letters from him during the early part of 1917 indicated that the neurosis still continued. At one time, he reported increasing disability from pain in the neck.

When seen by the investigator, Sept. 23, 1917, he had resumed his former employment. After his accident and until February 1, he was employed as a watchman at the mine and, thereafter, until April 1, he did easy work on the hoist. Since April 1 he had been doing machine work at his previous wage, \$3.50 a day. He stated that the increase of pain in neck, which he had reported, was temporary only, and since that time all his symptoms had gradually improved. His dizziness was gone early in the spring of 1917; he suffered no more trouble from sleeplessness, and there was no tenderness in his head. He still had occasional pain in his neck of slight degree and short duration, and his left ankle was still a little weak. Dynamometer readings of his hand grips were: right, 51; left, 47. It was evident that the traumatic neurosis was, for all practical purposes, cured.

Case of Complete Recovery Following Final Lump Sum Settlement.—B. W. J., man, aged 37, an iron worker, making \$27.50 a week, was injured Oct. 7, 1915. He stumbled into a hole 2 feet 4 inches deep and was struck several times in the back by one end of a 200 pound steel bar, which he had been helping another man to carry. His body was bent over the side of the hole. The exact nature of the injury which he received is questionable. On roentgen-ray examination, there was evidence of a fracture of the tip of the transverse process on the right side of the first lumbar vertebra, with a displacement of the fragment. There was also possibly a subluxation of the right sacro-iliac joint. Immediately after the injury, this man was unable to walk unsupported, and complained of great pain in his back. When seen by the neurologist, Sept. 19, 1916, he complained of the following symptoms: pain in the lumbar region and in the back of the neck, increasing after walking, so that he has great difficulty in getting around; impairment of vision in the left eye; general nervousness and tremor; sleeplessness; a quivering sensation in the upper abdomen; dizziness on stooping over; loss of weight and loss of appetite. On examination, the injured man was found to be a well built, well nourished man. There was tenderness over the lower lumbar and upper sacral spine and at the right sacro-iliac joint. There was limitation of movement at the hip, especially the right, and in walking the right leg was favored. Excessive perspiration was noted. The hands and feet were cold and cyanotic. The fingers trembled, especially those of the right hand. Deep reflexes were overactive. There was distinct muscular incoordination. Diminution of sensibility was present in the right leg below the hip, of the hysterical segmental type. His hand grips registered: right, 40 kg.; left, 39 kg. Diagnosis of traumatic neurosis was made, with prognosis of disability of indefinite duration. The patient had an exaggerated idea of the seriousness of the injury which he had suffered. He criticized very severely some of the treatment which he had received, and blamed his condition partly to that cause. He had a wife and two sons to look out for. His wife took a more serious view of his condition than did the patient himself and did not believe that he would ever be able to work.

Compensation was allowed for temporary total disability from the date of the accident until Oct. 6, 1916, when a lump sum settlement of \$1,995.49 was made. Previous to this lump sum, the injured man had received \$937.50, making total \$2,932.99. When first seen by the investigator, June 16, 1917, he was

working as foreman on iron construction work at \$36 a week. He had started to work April 1, 1917. He still complained of some pain in the right lumbar region and stated that his eyes bothered him, so that he wore dark glasses in the bright sun. He also suffered occasionally from sleeplessness. His other symptoms seemed to have been entirely relieved. All his severe pain had gone by February, 1917. His gait was normal. He seemed to be of distinctly nervous disposition. A slight tremor was still present in the extended fingers. Otherwise, the examination was negative, except for slightly overactive deep reflexes. The dynamometer readings registered: right, 57 kg.; left, 58 kg. The injured man stated that he was unable to do the heaviest work in connection with his employment, but when observed two months later at construction work, it was evident that he was probably the most active man on the job. At this time, he stated that his disability had practically ceased, and that he felt as good as ever. He passed the army physical examinations and was enrolled in the Second Reserve Officers' Training Camp at the San Francisco Presidio, during the fall of 1917. He was, however, discharged from the camp Nov. 20, 1917, the cause being unknown. This man's recovery from his injury was apparently complete, following within a few months of the lump sum settlement made him.

Case Unimproved, with Industrial Disability Complete After Final Lump Sum Settlement.—B. F., man, aged 35, a laborer, earning \$17.50 a week, was injured June 7, 1915, by being struck on the right elbow by a heavy timber, as he was holding on to another timber with his right hand. He thereby suffered a fracture of the second right metacarpal bone at the proximal end and contusions of the right elbow. The injured limb was put up in a cast and, on removal of same, a tremor developed. Associated with this, the injured man complained of pain in the arm like a "severe electric shock," which was especially bad in the forearm and radiated to the ends of the fingers. There was great impairment of strength in the right hand. He was very much depressed over what he considered to be an extremely serious injury, which he had suffered in the right arm. He thought that his elbow was very badly damaged, although roentgen-ray examination showed absolutely nothing abnormal. There was some residual deformity of the right wrist, as a result of the fractured metacarpal bone. A wife and two young children depended on him for support. On March 13, 1916, in order to dispose of the case, a rating was made of partial permanent disability to the extent of 33½ per cent., for which the injured man was to receive compensation at the rate of \$9.38 a week for 134 weeks. In order to enable him to start business on a leased poultry ranch, a final lump sum settlement was made him, Dec. 8, 1916, amounting to \$480.10, which represented commutation for all the payments not yet due. The injured man claimed later that he did not understand that this was the termination of his compensation, and he was thoroughly convinced that he had been cheated. He was seen by the investigator, Jan. 21, 1918. At this time, he was in no employment and reported that the poultry ranch which he had undertaken had proved a failure. A well marked coarse tremor of the right upper extremity was noted, not limited to any special muscles. By distracting his attention, the tremor stopped. On attempting muscular effort, the tremor was greatly exaggerated. The hand grips registered: right, 8 kg.;

left, 37 kg. The subjective sensations in the right arm were as above described. The great increase of pain and tremor, whenever he tried to do any work, prevented him from resuming any occupation. He stated that his arm is a little better than it was a year previously, but any improvement must have been very slight. He also stated that he was entirely destitute and without any income. Three treatments by hydrotherapy were applied to his right forearm and hand at the Stanford University Clinic, but no improvement was noted in his condition.

Case of Complete Recovery Under Periodic Payments (Pension) Until Termination of Disability.—C. L., man, aged 54, a teamster, making \$21 a week, was injured June 18, 1915. As he was pulling on a barrel with a hook the stave broke, and his right arm was thrown backward. He suffered a sprain at the shoulder joint. He was seen by a neurologist Sept. 21, 1915, after the examining surgeon had found no evidence of local trouble in the shoulder joint. At this time he complained of pain in the right shoulder on movement; inability to elevate the arm to more than 75 degrees, and weakness of the right arm at the shoulder. Examination found weakness of some of the muscles of the right arm. The dynamometer readings were: right, 36 kg.; left, 40 kg. There was some pain in the shoulder joint, on passive motion. Voluntary motion in the effort to elevate the affected extremity was attempted in a bizarre fashion. He had become irritable of late. He had been told by a physician who had previously examined him that he had received a serious organic injury to the affected shoulder. The electric reactions of the muscles were normal, and a diagnosis of traumatic neurosis was made, with a possibility of simulation; neuritis, or bursitis was not considered to be present. This man thought his injury was much more serious than it actually was. He believed all the cords and muscles about his shoulder were torn. A dependent family added to his worries. He received compensation for total disability until he returned to work, the final payment being made him Oct. 2, 1915. When seen by the investigator, June 17, 1917, he reported that he had resumed his former employment at part wages, Sept. 30, 1915. He is still holding the same job at a better wage than he was getting when hurt. He was very cheerful and reported his general condition to be entirely recovered. He "felt good," but had some trouble in his right shoulder, especially in cold weather. However, the movements of this shoulder were normal. His hand grip registered: right, 44 kg.; left, 41 kg.

Case of Industrial Recovery Under Periodic Payments (Pension) Until Termination of Disability.—W. P. L., woman, aged 17, an apprentice stock clerk, earning \$20 a month, was injured Nov. 3, 1916. She fell from a shelf, on which she was standing, to the floor, striking her head. She thereby suffered contusion of the scalp on the right side. She was unconscious for a few minutes following the injury and afterward was dazed, complaining of pain in her head. She had to be taken home in a taxicab. When seen by the neurologist, Dec. 9, 1916, she complained of the following symptoms: pain in her head when she tried to work or use her eyes; dizziness, especially when standing up; loss of appetite; sleeplessness; loss of weight; nervousness; easy fatigue. On examination it was noted that her extremities were cold. There

was excessive perspiration. The extended fingers showed a coarse tremor and the tendon reflexes were overactive. A diagnosis of traumatic neurosis was recorded, with a prognosis of disability of indefinite duration, probably from four to six months. This girl was not especially depressed over her condition, although she did feel that the nervousness which resulted from the accident would hinder her future success. While she had a pleasant home with her parents, nevertheless there is evidence that her symptoms were at least partially to be accounted for by suggestion on the part of her mother. The injured girl was allowed compensation for the time that she was away from work, until she was able to return, a total being paid her of \$27.40. When seen by the investigator, June 15, 1917, she was in the same employ as when the accident occurred. She first attempted to work one month after the accident, but after a few days she discontinued work and remained absent until Jan. 15, 1917, since which time she has remained steadily at work at the same wage as before. She still suffers, however, from pain in her head and dizziness. Her fingers are still tremulous, and she states that she is very nervous. The coldness of the extremities and the excessive perspiration still remain. She appears to have regained normal weight and no longer suffers from loss of appetite. Although, on the whole, her symptoms were but slightly relieved, it appeared that they were not of sufficient severity to interfere with her usefulness.

Case Not Recovered Under Periodic Payments (Pension) Until Termination of Disability.—J. C., man, aged 36, painter, making \$29 a week, was injured Sept. 24, 1914. As he was on his way to work carrying a ladder on his right shoulder, he slipped and fell on his left shoulder and back. He suffered a multiple fracture of the left scapula (spine, acromion process). In addition, there was evidence of injury to the spine in the lower cervical region. The injured man was seen by a neurologist, June 23, 1915. At that time he complained of the following symptoms: numbness of the right arm, especially in his hand on the ulnar side, and weakness and trembling of the right hand; pain in the left shoulder and back of the neck; nervousness; insomnia; loss of appetite; loss of weight (20 pounds), and change in disposition. On examination, the neurologist noted a fairly well nourished man, with a distinctly worried expression. A coarse tremor of the right arm, forearm, and hand was seen. When both hands were extended, tremor was noted in each. The dynamometer readings of hand grips were: right, 10.5 kg., left, 18.5 kg. Atrophy of the dorsal interosseous muscles of the right hand was noted. There was loss of sensation on the ulnar border of the hand and forearm, with complete loss of all sense of feeling below the cuff. Electric reaction indicated complete reaction of degeneration of the dorsal interosseous muscles of the right hand, with partial reaction of degeneration of the adductors and abductors of the thumb and the flexors of the little finger. The electric reaction indicated a definite injury to the nerves supplying the muscles, so that the neurologist diagnosed "traumatic radiculitis," "traumatic neurosis," the two separate conditions being both considered to be present. It was impossible to state whether the injury to the nerves or the traumatic neurosis was the main cause of the weakness of his hand. Oct. 6, 1915, the neurologist found the hand grips registered: right, 30 kg.; left, 30 kg. This man

appeared to be very much depressed over his condition. He had present before his eyes a visible atrophy of certain muscles of his right hand, which tended to increase his belief in the seriousness of his condition. He realized that his injury was of his left side, but believed that the numbness had extended up through the nerves over to his right arm. He owned his own home and had only a wife dependent on him for support. Some of the physicians who attended him told him that the pain he felt in the back of his neck was due to an injury of the nerves. Aug. 28, 1915, he was allowed compensation from the time of his accident, of \$17.81 a week, for temporary total disability. This compensation was to continue until the termination of the disability. The investigator found on his visit, June 17, 1917, that the injured man had not yet been able to do any work. He appeared, as before described, to be very much depressed. He stated that he now felt a numbness in his hand only. He still suffered from insomnia, nervousness and pain in the back of his head. His appetite was fair and his weight had improved. On examination, it was found that the tremor and weakness remained in his right hand. His extremities were cold, especially the right hand. A fairly well marked atrophy of the muscles, as before mentioned, still remained. The disturbance of sensibility consisted only of slight lessening of pain sense on the ulnar side of the right hand. The patient claimed loss of memory and mental deterioration. He was seen a second time by the investigator, Feb. 12, 1918. He stated that his condition was unimproved, except that he could move the fingers of his right hand better than he could before. He again complained bitterly of headache and insomnia, and stated that his memory was all gone. On examination, a tremor was noticed in the right hand as before. This was very slight when first seen, but increased markedly during the visit. There seemed to be distinctly less muscular atrophy of the right hand than at previous visit. The strength of the hand was improved. The injured man claimed, however, that he was still unable to hold a paint brush and had not resumed work. At a previous visit, he was unable to elevate his left arm, but this time he could bring same to horizontal, and the arm could be passively elevated to within 10 degrees of vertical. His memory was not as bad as he stated, as he remembered the previous visit of investigator, and that he had given a specimen of his handwriting. He also remembered the names of the men in the commission. He complained of some additional trouble at this visit: limitation of rotary movements of the neck, weakness of the spine and jerking and tremor of the legs. This latter was not observed by the investigator. In general, there has been distinct improvement in this man's condition, especially in the right hand, and there is evidence that his disability is due less to definite nerve injury than to traumatic neurosis.

Case Illustrating Persisting State of Neurosis Following an Industrial Accident in Which Compensation Was Not Claimed.—B. A., woman, aged 19, a clerk in a store, making \$7 a week, was injured, May 12, 1915, by catching her fingers between the knives of a meat slicing machine, thereby losing the middle and ring fingers of her left (major) hand through the distal joint. The injured girl's permanent disability was rated as $4\frac{3}{4}$ per cent., which entitled her to nine-

teen weeks' compensation at \$4.17 a week, making a total of \$79.23. A visit was made by the investigator, Aug. 3, 1917, in the course of routine investigation of permanent injuries. The injured was then employed as manager of local telephone office at a salary of \$35 per month. She had returned to her former employment six weeks after the accident, and worked for five months, but then had to quit on account of nervousness. After having been out of employment for six months, she worked for one month in the summer of 1916, at the telephone office. She was unable to continue this employment and was unable to work again until November, 1916, when she again worked two months at the telephone office. She again had to stop work on account of her general condition after two months, and remained away until April, 1917, since which time she has been steadily in the employment of the telephone company. In the two years which had elapsed since the injury, she had been out of work fourteen months. She still has to take an occasional rest from her work, but as manager of the office, she is able to arrange her work so that she can rest when she is feeling bad. She stated that while before the accident she was known as "the healthiest girl in M——," she had never felt entirely well since her injury. Her disposition has become irritable, so that she is very easily upset by the slightest annoyance. Physical weakness is present. She suffers from severe headaches at the back part of her head. Her fingers tremble sometimes to such an extent as to interfere with her work as telephone operator. She suffers from sleeplessness, so that a hypnotic drug is often necessary. She has suffered from a numb feeling of the entire left hand. She states that her general nervous condition is showing gradual improvement. Little was to be noticed on examination except general signs of nervousness, such as tremor of the fingers and excessive perspiration. She had never considered herself entitled to any further compensation, on account of the general disability which she had suffered in addition to the local injury. She further understood perfectly that it was entirely impossible for her to have an additional award, on account of the time which had elapsed.

CONCLUSIONS

1. Traumatic neurosis is a curable affection.
2. Of the psychic factors influencing the establishment and course of traumatic neurosis, compensation is one of the most important. That it is not the only factor, and that so-called "compensation neurosis" is not identical with traumatic neurosis is exemplified by cases here reported in which the patients recovered under the periodic payment system of compensation, and accident cases followed by a state of psychoneurosis were found to exist, in which compensation was not demanded or received.
3. Recoverability is favorably influenced by the following conditions: (a) if the patient is in a satisfactory environment and not subjected to unfavorable suggestion; (b) does not have a fixed belief that he has been seriously and permanently injured, that he has received improper medical or surgical treatment and cheated in settlement; (c) does not have an organic disfigurement or defect as result of the accident; (d) remains cheerful; (e) has symptoms of predominantly neurasthenic nature; (f) gets an early lump sum settlement.

4. The character of the original injury is of little importance in traumatic neurosis.

5. For a favorable hypothetical case as outlined above, a disability of considerably less than one year might be confidently expected. Added unfavorable factors affecting prognosis so complicate the outlook that a definite fixation of duration of disability may be impossible.

6. A case of traumatic neurosis existing over one year, with marked symptoms affecting earning capacity, is to be regarded as one in which there are serious psychic factors present unfavorable to recovery, and these factors should be investigated and, if possible, removed.

ABSTRACT OF DISCUSSION

DR. FRANCIS X. DERCUM, Philadelphia: I would like to ask whether it is possible to make, and whether Dr. Schaller did make, investigation as to previous condition of these patients. It is a well known fact in connection with the accident neuroses that where numbers of persons are exposed to accident, only a certain percentage develop hysteria. Investigation also has shown that the latter reveal a previous neuropathic history in the great majority of cases. The accident merely offers an occasion for the renewed manifestation of preexisting nervous conditions. In regard to lump sum settlements, it is a remarkable fact that in Denmark where an early and lump sum payment is made in accordance with the findings of the physicians appointed to examine the case, something like 93 per cent. of cases return to work in a comparatively short period. Where payment is made monthly, as in Germany, where there is a system of pensions extending over years of time, these patients never get well. Therefore the methods of payment have a great deal to do with recovery.

DR. ANDREW L. SKOOG, Kansas City, Mo.: Dr. Schaller's tables were interesting. The same question comes into my mind that Dr. Dercum inquired about. I have done a certain amount of work for corporations in investigating some of these litigation cases, and I have found a number in which there were preexisting neurotic evidences. Only recently I examined a woman who was run down by the investigators of the street car company who secured testimony of neighbors to the effect that this woman frequently and suddenly called in physicians because of these cerebral attacks, and yet she went on the witness-stand and denied that she had ever had any previous illnesses of this kind. I believe that in a certain number of these cases in which there is some mild injury, the neurotic elements are excited, and that accounts for a certain percentage of cases that do recover completely. It is undoubtedly true that it takes a neurotic disposition to produce a case of traumatic neurosis. It is sometimes also very difficult to distinguish between malingering and traumatic neurosis. A few years ago, in consultation on a case in which another man claimed that the patient was suffering from traumatic neurosis, I contended that the case was one of malingering. About two months afterward a settlement was made, when he recovered quickly. Shortly after this he began to quarrel with a woman about his share of the loot. This woman brought the patient to me and claimed she was his sister, but it developed that she was not a sister and that she was conducting the case, he being a worker for one of the stock yards companies.

DR. FRANCIS A. ELY, Des Moines, Iowa: One point which the essayist has shown most conclusively is the predominating psychic factor in all of these cases. I think, perhaps, all of us have recognized the relatively few cases in which actual physical trauma has been the essential etiologic factor, but the sum total of the evidence brought forth here, is distinctly in favor of the condition being due purely to an abnormal psychic state.

I have had two or three strikingly amusing circumstances brought out in connection with the remote history of some of these traumatic neuroses, in making life insurance examinations. In three or four instances I have examined for life

insurance some years after, the individuals who had claimed permanent injury, and in getting my data, it was exceedingly amusing to note the manner in which the individual jumped from one side of the fence to the other. The curability of the cases, when it came to the point of getting the life insurance was exceedingly apparent, and the thought came to me at these times, that possibly it might be interesting to secure some data on this subject, from the standpoint of insurability. When you approach your applicants under conditions of this kind, you are almost sure to receive a positive answer in regard to whether or not they have recovered. The only difficulty is, that it drives the individual into a desperate corner, so far as his veracity is concerned.

DR. JULIUS GRINKER, Chicago: In the litigation cases one physician will testify that the case is one of ordinary neurosis on a hereditary tendency, because he is interested in finding neurotic symptoms of long standing for the side on which he is engaged; another physician, equally experienced, but with a preference for the other side, has failed to discover neurotic tendencies in the patient's previous life history. Both men are equally sincere, but one is for the plaintiff and the other for the defendant which means that their judgment is unconsciously leaning toward their employer's interest. If a man has been a neurotic by constitution and make-up, and has never shown it except after a trauma, the case is likely to be a traumatic neurosis, because many people have neurotic tendencies, but do not develop neuroses. Viewed in this light, the statement of Dr. Dercum that most cases of traumatic neuroses have shown a tendency to neurosis before the trauma, is not surprising. I have seen a number of cases of traumatic neuroses in those who have not shown signs of nervousness before a certain trauma has occurred, and I believe we must recognize those cases as true traumatic neuroses.

DR. EDMUND JACOBSON, Chicago: Dr. Schaller has brought out statistics on a point which has a certain therapeutic value; and that is cheerfulness. The doctor's statistics have brought out that in a case of traumatic neurosis at least he has chanced to find that such patients as have conserved a pleasant attitude have on the whole recovered very much more quickly or more efficiently than the others—76 per cent., I believe, as compared with 11 per cent. So long as the patient can be kept cheerful, just so long are the various nervous symptoms kept in abeyance, and it is only when unpleasantness in the mental aspect arises that the symptoms become obnoxious. The sign in business offices, "Be Cheerful," draws attention to its importance, and perhaps at some future time it would not be too much to say that if one could keep neurotic patients cheerful a great proportion of them would be cured. A persistent cheerfulness is to a neurosis perhaps something of the same sort as iron is to anemia.

DR. C. R. BALL, St. Paul: I wish to ask the essayist whether he noticed any difference, not only in the character of the symptoms present but as to course and prognosis, in those cases which develop the symptoms immediately after the accident, and those which manifest their symptoms two or three weeks or, perhaps, several months after the accident.

DR. ELMER E. SOUTHARD, Boston: I think all the industrial accident people I have heard say anything about this matter feel about the lump sum settlement as Dr. Schaller does. I would like to ask Dr. Schaller how many nonneurotic cases there were during the period in which the neurotic cases were developing. We find that it is a neurasthenic problem of great breadth. The cases that are sent to us are of the most complex nature. I would also like to ask if the Wassermann tests have been of use in these cases. We have found a great number of subnormal persons whose prognoses depend perhaps on their ability to rationalize. Dr. Idler worked on this matter of nonemployment and found that the paranoiac, the feeble-minded, and the moody, up-and-down cases, were the big problems. I think it is the duty of every neurologist and psychiatrist to take as much as possible of the burden from industrial persons. I had occasion to talk with the head of a copper corporation which hired thirty-eight physicians to handle their cases, and he stated that none of them seemed to know anything about these conditions. If

we can get our kind of work into industry we can do much; we can exclude a great many persons who are potential neurotics. So far as so-called shell shock is concerned, it is true that heredity counts, but it is also true that the perfect type of person might get shell shock, and this might be true of conditions arising from injury in industrial concerns. If we could apply the Wasserman test and exclude the positive type, the feeble-minded and also the I. W. W., taking out all these potential neuropaths, the industries would boom.

DR. G. A. MOLEEN, Denver: I am quite sure that some of the traumatic neuroses that find their way into the courts are not neuroses. They should be investigated pretty thoroughly. A case in point: A man fell from a car, was picked up unconscious, and later sued the company. After thorough investigation it was evident that he had had a capsular hemorrhage which was coincident with the stopping of the car, but the company was blamed for bringing about the hemiplegia. It is generally known that trauma or shock will bring about a confused state in a paretic who appears otherwise normal. Two such cases have come under my observation within the last year, one of them claiming a railroad injury and in whom many evidences of paresis were present. However, the mental symptoms were not present. He made a claim of permanent injury. Another man within two months made a claim for automobile injury in which definite evidences of paresis were found. It is a fact that those cases which have not recovered symptomatically and those which have pursued an unfavorable course give much encouragement to the lawyers who prosecute these cases. Therefore it is important for us to look into the true cases of injury and the true cases of disease which have been exaggerated by the accident.

DR. THEODORE DILLER, Pittsburgh: These cases Dr. Moleen referred to are few indeed, for they could hardly escape recognition by subsequent observation. The studies in shell shock which are now being made by competent observers at the front are going to shed a great deal of light on this whole question. For instance, we are told by these observers that German prisoners seldom exhibit shock. We are told also that one of the best cures for shell shock among the allied soldiers is this: A prompt and positive assurance that the victim shall not go back into the trenches. This seems to me to point to the conclusion that self-interest, interest as regards the future, has a great deal to do with the whole thing. Is not that true also in these cases of so-called traumatic neurosis? Is it not a matter of self-interest and uncertainty as to the future? Certainly a great desideratum is prompt settlement in these cases, and companies should be protected by limitation of damages. It is a shame that these unlimited and outrageous amounts should be awarded so frequently in these cases of traumatic neurosis or litigation neurosis.

DR. RALPH REED, Cincinnati: I agree that there are certain subtle emotional factors that might be considered in these cases. It would be a matter of interest if the essayist could record the financial condition of these traumatic cases and the relative monetary importance of the possible settlement to the patient. If he is very poor, a small settlement looks large to him and, perhaps, tends to accentuate the results of the injury. I think also that general happiness or unhappiness in life has a great deal to do with the development of any type of neurosis. Therefore, it would be interesting to ask whether these patients who developed traumatic neurosis were happy prior to the development of neurosis, because, if not, the traumatism might possibly have acted merely as an influence to bring about an accentuation of the unhappy mental state that the patient had always suffered. Then there is the factor of revenge. I think many of these injured people have the feeling of wanting to be revenged against the company or the person from whom they feel they have received this injury. They look on their experience as justifying the attitude they have taken irrespective of the actual amount of the financial settlement.

We might consider this factor: The long dragging out of the case through the courts, the getting on the witness-stand, etc., helps to exalt the personality of a patient who otherwise

may have been a very obscure individual; all this interest on the part of the physicians, the lawyers, the court and the friends, favors an actual exaltation of the personality of the plaintiff from which he derives a pleasure very definite and satisfying.

DR. MEYER SOLOMON, Chicago: Most of the speakers assume the attitude apparently that suggestion has much to do with the symptoms that patients have in these cases. It seems to me that the view that the phenomena are due to suggestion does not apply at all to the cases that show prolonged sensorimotor symptoms—anesthesias, paralyses, the loss of sight and hearing, etc.—that go on for weeks or months. I cannot conceive how simulation, suggestion, the power of ideas, can bring about a prolonged disturbance of the sensorimotor apparatus. Ideas, whether in the form of suggestion or simulation, may bring about temporary disturbance in the sensorimotor apparatus, but it seems to me an impossibility that ideational phenomena or manifestations may show themselves as really prolonged phenomena in the form of paralyses and anesthesias that go on for weeks, months or years. Therefore in these cases where there is positive evidence that the patient really has an anesthesia, for instance, hemianesthesia, loss of hearing or vision, and the like, if you can exclude simulation and exaggeration, the condition is due to physiological exhaustion of the centers, and the question of compensation, etc., does not play very much of a rôle.

One other factor to consider is this: Ideas, per se, the attitude of the individual, cannot produce any phenomena of a prolonged nature that affect the voluntary or involuntary nervous system. Heart disturbances, analgesia, and similar manifestations, cannot result from purely ideational states, and in post-traumatic states in which you have prolonged phenomena which affect the voluntary nervous system or the involuntary nervous system, the condition is not due to the mental attitude of the individual, but due to physiologic instability of some part of the body. We can understand, therefore, that in many of these people we have a history, extending back for years, perhaps, of nervous instability, and as a result of the shock incident to the accident they have an enhancement of all these phenomena; but the phenomena they have are really true and definite phenomena, just as fixed as if due to a true organic injury of the brain. We cannot, therefore, assume the attitude that the patients who show these symptoms dragging along month after month are affected by symptoms due to their mental attitude. In the British Army soldiers are receiving compensation for injury due to shell shock, and it seems to me that the traumatic neuroses are nothing more than a larger group, which includes the shell shock cases.

DR. WILLIAM A. JONES, Minneapolis: After years of experience I am of the opinion that the majority of these litigation cases are functional or hysterical; that a prompt settlement is the greatest thing that ever happened to the injured, whether he is going to recover or not. It is undoubtedly true that many people do recover under prompt settlement. I have seen many of these cases and know this to be true. Then, too, the effect of prompt settlement is very good on the rest of the family, it takes away from them the constant wearing out process of possible litigation.

DR. WALTER TIMME, New York: I think there is very little doubt that there are a certain number of cases which, while they are called traumatic neurosis, are not that. These are among the cases that do not recover after settlement. They give practically the same symptoms as does the traumatic neurosis case. The most marked symptom is the asthenia. These are the cases which, following the accident, are intensely shocked. Usually the trauma is in the lower region of the spine or over the abdomen, causing profound shock to the proverbial ganglions of the sympathetic nervous system. Witness the following: A policeman, while rendering service on a trolley-car during a street-car strike, was standing on the car when it was suddenly brought to a stop by strikers. He was thrown forward, his abdomen striking against the brass rail of the platform. The company settled with him for five or six thousand dollars and believed he would recover. He has never recovered to this day. What happened was

this: His sympathetic nervous system sustained a shock through the plexuses of the abdomen. His blood sugar content went down and remained permanently between 60 and 65 milligrams to 100 c.c. of blood, which is far too low, and there could be produced the white line of suprarenal insufficiency. Blood pressure was 100 mm. That man probably suffered a trauma of such an extent that he has never recovered. You can improve those cases by appropriate treatment, but they never recover, and a great many of the cases of so-called traumatic neurosis are of that type.

DR. CHARLES W. HITCHCOCK, Detroit: In a recent discussion on this subject an able attorney from Detroit cited a case that illustrates the question and possible influence of "lump sum" settlement. The plaintiff had played the game so well that he had been awarded quite a large sum in settlement. He went to the attorney's office to receive his money and when the check for this large sum was handed to him he threw aside his crutches and endeavored to kick the chandelier.

DR. ALBERT E. STERNE, Indianapolis: It seems evident from this discussion that we are going far afield in our ideas in regard to traumatic neuroses. In the first place, everybody who meets with an accident and has a claim for damages does not by any means suffer a traumatic neurosis, and, second, many people suffer veritable traumatic neurosis after injury of one or another type in which the question of damage does not arise at all, where we find the development of conditions following an accident due to their own personal neglect, or some other thing, in which the question of compensation cuts no figure whatsoever. Now shall we, simply because the element of compensation is attached to a case, arbitrarily designate that a traumatic neurosis, while in the case of another person to whom this question does not apply, but who has some form of obscure functional or organic nervous malady, we give another name? That is not neurology by any means. As a matter of fact, as we see by the working out of the Workmen's Compensation Act, there can be no doubt but that in a large percentage of cases the symptoms of purely nervous type disappear when the matter is settled. But when it comes to the straight-out cases of injury, of symptomatology after injury, which we could frankly, outspokenly and emphatically class among the group of traumatic neuroses, I do not think that that logic pertains at all. Traumatic neuroses per se is a definite thing. The true case is the result of a profound impression. The effect on the sympathetic autonomic nervous system is marked, and we are dealing with conditions of profound gravity. Real cases of symptom-complexes which arise after injury are among the most difficult with which we are confronted. It is a difficult problem, sometimes, for me to decide whether the individual is a malingerer. In malingering I think we have not a traumatic neurosis, but a simple case of fraud, and that has nothing whatever to do with the veritable condition which we call traumatic neurosis, a malady that seems quite in line with the other conditions we see, in which compensation plays no rôle at all, and in which we may fairly well assume that we are dealing with a case of true traumatic neurosis.

DR. ALBERT F. MOFFET GREENE, Kansas City: I would ask Dr. Schaller to define traumatic neurosis. The subject has been confused with malingering neurosis as he sees it.

DR. WALTER F. SCHALLER, San Francisco: Traumatic neurosis is a neurosis following an accident and is not simulation. In reply to the question of hereditary or personal neuropathic predisposition: We had these factors in mind in considering prognosis, but found it impracticable to obtain reliable data for statistical purposes in this study, for if in an industrial case, you question the patient as to whether he is naturally of a nervous disposition, or if he comes of nervous stock, he will usually say "no," because as far as nervousness is concerned he feels that his is not a condition for industrial compensation and an admission to this effect would unfavorably influence his medical report. Scarcely any of our cases admitted personal nervous temperament or nervous heredity. Cases manifesting symptoms only after a latent period between injury and manifestation of the neurosis, I would classify as "secondary neuroses." Generally they are the

most aggravated and persistent forms. We had about six psychopathic cases following trauma. They were not included in this series. Of these cases, there were perhaps two cases of paresis. A routine mental rating was not made in the series but only in those cases in which a more or less pronounced mental deficiency was suspected. I do not recall such a case in the fifty cases here reported. As regards simulation: we did not find a case that we considered to be one of out and out simulation, although exaggeration of symptoms were not infrequent. A number of patients suspected of simulation were followed by detectives at the instigation of the insurance companies interested. As a rule, these patients had been examined by a number of physicians and they had come to us as referred cases after the neurosis had existed for some time. The orthopedists and surgeons were generally glad to refer these cases, because they could do nothing with them. Dr. Reed asked about the financial status of these individuals. Time did not permit me to go into detail about this aspect of the problem, but in the original investigation, the financial status as regards wage and amount of compensation was given in detail.

LUMBAR PUNCTURE IN MENINGEAL HEMORRHAGE OF THE NEW-BORN*

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ST. LOUIS

Hemorrhage of the brain in the newly born is by no means a seldom accident. It has been stated that this is the etiologic factor in one third of stillbirths. It follows in all varieties of deliveries; even spontaneous, easy deliveries are not free from this danger. This condition, first properly interpreted by Sarah McNutt, in 1885, forms one of the darkest chapters in pediatric medicine. More than thirty years before Little had described the spasticity of the muscles and the idiocy following the lesion and recognized its relation to long and protracted labors. While the majority of the infants so affected do not survive the birth act, a large group live several days, the first few hours not offering the slightest suspicion of the fatal outcome which is soon to follow. The group that survives and is able to weather the cerebral compression is only too well known to all of us.

SEAT OF HEMORRHAGE

That the location of the hemorrhage varies in the different cases cannot be gainsaid. The blood may be in the brain itself, the ventricles under the dura or arachnoid, at the convexity or base. The consensus of opinion seems to be that the meninges are the usual source of the bleeding, so that these cases are usually referred to as meningeal hemorrhage. The pressing against and over one another of the cranial bones with the laceration of the delicate blood vessels of the meninges is a logical explanation of what occurs. The delicate cerebral veins which course over the convexity to the longitudinal sinus are easily torn, as the parietal bones are pressed over one another. These are the supratentorial cases. Similarly in the infratentorial ones, the small veins ending in the lateral sinuses are torn as the occipital bone is squeezed under parietals. The sinuses themselves may be ruptured, but this is unusual.

CLINICAL PICTURE

The diagnosis of this condition at times is very problematic; again the symptoms are so outspoken that no mistake can be made in recognizing the true condition. For several hours after birth, except for a certain degree of asphyxia which seemingly has been overcome, the condition of the infant gives no hint of what is actually going on. As the hours go on more and more blood oozes from the vein, and we soon have evidence of cerebral compression. The distensibility of the sutures and bones of the infant's skull plays an important part in the delay of the appearance of increased intracranial tension with all its symptoms.

The vagus, vasomotor and respiratory centers all betray the effects of irritation. The pulse is strong, full and at times slow; the skin is a peculiar white color (arterial constriction); the respiration shows distinct changes, being superficial and rapid or again deep and pauseless. The reflexes are increased, and tonic and clonic contractions of the muscles of the face and extremities, followed by paresis, are usually seen. The often repeated convulsions with stupor, the bulging fontanel and wide gaping sutures are perhaps the most striking symptoms.

A close analysis of the symptoms reveals that whether the hemorrhage is located supratentorially or infratentorially, the clinical picture will vary. In the supratentorial hemorrhages, the blood covers the convexity of one or both hemispheres and is effectively prevented from reaching the base by the tentorium. In the infratentorial cases, the blood occupies the sub-arachnoid space covering the cerebellum and surrounding the medulla and extending into the spinal canal.

SUPRATENTORIAL HEMORRHAGE

Supratentorial hemorrhage is characterized by an early appearance of a bulging fontanel. The baby is very cross, cries a great deal, sleeps but little and refuses the breast. Seitz¹ asserts that this restlessness and crying is due to pain experienced by the infant as the result of tearing of the dura by the hemorrhage. The cyanosis is late in appearing and not especially pronounced, owing to the fact that the respiratory center is not affected until toward the end.

INFRATENTORIAL HEMORRHAGE

In infratentorial hemorrhage the fontanel is slow to become distended and must first await the development of a collateral edema. The infant is quiet, wants to sleep a great deal, is apathetic and early shows a cyanosis. Neck rigidity and tonic contractions of the muscles of the extremities are present as a result of the irritating presence of blood in the upper part of the spinal canal.

REPORT OF CASES

We have met with nine cases of this accident. Four patients died in the early days after birth, one having been submitted to craniotomy; death occurred in this case twelve hours later, and a large hemorrhage was found at necropsy at the base of the brain. Two survived and are typical examples of Little's disease; three were treated by lumbar puncture, two making a complete recovery. The third patient continued to have convulsions with spasticity of the extremities; death occurred at 9 months. Necropsy by Dr. Archibald showed slight adhesions and flattening over a small area of the right hemisphere.

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Seitz: Arch. f. Gynäk., 1907, 82, 544.

The three cases that were treated by lumbar puncture will be reported somewhat in detail.

CASE 1.—Baby K., now approaching the third year, twenty-four hours after birth developed severe convulsions which continued in spite of chloral and bromids. Eighteen hours after the onset of the convulsions, I saw the patient at St. Ann's Hospital, in consultation with the obstetrician, Dr. Spain. The anterior fontanel was bulging, the sutures were separated and convulsion was following convulsion; previous to their onset, the baby had been quiet. The skin was pale white with a slight icteric hue; the respiration was irregular, now deep and again superficial. There were no clonic or tonic contractions and no paralysis; the baby swallowed poorly. The correct interpretation of the symptoms was only too apparent, and lumbar puncture was immediately performed. Thirty c.c. of pure blood immediately flowed from the needle; the distension of the fontanel receded; the infant became quiet, and there was no return of the convulsions. The following day there were slight tonic and clonic contractions of the left arm and face. These were missed the next day.

We believed that we had prevented the early death of the infant by relieving intracranial pressure, but fully expected that at the ninth or tenth month the infant would develop a spasticity of the extremities. That it would be possible to cure such a hopeless condition by a trivial operation was beyond our most sanguine expectations. This child is now nearly 3 years of age, and is perfectly normal in every respect, with normal intelligence.

CASE 2.—Baby N. was first seen at the age of 6 days, at St. Ann's Hospital; the presenting symptom was a severe icterus, which was of such intensity as to make one consider the possibility of an obstruction in the bile passages. Severe vomiting was also present, which was relieved by stomach lavage. Twenty-four hours later, a profound stupor developed, the fontanel was bulging with wide separation of the sutures and the respiration was very much embarrassed. There had been no convulsions and no muscular spasms. At birth the infant weighed 9 pounds and Dr. Porterfield, the obstetrician, stated it had been a difficult forceps delivery. It was striking that in spite of the well developed infant, it would not cry and was very listless and apathetic. The icteric hue of the skin turned to a deathly pale color; the infant refused the breast and swallowing was difficult. The head appeared very much enlarged, globular in shape, with the frontal eminences very prominent. One was reminded very much of hydrocephalus. The baby's condition was desperate, and it appeared that it could live but a few hours. A fatal prognosis was given, and an attempt was made to reconcile the mother by informing her that idiocy and paralyzed extremities would be in store for the infant, if it were to survive. Lumbar puncture was performed and 60 c.c. of blood came gushing out; the fontanel receded only to become distended again in a few hours. The respiration became better and the infant brightened up considerably. The following day lumbar puncture was repeated with a free flow of blood from the needle; the third and fourth day this was repeated owing to the refilling of the anterior fontanel. In all 240 c.c. were removed, but it was apparent that there was considerable admixture of cerebrospinal fluid in the last 60 c.c. The anterior fontanel was still prominent, but owing to the marked improvement in the infant, it was decided to stop the lumbar punctures. The tape line revealed the circumference of the head to be 14.5 inches. It was necessary to nourish the infant artificially; it continued to thrive, and now at the age of 14 months there is absolutely no evidence of spasticity, and mentally the infant is all one could expect. The baby's recovery was a matter of the greatest wonderment to all who saw it.

CASE 3.—Baby C. was delivered by Dr. Swahlen at St. Ann's Hospital; the birth was easy and spontaneous. The infant was cross and fretful after birth, crying a great deal, and on the second day it developed repeated convulsions. Chloral was unable to influence them. The bulging fontanel gave

evidence of increased intracranial pressure. Lumbar puncture was performed and 7 c.c. of pure blood flowed from the needle. Convulsions ceased temporarily but twelve hours later returned again. The following day lumbar puncture was repeated and cerebrospinal fluid of a pale pink color was removed. Convulsions continued and spasticity of the extremities developed. Death occurred at 9 months as a result of a nutritional disturbance; the necropsy results are reported above.

This case doubtless belonged to the supratentorial type; the blood removed by lumbar puncture may have come from a slight infratentorial bleeding or again some of the blood may have gained access to the cranial subarachnoid and then found its way to the spinal subarachnoid space. That the blood could have resulted from the injury of a small vein at the site of puncture is not probable, owing to the fact that the convulsions undoubtedly were temporarily relieved.

COMMENT

That it is possible not only to relieve but actually cure some cases of meningeal hemorrhage of the newborn by lumbar puncture is absolutely certain. Green² of Boston reports a case of intracranial hemorrhage completely cured by lumbar puncture. His case developed convulsive twitching of the extremities the second day, accompanied by cyanosis, nystagmus and apnea. The convulsions became more severe, and on the fourth day lumbar puncture was performed with removal of 5 c.c. of bloody spinal fluid. This brought about a remission of the symptoms, and the lumbar puncture was repeated for the fourth time in as many consecutive days. At 4 months of age, the baby was normal in every respect. Lippman³ of New York similarly reports complete recovery in a case of meningeal hemorrhage following lumbar puncture. One puncture was sufficient, and 25 c.c. of slightly yellow tinged cerebrospinal fluid were removed. The convulsions, restlessness, rigidity, crying and bulging fontanel all cleared up.

It is apparent that a supratentorial hemorrhage of any size cannot be relieved by lumbar puncture. The blood is usually located subdurally and, therefore, cannot readily find its way to the subarachnoid space. Furthermore, it is not easy for the blood to pass into the spinal subarachnoid owing to the interference at the foramen magnum. In this type of case, relief must come from above and craniotomy or incision through the coronal suture preceded by aspiration of cranial subdural space as practiced by Henschen⁴ should be considered. Cushing,⁵ in 1908, reported nine cases of intracranial hemorrhage, with a cure of four as the result of craniotomy. In the infratentorial type of case, nothing can be accomplished by an operation on the cranium, as the hemorrhage is not accessible. In all cases of suspected meningeal hemorrhage, lumbar puncture should be performed, as even in the supratentorial type of hemorrhage not only will there be almost a certainty of clinching the diagnosis, but the measure may be of definite therapeutic value, even resulting sometimes in a perfect cure.

CONCLUSIONS

From the fact that the condition is by no means rare, the possibility of meningeal hemorrhage should be ever in the minds of obstetrician and pediatrician

2. Green: Boston Med. and Surg. Jour., 1916, **174**, 947.

3. Lippman: New York Med. Jour., 1916, **103**, 263.

4. Henschen: Verhandl. deutsch. Gesellsch. f. Chir., 1912, **41**, 271.

5. Cited in Keen's Surgery, W. B. Saunders Company, Philadelphia, 1908.

in any obscure illness of the new-born infant. With any symptom of increased intracranial pressure, lumbar puncture should be immediately performed. This may not only clear up the diagnosis, but may actually save the infant from a fate which is one of the saddest that could possibly befall it.

ABSTRACT OF DISCUSSION

DR. FRANK C. NEFF, Kansas City, Mo.: Intracranial hemorrhage in the new-born is not a rarity at all, although I believe that the pediatricist is usually called in to see the patients that die. The importance of the condition is emphasized because of its frequency, because of the mortality, and because of the serious late manifestations of the condition. We recognize these children in later life as idiots, with various sorts of palsies, at a time when nothing can be done for them. Whether anything can be done, and I have no doubt it can, as Dr. Brady says, it is certain that diagnosis is of great value at the time. This emphasizes what we have already known for a long time, that the pediatricist should have, possibly, the entire care of the new-born babe from the time of birth. We should have a chance to diagnose and do what can be done for these children at an early stage. The question of lumbar puncture is one of great importance as a diagnostic measure depending on whether the trauma is above the tentorium or below. It probably has therapeutic value by relieving compression.

DR. JOHN A. FOOTE, Washington, D. C.: I do not think that any pediatrician can say he has not seen a number of these cases. He is frequently called in at the end, when there is no doubt as to the diagnosis. Without slandering any of the other members of the profession, it is fair to say that the causes of intracranial hemorrhage in the infant do not always seem to be well understood. Perhaps, I might put that in a better way—it is really not a lack of knowledge, but a wrong knowledge. A great American humorist once said "It is not ignorance that makes so much trouble in the world, but knowing so many things that are not so." Many physicians seem to think they need only look for intracranial hemorrhage after a forceps operation or some unusual trauma. We know the condition occurs in two great classes—the first class, rapid labor, and the second, breech presentations, in which great pressure is made on the after-coming head. But I am firmly convinced that all of the causes are not maternal. Probably many cases occur after rapid delivery in which the cause lies not with the mother but with the child. I am sure many of us have seen hemorrhage of the new-born in connection with intracranial hemorrhage in infants. I think we would see many more if the children lived long enough. I think many of the cases which do not show rupture in the meningeal artery are not hemorrhages so much as oozing of the vessels of the pia, perhaps not producing the classical symptoms so early as hemorrhage from the meningeal artery. For that reason we can say, perhaps, that there is a hemorrhagic tendency, some degrees of permeability of the vessels, not going on to the extent that will produce characteristic vomiting of blood, but increased fragility of the vessels of the infant, which does produce, even after rapid labor, symptoms of hemorrhage of the brain. There is no doubt that great relief can be obtained by lowering intracranial pressure through lumbar puncture. As has been stated by the essayist, it is of great value as a diagnostic measure, and should never be omitted in any case of intracranial hemorrhage in an infant. It certainly can do no harm to use some method to increase the coagulability of the blood—blood serum, citrated blood or something of that sort, in attempting to offset the tendency to hemorrhage that undoubtedly exists in many of these children.

DR. FRANK C. NEFF: I do not know whether this section has ever taken up the question of the effect of pituitary extract in the new-born. We are called to see babies where it has been used during their birth. I have seen more than one death from meningeal hemorrhage in the same family where pituitary extract was used in all the cases. I think this should be set down as a probable cause of hemorrhage.

DR. LANGLEY PORTER, San Francisco: I want to emphasize the experience of Dr. Neff. In three cases in my own experience I have seen hemorrhages of the new-born after the use of pituitary extract.

DR. JOHN S. DAVIS, Dallas, Texas: I have seen six or seven of these cases; four of them have come to operation. We were unable to relieve the pressure entirely by lumbar puncture, and we opened through the suture, a proceeding with which you are familiar. I recall one case in which pituitary extract in as small an amount as 0.5 c.c. brought on violent pains, and caused extensive hemorrhage. Lumbar puncture was done, and seemed to relieve the pressure. The child has no paralysis, but the mental functions are much retarded. This case occurred in the family of a physician. In our experience, we do not always find bulging of the fontanel, notwithstanding the hemorrhage may be above the tentorium. I think pituitary extract certainly does a great deal of damage in some cases.

DR. LAWRENCE T. ROYSTER, Norfolk, Va.: I want to emphasize a point brought out by Dr. Davis, and that is that we must not rely on bulging of the fontanel for diagnosis. Some of the best descriptions of this condition have been those that described the "boardlike feel." It is more common than the bulging, in my experience, regardless of where the hemorrhage is. I do not think we should emphasize bulging of the fontanel, as usually it is not present.

DR. JULES M. BRADY, St. Louis: As Dr. Royster said, bulging of the fontanel is frequently absent in these cases. Some of these cases of intracranial hemorrhage are quite deceiving, as one will readily find on studying the literature. Sometimes, the only indication is listlessness of the baby and a deathly pallor, due to arterial constriction. In perusing the textbooks, one will find the value of lumbar puncture hardly mentioned. Dr. Pisek in Sajous' practice, maintains that it should be done in these cases. I think the value of this procedure should be emphasized, and I think that is the first thing we should do in suspected cases of intracranial hemorrhage. I feel that if we can see these babies early, when the first symptoms begin, we can probably get a fairly correct idea as to where the hemorrhage is located. It is generally thought that in hemorrhages in these little babies it is difficult to find out where the bleeding is. It seems to me in cases above the tentorium incision below the parietal suture, preceded by lumbar puncture, to locate the bleeding, is probably better than the operation suggested by Cushing of Baltimore.

Conditions Relative to Medical Students in the War in France.—The *Journal de Médecine de Bordeaux* discusses the centers for medical instruction that have been recently organized in the army zone to enable mobilized medical students to continue their medical course without depriving the army of their services. The writer remarks that the question of medical students in the war is a regular Chinese puzzle, and that the four years of war do not seem to have brought its rational solution any nearer. The measures taken to date reveal a military more than a medical influence, but courage and heroism and devotion do not make a doctor of a young man any more than they alone can make an artist of him or a first class aviator. Technical instruction is the only solid basis for a physician, and this can be given only in centers equipped for such technical instruction. The hastily organized *centres d'instruction* in the *zone des armées* are absolutely inadequate for proper training for the practice of medicine. The solution of the problem, he insists, is to send the medical students back to the medical schools, which are equipped and ready for them, and then have them given intensive and speeded-up courses, crowding into three months the work that is spread out over several months in peace times. Military surgery and military medicine can be taught in the army zone centers, but these are only a small part of medicine in general, and this can be taught only in a medical school. The writer adds that the students should not be sent to one or two selected schools but should be distributed so that no school will be swamped with numbers of students too large to handle for effectual instruction. This is the solution of the medical student question to which Italy has come after vainly trying to solve it by organizing a "camp university" near the front.

OIL OF CHENOPODIUM IN THE TREATMENT OF AMEBIC DYSENTERY*

PRELIMINARY REPORT

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The treatment of amebic dysentery has always been a matter of considerable difficulty. A large number of drugs have been used at various times with varying degrees of success. As listed in Hare's "Practical Therapeutics," these drugs include arsenic, mercuric chlorid, copaiba, ergot, lead acetate, ipecac, opium and camphor, and magnesium sulphate; also enemas of boric acid, zinc phenolsulphonate, copper sulphate, a cresol preparation, hamamelis, quinin, and silver nitrate. Ipecac has gradually forged ahead of the other drugs, and its active principle, emetin, has been found to be extremely effective in acute amebiasis, when given hypodermically.

A careful perusal of current medical literature, however, shows that physicians working in tropical countries are apparently not satisfied with emetin. While excellent results have been obtained with it, it is by no means atoxic, and untoward symptoms and even deaths have been attributed to its administration.¹ Moreover, there are cases of amebiasis which fail to respond to the emetin treatment. The results of treatment with epinephrin, an ipecac preparation, bismuth, cephaelin, creosote, emetin and arsenic, emetin bismuth iodine, emetin hydrochlorid, eucalyptus, ipecac, neo-arsphenamin (neosalvarsan), protargol, arsphenamin (salvarsan), simiruba, spartein, tannalbin, and thorium sulphate have been summarized.² Only positive and striking results would justify one in adding to this formidable list.

In connection with the campaign for the eradication and control of hookworm infection in Siam, dysentery was at the beginning considered as contra-indicating the administration of the anthelmintics used. As the improvement in the health of those taking the treatment became evident, however, persons suffering from dysentery as well as from various other conditions began to apply for examination. In spite of instructions to the contrary, a number of the dysentery patients were treated by the assistants and were clinically cured of their disease. Impressed by these favorable results, we decided to investigate the types of dysentery thus responding to treatment, one of us following cases in connection with the hookworm campaign, and the other the cases treated at the Chiengmai Hospital. Attempts were made to follow the cases after treatment, and to secure specimens of stool for repeated examinations. This proved impossible in most instances, but in the cases reported in these pages, confirmatory examinations were made.

The patients in the cases reported were ambulant, but suffering from dysenteric stools, with the excep-

tions already noted. No cases of fulminating amebiasis were treated by this method. When the microscope showed the presence of amebas, it was considered a safe criterion to diagnose as pathogenic those amebas that had ingested erythrocytes. No cases were diagnosed on the presence of cysts alone until those cysts had been activated by a saline cathartic, and the phagocytosis of erythrocytes observed in the amebas.

METHOD OF TREATMENT

The treatment to adults was administered in several ways. Some patients were given a preliminary dose of one-half ounce of magnesium sulphate, followed in two hours by 1 c.c. of the oil of chenopodium in capsule. One hour later, a second dose of 1 c.c. of oil of chenopodium was administered, followed within an hour by 1½ ounces of castor oil. In more severe cases, the preliminary saline was omitted, and 2 c.c. of the oil of chenopodium were administered in 1½ ounces of castor oil at a single dose. In other cases the oil of chenopodium emulsified with gum acacia was administered by rectum. In such cases the anal mucosa must be protected with petrolatum, and it is well to terminate the injection with 2 ounces of an inert oil. The buttocks should be elevated, the enema given slowly and with great care, the first dose not exceeding 8 ounces in the adult. This enema should be retained for an hour, if possible. If the parts are well protected with petrolatum, the patient does not suffer from the intense burning sensations which would otherwise accompany the expulsion of the enema. In practically every case, after treatment by one of the foregoing methods, there was marked improvement in the condition, as blood and mucus disappeared from the stools on the second day after treatment. In a few cases, as will be noted in the case reports, this improvement was not evident or was only temporary.

After reading Walker and Emrich's³ article on the effect of oil of chenopodium on amebic cysts, we administered the treatment to two patients in whom cysts were found, with the results indicated in the case reports. In one of these cases, chloroform was included in the treatment as recommended by Walker and Emrich, but on account of some unfavorable symptoms, we have not used it in other cases.

REPORT OF CASES

CASE 1.—A man, aged 25, had suffered from dysenteric stools for the six months previous to consultation. The stools were bloody and contained active amebas, with ingested erythrocytes, and ova of hookworm and *Trichuris trichiura*. He was treated with 1 ounce of magnesium sulphate at 7:30 a. m., with oil of chenopodium, 1 c.c., in emulsion with gum acacia, at 9:30 and again at 10:30, and with castor oil, 1 ounce, at 11:30 a. m. Blood disappeared from the stools on the second day, and the dysenteric symptoms subsided immediately. On reexamination twenty-nine days later, no amebas or cysts were found. The patient has been able to work and has had no dysentery since taking the treatment.

CASE 2.—A man, aged 57, had been having dysentery with bloody stools for three months. Examination of the stools showed hookworm ova and active amebas, with ingested erythrocytes. The same treatment was administered as in Case 1. The stools were formed on the second day with no trace of blood. They were reexamined twenty-seven days later, when they were formed, and appeared normal. No amebas or cysts were found. The patient is in good health, able to work, and has had no attacks since taking the treatment.

* The studies and observations contributed to this paper by Dr. Barnes were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation.

1. Johnson, H. H., and Murphy, J. A.: The Toxic Effect of Emetine Hydrochlorid, *Mil. Surgeon*, 1917, 40, 58-70. Kilgore, A. R.: Peripheral Neuritis Following Emetin Treatment of Amebic Dysentery, *China Med. Jour.*, 1917, 31.

2. *Tropical Diseases Bulletin*, Index Number, January to June, 1917, 9.

3. Walker, E. L., and Emrich, William: The Treatment of Carriers of *Endameba Histolytica* with Oil of Chenopodium, *THE JOURNAL A. M. A.*, May 19, 1917, pp. 1456-1457.

CASE 3.—A man, aged 24, had had from six to ten bloody stools daily for two months previous to consultation. Examination revealed active amebas, with ingested erythrocytes, and the ova of *Opisthorchis viverrini* Poirier. The patient was treated as in the foregoing. The next day the blood had disappeared from the stools, which became normal in number and appearance. Reexamination six days later revealed normal stools, no blood, no amebas and no cysts. Two weeks later, he stated that he was well and working. He has had one formed stool daily, since taking the treatment.

CASE 4.—A woman, aged 54, for the previous twelve months had been having from four to six stools daily, with blood in practically every stool. Examination revealed very active amebas, with ingested erythrocytes, and ova of *Opisthorchis viverrini*. The patient was treated as in the foregoing cases. The blood disappeared the next day. Seven days later, reexamination revealed a normal stool, with no amebas or cysts. She has had normal bowel movements since the treatment.

CASE 5.—A man, aged 21, for the previous two weeks had been having from eight to ten stools daily with blood and mucus. Examination revealed active amebas, with ingested erythrocytes. Treatment was administered as in the foregoing, except that the second dose of chenopodium was given in the castor oil. All symptoms subsided within two days. Eighteen days later, examination revealed normal stools, no amebas and no cysts. The patient has been having one formed stool daily since the treatment, and is working.

CASES RECURRENT AFTER EMETIN TREATMENT

CASE 6.—A man, aged 40, had had severe dysentery for ten years, with recovery. He had been free from attacks from that time until one year previous to consultation, when dysenteric stools had begun. Three months later, he had been given emetin treatment, receiving a total of ten injections. He did not know the amount given. He had continued to have from four to six stools daily with mucus and often blood, up to the present time. He was unable to work. He complained of pain in the lower abdomen on defecation. He had some pain in the lower abdomen practically all the time, but no pain over the hepatic region, and no palpable tumor or other evidence of hepatic involvement.

He was treated as described in the foregoing cases. Two days later the stool was formed, but contained a trace of blood. Five days later the stools were found formed, with still a slight trace of blood. No amebas were found on either examination, but a few atypical cysts were present, which might have been amebic. Several attempts were made to follow up this case, but without success. Repeated inquiries from his friends elicited the information that two months after treatment he was still free from dysenteric symptoms, and was working.

CASE 7.—A soldier, aged 25, had been having from eight to ten stools daily with blood and mucus for three weeks, and had been confined to the hospital in the barracks. The army physicians had treated him with daily injections of emetin hydrochlorid and with enemas of tannic acid. A total of 7 grains of emetin had been administered, but the bloody stools continued, although their number had been reduced to two or three daily. Examination at this stage revealed amebas in both the active and the resting stage. Treatment was administered by rectum, 0.5 c.c. of oil of chenopodium being administered in emulsion with gum acacia. The enema was retained for an hour and a half. Three days later, the patient was examined and the stools were found normal, with no blood and no amebas. On the twenty-third day after treatment, the army physicians reported that he was still free from symptoms and was doing his military duties.

CASE 8.—A man, aged 44, first seen in February, 1916, gave a history of chronic dysentery lasting for nearly two years. He was treated with emetin, 7 grains per day, for six days, the treatment resulting in apparent cure. Active amebas with ingested erythrocytes were found in the stools before the treatment, but disappeared after the third injection. June 18 of the same year he returned with dysentery, and with amebas in the stools, and was relieved with emetin, a total of 6 grains

being administered. Feb. 10, 1917, he again returned for treatment. Amebas were found and emetin was again administered, 1 grain daily for seven days. In September, when he returned with a recurrent attack, amebas were again found. This time he was treated with 2 c.c. of oil of chenopodium in the manner described, that is, with a preliminary saline, followed two hours later by oil of chenopodium in capsule (1 c.c.), an hour later by 1 c.c., and an hour later with castor oil, 1 ounce. The next day, he had only two stools, no blood being seen. On the second and fifth day after treatment, no amebas were found in the stools. The patient had had no recurrences up to the time when last seen, Jan. 3, 1918.

CASE 9.—A merchant, aged 26, stated that on three different occasions he had been treated with emetin for dysentery, receiving four or five injections each time. These attacks occurred at intervals of about six months. When seen in August, 1917, he was having from eight to ten stools daily with blood, mucus and much pain. He was given 2 c.c. of oil of chenopodium in 1 ounce castor oil at a single dose. The next day he was practically free from symptoms, and the amebas, which were abundant in the stool on the morning of treatment, had disappeared. He returned, Jan. 2, 1918, with a recurrence, amebas again being found. The same treatment resulted in the same rapid disappearance of dysenteric symptoms.

CASE 10.—A woman, aged 27, was treated for dysentery on three different occasions during the two years previous to consultation, amebas being found at the beginning of each attack. The treatment was with emetin, a total of 8 grains, 6 grains, and 7 grains, respectively, being given during the three attacks. Nov. 12, 1917, about six months after the attack, she had a return of dysentery, and amebas were again present. She was treated with 2 c.c. of oil of chenopodium in 1 ounce of castor oil with quick results as to disappearance both of symptoms and of amebas. The patient had continued free from attacks up to the time when last seen, Feb. 4, 1918.

CASE 11.—A man, aged 60, Chinese, had had repeated attacks of dysentery for two years. The attack for which he applied for treatment was of two months' duration. His condition was complicated by nephritis and asthma. He was given emetin, 1 grain per day for six days, with only a slight amelioration of symptoms, mucus and blood being still present. Active, phagocytic amebas were found five days after the last dose of emetin. He was then given an enema of oil of chenopodium by the method described, with slight improvement. Six days later, a second treatment was given by enema, followed by very marked improvement. Blood and amebas disappeared from the stools, and only a slight amount of mucus persisted. The patient left the hospital. Two months later, he was still free from dysenteric symptoms.

TREATMENT OF CYST CARRIERS

CASE 12.—A man, aged 30, had suffered from dysentery almost continually for five months, with short periods of freedom from symptoms. Whenever he started to work, the symptoms returned. Examination of a soft stool showed the presence of amebic cysts, and hookworm ova. The cysts were four nucleated with a chromidial body (hematoxylin stain), and conformed to the descriptions given by Walker and Sellards.⁴ One ounce of magnesium sulphate was administered; and in the saline stool active phagocytic amebas were found. Treatment with oil of chenopodium was carried out, the second dose being given in castor oil. The patient has not returned. Five days after treatment, considering himself cured, he left to secure work in a railway construction gang. Inquiry was made eight weeks after treatment, and his family stated that he was well and working on the railway.

CASE 13.—A man, aged 35, European, had suffered several attacks of dysentery and had been treated with emetin. The dysentery was slow in yielding to treatment. He had had no acute attack for two years, but had had several subacute attacks. Examination revealed the presence of hookworm

4. Walker, E. L., and Sellards, A. W.; *Experimental Entamoebic Dysentery*, Phil. Jour. Sc., B, Trop. Med., 1913, 7, 253-331.

ova and amebic cysts of the four-nucleated type with a chromidial body (hematoxylin stain). After the administration of an ounce of magnesium sulphate, the saline stool contained active phagocytic amebas. Treatment was administered according to the method suggested by Walker and Emrich. A total of 3 c.c. of oil of chenopodium in hourly doses of 1 c.c. was followed by 1 ounce of castor oil containing 50 minims of chloroform. Eight days later, reexamination of the stools revealed no hookworm ova, no amebas and no cysts. On the ninth day, a saline stool was examined with similar negative results. Four and a half months after treatment this patient continued well, with no indication of any tendency to recurrence.

CASES FAILING TO RESPOND FAVORABLY

CASE 14.—A man, aged 20, had had from three to six bloody stools daily for three years. Examination revealed the presence of the ova of hookworm, *Trichuris trichiura*, *Opisthorchis viverrini* and large numbers of the *Lamblia intestinalis* and active amebas with ingested erythrocytes. Treatment with oil of chenopodium was administered, a total of 2 c.c. being given, followed by 1 ounce of castor oil. All symptoms subsided within two days, with normal formed stools in which repeated examinations failed to show amebas or amebic cysts; but *Lamblia* cysts remained abundant, and a number of active *Lamblia* organisms were always present. This continued for three weeks, when dysenteric symptoms returned. Oil of chenopodium was administered by rectum as described, 1 c.c. being administered in 8 ounces of emulsion with gum acacia. This caused a subsidence of symptoms, which lasted for about ten days. The patient was then placed on emetin treatment, which resulted in much improvement; but the *Lamblia* infection remained unchecked, until he had received four high enemas of methylene blue, 4 grains to the pint of water. Dysenteric symptoms have been absent for four weeks up to Feb. 4, 1918.

CASE 15.—A man, aged 41, had had dysenteric attacks for about a year, during which time he had been unable to do any work. He had been treated with emetin during one period, but did not know the amount given him. For several months he had had from six to ten stools daily with blood, mucus, and pain. Examination revealed the presence of ova of hookworm, *Trichuris trichiura*, *Opisthorchis viverrini*, oncospheres of *Taenia saginata*, an undetermined flagellate which was present in very large number, and active amebas with ingested erythrocytes. Two c.c. of oil of chenopodium were administered orally as described with marked improvement in symptoms, but with a recurrence within three weeks. The treatment was repeated with a similar initial improvement, followed by a recurrence within practically the same period. One c.c. was then administered by rectum in the manner described. This caused a very marked improvement, which, however, was followed by a recurrence within three weeks. The rectal treatment was repeated, with similar results. The patient was then put on emetin treatment and the amebic infection cleared up readily. The flagellate infection remained heavy, however, and it remains to be seen whether it may lead to a recurrence. Five weeks after the last treatment with emetin, he was free from symptoms.

CASE 16.—A man, aged 34, was admitted to the hospital with a history of chronic dysentery lasting eight or nine months. Amebas with ingested erythrocytes were found in the stools. The patient was given 2 c.c. of oil of chenopodium in 1 ounce of castor oil. The next day, stools were more frequent, and defecation was painful. On examination, large numbers of actively motile amebas were found, and large numbers of *Lamblia intestinalis*. The patient was then put on emetin treatment, and the amebas disappeared; but diarrhea with pain, and sometimes mucus, persisted. Enemas containing oil of chenopodium were tried, with temporary amelioration. High enemas of methylene blue, 4 grains to the pint, and quinin, 5 grains to the pint, were given for nine successive days, and the patient was discharged as cured. Both *Lamblia* organisms and amebas had disappeared from the stools, and all symptoms had subsided.

COMMENT

From these cases, as well as from others which could not be followed as carefully, it is evident that the oil of chenopodium possesses marked power as an amebicide, and while some patients do not respond to it, many others are clinically cured by its administration. Cases complicated with a flagellate infection seem especially resistant to treatment. It is recognized that the absence of cysts from the stools is no proof that the patient has been permanently cured; but any drug that will cause such marked clinical improvement in dysentery patients as does the oil of chenopodium well merits further investigation. With emetin so difficult to obtain as it now is in oriental countries, oil of chenopodium may be used with great satisfaction in a large proportion of cases, emetin being reserved for the most severe types. For ambulant cases, oil of chenopodium is very convenient. It can be sent to a patient combined with castor oil, so that its administration requires no specially trained assistant, as would emetin, under the circumstances. So marked has been the improvement in the condition of the majority of the patients treated thus far, that as a routine measure all ambulant patients applying at the dispensary are treated as indicated, emetin being reserved for those patients who fail to respond promptly, or who show a tendency to relapse. A point to be remembered is that, on account of its irritating effects on the kidneys, oil of chenopodium should not be repeated in full doses at intervals of less than two or three weeks.

CONCLUSIONS

1. Oil of chenopodium relieves promptly the clinical symptoms in many patients with chronic and subacute amebic dysentery.
2. Oil of chenopodium administered by mouth or by rectum possesses marked power as an amebicide, as is shown by the rapid disappearance of amebas from the stools, following its administration.
3. There is a tendency to relapse in some cases, but in our series this is not greater than with the use of emetin.
4. The oil of chenopodium may be safely administered, when combined with castor oil in a single dose.

Health Abstracts for Houses.—The *Journal de Médecine de Bordeaux* remarks that it is impossible to go to the bottom in any matter interesting the public health without bumping against the obstacle of professional secrecy. The profession has been relieved of the obligation of professional secrecy in so far as epidemic diseases like cholera and diphtheria are concerned, but for all others professional secrecy must be kept inviolate. However, the municipal authorities already have in their possession data sufficient to establish the bill of health for each residence in the city. (The writer is referring to France of course.) The building permits the fumigation service, the sewerage system, the édilité system (official oversight of buildings, roads, weights, etc.) and the public health service—these various municipal departments have accumulations of data in regard to many if not all dwellings, and if they could be correlated and classified they would supply the health record of each dwelling involved. The editorial queries whether this task might not be undertaken so that any one wishing to know the health history of his dwelling could find it on consulting the public records. The owner might refuse to show the health abstract to the purchaser, but this the editorial seems to regard as immaterial. The whole question is merely to educate the public, to create a habit, to insure that the health history of the dwelling should be demanded of the owner before a purchase or before renting the dwelling.

RADICULITIS: ITS DIAGNOSIS AND INTERPRETATION*

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Radiculitis, the *syndrome radicaire* of Dejerine¹ is an acute inflammation of the spinal nerve roots. We mean by a radicular syndrome, alterations of sensation or of muscle power which show that the primary disease-process producing them is in the spinal roots and not in the tracts and nuclei of the spinal cord. Likewise, we must distinguish such an innervation from a peripheral one. We know that every posterior root innervates a particular skin zone, its fibers reaching this area through several peripheral nerve trunks. Radicular areas are, therefore, very different from peripheral areas of innervation.

According to some, radiculitis should be used only in connection with disease of the sensory nerve roots.

Such a limited pathologic picture is, however, rarely met with and the radicular syndrome generally includes an involvement of the anterior as well as of the posterior nerve roots. Wertheim-Salomonson² believes that radiculitis should refer only to neuritis of the spinal roots (both sensory and motor), and that neuralgia of a radicular innervation should not be grouped under this name. I agree with many French authors³ that we cannot always distinguish between a neuralgia and a neuritis of the spinal roots, and radiculitis when used should refer to both of these.

Radiculitis is more frequent in the lumbosacral than in the cervical or thoracic roots, because here the roots are longer and more perpendicular and having fewer anastomoses, their involvement is more easily distinguished from neuritis of the nerve trunks. In the upper cervical region, for instance, the distance from an intervertebral foramen to the spinal ganglion is only 10 mm., but it increases the farther one goes along the cord, until in the first sacral root, this distance is 188 mm. In the cervical region, sensory (and also motor) root symptoms invariably involve several adjacent roots and the motor root symptoms overshadow those of the sensory roots. A radiculitis of

the cervical region, therefore, frequently resembles superficially an Aran-Duchenne syndrome, and a lumbosacral radiculitis is generally thought to be sciatic neuralgia.

A perineuritis localized in the roots of the spinal nerves may be due to many kinds of infection and toxins. Radiculitis is, however, generally syphilitic in origin, occasionally tubercular, and, therefore, a radicular syndrome is often found accompanying both syphilis and tuberculosis of the vertebrae. It may result from stretching or pressure in all forms of arthritis and spondylitis, and in subluxations and fractures of the spine. These various mechanical origins of a radiculitis will not be dealt with in this paper. Our purpose is rather to establish its occurrence as a primary disease or accompanying a meningitis and, secondarily, to discuss wherein a radiculitis differs from symptoms of spinal cord disease.

What is the radicular nerve? It begins where the roots pierce the dura mater and terminates at the place

where the posterior root fibers reach the superior pole of the ganglion. The two roots are separated from each other throughout this course by a dural sheath and do not unite. A meningeal sheath accompanies it and invaginates it like a funnel and ends (especially the pia) by fusing with the neurilemma. The subarachnoid space is continued on the roots as far as the superior ganglionic pole. The entire surface is, therefore, bathed by cerebrospinal fluid. Cestan and Sicard⁴ have also called attention to the fact

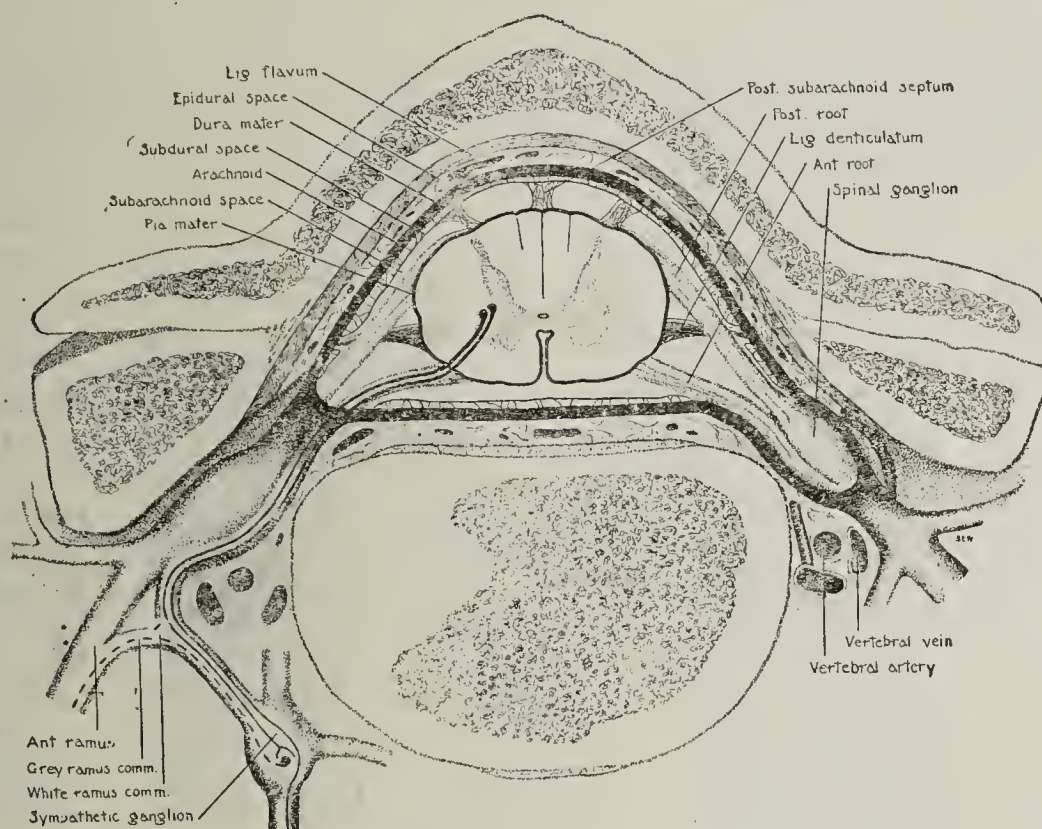


Fig. 1.—Cross section through the fourth cervical vertebra showing the meningeal sheaths, and the connections with the sympathetic nervous system modified from Rauber-Kopsch and Edinger.

that the arachnoidal sheath descends farther along the posterior root than along the anterior root, so that an accumulation of endotoxins in this culdesac may occur and bring on a perineuritis. Sicard speaks of the part of the root between the ganglion and the conjunction of the two roots to form the nerve trunk as the funicular nerve, and disease of it as a funiculitis. This is the rachidian nerve of Dejerine. This portion has an extrameningeal course, is extremely short and is really a part of the nerve trunk (Fig. 1).

The neuralgia which generally ushers in a radiculitis gives rise to such severe pain, sharp and lancinating in character, that no attention is paid at first to any other diagnosis than the general one of neuralgia or neuritis. This may be an error of a twofold type. It may close the physician's eyes to a primary radicular or spinal disease originating with this symptom, or it may prevent him from recognizing that he is not dealing with disease of the nervous system at all.

* Read before the Section on Nervous and Mental Diseases at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Dejerine, J.: *Séméiologie des affections du système nerveux*, Paris, 1914, 1, 257.

2. Wertheim-Salomonson, in Lewandowsky's *Handbuch*, 2, Part 1, 134.

3. Camus: *Etude de neuropathologie sur les radiculites*, Thèse de Paris, 1908.

4. Cestan and Sicard, cited by Lortat-Jacob and Sabareanu: *Les sciatiques*, Ed. 2, Paris, 1913.

Patrick recently called attention to the frequency of neuritis and neuralgia of the arms and legs and established the presence of arthritis in a large percentage of patients referred to him with these diagnoses. But we must not err on the other side and believe that osseous and joint diseases are the only origin of nerve pains, as do some orthopedists.

1. *Radicular Sensory Alterations.*—The pain of radiculitis in the early part of the disease may be unaccompanied by any objective loss of sensation. The usual finding is a decrease of tactile sensation which progressively increases in degree, always radicular, however, in innervation and, therefore, not altering in extent except when other nerve roots become affected, as for instance, in Kahler's type of syphilitic multiple root-neuritis.

Peripheral types of altered sensation, unlike the radicular, as a rule, change in

outline on different examinations. The true type of radicular sensory disturbance is the bandlike areas invaded, around the trunk in zones, or in striae parallel to the long axis of the limbs in the arms and legs. This topography is explainable by the development of the embryo, which is made up of a series of metameres. The segments of the central nervous system corresponding to these metameres are called neuromeres. If we refer to sensory innervation, we speak of dermatomes; of muscular innervation, myotomes. These two are dissimilar, that is, a sensory root area of the skin does not correspond to the same motor root zone.

In radiculitis, the affected sensory areas are usually only hypesthetic. Anesthesia occurs only whenever the root fibers are completely destroyed and, as a rule, then only if two or more roots are involved. A radicular type of anesthesia occurs at the height of a cord lesion, but we find a segment of hyperesthesia above it and below it, a sensory dissociation of a syringomyelic type or a Brown-Séquard type of paralysis. I am referring, of course, especially to unilateral and partial lesions. Total myelitic lesions have a symptomatology which never leaves anyone in doubt. These types of dissociation do not occur in radiculitis. The German writers use interchangeably a radicular and a medullary innervation. I do not believe because of the foregoing that the two terms should be used indiscriminately.

A radicular type of altered sensation by itself is not distinctive. It is common to many disease processes and is not peculiar to a radiculitis. It may be part of the picture of locomotor ataxia, hematomyelia, pachymeningitis, and of various diseases of the spinal cord and roots due to pressure and crush. It may be the opening scene of an extradural tumor. A meningeal pocket distended with cerebrospinal fluid may cause localized pressure and evoke a radiculitis.

Dejerine⁵ asserts that involvement of one posterior root is sufficient to bring out sensory changes. His observations, he says, have brought him to the conclusion that Sherrington's studies on the monkey, relating to innervation of the skin from three adjacent roots, do not always hold true in man. A monoradiculitis is possible and actually occurs: Overlapping of innervation is generally accepted and

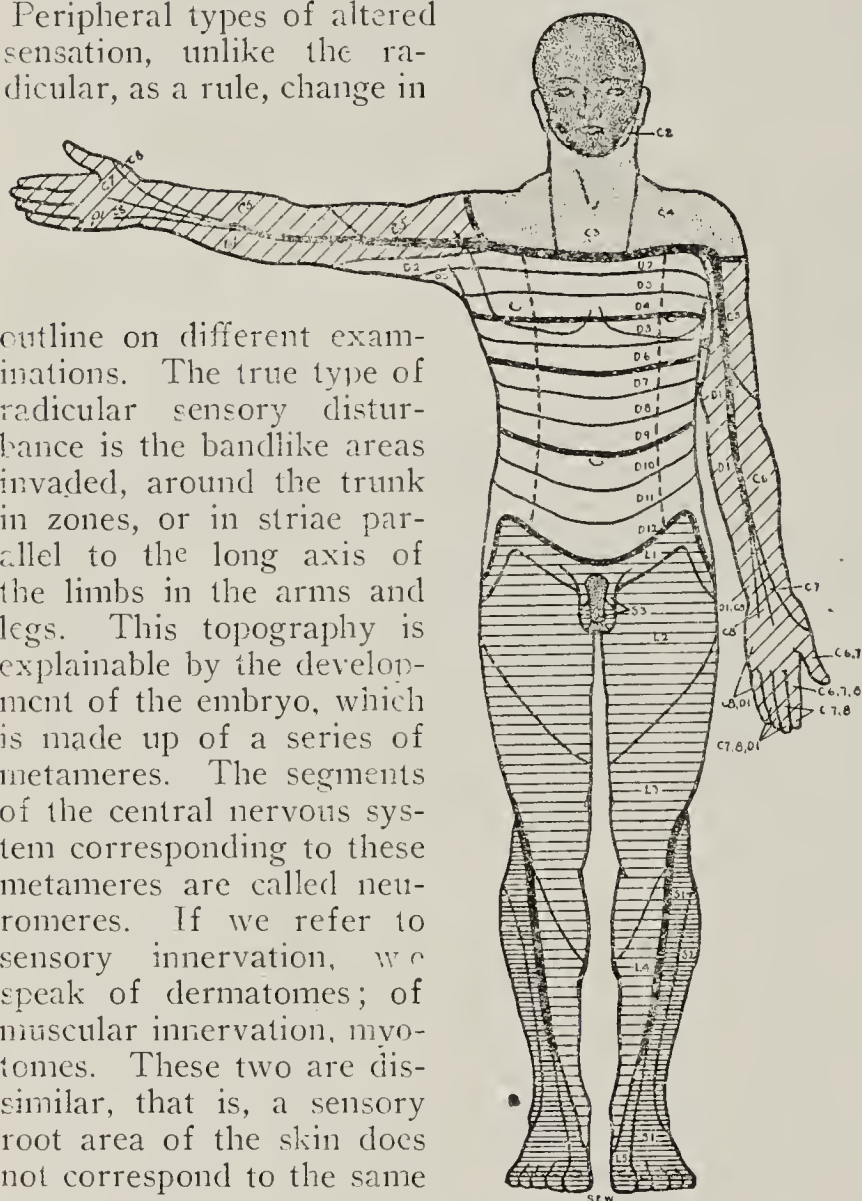


Fig. 2.—Radicular sensory innervation. Heavy lines indicate direction or axial lines. Modified from Dejerine and Flatau.

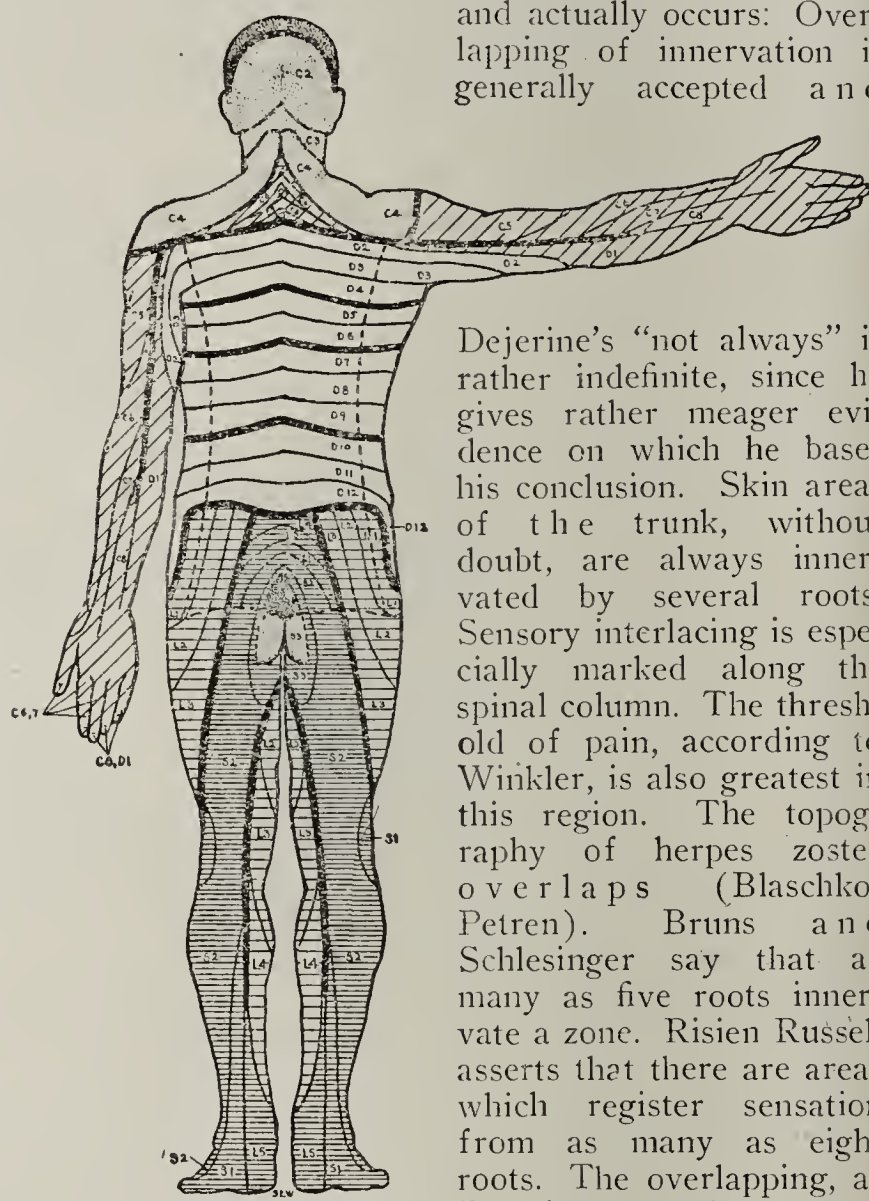


Fig. 3.—Radicular sensory innervation. Heavy lines indicate direction or axial lines. Modified from Dejerine and Flatau.

Dejerine's "not always" is rather indefinite, since he gives rather meager evidence on which he bases his conclusion. Skin areas of the trunk, without doubt, are always innervated by several roots. Sensory interlacing is especially marked along the spinal column. The threshold of pain, according to Winkler, is also greatest in this region. The topography of herpes zoster overlaps (Blaschko-Petren). Bruns and Schlesinger say that as many as five roots innervate a zone. Risien Russell asserts that there are areas which register sensation from as many as eight roots. The overlapping, as Sherrington called attention to, is more pronounced on the hands and feet than on the trunk. According

to Head, there is a sharp limitation of the root areas for pain and temperature sensation. He seems to agree with Dejerine as far as these sensations are concerned. Seiffer notes that above the axillary line of the upper limbs (the proximal side) there is no overlapping. Sherrington, Muskens and Mackenzie agree that the overlapping pain is less than for touch. The zonal areas of innervation on the legs and arms are grouped together into axial or direction lines. These refer to the places on the skin which perhaps innervated from root areas widely apart in the spinal cord, yet adjoin on the skin (Figs. 2, 3 and 4). On the arm, for instance, above the axilla, the second dorsal area is next to the

5. Dejerine, J.: *Sémiologie des affections du système nerveux*, Paris, 1914, 2, 821.

fourth and fifth cervical zones of innervation. On the leg, the second sacral root zone adjoins the third lumbar root area. Along these axial lines the interlacing of sensation and resultant overlapping is especially noticeable.

2. *The Sign of Coughing and Sneezing.*—This is the *signe de l'éternuement et de la toux* of Dejerine. The acts of coughing, sneezing and straining at stool produce severe pains radiating along the limbs. Oppenheim adds that in cervical radiculitis sudden movements of the head will produce severe pain. Though I have found it a useful sign in aiding in the interpretation of root and root-zone disease, it is not diagnostic, for its presence will not rule out other disease types. It is about in the same category as the many signs of sciatic involvement: Valleix's points, Bonnet's, Minor's and Neri's signs, Lasègue's phenomenon, etc., helpful if found, often absent, rarely diagnostic.

3. *Herpes.*—A herpetic eruption along the innervation of the posterior spinal roots, when present, practically eliminates in itself the possibility of a peripheral neuritis.

4. *Abolition of the Reflexes.*—In a complete radiculitis, all deep and superficial reflexes are abolished in the region innervated by the diseased roots. In the early stages, along with the irradiating pains, we may find increased reflex activity.

5. *Serologic Findings.*—Cerebrospinal fluid examination revealing a lymphocytosis and the presence of globulin is confirmatory of the diagnosis. The Wassermann reaction is also frequently positive inasmuch as syphilis is the most common etiologic factor.

6. *Unilaterality of Symptoms.*—A pure radiculitis is almost always one-sided. Bilateral involvement is rare. When it occurs, a meningomyelitis is probably commencing, even if the symptoms indicate only a radicular type of disease. An extramedullary tumor, as a rule, in the beginning, unilateral in symptomatology, must be always thought of.

7. *Muscular Atrophy.*—Involvement of the motor roots is not a necessary part of the picture of a radiculitis. However, in the cervical region, concomitant sensory and motor root involvement is the rule. In this region, also, a sharp distinction between root and plexus disease is not always possible, although an exact differential diagnosis has been attempted.⁶ I cannot agree, however, with Oppenheim that because the same causal lesion generally affects both roots and plexus, it is not important to attempt a differentiation.

In radicular disease, since most muscles are supplied by two or three roots, a partial paralysis of a muscle is frequently noted. Flatau gives an unisegmental innervation to a few muscles, such as the tensor fasciae latae and the subclavius. Most muscles, however, contain elements from various roots resulting from the growing together of several myotomes.⁷

8. *Muscle Spasms.*—Abdominal muscle spasms due to irritation of the anterior roots with associated involvement of the sympathetic fibers frequently accompany radiculitis of the thoracic roots and occasionally of the lumbosacral roots (radiculitis menin-gopathique of Chipault). Abdominal angina as a

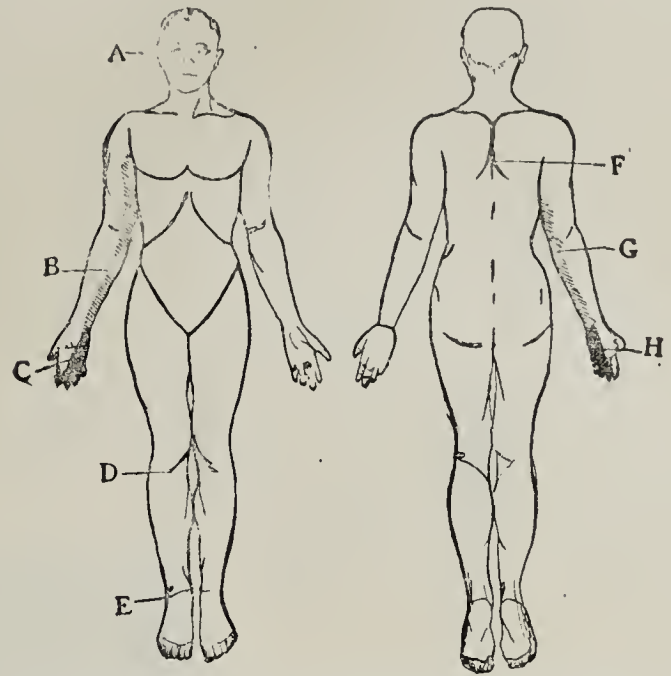


Fig. 5 (Case 1).—A, irregular pupils; B, hypesthesia; C, anesthesia; D, patellar clonus; E, ankle clonus; F, origin of radiating pain; G, hypesthesia; H, anesthesia.

result of arteriosclerosis must be excluded. I recently saw this type of abdominal pain and spasm in a patient of Dr. Lurting's, who was suspected of having posterior cord or root disease.

9. *Sensory Dissociation in Radiculitis.*—The band-like or longitudinally striated alterations of sensation are generally not equal for all modalities of sensation. A loss of tactile sensation associated with the conservation or an exaggeration of the pain sense is the usual type (*anesthésie douloureuse*). Of course, this

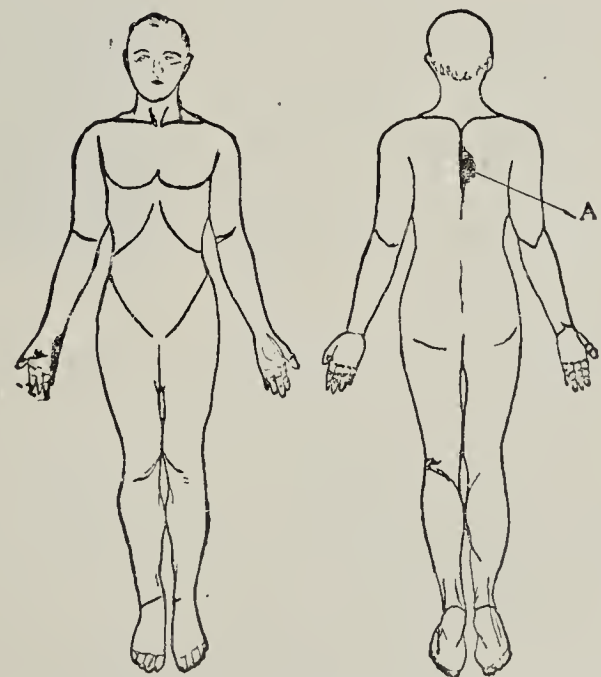


Fig. 6 (Case 2).—Biceps, triceps, pronators and flexors of hand and thenar, hypothenar and interossei involved; A, onset of pain.

is not distinctive or diagnostic, because it is noted also in peripheral nerve injuries. The causalgia of Weir Mitchell is a well known example of this. Deep sensibility is generally conserved. The true type of radicular sensory dissociation, according to Dejerine, is found in tabes. He has named it the "sensory radicular syndrome." Here the loss of tactile sensi-

6. Warrington-Jones: *Lancet*, London, 1906.

7. Edinger: *Bau der nervösen Zentralorgane*, Ed. 8, 1911, 1, 114.



Fig. 4.—Radicular sensory innervation. Heavy lines indicate direction of axial lines. Modified from Dejerine and Flatau.

bility coexisting with loss of deep sensibility, particularly of the sense of position, is much more pronounced than are alterations of the pain or of the thermic sense. It is an inverse type to the dissociation of syringomyelia. If Dejerine meant that it was

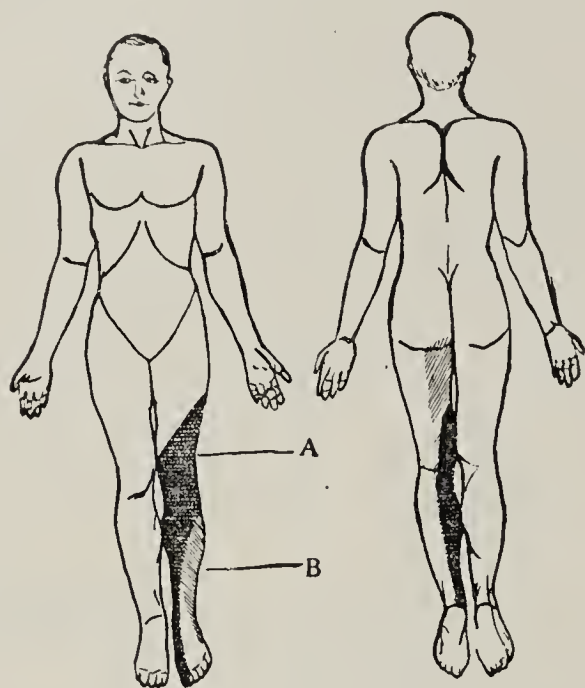


Fig. 7 (Case 3).—A, pronounced hypesthesia; B, slight hypesthesia.

peculiar to tabes, I cannot agree. I have noticed this dissociation in cord disease from pernicious anemia, for instance. Loss of deep sensation (particularly the muscle sense) does not occur without involvement of the posterior cord, and, therefore, we are no longer considering a pure radiculitis. A progressive marginal sclerotic meningomyelitis may bring on this type of sensory change. This should be the diagnosis, therefore, whenever radicular symptoms only are found, if a sensory loss of the position sense and of the muscle sense are present. The presence of striated anesthetic zones accompanied by such a sensory dissociation should lead to a careful search for slight muscle weakness, hypotonus or mild transient or continuous spasticity. One can well understand in this connection that the problem of disease of the fibers making up the roots must be thought of in reference to their implication, before they have entered the spinal gray matter, at the height of their termination in the posterior horn or in the intermediate zone (Dejerine).

The entire domain of proprioceptive reflexes and stimulation of the sensory pathways by the various organs of the body is also a problem which must be referred to in this connection. The finer sensory qualities of which we know so little and which regulate muscle and visceral activity are frequently altered in a radicular disease.

No sensation is a simple reaction, but depends on the judgment of the individual concerning complex neural processes. The threshold of sense perception varies so greatly that no word symbols can express individual distinctions. We must be content, therefore, with general words to express our interpretations, inasmuch as the clinician cannot interpret "pain or any sensation in reference to the problems of adaptation, contrast or liminal intensity." The "prefixed" and "postfixed" types of some writers refer to individual variations in the innervation of dermatomes.

We often find difficulty, therefore, in solving our clinical problems. In transverse lesions, for instance, of the cord, the retained sensation in certain root zones (first and second sacral) is very confusing. Head's explanation is that the sensory fibers group themselves in the lateral cords after their crossing and take a cortical course in the gray matter. The lateral cords are more resistant to compression and these fibers, therefore, escape injury. We may have, also, a lesion of the posterior cord without involvement of the corresponding posterior nerve roots. The symptoms of this Dejerine grouped under the name of the "syndrome of the long radicular fibers of the posterior cord." Intact tactile, pain and temperature sensations are present, or but slightly impaired, accompanied by a loss of the sense of position, of pain to pressure and of the vibratory sense (bone conduction). There is, likewise, a loss of the sense of tactile discrimination and of localization. This results in astereognosis.

In differentiating medullary from radicular involvement, it is necessary to remember the differences in innervation of roots and segments. The roots of the spinal cord, as before stated, especially in the lumbosacral region, take a long perpendicular course before forming a mixed nerve. Topographic differences in innervation occur. Most motor roots arise so near to their nuclei in the spinal cord that, for practical purposes, radicular and medullary segmentation may be considered to be the same. I have previously in this paper objected to their interchangeable use in reference to sensory innervation. The threefold course of the sensory fibers in the spinal cord, the bilaterality of those for pain and temperature, the unilateral course of the ordinary tactile fibers and the variations between long and short sensory fibers are reasons sufficient for this objection.

Clinical practice conforms to this. We guess at the height of a cord lesion. After establishing the anes-

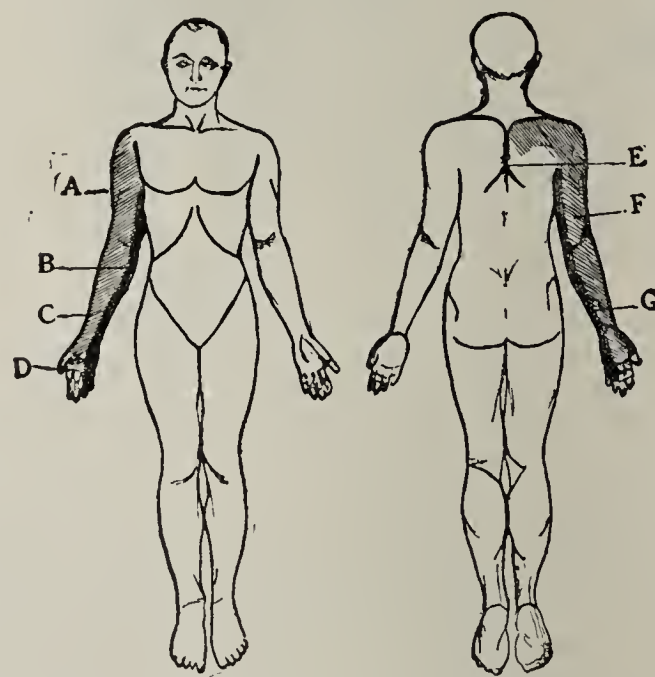


Fig. 8 (Case 4).—A, hypesthesia; B, lost sensation; C, dysbasia; D, hypotonus and spasms; E, onset of pain; F, radiating pain and hypesthesia; G, lost sensation.

thetic root areas and the overlying zone of hyperesthesia, we figure that the lesion is one segment higher. In fact, it is the general procedure to assume a lesion two segments higher.

Zona, herpes zoster, acute posterior poliomyelitis and acute posterior ganglionitis are various names

given to disease of the posterior ganglions. The sensory symptoms are radicular in type. Its infectious origin has been established. Occasionally the inflammation invades the anterior roots, giving rise to muscle weakness and wasting. In addition to the herpes, radicular pains and a radicular decrease of sensation is usually found. Degenerated fibers have been traced into the spinal cord. The sympathetic ganglions with their *communicantes* to the sensory ganglions, as well as the entire problem of the trophic and vasomotor functions of the posterior roots, are not well understood and their discussion would take us far afield. We shall merely mention the well-known oculopupillary phenomenon and the pilomotor reactions. We may consider, also, that the work of Ross, Mackenzie and Head has established that the viscera receive their sensory fibers from the same area from which arise the sensory roots along which the pain is referred.

The following four cases will illustrate the types coming under the diagnosis of radiculitis:

CASE 1.—E. S., aged 24, was attacked six months ago with shooting pains radiating from the back down the arm. There was motor weakness and wasting in regions innervated by the eighth cervical and first dorsal anterior roots, and possibly the seventh cervical. There was anesthesia to all sensations on the ulnar side of the hand and hypesthesia along the ulnar side of the arm. Tenderness was noted along the paraspinal line, from the fifth cervical to the first dorsal vertebra. Irregular pupils and increased reflexes were found, with ankle clonus. Pallor of the outer lower quadrant of the right optic disk was noted. The Wassermann reaction was positive, with forty-five cells on examination of the cerebrospinal fluid. The diagnosis was cerebrospinal syphilis, with radiculitis as a prominent syndrome. Three intravenous arsphenamin injections and daily mercurial inunctions were given for three months. The result was a negative spinal fluid and blood. Atrophy disappeared and muscle power returned. The clonus disappeared, but the increased reflex activity persisted. No change in sensory symptoms accompanied the muscular recovery, but later sensation became restored. The patient had an attack of herpes over the eighth cervical zone, a year before her present attack.

CASE 2.—L. S. had a sudden onset, with pain between the shoulders, later radiating down the right arm. All movements started sharp, shooting pains in both arms, but especially in the right. The patient became faint from pain and was removed to the hospital. An interesting question was raised concerning his right to compensation under the laws of Pennsylvania. He claimed the heat (he was a billet maker) caused this illness. Paralysis set in after several days, with wasting in the areas of the fifth, sixth, seventh and eighth cervical roots. There was no objective alteration of sensibility. The Wassermann reaction was positive.

CASE 3.—S. T. was suddenly attacked with pain in the left knee, ankle and in lower spine. He believes he slipped on the ice and sprained himself. The roentgenograms and laboratory reports were negative. There was no scoliosis. Hypesthesia to the touch was present over the area of the lower lumbar roots. There was no disturbance of heat and cold,

muscle or pressure sense. Some lessened sensation occurred over the upper sacral innervation. There was a sluggish patellar reflex. There was weakness and wasting of the thigh muscles supplied by the anterior crural nerve. There was weakened action of the tibialis anticus, flexion of foot being barely possible. Muscle power slowly returned.

CASE 4.—M. C. had a sudden onset, with pain between the shoulders, followed by sharp pains in the right arm and especially in the middle finger and dorsum of the hand. The arm was useless because of pain. Coughing and sneezing brought on pain. Exaggerated biceps and triceps reflexes were noted. There was weakness of the muscles innervated by the fifth, sixth and seventh cervical roots. Dysbasia was more prominent than any paralytic phenomena. There was a drawing pain in the back at the level of the first dorsal vertebra. There was a blunting of sensation to touch and temperature along the inner part of the hand, forearm and upper arm. An exploratory operation was performed (Dr. O. C. Gaub). The arachnoid membrane was cobwebby. The blood vessels were slightly congested. All the roots and spinal cord looked normal (lower cervical cord operation). Improvement followed the operation. Three months later, hyper-

esthesia of the eighth cervical and the first dorsal areas was noted and herpes of the fourth, fifth and sixth cervical areas.



Fig. 9.—M. C. (Case 4), two months after exploratory operation. Areas of pain on touch painted with iodine. Notice herpes over fourth, fifth and sixth cervicals.

ABSTRACT OF DISCUSSION

DR. WILLIAM A. JONES, Minneapolis: As illustrative of this subject, I would like to cite the case of a man in middle life who for sixteen years had a paroxysmal and recurrent pain in his right arm. He had no sensory loss of any kind. We decided that the only thing to do was to resect some of his posterior nerve roots. The location was carefully worked out and three roots were shaved off from the surface of the cord. He awoke from his anesthesia with a paroxysm of pain in exactly the same locality and without a shadow of disturbance in any of his sensory areas. He suffered for another year and then was operated on by another surgeon, who removed a root above and a root below the point at which we had operated. That relieved his pain, but incapacitated him muscularly as well as sensorially.

DR. G. A. MOLEEN, Denver: While at the National Hospital for the Paralyzed and Epileptic, in England, I studied a case with

Dr. Prentice in which Sir Victor Horsley had resected every other posterior root from the third to the ninth dorsal in a case of spastic paralysis without any sensory disturbance following. About a year ago Dr. Leonard Freeman of Denver, for the purpose of relieving a lumbosacral pain, resected the last three dorsal and the first three lumbar roots, as I recall, without sensory disturbance. In a case of gastric crisis in a tabetic I resected the posterior roots from the fifth to the eleventh dorsal, about a year and a half ago, and there was no loss of tactile sensibility following the operation, although affording prompt relief from the pain. Every single root was carefully resected subdurally. It would seem that we are wanting in an explanation for the absence of sensory disturbances following these resections, and I feel that this has a bearing on the subject presented. I would like to have Dr. Mayer's explanation, in view of the statement that the sensory functions of the posterior roots are pretty well defined, as I understood it to have been expressed.

DR. JOSEPH BYRNE, New York: The absence of sensory changes is to me rather inexplicable. For eight years I have

been doing research work on the sensory system with a view to determine the mechanisms involved in pain, and it was difficult work. On the psychologic side it is impossible to have pain without alterations in the sensory apparatus and consequently in sensation. On the purely physiologic side my own studies have convinced me that, if careful quantitative tests are made, it will be found that there are changes in one or other of the sensory domains.

DR EDWARD E. MAYER, Pittsburgh: I intended at first to limit my paper to radiculitis of the lumbosacral cord, because our orthopedic friends have been lately stressing their point of view of low-back pains. Many forget that the spinal roots are really a part of the spinal cord, inasmuch as they are bathed by cerebrospinal fluid and have the same meningeal coverings and are, therefore, subject to similar diseases. Dr. Jones and Dr. Moleen both are well aware that I cannot answer their questions. This much is true; however, (1) that sensory innervations are more complex than motor ones, because the former deal with more complicated proprioceptors; (2) that sensory findings are only quasiobjective, though we accept our patients' registrations as being always actual, and therefore objective. Again, with cord disease, we have fairly precise level diagnoses, but here also it is largely the motor symptoms and the reflex changes which give us our segmental localization. Lost sensation, of course, is definite. But pain is not. In the patients cited by Drs. Jones and Moleen, I imagine, secondary involvement of sympathetic ganglions occurred.

This often produces pain of an unlocalizable character. The variations in the course of the different sensory fibers and the connections of the gray and white rami of the sympathetic are apt to produce confusion. We have not yet worked out certain obscure types of reflex disturbances. Oppenheim and Tournay have recently written about sensory changes of this character in reference to a syndrome radiculo-sympathique reflex, and Sicard describes an acromyotonia, which is worthy of consideration in this connection. Both of these writers were inspired by Babinski's recent work on physiopathic phenomena. I would like to talk of this, but it would require more time than I am permitted to take.

CHILDREN IN THE WAR ZONE*

J. P. SEDGWICK, M.D.

AND

N. O. PEARCE, M.D.

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MINNEAPOLIS

One of the most important and interesting phases of the American Red Cross Work in France is the care of refugee children in the war zone. This work is carried out under the auspices of the children's bureau, which was organized in July of last year. The first work of this character undertaken was the establishment of an asylum and hospital for children at Toul, in the Meurthe and Moselle Department. This medical and relief work, with the help of the French civilian and military authorities, has been developed along such extensive lines that today the children's bureau, through this institution and traveling dispensaries, is able to bring help to the entire child population of the department, the fighting front of which, as all know, is the original sector taken over by the American expeditionary forces.

The need of this work can be better appreciated when it is recalled that in this whole district, where thousands of children are living under violently upset conditions, there were only fifteen hospital beds available for children, and these only for emergency oper-

ative cases. There were but a few physicians available for civilian service, and these only because they had reached an age at which they were unable to endure army service.

When we undertook the organization of medical relief work in this department, there were about 200 little refugees at the Asile Caserne du Luxembourg at Toul. They had arrived a short time before from the partially destroyed villages directly behind the lines

TABLE 1.—HISTORY OF ONE HUNDRED FRENCH REFUGEE CHILDREN *

	Per Cent.
Fathers in army.....	93
Killed in battle.....	13
Prisoners of war.....	5
Mothers living	96
Natural delivery	95
Breast-fed 3 months	13
6 months	3
9 months	8
12 months	23
15 months	27
18 months	4
20 months	8
24 months	9

* The average number of children in a family was 4.

just north of Toul. It had been necessary to evacuate them quickly from these towns because of German gas attacks. These children had been living since the beginning of the war under almost daily bombardment among the ruins of their former homes. To exist at all under such conditions entailed many hardships and much neglect. Many had slept during this entire period in cellars where sanitation and hygienic conditions were of the poorest, as many as twenty-five to thirty women and children occupying the same room without ventilation or sunlight. Naturally food conditions were bad, and the children lived largely on coarse war bread, garden vegetables and chocolate, there being not so much a lack of food as improper preparation, owing to the fact that the mothers and older daughters were engaged every hour of the day in war or agricultural work.

TABLE 2.—HEIGHT AND HEAD CIRCUMFERENCE OF TWO HUNDRED FRENCH REFUGEE CHILDREN,* COMPARED WITH AMERICAN STANDARDS OF HOLT

Age, in Years	Height		Head Circumference	
	American, cm.	French, cm.	American, cm.	French, cm.
1	73.50	69.80	45.20	46.18
2	82.80	75.12	47.70	47.22
3	89.10	82.08	48.80	49.10
4	96.70	93.45	49.90	49.44
5	105.90	99.05	51.80	49.88
6	111.40	104.76	.....	50.47
7	117.10	109.68	.....	50.72
8	122.20	114.93	.....	50.79
9	126.60	120.18	.....	51.80
10	132.10	128.53	53.10	52.45
11	136.90	136.40	.....	.....
12	143.20	137.08	.....	.....
13	148.50	139.50	.....	.....

* Girls, 57 per cent.; boys, 43 per cent.

So much has been said and written concerning the prevalence of tuberculosis, nervous diseases and venereal diseases among the French population that, as a basis for our medical work, we proceeded to make as careful a study as possible of these first 200 children; and the accompanying tables are a summary of the interesting points in the histories and physical findings, with such laboratory work as we were able to have done.

Table 1 is of particular interest, showing that 93 per cent. of the married men were in army service;

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

that 95 per cent. of the children had received breast milk for at least three months, and that a rather large percentage had continued to receive breast milk up until the end of the second year.

We were struck with the fact that the French children were shorter in stature than our American children of the same age, and that the head circumference of those 1 year old was relatively larger.

The Wassermann reactions were largely taken in selected cases in which there was a direct suspicion, so the number shown is not an indication of what one would find in the routine Wassermann examination of these children.

As may be gathered from the foregoing, in spite of the fact that these children were living under such abnormal conditions and were almost universally infected with filth diseases, there was little evidence of serious trouble. Of the active tuberculosis which we expected to find, there was less than 0.5 per cent., and

TABLE 3.—PHYSICAL EXAMINATION OF ABOUT TWO HUNDRED FRENCH CHILDREN, REFUGEES FROM WAR ZONE

General Appearance		Chest	
	Per Cent.		Per Cent.
Underdevelopment	45	Harrison groove	50.5
Undernourishment	46	Rosary, marked	
		D'Espine	
		+	22
		++	3
		+++	0.5
		Resonance impaired	3.5
Skin		Heart	
Old or active impetigo	61.5	Outline normal	100
Chickenpox, active	6	Murmurs	6
Vaccination, usually three scars	64		
Head		Abdomen	
Shape		Type prominent	30
Rachitic	17	Liver enlarged	1
Hydrocephalic	1	Spleen palpable	0.5
Eyes			
Conjunctivitis	75	Reflexes	
Ears: Otitis media	14.5	Chvostek	13
Nose		Knee jerks	
Mucous discharge	36	+	63
Purulent	3	++	32
Teeth, poor condition	43.5	+++	1
Tonsils			
Enlarged	47	Spine	
Removed	0	Scoliosis, marked	33.5
Adenoids marked	25	Pott's disease	0.5
Enlarged Lymphatic Nodes		Shell traumatism	1
Cervical		Von Pirquet Reaction	
+	41		
++	5	Number	
Epitrochlear		Tested	404
+	15	Human +	78
++	1.5	Bovine +	31
Intercostal		Bovine +, Human —	9
+	3.5		
++	0.5	Wassermann Reaction	
Tuberculous adenitis	0.5	Tested 60	2

Gonococcus infection negative in all examined.

this low percentage was maintained throughout the subsequent examination of hundreds more of these children. There was no evidence of shell shock in any case, although many of the children had lived for months within easy shooting distance of the front lines. Although the children, in almost every case, had head or body lice, and many of them had been living in homes where soldiers were billeted, we recognized no cases of typhus fever.

Wheat Not Necessary.—We are accustomed to regard wheat as a more or less indispensable article of diet. It isn't. It is an article of luxury, and absolutely nothing else. Wheat possesses over oats, corn and rice absolutely no nutritional quality for man or beast. It has no more protein, and no better protein. It has no more fat, and no better fat. It has no mineral salt better or in larger amounts. It has no more fuel or better fuel. It is just *one* of the cereals, and there isn't the slightest evidence that it is the best one, because so far as comparative tests are concerned in animals, it isn't the best one, it is very far from the best one.—A. E. Taylor, M.D., U. S. Food Administrator.

WORK OF THE CHILDREN'S BUREAU, DEPARTMENT OF CIVIL AFFAIRS, AMERICAN RED CROSS, FRANCE *

WILLIAM PALMER LUCAS, M.D. (SAN FRANCISCO)
Professor of Pediatrics, University of California, on leave of absence;
Chief of the Children's Bureau, Department of Civil Affairs,
American Red Cross, France

FRANCE

The Children's Bureau, American Red Cross, started its activities last July with eleven members. At the present time the bureau comprises more than 400 members, and is doing children's work and also a good deal of medical work for women throughout the whole of France.

Our first assignment was to take charge of the Children's Colony and to develop the hospital near Toul. In this army sector all children under 7 had been ordered back for a distance of 10 kilometers from the front, because of the gas bombing, children under



Fig. 1.—American Red Cross contagious disease hospital for children, capacity 200 beds, at Evian, France.

7 being unable to wear gas masks satisfactorily. Dr. Julius P. Sedgwick of Minneapolis was in charge of the early development of this work, and installed a colony of more than 500 mothers and children in the governmental military cantonment turned over to us for this purpose. Dr. Sedgwick also started a hospital for children, which has since been developed under Dr. Maynard Ladd of Boston, who took charge of the work after Dr. Sedgwick was obliged to return to his university duties the first of this year. We now have at Toul a hospital of 200 beds, fifty of them for maternity cases and the remainder for the diseases of children, both medical and surgical. In this department under the patronage of the préfet, M. Mirman, we have developed one or two other smaller hospitals and a chain of dispensaries in the smaller towns, especially the manufacturing centers—towns of from 10,000 to 20,000 inhabitants. Here our traveling dispensaries have clinics once or twice a week, a physician, nurse and aide comprising the unit. Throughout

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the war zone we have developed this type of work, our center being some town or city with a small hospital, with the traveling dispensary covering a radius of from 15 to 20 miles. We have had such work at Chalons and also at Amiens and Nesle. At both of the latter, unfortunately, we had to give up in the first offensive this spring. Our work in the war zone



Fig. 2.—Visiting hour at the American Red Cross contagious disease hospital for children, Evian.

at the present time is all under Dr. Maynard Ladd of Boston, who has charge of the development and operation throughout the whole of that section.

Our second large assignment was the work with the *rapatriés*. These are the inhabitants from the north of France, whose country has been occupied by the Germans since 1914. They are sent back first into Belgium. From there, after a stay of a few weeks to a few months, they are brought through Germany and Switzerland, entering France at Evian, on Lake Geneva. Here, when the convoys are operating, from 1,200 to 1,400 people enter daily. The convoys consist mainly of old people and young children, and mothers with large families—all those that the Germans cannot in any way use in their industrial or agricultural work. At Evian we have had the opportunity of working directly under the French Public Health Service, of which Dr. Paul Armand-Delille is chief. The Children's Bureau of the American Red Cross was given charge of all the children's work at this station. We had first the problem of inspecting all the children who entered—some 500 or 600 daily. Since taking charge we have examined more than 40,000 children, picking out those with contagious diseases for our acute disease hospital of 200 beds, which we operate in one of the modern hotels of this summer watering place. We have also had a daily dispensary, which takes care of those who do not have to enter the hospital, but need medical attention before they are sent on in smaller convoys to various departments in the interior of France. As one can readily imagine, this has been a very important public health station. In our hospital, thanks to the excellent work of our various medical chiefs, and especially to the fine medical and administrative qualities of Dr. C. F. Gelston, who has had charge of the work for the longest time, as well as to the efficient nursing service which we have been able to build up, we have had less than 2 per cent. cross-infections, proof enough in itself of the careful and scientific management of such a rapidly changing acute disease hospital. In this

work we have been operating in very close conjunction with the French organization for repatriated children of Lyons, of which Mme. Gillet-Motte is chairman. Under her, this work has developed into one of the most remarkable and successful "œuvres" for children in France today. We have just outside of Lyons a large convalescent home of 200 beds for these children, in a château which was given to us for the period of the war expressly for this purpose.

Our third main type of work has been in the larger cities of France as well as in some of the smaller important manufacturing towns, where, on account of the acute congestion in the cities, the medical and social problems have been greatly increased. The medical problem throughout France one can better understand if one realizes that practically all the medical profession of France has been mobilized. Every medical man under 55 is in army service, and most of the good medical men over 55 in the larger cities are also mobilized for a part of their time in the military hospitals of their own cities. This has created a great need for medical service. In many quarters there is only one French physician to 5,000 inhabitants, and in some of the more sparsely populated centers, I am told by the French authorities that there is only one physician to 20,000 inhabitants. Many small towns of from 5,000 to 6,000 have no physician at all. In Paris, Lyons, Bordeaux, Marseilles, St. Etienne, Evian and other manufacturing towns, we have centers for our work. In most of these we have one or more hospitals and a chain of dispensaries and infant welfare centers, with physician and nurse and aide attached. It is in conjunction with these centers that we are carrying on our training schools for health visitors for French women. In this field we already have between sixty and seventy American physicians, about 50 per cent. of whom are women, and the work which they are doing it is impossible for me to praise too highly. The consecration and sacrifice which these physicians are making is most commendable, as is the work which our nursing service has given. Our whole



Fig. 3.—Ward in American Red Cross contagious disease hospital for children at Evian, showing cubicle system by sterile curtains.

nursing service is under the charge of Miss Elizabeth Ash of San Francisco. Under her intelligent supervision and with her broad point of view we have been able to meet this most difficult situation.

Our main efforts for child welfare have been those dealing with infancy, so that where we did not find any establishment for children in France we have tried to increase the amount of nursing and care given

to young infants. This work cannot be overestimated. It is the foundation stone of all child welfare, together with prenatal care, which we have emphasized at all points. But the older child, especially the adolescent child in all countries, has received very little attention,



Fig. 4.—Grandfather dressed in sterile robe and cap visiting his grandson in the American Red Cross contagious disease hospital for children at Evian.

and under present conditions this is almost inevitable. We have been attempting to reach this class as far as possible through our special supplemental lunches in the schools, which Dr. Knox of Baltimore and Dr. Manning of Seattle have developed in Paris, and which we are extending to other cities as the need arises. Our dispensary system in Paris has been worked out in cooperation with the Rockefeller Commission for Tuberculosis. This work was originally developed with Dr. James Alexander Miller of New York, our Children's Bureau cooperating with the commission in one of the sections of Paris where we have worked out a model system of dispensary follow-up care. We are planning to establish a clearing house for children in Paris, as hundreds of refugee children come through from the north of France. The need for this has been felt by many agencies. The size of the problem is almost overwhelming.

Another section of our work is that of assisting French organizations occupied with children. This is really the relief section, and has been developed mainly by Mrs. Hill, who has been working with children (Frontier Children of France) since the war began, and of late by Dr. Reeder, who has evolved a plan for coordinating the child-placing which comes to our bureau with that of all the various French organizations which place children either in homes or in colonies.

The last and perhaps the most important development of our activities is that related to the educational side. This has been developed along the same lines with which we are all familiar in this country.

we have an educational bureau, by which we have attempted through pamphlets and the press to reach the public. We have publications on prenatal care and the care of the young child, dental hygiene, recreation, etc., and were fortunate enough to secure a number of very good cartoons by the best French artists. This, in conjunction with our traveling and city exhibits for child welfare work, we feel to be one of the most important lines of educational work that we have been able to undertake. The French government, in its Department of Interior, Public Health Service, of which M. Brisac is chief, and in cooperation with the National Association for the Prevention of Infant Mortality, of which Senator Strauss is president, has cooperated very closely with us in the formation of this program, and we are working together on a broad national campaign for the reduction of infant mortality. The problem in France is one not only of reduced infant mortality, but, what is even more serious, a very marked reduction in the birth rate. The infant mortality rate, for instance, for Paris for 1917 was 126, but the birth rate had fallen over 50 per cent. of the normal birth rate, so that the necessity for saving every child's life possible is more than evident. The total infant yearly death rate in France is estimated variously from 80,000 to 100,000 infants a year. We hope by the creation of infant welfare stations, in which France was the pioneer, the first infant welfare station having been started by Budin in 1891, to affect materially a reduction in infant mortality, especially in conjunction with our schools for health visitors, which are being developed in all the large cities in France. Short courses of from five to ten months are carried on in cooperation with the Rockefeller Foundation. In these schools we are training the French women to carry on the "follow-up" work, both social and medical, in our dispensaries.

Lastly, with our traveling exhibits and infant welfare expositions in the large cities, we hope to reach the larger part of the population of France within a very short time. The importance of this cannot be



Fig. 5.—Schoolchildren at Paris being supplied with school lunches by American Red Cross.

overestimated, and it is very gratifying to see the response which we have received not only from the government, but from all classes of people and all the French organizations interested in child welfare work, wherever we have been privileged to commence this work.

The efforts of the Children's Bureau, then, are already numerous. The type of medical assistance

that we need is general rather than special. Perhaps the most lasting result which the Children's Bureau will accomplish will be the "follow-up" work, which will be carried on, we hope, by a large number of trained French health visitors. The child life of a country is the second line of defense. It must be preserved at any cost, and strengthened in every way, if we would keep any nation truly prepared to meet



Fig. 6.—Dinner at Chateau des Halles, American Red Cross convalescent hospital for children near Lyons.

future demands. The conservation of child life is as much a part of this great conflict as the maintenance of armies. It is for the future freedom of the children of today and of tomorrow that our Allied armies struggle at present. The struggle must not be in vain. From such ideals at home the Children's Bureau of the American Red Cross sprang. Toward the consummation of such ideals the Children's Bureau will continue to work.

This paper and the one by Drs. J. P. Sedgwick and N. O. Pearce, which precedes it, are part of a symposium on Child Welfare. The remaining papers, by Drs. L. R. DeBuys, Paul Armand-Delille and Grace L. Meigs, appeared last week.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. DE BUYS, ARMAND-DELILLE, MEIGS, SEDGWICK AND PEARCE, AND LUCAS

DR. RAYMOND HOOBLER, Detroit: Having heard these facts presented, there is laid on us a deep responsibility. Those of us living in large cities, particularly where munitions are being made, where women labor, and where they will soon be called to the maximum, should not be derelict in our duty. As Dr. Lucas has said, where there were 5,000 women in France making ammunition at the outbreak of the war, today there are 800,000. It hardly seems possible that the same thing will occur in our own land, but if this terrible war continues, it will not be unlikely that we will have to face this same problem. This would develop a tremendous problem among our children. While this problem is comparatively small now, with only a few women working in plants in our home towns,—now is the time for us to begin the campaign, so that as day by day numbers of mothers are called into this great work, we will keep step with the responsibility, and not wait for two, three or four years, and then try to get under the load. Let us get under it in the beginning. How many of us know how many mothers are working in munition plants in our town? If we knew we might be carrying a heavier load now. I suggest that we all go home and find out. A possible method of determination of the number of mothers working in the various factories would be through the Board of Health—having all the factories who employ women report to the Board. After determining the number of mothers who

are working in these places, we will have a basis on which to organize some system of determining whether the children of these mothers are being properly cared for; whether any rooms are set aside in munition plants and other factories where these mothers can bring their children and have them supervised while they work. Women with nursing babies should have time allotted to go to their babies at regular intervals. This could be accomplished by having rooms set aside, properly equipped and with competent nurses in charge, to care for these babies at the factories where the mothers work. We should tackle this problem before the burden becomes too large, and little by little keep pace with the tremendous need which is surely coming.

DR. EDGAR J. HUENEKENS, Minneapolis: The most important thing we can do is to expand the infant welfare work we are already doing. It is well organized in the larger cities, but hardly any work has been done in the smaller communities. About a year ago I was called to see a baby at Little Falls, a town of about 7,000. The nurse in charge of the infant welfare work had already attached to herself ten or twelve babies, so that when I arrived I saw not one baby but a dozen babies. This opened my eyes to the need for this work, and with the aid of the Civic League we started welfare clinics. They have become so successful and so popular that we now have children coming from the surrounding towns. Before we started we had a conference with the physicians of the town to make sure of their cooperation. This clinic was started as an experiment, and it has been so successful that with the cooperation of the state Board of Health, the University of Minnesota and the pediatricians, we are trying to extend such clinics throughout the state. We are trying to have a full time pediatrician go about the state conducting these infant welfare clinics, and to stimulate communities to get public health nurses and to conduct these clinics. We have had great difficulty in getting the cooperation of the State Safety Committee. A resolution from this body directed to the State Board of Health would bring pressure to bear on these Safety Bureaus. The work in these smaller communities has not kept pace with that in the large



Fig. 7.—Entrance to child welfare exhibit at Lyons in April, 1918; 1,000 schoolchildren daily attended the exhibit with their teachers.

cities, and it is often of comparatively greater value in the smaller communities.

DR. LAWRENCE T. ROYSTER, Norfolk, Va.: This is just the beginning of general plans to be carried out throughout the entire United States, so that every child may be known personally to the Bureau at Washington. It is the only way we can accomplish anything in conservation of child life. In the

child welfare clinic with which I am connected, in a town of 100,000, having an attendance in 1917 of 4,832, just before our weighing and measuring came off we had a house to house canvass. Every child up to the sixth year was registered by an individual registrar going from house to house, so we could check up how many children failed to come to the weighing stations at the end of the week, and I am sorry to say the number coming in comparison with the register is small. There is much to be done to get this knowledge dis-



Fig. 8.—Outdoor kindergarten class, American Red Cross child welfare exhibit, Lyons, April, 1918.

seminated. With all our efforts, a comparatively small number came to us. This is an educational propaganda, like everything else. Education in one form or another is the salvation of our race, regardless of how you may apply it. Everything said here this morning is educational—means educational work on our part—but the application of that education is what we need. I believe the Federal Bureau has eventually in mind, through its Child Bureau, registration of every baby born in the United States, and a record kept of it up to school age, and it is perfectly feasible. If one community can get a census of every baby as we got it, it is not impossible for other communities. It is just a question of whether you want it. Then we can keep track of the population, having them report to private physicians or clinics at regular periods, and thereby build up the nation—a nation that will be stronger and healthier. We know, as Gladstone said “On the health of the people depends the strength of the Nation.” Will each one of us go home determined to find out the condition of the children in his own community, and then help this propaganda for individual teaching?

DR. JOSEPH I. GROVER, Boston: In Boston the babies were weighed and measured about a month ago, and the work was carried on by women who evidently knew nothing about it. They did a great deal of harm. One woman in my neighborhood was chosen because she knew how to weigh potatoes. Some of the babies were weighed four or five pounds out of the way. One of the women sent fifteen or twenty babies to a doctor who was a relative of hers, one year out of the medical school. One mother asked the woman in charge what she ought to do about her baby because it was underweight, and she was advised to wean it. These tests, to be of value, should be conducted by people qualified to make them.

DR. FRANKLIN N. ROGERS, Manchester, N. H.: Manchester is a city of 80,000 people and is one of the largest manufacturing cities in New England. About half of the population work in textile mills or shoe shops. At least half consist of women. Like all mill cities where women work of necessity or for gain, there necessarily exists a great demand for child welfare work. This child welfare work has increased since the war began. As more and more men leave our city for the front, the greater will be the number of mothers seeking employment which will of necessity separate them from their children. The question which confronts our city as well as any city of like nature, in this crisis, is how are we going to expand child welfare work in order that we may keep the

death rate down. The pediatrician doing child welfare work naturally is called on to do all in his power to help the social service workers. The pediatrician believes that child welfare work is definitely a war work, and I believe that both the pediatrician and the obstetrician should be considered war workers and should be given recognition.

DR. LOUIS H. SCHWARTZ, New York: It should be emphasized that this work is distinctly a war measure. This is just as patriotic work as any other, and provision should be made for it as war work. In New York this work is a great problem. In one zone alone we have 44,000 children from 2 to 6 years of age. I should like to impress on this society that this should be put up as a vital necessity to the country, for which proper provision should be made, and not left to volunteers. The country should be awakened to the importance of systematic, regular examinations of children, and proper registration of them.

DR. JOHN A. FOOTE, Washington, D. C.: Any one who has read the history of infant welfare work in the past realizes that children suffer not only during war but also and still more from economic conditions following the war. The rich nations have always taken very good care of their children. The ancient Egyptians and Babylonians were rich nations and their children were well cared for; but among the poorer nations, for instance China, the drowning of females is common. There are many things that more civilized nations do in exploiting children which cause a great increase in child mortality. If the United States is going to be any different from any other nation in history, it must do this work not only during the war, but must so solidify organization that the work will go on after the war, when the great burden of taxation, and so forth, comes to this now rich nation.

DR. J. T. CHRISTISON, St. Paul: In reference to this so-called “baby week.” This work has been carried on throughout the country. In my own city it was conducted by women’s clubs, dominated by a woman who calls herself a “doctor of osteopathy.” Does the bureau at Washington send out all this literature and cards to such individuals expecting physicians in these cities to fall in line? We did not do it in St. Paul for the simple reason that the supervisor of our Baby Welfare work would not permit us to do so. Why does



Fig. 9.—Indoor kindergarten class, child welfare exhibit, Lyons, April, 1918.

the bureau at Washington not send its literature to the state officers of the various bureaus of health? Then it would get into the proper channels and something would result in a beneficial way. A number of these cards were brought to my office after being filled out and various suggestions offered as to sundry operations on the children which in every case were quite unnecessary. I would like to suggest that Dr. Meigs impress on this bureau the necessity of conducting a campaign of this sort in the right direction.

DR. LANGLEY PORTER, San Francisco: It is undoubtedly true that the bureau at Washington is using a very vital and important force in developing this infant welfare work. This section might put itself on record as expressing appreciation of the work done along this line, and as desiring to cooperate in every other way with the bureau, and expressing the opinion that this infant welfare work should come from people interested in obstetrics and pediatrics. But in this work

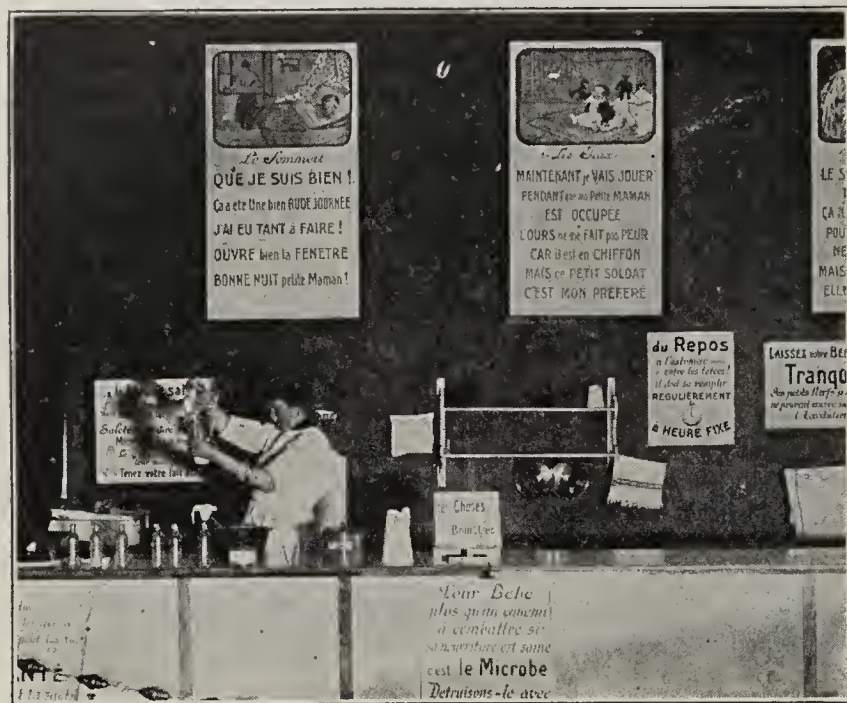


Fig. 10.—Milk demonstration at child welfare exhibit, Lyons, April, 1918.

during war time, or post war time, we must have cooperation. We have developed infant welfare work too largely from the side of the medical man and not sufficiently from the side of the sociologist. This body might go on record as stating that we believe much good could be done by incorporating in the physiology in the high schools and other schools of instruction simple facts of the physiology of childhood and the hygiene of the child, which would be of great value in education of the masses.

DR. C. F. WAHRER, Fort Madison, Iowa: I am not in sympathy with the idea that an all-wise Providence should produce a great disaster in order to make people good, but I think sometimes when we have suffered disaster it brings us together more in the bonds of human sympathy—this we cannot deny. When the Master wanted to be especially effective he took a little child and set it in the midst of them and told them certain things. This has been portrayed in a wonderful manner by those who have spoken before, and I wish only to enforce the sentiment brought out by Dr. Royster, that we must have statistics so that we can follow up these babies in later life. We must look after the welfare of the infants and children in such a manner as to produce the highest class of womanhood and manhood. In these statistics we must individualize, not generalize. What may be true of classes and masses, is not always true of the unit. In this work the profession must assist and the federal authorities must be willing, by legislation, to keep these vital statistics, that they will be not only true, but of such a character as to be of value to succeeding generations, as well as to the individual.

DR. FRANCIS M. HOLLINGSHEAD, Columbus, Ohio: I represent the State Department of Health of Ohio and am chairman of child welfare for the National Council of Defense in the state. There are two points of view concerning this plan from the standpoint of the pediatrician. In my state we put the problem to the pediatrician in every community, either directly or through the local health department. In some of the highly organized communities we have had wonderful results, but we have also met with reaction in some localities, because the test is superficial and because it is not a thorough examination, such as we would like to have, hence the pediatrician wants nothing to do with it. If this section is going to take a stand against the present method of work, they

are going to commit themselves to help in the work along other lines and to recognize that it is of sufficient value to align themselves with it. There would then be no question of the woman's committee going to them and asking them to assist in the tests. I feel that the educational value of this particular piece of work is sufficient to warrant its being endorsed by the pediatricians.

DR. LEROY A. WILKES, Bridgeport, Conn.: My own criticism would be that the direction is too far away. The head of the work should be in Washington, but the work should be conducted in the communities by people whose life work is among children, and not through women's committees entirely. The women's committees should work through the departments of health, especially where they have a child welfare division. The work of the women's committees should be according to that outlined in Bridgeport—getting all the children to a central distributing agency which the child welfare division of the bureau of health would represent, and the third agency that of the physician. We divide the work into three departments, each conducted by people capable in their particular line. I do not believe in turning the whole thing over to the people who are not trained for the work, no matter how willing they are. A census of the children under 6 can be made often from the public schools, by having each pupil take to his residence a card on which the age and name of every child can be entered. This could be accomplished through the department of schools. These could be card-indexed by the Health department according to addresses and distributed to health stations in the various districts, and in this way the children reached and examined, and placed in the proper channel for treatment when necessary—that is, those who can afford it sent to a private doctor, those who cannot afford to pay for treatment sent to the public clinics.

DR. J. P. SEDGWICK, Minneapolis: These children did not show a large proportion of tuberculin reactions nor a large proportion of Wassermann reactions, as we had been led to expect. The children were in fair condition, but showed markedly the result of poor housing and poor personal hygiene. Impetigo and other skin infections were striking. This shows how much they need the care which the Red Cross is giving them.

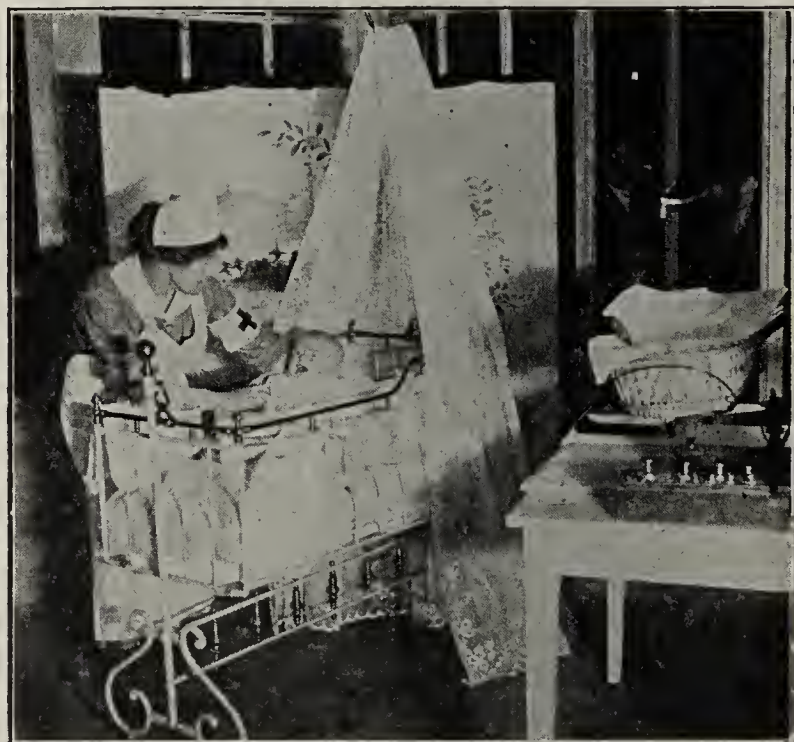


Fig. 11.—Baby washed, dressed and put to sleep in glass house at child welfare exhibit, Lyons, April, 1918.

DR. GRACE L. MEIGS, Washington, D. C.: You will remember I said that I approached the subject of the weighing and measuring test with some diffidence. The Children's Bureau and I are very glad to have constructive criticism from this body of pediatricians. We are also glad to have your help and interest. In considering the weighing and measuring test, I wish you would think of the problem that faced the Children's Bureau this year. With a very limited appropriation

and a very limited staff it had before it the problem of arousing the country to the fact that the welfare of children is really a war time problem. The interest of every one has been diverted to other things that have a more dramatic appeal, or seem to have a closer connection with winning the war. The experience of other countries has shown that the welfare of children is an important problem in war time and we had to get over this fact to the country.

The plan of the weighing and measuring test contemplates the expert services of physicians and nurses, but volunteer help is necessary for local organization and carrying out of plan; and so the Children's Bureau appealed to the eleven million women organized under the woman's committee of the Council of National Defense. It is only just to ourselves to say that in all of the literature sent out by the bureau we advised the committees on the weighing and measuring test to seek the help of the health authorities and physicians. We have also communicated with the physicians and health authorities asking them to cooperate. Of course in any huge campaign faults are very evident—perhaps more evident now than they will be later. When the whole campaign is a thing of the past we perhaps can tell better what the end results have been. I know I can speak for the chief of the Children's Bureau and say she will be very glad to have suggestions and help from this section of the American Medical Association.

Dr. Hoobler brought up the question of women going into industrial life and its effect on child welfare. We heard from Dr. Lucas of the great employment of women in France and its absolute necessity. Perhaps it is natural to suppose that the same necessity exists in this country at present. I think we should consider a long time before we are sure that that is the case. At present our supply of men for labor is not exhausted. Besides that we have great reserves of unmarried women. Of course, in time this country may be in the same situation as France, but we should not take it for granted that mothers of young children should be urged to work in factories at present. One of the biggest duties in this campaign is to emphasize the fact that we need the women to care for their children in their own homes. Women without these ties should undertake labor in the munition factories, etc. The greatest service of a woman with young children is usually carried out in her own home in caring for her children. The study made by the Children's Bureau in Manchester proves that this is a fact. The infant mortality rate among the babies whose mothers were employed outside of the home was much greater than of those whose mothers were at home caring for their children. That is a basic fact and I think we should remember it in all our thoughts on this subject.

DR. WILLIAM PALMER LUCAS, San Francisco: I just want to say a word or two, following up what Dr. Meigs said, about the necessity and type of child welfare work to be done during the war period. Experience is the best teacher, and we all of us are idealists and would like to do things in the very best and most ideal way. Unfortunately, owing to existing conditions you have to adopt methods that will bring results. I have talked with members of the Children's Bureau and others working along this line. I think they are fully aware of the criticisms that have been made. But what they are after definitely and concisely is to get the public eye on a certain definite problem. We know under modern methods things can be brought to a focus pretty rapidly in this country, and what Dr. Meigs has said along that line is true. I feel from a medical standpoint, as I have watched (if you will allow me to say so) my own development along these problems, that one of the weaknesses of myself was the lack of appreciation of the social and economic problems that enter into big medical problems. I think what Dr. Porter said is very true. The educational side of child welfare has been neglected, not only by educational departments of medical schools, but by the schools at large. That is one side which we must develop more and more. I feel that the physician of today must study social and economic problems. One of the biggest and most successful workers in preventive medicine said to me "the one thing I feel the medical profession as a whole is missing in attempts at preventive medicine is a realization of the economic problem. In my attempts at

directing communities, countries and nations to the importance of their health problems, I am directing them more and more through economic avenues." I think that is well worth study. The more we study economic conditions and social problems the more advance we will make in the reduction of infant mortality. We are specialists on the medical side, and we must not feel that because there is a sociologist studying the problem from an economic or social standpoint that his judgment is not to be regarded of the same value as our own. He undoubtedly regards the medical viewpoint in the same way as we do the economic. The sooner we get on common ground and discuss the problem, the sooner we will come to conclusions. Writing letters, discussing from long distance, never affords a solution so quickly as meeting the person directly and facing the problem together.

There is a saying in France which is common in all military circles. It was first started by the publication of a book, whose title is "Carry On." Probably no two words are used more frequently over there. If we could adopt a motto for our babies, we would arrive at a very good conclusion.

DR. LAURENCE R. DEBUYS, New Orleans: We should benefit by the experiences of some of the departments located in Washington. For instance, Dr. Davis, chief statistician for the Department of Vital Statistics, informed me the other day that it would take a number of years for that depart-



Fig. 12.—Playground in front of child welfare exhibit of the American Red Cross, Ministry of the Interior, Ligue contre la mortalité infantile, at Lyons in April, 1918.

ment to accomplish anything without the nation standing behind it. To date only 31 per cent. of the area in the United States registers births and about 60 per cent. registers deaths. This is just an example of what might be expected with individual efforts. Are we to continue with individual efforts in this great problem of the conservation of child life or are we to appeal to the government for federal aid? The conservation of child life should be a war measure. Are we to send all our pediatricians abroad to assist in the conservation of child life there? or, Are we to have our pediatricians, appreciating the pressure made on them, go into the Reserve Corps and forego their positions and responsibilities in their various communities? or, Are we to keep our pediatricians here to assist in conserving the lives of our own infants for the future strength of the nation, and not permit our country to approach the present conditions you have had portrayed to you here today existing in some of the warring nations? The vital problem is to save lives now. As to who shall direct the work? We all know that the problem is an economic one, we also know that the question of conservation of infant life is a medical one. With whom should the consideration of this problem be left? It seems to me that it is a federal problem, yes, a war measure, and that the pediatrician who has given his life to this work should at least be a consultant, if not a director.

Military Medicine and Surgery

CASES OF EMPYEMA AT CAMP LEE, VA.*

PRELIMINARY REPORT

By THE EMPYEMA COMMISSION

CAMP LEE, PETERSBURG, VA.

CONTINUOUS MEMBERS

MAJOR EDWARD K. DUNHAM, M. R. C.
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CAPT. WILLIAM L. TOWER, M. R. C.
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MISS MAUDE H. HAYS, DIETITIAN
MISS BESSE E. STOCKING, ARTIST
MISS E. PAULINE JACOBS, SECRETARY

This preliminary report has been prepared while the investigation was still in progress and contains only such observations, and deductions therefrom, as appear of immediate clinical importance.

Statistical data and laboratory studies must be deferred to a future more detailed report following completion of work still unfinished. This includes serologic, histologic and experimental studies, and observation of cases that are apparently healed, but which experience has shown are still liable to a recurrence of the empyema. Opportunities have not yet arisen to study methods of caring for chronic cavities and sinuses which show no tendency toward a favorable progress.

EDWARD K. DUNHAM, Chairman.

GENERAL RESULTS

The commission has had an opportunity to observe at Camp Lee, Va., 140 cases of empyema associated with a hemolytic streptococcus. Of this number ninety-three were patients who had already been operated on and were in various stages of convalescence at the time of our arrival. The remainder were acute cases which the commission studied during the preoperative and postoperative periods. Of this number, we have had the privilege of directing the treatment in twenty-three successive cases both before and after operation. One of this series of twenty-three patients has died. Of the others, all are apparently out of danger, and thirteen are entirely healed. Our mortality, therefore, has been 4.3 per cent. In the only fatal case there were, in addition to an empyema, multiple small lung abscesses and a very extensive suppurative pericarditis. Our very low mortality in comparison with the much higher mortality that has existed in other camps, as well as in this camp previous to the commission's control of the cases,¹ may have been due somewhat to a change of virulence of the organism and to correspondingly less marked manifestations of its invasion of the body. We feel, however, that the chief factor in reducing the mortality has been the method of treatment; for there can be practically no doubt that our cases have been of the

same general type as those that have occurred elsewhere. In every instance a hemolytic streptococcus indistinguishable from those isolated from earlier cases has been found both in smear and in culture from the pleural exudate, and the clinical findings have been in every way comparable to those that were described in the replies to the Surgeon-General's questionnaire of Feb. 20, 1918.

SUMMARY OF METHODS OF TREATMENT

Briefly, the method of treatment has been late operation and careful, painstaking attention to the postoperative care of the patients, including maintenance of the nutrition so far as possible. We feel that the care given to keeping up the nutrition of our patients both before and after operation has been one of the most important factors of all. The details of the dietary and nutritional features of the regimen will be discussed in another section.

In deciding on a late rather than an immediate operation certain observations and principles seemed to be important as indicating that this was the most rational procedure. These may be thus epitomized:

1. The older, commonly accepted ideas of the desirability of an immediate operative interference in cases of empyema following ordinary lobar pneumonia seemed not to be necessarily applicable to the type of streptococcus pleuritis under discussion because of certain radical differences in the nature of the two conditions. In the former condition, when large accumulations of fluid occur they are nearly always definitely purulent when recognized, and their incidence is post-pneumonic as a rule, occurring after the acute pneumonic process has subsided. In the streptococcus cases, on the contrary, a massive pleural exudate is frequently present very early, accumulating within a few hours, and often is the first objective sign of the respiratory tract infection. This exudate, moreover, at first is not purulent but is serofibrinous. Our observations show that usually a period of from two to three weeks must elapse before the exudate becomes frankly purulent. These considerations are of great importance because they indicate that if an operation is performed very early in the course of the disease, it will be at a time when from practically every standpoint the patient will be in the worst condition for it, for the following reasons:

(a) Early operation carries with it nearly always the danger of collapse of the lung from pneumothorax. In our experience, all the patients with this infection show a marked dyspnea and cyanosis. The dyspnea is sometimes so great that the respirations are from 50 to 70 per minute, and the patient often presents the picture of an acute air-hunger. Commonly the pneumonia is bilateral, and occasionally the pleuritic effusion is on the side of the better of the two lungs. It is clear that any sudden further increase of the asphyxia by limiting still further the amount of available breathing space will surely be a source of harm to one who needs all the oxygen he can get for his struggle with a severe acute infection. If, on the other hand, the operation is performed later, after limiting adhesions have formed, there is little or no further collapse of the lung because the opening is made into a more or less circumscribed abscess instead of into a free pleural cavity. Furthermore, if at this time the acute severe toxemia has subsided, there is less asphyxia present and less urgent need of oxygen. There is probably also present at this time some com-

On account of demands on our space this article is divided into two parts for publication. The remainder will appear next week.

1. The average mortality based on the replies from the various camps to the questionnaire of Feb. 21, 1918, was 30.2 per cent. The highest mortality given was 84 per cent. in a series of eighty-five cases.

compensatory emphysema which would diminish the danger of an acute sudden asphyxia, even if one lung were to be completely collapsed. Theoretically, it would seem possible to prevent the entrance of air into the pleural cavity by the use of a tightly fitting rubber tube attached to a suction apparatus. Such an arrangement, however, is always somewhat cumbersome and is very likely to be disturbed by the move-



Fig. 1.—Suction apparatus with T-connection permitting flushing of the pleural cavity with Dakin's solution without disturbing the dressings.

ments of the patient during his acute illness when he is frequently delirious and restless. Since we feel that it is of the utmost importance to avoid a pneumothorax during the acute stage, we have hesitated to adopt a method that carries with it the necessary risk of possible disarrangement of the apparatus by an uncontrollable patient with resultant entrance of air into the pleural cavity. On the other hand, we have found a suction apparatus to give very satisfactory results postoperatively in those cases in which operation has not been performed until after the stage of acute illness has been passed. The details of this apparatus are described in another section.

(b) There is great danger of producing a blood stream infection, evidently because of absorption of streptococci from the surfaces of a fresh wound. That this is a real danger is shown by the fact that in two cases of early operation, cultures from the blood were sterile before operation, while cultures from the blood taken twenty-four hours after operation showed numerous hemolytic streptococci.

(c) These patients in the acute stage are usually in such desperate condition that the shock and the nervous strain incident to even a slight operation are associated with danger.

2. The only theoretical advantages to be gained from an immediate or early operation are: (a) the institution of early continuous drainage of toxins and living organisms, and (b) the relief of mechanical embarrassment of the lung and mediastinal structures from pressure exerted by a massive exudate.

(a) It would seem that the institution of early continuous drainage of a pleural cavity filled with exudate

containing many virulent streptococci would be almost a necessity. Yet its importance is apparently not so great as would seem to be the case, judging from the results obtained not only in our own cases but also in those at other camps when operation was delayed. We have observed two patients each of whom carried more than 500 c.c. of pus in the chest for several months without being in a critical condition. One of these, a negro, gave a history of a probable pneumonia of December and arrived at camp with a contingent of newly drafted men during the last week of April. He was able to drill for two days and was then admitted to the base hospital, where it was recognized that he had an empyema. At operation 600 c.c. of pus containing hemolytic streptococci in large numbers were evacuated, and the patient made an uneventful recovery. Not only has he been entirely healed since June 10, but also physical and roentgen examinations reveal a practically normal lung. The other patient also made an uneventful recovery after operation and was healed in six weeks with apparently a nearly normal lung and a gain of 17 pounds in weight up to the present time. Such cases as these, together with our low mortality in the cases in which we purposely delayed operation, suggest that the pleuritic involvement has been of much less importance than the pneumonia in producing the high mortality in this epidemic. It seems clear, therefore, that there is no occasion to resort immediately to operative interference on a lesion which is perhaps a relatively insignificant aspect of the condition during the stage of acute illness. Apparently one may even go so far as to draw the conclusion that immediate rib resection or thoracotomy with drainage is dangerous, meddlesome surgery.

(b) The relief of mechanical embarrassment from pressure does not necessitate operation since this may be accomplished by aspiration from time to time with a Potain aspirator or some similar device. Frequent aspirations also accomplish a limited amount of drainage.

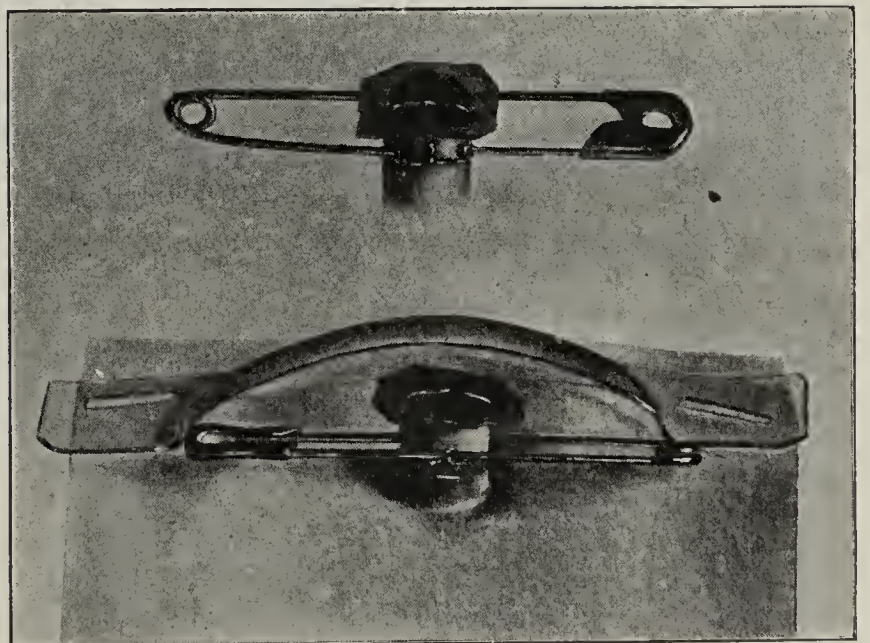


Fig. 2.—Valve on drainage tube made from the cuff of a discarded rubber glove.

USUAL PROCEDURE IN ARRIVING AT DECISION WHEN TO OPERATE IN A PARTICULAR CASE

Our usual procedure in deciding when to operate in a given case has been as follows:

On suspicion of the presence of fluid in the chest in any case of acute respiratory tract infection, a diagnostic aspiration was made. If the effusion was large, a

liter or more was withdrawn slowly by means of a Potain aspirator. The fluid was examined bacteriologically both by smear and culture. If, as was usually the case, the fluid was serofibrinous and contained hemolytic streptococci, the patient was kept on medical and expectant treatment according to the general plan as outlined in the section of this report that deals with the medical features of the question. A careful watch of the patient was maintained by repeated physical examinations, and as soon as there was evidence of a reaccumulation of fluid to any marked extent another aspiration was carried out. As a rule, aspirations were made at intervals of from two to six days, and on an average about four aspirations were made on each patient. Usually by the time of the fourth aspiration a period of from two to three weeks had elapsed, the character of the exudate had changed from a thin, almost transparent, serofibrinous fluid to definite pus,

well. Two of our patients suddenly developed a spontaneous pneumothorax and required emergency operations because of the presence of alarming symptoms from mechanical interference with the mediastinal structures.

The origin of the spontaneous pneumothorax in this type of case has been a matter of some interest to the commission because the condition is one of the most alarming and dangerous of the sudden complications which arise. We have observed it also in a few cases which did not belong to our series of twenty-three cases. We feel that the most probable explanation is the sudden rupture of a peripheral abscess of the lung. Small abscesses, often multiple, at the periphery of the lung, have been found repeatedly at necropsies in those streptococcus cases. Whether some of them may be inoculation abscesses caused by puncture of the lung with the aspirating needle is a point to be considered.

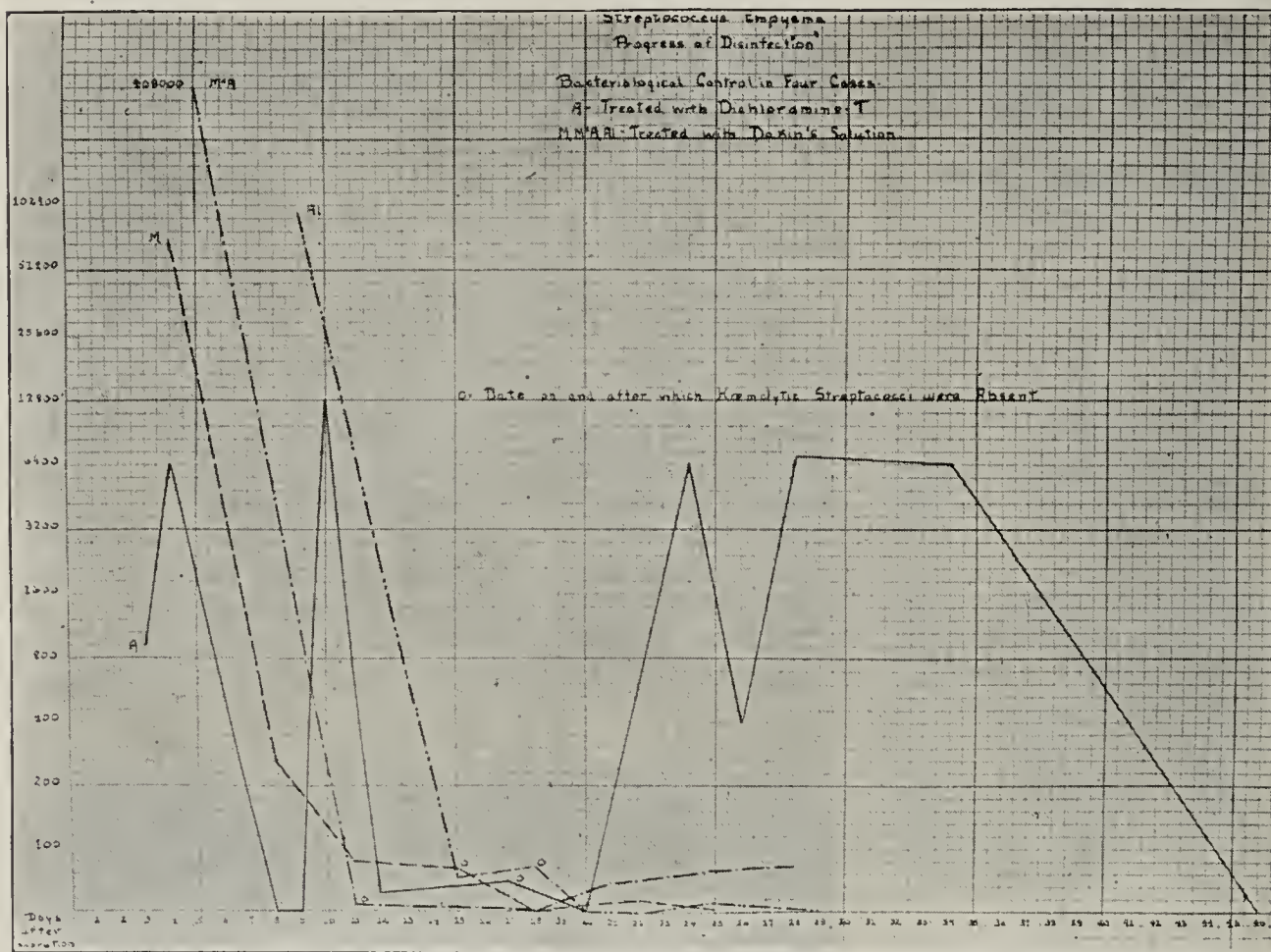


Fig. 3.—Bacteriologic control in four favorable cases of streptococcus empyema treated with chlorin antiseptics. The numbers on the left are the colonies on plate cultures prepared with one loop of secretion.

the pneumonia had improved markedly, and the patient's general condition was incalculably better, as shown by a drop in rate of respiration and pulse, the disappearance of the cyanosis and acute air-hunger, and a fall of 2 or 3 degrees in the temperature. Occasionally it happened that aspirations were performed at intervals of only twenty-four hours when the fluid reaccumulated rapidly. In three cases (13 per cent.), operation was found to be unnecessary because of failure of the exudate to reappear after aspirations. One of these had only one aspiration, at which 600 c.c. of serofibrinous fluid, containing many streptococci, were withdrawn. The patient is now entirely well, and no difference can be made out between the two lungs on examination either with the usual physical methods or the roentgen ray. In another case, complicated by multiple arthritis, the patient appears to be entirely well except for a recently acquired chickenpox. The third patient is now free from fever and is practically

SUMMARY OF A TYPICAL CASE

Private D., aged 27, was admitted to the base hospital, April 11, with intense stabbing pain in the left lower chest on inspiration.

April 12, marked cyanosis and dyspnea were present with maximum temperature of 102.4, pulse rate of 128, and respiration of 38. Evidence of fluid was present; 1,500 c.c. of thin serofibrinous exudate containing hemolytic streptococci were removed by aspiration from the left chest.

April 15, 1,500 c.c. of slightly cloudy fluid were removed by aspiration. Dyspnea and cyanosis were still marked, but the patient was much relieved by aspiration.

April 17, 800 c.c. of slightly thicker and brownish (old blood) fluid were removed by aspiration. The patient was still in a very serious condition, but improved. The heart was no longer displaced.

Between April 17 and April 22, the patient continued to show improvement, although at

times the pulse mounted to as high as 140, the respirations to 60 and the temperature to 102.4. During this time, however, he felt much better, his dyspnea had improved, and there was no evidence of the reaccumulation of a large amount of fluid.

April 27, there was definite evidence of reaccumulation of a moderate amount of fluid. The patient's general condition was much improved. Cyanosis and dyspnea were gone.

April 28, the patient's temperature was 98.8, pulse 112, and respirations 20. Resection of the ninth rib in the scapular line was performed under procain anesthesia, and about 500 c.c. of slightly greenish, frankly purulent exudate were removed. Carrel-Dakin treatment was started, 100 c.c. of 0.5 per cent. sodium hypochlorite every hour.

May 8, the amount of sodium hypochlorite was reduced to 50 c.c. hourly. The patient had been in excellent condition since the operation.

June 2, the Carrel-Dakin treatment was discontinued.

June 10, the wound was completely healed. The patient had been up and around the ward for the last two weeks.

By May 13, cultures and smears from the wound revealed no more hemolytic streptococci, and sterilization was practically complete.

SUPERIORITY OF LATE OVER EARLY OPERATION
CONFIRMED BY POSTOPERATIVE RESULTS

Our observations force us to the conclusion not only that a late operation has decreased the risk of death but also that it has, in general, been followed by a less troublesome convalescence. Almost without exception, the cases in which at the present time there are still large cavities are ones in which operations were performed early. Whether or not the fact that the operation was performed late, or in the postpneumonic stage of the disease, has borne a direct relationship to the more rapid postoperative obliteration of the cavity cannot be definitely answered. The observation may be only a coincidence, but yet it has been so striking as to suggest that a definite causal relationship has existed.

Moreover, in the cases of late operation, the tendency of pus to become pocketed after operation during the period of convalescence has been much less. The cases which now present cavities with hour-glass contractions, multiple pockets, pulmonary or bronchial fistulas, etc., are almost without exception those in which an early operation was performed.

SOME OF THE COMPLICATIONS

The most common complications that have occurred in our series have been pericarditis with effusion and multiple arthritis. Three of our patients have had a pericarditis. Two with definite friction rubs but with doubtful effusions have recovered without intervention. The third was in the only fatal case of our series, and, as was stated elsewhere, was complicated by multiple lung abscesses in addition to the empyema.

Multiple arthritis with effusion has been of fairly frequent occurrence, having occurred in four of our cases. In two, aspiration has been done to relieve tension, and a sero-fibrinous fluid containing hemolytic streptococci has been removed. In none of the cases has operative interference been carried out, and all have recovered with complete restoration of function of the joint. We have, however, observed two cases of suppurative arthritis, not in this series, due to apparently the same organism, which have resulted in more or less permanent destruction of the joint.

SYMPTOMATOLOGY AND MEDICAL CARE

The clinical picture presented by infections of the lungs and pleura due to the hemolytic streptococcus varies. Many of the cases follow other acute infectious diseases, particularly measles. Many are primary in the sense that they do not follow any of the acute infectious diseases. In some the lungs are predominantly involved and there may never be any signs of pleural irritation. In others, the pleura is predominantly involved, although at least in the majority of the cases, there is a preceding infection of the respiratory tract in the form of a bronchitis or a bronchopneumonia. In still others there is a tremendous infection of both lung and pleura. At Fort Sam Houston, Texas, most of the cases followed measles, and bronchopneumonia with or without effusion was the prevailing picture. At Camp Lee, Va., however,

most of the recent cases studied by the commission have not followed other acute infectious diseases, and the pleural involvement with large effusions has been striking. Nevertheless, there have been cases of bronchopneumonia without pleural effusion.

The history and symptoms of onset are rather characteristic, yet in many respects they resemble those of other acute infections. Sore throat, coryza, cough, mucopurulent expectoration, headache, general malaise with pains throughout the body, fever, anorexia and at times nosebleed are the usual symptoms elicited in taking a history of the onset. During this stage the patient may not go to bed and may even continue on duty. After these symptoms have existed for a few days to a week the patient has a chill and a sharp pain in one side of the chest, and it is at this time that he is sent to the hospital. A few patients become ill sud-

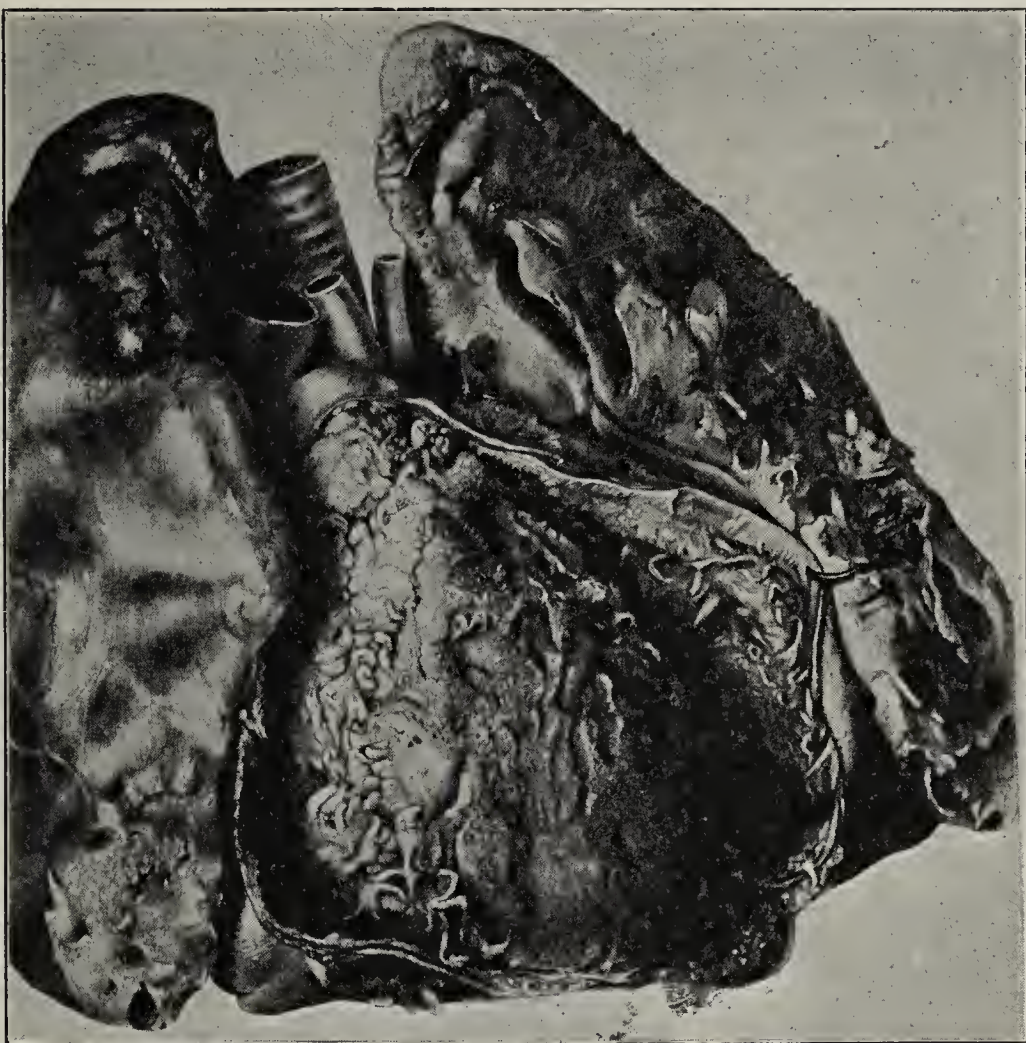


Fig. 4.—Fibrinopurulent pericarditis complicating streptococcus empyema.

denly with a chill and a pain in the chest, but in many of these, close questioning will elicit a history of an infection of the respiratory tract which had been overlooked.

A patient suffering from a severe bronchopneumonia associated with the hemolytic streptococcus is a distressing sight. He presents the picture usually seen in secondary pneumonias of children. The facial expression is one of anxiety. He is restless, continually complaining of being unable to sleep. There is great difficulty in breathing. He fairly fights for air. There is marked inspiratory and expiratory embarrassment. Often the intercostal spaces and the supra-clavicular fossae are drawn in with each inspiration. There is a distressing cough which at times literally exhausts the patient. The face is flushed. The eyes are wide open with white, glistening sclerae. The lips are parched and cracked, yet lacking, as a rule, the herpes usually seen in lobar pneumonia. The mucous membranes of the mouth and throat are dry, so much

so that at times there is difficulty in speaking. There are drenching sweats. The ears, lips and extremities are cold and cyanotic. The temperature is irregularly elevated, but at times may drop below normal, while the pulse and respirations remain rapid. The pulse is often very weak in contrast to the bounding pulse seen in lobar pneumonia. The abdomen is not distended, and the spleen is not usually palpable. On the other hand, the patient with a large effusion and little lung involvement furnishes an entirely different picture. If not delirious he is quiet and does not like to be disturbed, and very often he is drowsy and hard to arouse. The respirations are rapid and may be somewhat labored, but are not nearly so distressing as in the extensive bronchopneumonias. In other details the general picture is the same. Other cases may combine the features of the two types described above.

In this group the patient has an extensive pneumonia with a large effusion, and delirium, restlessness and dyspnea may be marked.

Any type of case would be a bad operative risk early in the disease. The patients with bronchopneumonia usually recover by lysis. An afternoon temperature as high as 100 F. may persist for weeks, and there may still be considerable expectoration long after the subsidence of other symptoms. The physical signs disappear very slowly; râles, dulness of percussion note, and altered breath sounds persisting for weeks. In favorable cases the patients with effusion improve gradually as they slowly gain headway in combating the infection and, assisted by aspiration, eventually reach a point at which they become good operative risks.

The sputum is usually thick, tenacious, mucopurulent, and may or may not be blood-streaked. Smears show many pus cells and a large number of cocci, often in chains. At times there is phagocytosis of the cocci by the leukocytes. A hemolytic streptococcus is usually isolated when cultures are properly made.

At Camp Lee, daily cultures could not be made, but at least one was made from each patient and sometimes several. In this series of twenty-three only one positive blood culture was obtained before operation.

In practically all of the cases there was a leukocytosis of from 12,000 to 32,000, with an average of about 20,000. The acute cases showed a polymorphonuclear neutrophil count of from 75 to 85 per cent., a small mononuclear count of from 5 to 10 per cent., and a

large mononuclear and transitional count of about 10 per cent. In the cases in which pus had been overlooked for a long time there was a leukocytosis of from 12,000 to 16,000, with a polymorphonuclear count of from 60 to 70 per cent., a small mononuclear count of from 16 to 32 per cent., and a large mononuclear and transitional count of about 10 per cent. In the acute cases there was no pronounced anemia but where pus had been overlooked for three or four months there was a marked secondary anemia. In one the red blood count was 2,880,000. The blood platelets were about normal in number.

The urinary output in the very sick patients was decreased, probably because of the drenching sweats and diminished fluid intake. The urinary findings were those common to all severe infections, namely, albumin, and hyaline and granular casts. Red blood cells were found in some instances. Bile was rare.

Heart complications have been frequent. In the series of twenty-three cases there was one extensive suppurative pericarditis confirmed at necropsy, and two of fibrinous pericarditis in which the patients recovered. The myocardium also is damaged. Acute dilatation of the heart is liable to occur on exertion, and therefore prolonged rest in bed with cautious return to normal activities is advisable. Often a tachycardia has persisted for many weeks.

These bronchopneumonia patients are prone to develop lung abscesses. When the clinical

picture is considered in connection with the pathology it seems probable that some of these patients will develop a bronchiectasis as an end-result. This series is too small to consider all the complications that might arise, but suppurative otitis media and nonsuppurative multiple arthritis have been observed.

In spite of the fact that a fairly typical picture is usually presented, the differential diagnosis is at times difficult. A careful history, a physical examination, a bacteriologic examination of the sputum, a fluoroscopic examination, a roentgenogram of the chest, and finally, exploratory aspirations are the means at one's disposal in making a correct diagnosis. The physical signs are those usually described as occurring in bronchopneumonia and in pleural effusions. However, the differential diagnosis between a massive consolidation and a pleural effusion is not always easy. Percussion and palpation under such circumstances are by all odds the most reliable physical signs, but should be supple-



Fig. 5.—Large pulmonary abscess complicating streptococcus empyema.

mented by roentgen examinations and exploratory aspiration. In passing, two cases might be mentioned in which there was dysphagia and a unilateral dilatation of the superficial veins of the chest due to an extensive pyopneumothorax.

Careful treatment and nursing accomplish much for the very sick patients. The free administration of fluids either by mouth, rectum, subcutaneously or intravenously is of the utmost importance. In desperate cases good results have been obtained by giving 25 per cent. glucose solution intravenously, 500 c.c. instilled during a period of three hours. For restlessness, pain or insomnia, or exhausting cough, morphin is indicated. Atropin and inhalations of steam at times relieve the marked respiratory distress. Cold, irritating air aggravates the cough, but good ventilation is essential.

The illness is usually a protracted one associated with marked loss of weight, and the maintenance of nutrition is correspondingly important.

SURGICAL TREATMENT

I. *Anesthesia*.—Local anesthesia with a 0.5 to 1 per cent. solution of procain was used in all the primary operations. In secondary operations, ether was occasionally used, sometimes exclusively, at other times to supplement the local anesthesia. Two methods of inducing local anesthesia were employed: (1) infiltration of the whole field of operation beginning with the production of a small skin wheal by the use of a hypodermic needle and syringe, and (2) supplementing the local infiltration by blocking the appropriate intercostal nerves in the subcostal grooves close to the spine. This procedure greatly facilitates the operation and minimizes the amount of infiltration at the site of operation. For the simple operation of intercostal thoracotomy or resection of a portion of one or two ribs, procain has always been found to give satisfactory anesthesia when properly administered. No occasion has so far arisen for such extensive secondary operations as the Estlander, Schede or Delorme, but it is possible that later it will be necessary to perform operations of this general nature in some of the old cases with large, persistent cavities. In these, intratracheal anesthesia will undoubtedly be appropriate.

II. *Incision*.—1. *Site*. This should be chosen with reference to providing good drainage in both the recumbent and the erect posture. A careful physical and roentgen examination should immediately precede the operation to define as accurately as possible the most suitable point at which to open the empyemic cavity. In most instances, this proved to be in the eighth intercostal space, just behind the posterior axillary line; but the selection of this site cannot be laid down as a rule. The needs of each case must be considered separately.

Care should be taken to make allowance for any displacement of the soft parts overlying the ribs due to the position of the arm during the operation in order that the alinement between the different layers of the chest wall shall be perfect when the arm is in natural positions.

2. The incision itself should be of ample length to give access to the underlying structures. One from 2 to 4 inches long has been found satisfactory. The muscular and fascial structures are divided as exposed, and the incision through the pleura is made usually in the intercostal space, though frequently in the secondary operations, resection of a portion of one or more

ribs is advisable. It is best not to suture the incision.

In cases that have drained for varying periods of time and drainage has become difficult or very incomplete, the procedures to remedy these conditions must vary according to the nature of the case. Among such conditions are: (a) sinuses having a direction or size rendering proper drainage impossible or precluding appropriate treatment of the cavity; (b) cases in which premature closure of the sinus had been permitted, with a recrudescence of the empyema, and (c) cases in which a rigid walled sinus has formed, possibly with a continuous epithelial lining.

III. *Drainage*.—The importance of good and continuous drainage, not only immediately after operation but also throughout the postoperative treatment of the cavity, cannot be overestimated. Provision to accomplish this end should be made at the operation.

If simple drainage tubes are used, they should be of the largest practicable size. They should also be sufficiently long to enter the pleural cavity, but should not project far into it.

Two devices that have proved serviceable may be specially mentioned:

(a) A double-barreled rubber drainage tube of large caliber, deeply fenestrated at the center and the two halves brought together and held in parallel position with a safety pin. When inserted into the wound, this serves the purpose of drainage and also permits the introduction of Carrel tubes through its lumina without obstructing the outflow of the discharge or the reflux following the instillation of Dakin's solution.

(b) An arrangement of tubing and bottles designed to drain the cavity with the aid of suction and to instill Dakin's solution at will without disturbing the dressings. This arrangement is made clear by the accompanying drawing, but may be briefly described (Fig. 1).

In order to apply suction to the empyemic cavity it is necessary to exclude air. This is done by passing the drainage tube through a small hole in a piece of rubber dam about 4 inches square, the edges of which, after packing the wound around the tube with gauze, are firmly attached to the skin with broad bands of adhesive plaster. The drainage tube should be long enough for convenient attachment to the rest of the apparatus by means of a T-tube of glass.

One branch of the T-tube is connected with a reservoir for Dakin's solution, the other to a pair of aspirating bottles, a small bottle intervening to collect the discharges. The connections are all made with rubber tubing, and, by alternately clamping and freeing these branches, it is possible to apply moderate suction or Dakin's solution at will.

The purposes served by this apparatus are:

1. The collection of the discharges in the bottle provided for their reception, thus obviating the necessity of changing the dressings.
2. Encouragement of expansion of the lung.
3. Early application of antiseptic treatment to the cavity after operation.

POSTOPERATIVE TREATMENT

All the cases coming under the care of the commission received treatment with some member of the chlorin group of antiseptics. Of these, neutral solution of chlorinated soda, 0.5 per cent. (Dakin's solution) has given the best results. Dichloramin-T, 5 per cent., in chlorcosane, was used in several cases. Chloramin-T in from 0.5 to 1 per cent. aqueous solu-

tion was also occasionally used for irrigation, but appeared to offer no advantages over Dakin's solution. The following is an outline of the treatment with Dakin's solution:

There is a complete change of all dressings and tubes once daily. In the interim, Dakin's solution is instilled in definite quantities at regular intervals, according to the usual Carrel technic, strict attention being directed toward the maintenance of asepsis in all the manipulations:

1. After the removal of the old dressings, the skin is cleansed, first with a dry sterile gauze sponge, and then with one moistened with alcohol.

2. With the aid of a catheter (22 French) introduced into the empyemic cavity, this is irrigated with Dakin's solution flowing from a moderately elevated reservoir until the return is perfectly clean. During this irrigation the patient is directed to change his position to facilitate the flushing of all parts of the cavity, and finally to assume that position which most favors the outflow of any residual fluid.

3. From one to four Carrel tubes are introduced into the cavity, the lengths of these and their disposition being governed so as to insure the application of Dakin's solution as far as possible to all parts of the cavity. When this is particularly difficult, a stylet of silver wire (gage 24 to 27) within the tube aids in its direction and retention in a suitable position. Occasionally recourse may be had to the roentgen ray to determine the position of the tubes. The free ends of the Carrel tubes are fixed by means of a strip of adhesive plaster in some position convenient for future instillations of solution, usually in the region of the shoulder.

4. A fenestrated drainage tube, guarded by a safety pin, is introduced alongside the Carrel tubes to insure drainage and a reflux after the instillations of Dakin's solution.

5. The skin in the vicinity of the wound is protected from the irritating action of the solution by strips of gauze impregnated with petrolatum and sterilized in an autoclave. If any portions of skin beyond the limits of this protective covering begin to show signs of irritation, they are treated with a stiff zinc ointment or a thick layer of petrolatum.

6. If there is any extensive area of granulations around the tubes entering the wound, this is covered with gauze moistened with Dakin's solution.

7. The underlying parts are protected from pressure of the safety pin guarding the drainage tube by gauze encircling the tubes.

8. Fluffs of dry sterile gauze are placed over the wound and adjacent parts, and the dressing completed with an absorbent pad and a firmly applied binder.

Sterile rubber gloves are worn, and all tubes and dressings, except the absorbent pad and binder, are handled only with instruments sterilized before use at each dressing.

The ends of the Carrel tubes project above the binder holding the dressing in place. The total amount of Dakin's solution introduced into the cavity at each instillation is distributed equally among these tubes, each being successively connected with the graduated reservoir of solution. The amount of Dakin's solution admitted to the empyemic cavity at each instillation is governed by the size of the cavity, but does not exceed 200 c.c. If the cavity is not too large, the quantity is usually about half its capacity. The interval between instillations is at first one hour during the day and three hours at night. According to the progress attained, these quantities and intervals are modified to suit the needs of individual cases.

Great care should be exercised to protect from infection all those who come in contact with the patients and to prevent the scattering of the organisms as much as possible. Gloves, gowns and face masks are worn by the surgeon, nurses and ward attendants during the dressings. Precautions are taken to prevent the patient from spraying pus from the uncovered wound by coughing, and all soiled dressings are immediately disposed of by being placed in suitable receptacles.

During the course of this treatment, the discharges undergo modifications readily observed at the dressings. Any foul odor is speedily abolished, and the amount of pus diminished. With the disappearance of the pus, particularly in cases of long standing, the discharges frequently become viscid and resemble uncooked white of egg. This has been attributed to the presence of products arising from the action of the hypochlorite on the fibrinous deposit on the pleural surfaces. Its occurrence is transitory, and with its disappearance the discharges become very scanty and the return on irrigation is usually clean from the beginning, but toward the end of the irrigation may be slightly tinged with blood modified in color by the action of the hypochlorite. At this stage of the treatment, plate cultures made from the secretions within the cavity are frequently sterile.

Dichloramin-T dissolved in chlorcosane has been used in a considerable number of cases, in a very few to the exclusion of all other antiseptics. Experience has shown that notable quantities (in one of the cases at Camp Lee, 200 c.c.) of a 5 per cent. solution can be introduced into an empyemic cavity without untoward consequences. In one instance in which it alone was used to treat a recent case, sterilization proceeded with a rapidity comparable to that following the use of Dakin's solution. Nevertheless, observation appears to show it to be less effective than Dakin's solution, particularly in cases of long standing, for the following reasons:

1. The viscosity of the solvent militates against its distribution within the empyemic cavity so that good contact with all parts requiring disinfection is more difficult to attain and more uncertain than when the aqueous Dakin's solution is employed.

2. Dichloramin-T has but little, if any, favorable action toward the dissolution of fibrin. Curdy masses, often of considerable size, are frequently observed in the discharges. These have proved to be compacted sheets of fibrin, evidently detached from the pleural surfaces, but showing no signs of disintegration or the influence of a solvent action. These masses render drainage difficult and often completely arrest it.

3. Prolonged action of the solution on the skin has proved it to be fully as irritating as Dakin's solution. This may be due in part to decomposition of the solutions before use, but must nevertheless be taken into consideration.

The chief advantages in the use of dichloramin-T in these cases appear to be simplicity of application (once daily) and economy in dressings.

In protracted cases, it has frequently occurred that the sinus leading to the cavity was unfavorable for irrigation because of its small size or unfortunate direction. Under these circumstances it is often possible to aspirate the secretions through a soft catheter which finds its way to the dependent portions of the cavity. Suction may be conveniently applied with a bulb syringe holding about 1 ounce. After such evacuation of the cavity, dichloramin-T may be introduced through the catheter. Although this procedure is by no means comparable to securing an opening into the cavity, permitting free irrigation, it has been of aid in the treatment of difficult cases.

The plastic closure of empyemic cavities after cleansing and disinfection with antiseptic solutions is a procedure requiring great caution. In recent cases that have reached this condition soon after operation,

the lung very frequently expands spontaneously so as to obliterate the cavity, and there need be little hesitation in permitting the sinus to close under ordinary precautions against infection. But when the lung fails to expand spontaneously, a careful consideration of the causes underlying this failure, some of which may involve risks of a recurrence of the empyema, should precede the decision regarding operative closure of the sinus.

It has been surprising in several cases to note the remarkable speed with which the cavity has diminished in size or has become obliterated after sterility has been accomplished with Dakin's solution. This has been especially evident in cases in which the interval has not been too long between the operation and the beginning of the use of the Dakin solution. But it has also been observed frequently even in cases in which there had been a long interval, and it has been so impressive that we feel that extensive secondary operations for obliteration of a cavity are unwarranted until after a prolonged trial with the sodium hypochlorite solution has been carried out. Auxiliary measures of great importance which should be instituted simultaneously to aid the expansion of the lung are: (1) blowing against resistance; (2) the use of a valve on the end of the drainage tube to allow egress of discharges but to prevent entrance of air into the cavity (Fig. 2); (3) gentle suction devices, and (4) properly controlled general exercise to incite a more active metabolism, and increased respiratory effort.

Before performing even minor secondary operations on drainage cavities, it has been our invariable custom to submit the patient to a roentgen examination both by fluoroscope and by stereoscopic plates. The object of this examination is to obtain as much information about the cavity or sinus as possible as regards its location, extent and contour. We have found neutral thorium nitrate in 10 and 15 per cent. solutions of use in outlining the cavity. It appears to have a slight irritating action, and sometimes a little bleeding occurs after its use.

In two cases of pleuropulmonary fistula we have used Rutherford Morison's B. I. P. P. (bismuth, iodoform, liquid petrolatum), but these do not warrant any conclusions.

(To be continued)

The Children's Year Campaign.—The facts brought out by the national baby test, conducted by the Children's Bureau, are of interest. It is estimated that already about 6,000,000 children of less than 6 years of age have been weighed and measured, and every state and territory in the Union has been represented in the campaign. A bulletin for mothers on "Child Care" has recently been issued, dealing with the physical defects of children between the ages of 2 and 6, and teaching the mothers to recognize these symptoms and to understand the simple laws of hygiene. The "little mothers" of our large cities, whose playtime is wholly absorbed by the care of their younger brothers and sisters, the boys and girls who carry heavy bundles about our city streets, and the farm children, who are often required to work in fields and gardens too long a time under a blazing sun, are frequently stunted in their development during the years of growth when rest and play are their most important requirements for good health. In calling the attention of parents to this flagrant example of child labor, the Children's Bureau points to the fact that if a child in his growing years is made a beast of burden, in maturity he almost inevitably joins the ranks of the physically unfit and becomes a serious factor in racial decay.

RECONSTRUCTION AND REHABILITATION OF THE TUBERCULOUS SOLDIER

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Much has been said and done in this great war concerning the reconstruction and reeducation of the crippled soldier, but it must be remembered that reconstruction, in perhaps a less spectacular way, applies to medical cases as well. We should not forget, in our zeal to assist the wounded soldier in returning to useful employment, that his less fortunate comrade who becomes stricken with disease may need the same helping hand. The one that presents the most difficult problem is the ill-fated consumptive. No tokens of bravery or emblems of the hero are pinned on him, although the fact that he has broken down with tuberculosis means he has given every ounce of resistance to his country's cause.

It is well known among sanatorium physicians today that the ultimately bad result in the treatment of tuberculosis is usually due to the perfunctory way in which patients are discharged from institutions. They are carefully treated for six months or a year, and then all responsibility for them ceases and they are turned out to assume their places in normal life without any further assistance or supervision. The treatment is only partly completed, and this part is often wasted by relapses. In other words, the reconstruction and rehabilitation of the consumptive is badly neglected.

There are a number of reasons for this. In the first place the reconstruction phase of the treatment presents a difficult problem. Prolonged rest, so essential in the treatment of active cases, naturally leads to laziness. We start out with a sick consumptive and end up with a well loafer. In the Army we receive a tuberculous soldier and discharge a hospitalized pensioner. These patients do not want to be rehabilitated. Indolent and indifferent, they prefer to remain dependent on their people or the government. The harmful results of exercise in tuberculosis when employed too early, and the absence of any safe indication as to when exercise should be begun, cause this stage of the treatment to be postponed and the patient finally discharged without it. Then again, when a patient becomes an arrested or quiescent case, he usually leaves the sanatorium before the hardening up process is completed and his cure thoroughly tested. The idea that a patient cured in one climate cannot live in another is due to the fact that he goes west, becomes an arrested case, and returns home to work without hardening up. Even when discharged after a period of graduated exercise, he goes back to his former occupation without any further medical supervision, and without any gradual transition from partial to complete working ability having been arranged. The fact that he is a consumptive often excludes him from employment and further complicates the question of rehabilitation.

The four most important factors in the treatment of tuberculosis, I should say, are rest, fresh air, nourishing food and psychology. To be able to outline to the patient the plan of treatment leading up to reconstruction and rehabilitation and to keep that constantly before him will have a wonderful physical effect. It will stimulate hope and desire for recovery, secure his confidence and cooperation, and save him

from laziness and dependence. When the patient reaches the stage of treatment that permits him to sit up and be on his feet, some light mental and physical work will help to occupy his mind and prevent him from becoming introspective. The thought that this is a promotion and is the beginning of his climb to complete restoration and usefulness will have a most excellent mental result. A note of warning should be sounded, however, to the overenthusiastic reconstructionists lest they begin their methods too early in the case in which absolute rest, both mental and physical, is required. Vocational reeducation and training must not be in the nature of a surrender of the principles of treatment to the nervous and irresponsible patient who desires to work too soon. The necessity of reserving strength and nervous energy should never be lost sight of, and when in doubt it is often better to err on the side of too much rest. The exact time to begin reconstruction work will tax the ingenuity of the best sanatorium physicians. No fixed rule applies to every patient, for aside from normal temperature and abatement of symptoms, the peculiarities of each individual case must be taken into consideration.

The principal reason that warrants my presentation of this paper is nine years' clinical experience in handling tuberculous soldiers at Fort Bayard, N. M. According to the methods taught by Colonel Bushnell, our commanding officer, these men received most excellent treatment; but regulations with reference to return to duty and discharge of tuberculous soldiers, together with their pension rights, made attempts at reconstruction and rehabilitation very difficult. Even the small percentage returned to duty, after being hardened up by graduated exercise and work under medical supervision, were sent back to their organizations where they were shown no special dispensation commensurate with their condition and were no longer under medical control, but instead were looked on with suspicion by their company officers and were recommended for discharge or further treatment at Fort Bayard the first time they went on sick report. Patients not returned to duty were discharged from the army, but this did not necessitate their leaving the hospital. They could remain as beneficiaries of the soldiers' home as long as treatment was required. Yet there was no authority for holding them, and as soon as they received their discharge or were examined for pension, they usually left the hospital regardless of their condition and the stage of treatment. They went against the advice of their physicians and before any reconstruction methods could be applied. As the usual pension allowance would not permit them to live in comfort on the outside, they had two courses to follow: either work, or spend most of their time in soldiers' homes. Many chose the latter, but others undertook to work without having first tested out their cure. Seldom could they select their employment, and often they had to work under unsuitable conditions. As a result, most of them relapsed and either died or returned for treatment. The soldiers' home chronics led a lazy and dejected existence, their one ambition generally being increased pension. A certain number, however, when able, were given employment at the post, in the laundry, post exchange, dairy, in the farms and in the gardens, and, although working, were under the same restrictions as the other patients. Enlisted men of the Medical Department were usually returned to duty at Fort Bayard and

were carefully watched. Officer patients were frequently placed on duty at the hospital before joining their commands. My impression was that these patients were more contented and did much better than those who, after becoming quiescent, did nothing or left the institution.

The new arrivals and very sick patients gave very little trouble, but the convalescent class or ambulant patients were constantly getting into mischief. Continual vigilance was necessary to prevent gambling, drunkenness, the introducing of liquor, etc. Patients went "absent without leave," and there was a tendency to fault finding and discontentment. Everything was done to prevent this by supplying various forms of amusement and entertainments. Prescribed distances to walk were seldom carried out. At one time vocational training was suggested; but as none volunteered for the work, it was never introduced.

A series of conditions, over all of which no one had control, made the reconstruction part of the treatment unsatisfactory. These men were taught to rest, this was preached to them day in and day out; the physician could make them no definite promises about future employment; they listened to the discouraging experiences of returning patients, and they also heard plenty of pension talk, so that when the time came for reconstruction the proper incentive for wage earning was lacking. While I believe these ambulant patients would have been happier and more contented and their morals improved if their time between rest hours could have been occupied in vocational training and education, to have successfully introduced such a system then would have been doubtful. For the success of such a program three things would have been necessary: work shops, incentive to work, and the assurance of suitable employment. Work shops could have been obtained if it could have been proven that the end justified the means; but incentive to work was only partial, and suitable employment very uncertain. I mention the Army's past experience at Fort Bayard not only to emphasize the difficulties to be encountered in reconstructing the tuberculous soldiers, but also to show the need of this phase of the treatment. I believe vocational training, if introduced as a real future and not a sham for the patient, will change the whole atmosphere of the tuberculosis hospitals, making them more popular and easier to administer. In our campaign against tuberculosis we must educate the public that the careful consumptive is not a menace to his associates; that he is not to be treated as an outcast and a leper, and that a conscientious effort must be made to provide him suitable employment.

RECONSTRUCTIVE POLICY OF THE SURGEON-GENERAL'S OFFICE

The policy of the Surgeon-General is to transfer all tuberculous soldiers to Army tuberculosis hospitals and not discharge them until they become arrested and reconstructed cases, or until they have obtained as complete recovery as can be expected. To this end eight hospitals are now in operation, or under construction in various parts of the United States. These hospitals are located at New Haven, Conn.; Otisville, N. Y.; Markleton, Pa.; Azalea, N. C.; Waynesville, N. C.; Denver; Fort Bayard, N. M., and Prescott, Ariz. When completed they will accommodate more than 6,000 patients. They all embody the modern ideas of sanatorium construction and demonstrate that

no expense has been spared by the government to provide the best of treatment for tuberculosis soldiers. Five of these hospitals are in operation and are rapidly filling with patients. The policy of the Surgeon-General is to transfer the sick to hospitals nearest their homes. In case tuberculosis develops overseas the patients will be returned to the United States.

If left to the soldier whether he prefers discharge to treatment in a tuberculosis hospital, he will almost invariably choose the former, and after discharge it is rarely that he will voluntarily submit to sanatorium discipline, so it has been deemed wise to order all to tuberculosis hospitals. Here they can be taught how to take care of themselves and be given proper treatment. The success of these hospitals, although carefully planned and constructed, will be a failure unless the right kind of medical officers is secured to administer them. We are endeavoring to obtain suitable officers for such positions, and are training others at the U. S. Army General Hospital, New Haven, Conn., where we have established a school for this purpose. In fact, all medical officers selected for the staffs of Army tuberculosis hospitals are required to take a course at this school in order to standardize methods of treatment and administration.

While the Tuberculosis Section of the Surgeon-General's Office has general supervision over all Army tuberculosis hospitals, the reconstruction work will be instituted and carried out by the Reconstruction Division. This assigns officers trained and skilled in this specialty, together with instructors and assistants, to each hospital, and builds work shops for the vocational training. It might be added that not only will the educational work in these hospitals be in the nature of vocational training, but also emphasis will be laid on training the patients in hygiene, home and shop sanitation and methods of proper living, with the view of preventing recurrences. A bill now before Congress provides that after a patient is discharged and returns to civil life, the Federal Board of Vocational Education will attend to his further rehabilitation. I believe it is the policy to utilize, in an advisory capacity, the services of this board, while the patient is still under military control.

Thus the Surgeon-General proposes to carry the tuberculosis soldier to the point at which his disease is arrested and he is hardened up ready to return to work. The Federal Board of Vocational Education will then receive him and look out for his welfare as far as employment is concerned. The Bureau of War Risk Insurance of the Treasury Department attends to the financial side, for as soon as a tuberculous soldier is discharged, provided his disability is in line of duty, he is entitled to compensation and, if insured, war risk insurance. The amount of compensation is based on the degree of disability, and in order to encourage rehabilitation, reeducation and vocational training, it is provided that no reduction in the rate of compensation shall be made for individual success in overcoming the handicap of a permanent disability. It is also stipulated in the bill now before Congress that the Bureau of War Risk Insurance is to have the power and duty of ordering suitably discharged men "to follow such course of vocational rehabilitation as the Federal Board of Vocational Education shall prescribe and provide."

It is believed that most patients with arrested cases of tuberculosis can return to their former occupations, except those employed at hard manual labor, very

dusty trades, mining, etc. It is not always necessary that they should work outdoors, but they should be employed and live under sanitary conditions and their work carefully controlled by medical supervision.

The whole plan of reconstruction in tuberculosis, as well as other diseases and injuries, is to guide our disabled soldiers back to health and useful employment, imbued with the idea that they are still serviceable citizens and not candidates for soldiers' homes and an existence spent in idleness. The task will be a difficult one, but when we consider the efficient organization of the Reconstruction Division in the Surgeon-General's Office and the interest being shown both in and out of the Army in regard to this work, we can only feel confident of its success.

THE SIGNIFICANCE OF PRESYSTOLIC THRILLS IN THE EXAMINATION OF SOLDIERS

A FUNCTIONAL PRESYSTOLIC THRILL

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In textbooks as well as in recent articles in the literature are statements regarding the palpatory findings in mitral stenosis which, while true, have been followed in certain instances so literally and uncritically, we believe, that numbers of men in our Army have been either rejected or given a surgeon's certificate of disability for mitral obstruction when no cardiac abnormality existed. The Army, therefore, has lost both officers and men who are capable of full, active service, so far as the cardiovascular system is concerned.

In discussing the diagnosis of mitral stenosis, the statement is made by Sir James MacKenzie¹ that "in the very early stages—some years before the appearance of a murmur—I have detected a slight presystolic thrill." Sir William Osler² says of the presystolic thrill, terminating in the sharp, sudden, systolic shock, "This most characteristic of physical signs is pathognomonic of narrowing of the mitral orifice, and is perhaps the only instance in which the diagnosis of a valvular lesion can be made by palpation alone." In a recent article, Thomas Lewis,³ in discussing the occurrence of thrills in the effort syndrome or, as he now designates the condition, neurocirculatory asthenia, says, "All cases with presystolic thrills belong to an entirely different group, and are discharged from the army."

To the statements quoted, made by authorities of the first rank, all will subscribe in connection with mitral stenosis. And yet one may be certain that, in the absence of other signs of mitral obstruction or of a history of an acute rheumatism or of distress on effort, none of the authors named would diagnose

1. MacKenzie, Sir James: *Diseases of the Heart*, London, 1914, p. 331.

2. Osler, Sir William: *The Principles and Practice of Medicine*, New York and London, 1918, p. 822.

3. Lewis, Thomas: *Report on Neurocirculatory Asthenia and Its Management*, Mil. Surgeon, 1918, 42, 409-426.

mitral stenosis on an inconstant thrill, such as we are about to describe; nor would such a man be excluded from active service in the Army.

It is precisely such individuals, giving neither a history of rheumatism or chorea, nor of unusual dyspnea on exertion, in whom we have encountered slight presystolic thrills at the apex, ending in a more or less well marked systolic shock, but without other evidence of cardiac abnormality.

Early in the course of our work as cardiovascular examiners of the Eighty-Third Division, N. A., at Camp Sherman, Ohio, in the fall of 1917, we were impressed by the finding of presystolic thrills in recruits in whom we could detect no other evidence of valvular disease of the heart. Our work since then has served to strengthen this impression and to demonstrate the great frequency of this phenomenon.

CHARACTERISTICS OF THE THRILL

The characteristics of the thrill and the associated findings, based on our notes made in the autumn of 1917 and amplified by subsequent experience, are as follows: The thrill is one of short duration, felt only at the apex of the heart, usually at the point of maximal impulse, preceding the apex thrust and terminating with the shock of the first sound. It is never, in our experience, as intense as the thrill felt in well marked cases of narrowing of the mitral orifice. Furthermore, it is best felt when the heart's action is accelerated, with the patient in erect posture. It is almost always lost when the patient is recumbent, particularly when the heart rate slows in recumbency. Indeed, with a slow, quiet action of the heart, the thrill is commonly lost even in the erect posture. The presystolic thrill is more frequent in individuals having a long, slender thorax; it may be perceptible only during expiration.

A systolic, apical shock of variable intensity is palpable immediately after the thrill. Customarily the shock is not marked, though in a few instances it has been so pronounced that we have felt, before completing the examination, that we were dealing with true mitral stenosis. Occasionally, a weak, double systolic shock is palpable with light touch (always, we have observed, associated with marked reduplication of the first sound at the apex). This, too, in the majority of instances, becomes less evident or vanishes when the subject lies down.

With the presystolic thrill, we have found almost constantly a reduplication of the first sound at the apex, usually audible also at the tricuspid area, and at times maximal here. Like the thrill, the reduplication usually becomes less evident or imperceptible, when the soldier is placed in the dorsal position. But reduplication of the first sound at the apex with the subject standing is usually present in the normal heart; it occurs frequently with no thrill and is less dependent on the frequency of the pulse than the presystolic thrill. In subjects with thrill, it is common to find the second part of the reduplicated sound louder than the first, thus simulating a crescendo effect.

Frequently, a soft, functional systolic murmur, fairly well localized at the apex, becomes noticeable in recumbency, but this is by no means the rule. In some instances the murmur has been constant and has been audible in the left axilla.

Presystolic murmurs we have not been able to detect, either before or after exercise, or with the subject standing or recumbent.

The second pulmonic sound is not accentuated when the individual stands, though rarely it may be split. In the recumbent posture, on the other hand, we have not infrequently noted that the second pulmonic sound is louder than the second aortic, and it may be reduplicated. But this alteration in the second pulmonic sound, particularly in thin chested men, is met quite as often in normal hearts without thrill as in those with it.

There has been, in short, no evidence of disease of the heart, and since one encounters this thrill with great frequency in soldiers who complain of no symptoms on physical exertion and in whom no evidence or history of previous rheumatic infection can be obtained, we look on the presystolic thrill described as functional—a normal phenomenon in certain individuals during periods of excited heart action, whether the result of emotion or of effort.

FREQUENCY AND SIGNIFICANCE

That the presystolic thrill we have described is not of itself a contraindication of active military training is proved by the following observations: At Fort Oglethorpe in recent examinations by one of us (M.) of men who have received military training from three to ten months, we have found many with presystolic, apical thrills, with hearts normal in other particulars. The number of cases examined is not large enough to enable us to predict with accuracy the relative frequency of such thrills, but that they are common is shown by the fact that in one group of twenty men, six had distinct presystolic thrills, and in a second group of six soldiers there were three with thrills, all of whom had been free from symptoms while training, and were examined prior to departure for overseas service. All had good color, responded normally to the exercise test, and were normal in other respects.

In twenty-three men of the first draft newly arrived at Camp Sherman, we have full notes showing the presence of presystolic thrills such as we have described. These men were examined for the most part in September and October, 1917, though a few of them were not seen until November or December. The subsequent history of this group shows (May 16, 1918) that fourteen of them are on active duty; five more men it has been impossible to trace, but their names do not appear on the list of men discharged, and it is probable that they are still in the service. Four of the men having such thrills have been discharged. Mitral stenosis was given as the cause of discharge in one (a colored private). The cause of the discharge of the second is not stated, while the third and fourth were discharged with diagnosis of hypertrophy of the heart and dilatation of the aorta and of mitral insufficiency, respectively. None of the four were examined by us just prior to discharge, and we cannot, therefore, go into greater detail regarding the findings leading to discharge.

It seems clear, however, that the presystolic thrill cannot be of any military significance, if unassociated with evidence of cardiovascular disease, when fourteen—or, more probably, nineteen—men entering the Army can undergo from six to eight months of intensive training without cardiac symptoms.

We have encountered the functional presystolic thrill very frequently in individuals ill with chronic infections such as pulmonary tuberculosis, and also in convalescents from scarlet fever, measles, pneu-

monia, mumps, acute cerebrospinal meningitis, etc., in whom slight bodily exertion leads to tachycardia.

Further evidence of the frequency and significance of the functional presystolic thrill is furnished through observations of Capt. Julian E. Gammon, M. R. C., who has recognized the nature of the thrill independently and who has generously permitted us to quote part of his data. He has noted the effect of posture and the importance of acceleration of the heart in the detection of the thrill, as we have. In March, 1918, eleven patients in a small ward, convalescent from acute infections, were examined independently by Captain Gammon and two associates. After each had completed his examinations, comparison of findings revealed the fact that all had found a presystolic thrill in seven of the eleven patients. No other signs suggesting organic disease of the heart were found. Teleroentgenograms were made of the seven men with presystolic thrill; no cardiac enlargement was detected in any of them. Furthermore, none of the patients gave a history of acute rheumatic fever or chorea, or of symptoms of cardiac embarrassment on effort prior to admission to the hospital. In all of them, the Wassermann reaction was negative.

It is thus apparent that presystolic apical thrills are of very common occurrence in the erect posture when the heart action is accelerated. They are encountered in normal individuals as well as in convalescents and in those ill with chronic infections and with neuro-circulatory asthenia with no demonstrable myocardial defects.

OBSERVATIONS OF OTHER AUTHORS

In the literature, our search, necessarily limited, has revealed no report of presystolic thrills in normal hearts. Sewall⁴ described sounds audible at the apex in certain normal hearts which simulated the circulatory findings in mitral stenosis. He is perfectly familiar,⁵ too, with the presystolic thrill, though it is not described in his paper. He describes several modifications of the crescendo tone of functional region:

Most commonly it occurs as an extremely short, smooth tone, with an acute accent apparently sharply terminating with the beginning of ventricular contraction. In other cases of what may be called the functional presystolic murmur, the crescendo tone is rough and vibrating in character and of perceptible duration. One other presystolic auditory symbol, closely allied to the latter, is found in certain of the so-called "reduplications" of the first sound of the heart. When such a reduplication is the weaker of the two elements and precedes the contraction of the left ventricle without intermission, the first sound may appear to begin with a crescendo tone. Such modifications of the normal first sound are found only in cases in which the general clinical condition signifies either essential cardiac weakness or perturbation due to acceleration of the circulation; this acoustic phase is therefore of distinctly diagnostic worth.

In our studies we have been able to confirm Sewall's observations. By far the commonest auscultatory finding at the apex in our cases with thrill has been a reduplication of the first sound, with the accent on the second half of the reduplication. But, as already stated, we look on reduplication of the first mitral and tricuspid sounds with the subject erect as normal. It is encountered much more frequently than the presystolic thrill.

Bridgman⁶ has shown more recently that there is normally a presystolic sound which is usually below the range of human audibility. By means of electro-phonograms he estimates that this normal sound possesses vibrations at the rate of about 25 per second. The sound begins from 0.06 to 0.1 second before the first sound. Whether its vibrations are accountable for the functional presystolic thrill, we are unable to say. As the duration of the sound is only 0.04 second, it seems probable to us that it is not the cause of the thrill, which seems more prolonged.

The great majority of presystolic thrills encountered in soldiers will be found, we feel convinced, to be of the harmless, functional type, which we have described. Their presence, however, is an indication for a particularly careful inquiry into the history and for a painstaking, thorough examination of the cardiovascular system. The two pathologic cardiac conditions most likely to give rise to presystolic thrill at the apex are mitral stenosis and aortic insufficiency. In the latter, a presystolic apical thrill is encountered usually only in those cases in which the presystolic murmur of Flint is audible, as Thayer⁷ and others have shown.

In view of our findings, we are unable to agree with the statement of Lewis to the effect that all men with presystolic thrills should be discharged from the Army. Doubtless, in making this statement, he refers to soldiers with other evidences of mitral stenosis.

In his wonderful report on the "effort syndrome," Lewis⁸ says: "It may be taken as an axiom that no soldier who is free from symptoms on duty has an affection of the heart which incapacitates him, and this axiom may be adopted irrespective of any unusual sign found in the heart." This statement confirms us in our opinion as to the prognostic innocuousness of the presystolic thrill we have described.

CONCLUSION

A presystolic thrill best felt in the erect posture, when the heart's action is accelerated through emotion or exercise, associated with reduplication of the first sound and a more or less marked systolic shock at the apex, becoming less perceptible or disappearing when the patient is in the recumbent position, is not disqualifying for full, active military service, in the absence of evidence of cardiac disease. It is a normal phenomenon in a certain proportion of healthy adults. It may also be encountered in those suffering with the effort syndrome and with chronic infections, and is frequently found in convalescence from acute infections.

6. Bridgman, E. W.: Notes on a Normal, Presystolic Sound, *Arch. Int. Med.*, October, 1914, pp. 475-480.

7. Thayer, W. S.: Observations on the Frequency and Diagnosis of the Flint Murmur in Aortic Insufficiency, *Tr. Assn. Am. Phys.*, 1901, **16**, 393.

8. Lewis, Thomas: Report on Soldiers Returned as Cases of "Disordered Action of the Heart" (D. A. H.) or "Valvular Disease of the Heart" (V. D. H.), Medical Research Committee, National Health Insurance, Special Report Series, No. 8, London, 1917, pp. 1-63.

4. Sewall, Henry: A Common Modification of the First Sound of the Normal Heart Simulating That Heard in Mitral Stenosis, *Am. Jour. Med. Sc.*, 1909, **138**, 10-16.

5. Sewall, Henry: Personal Communication to the Authors.

The Cost of Infectious Diseases.—Scarlet fever, diphtheria and measles cost the people of Chicago (estimated) \$7,562,442 for the year 1916. Some toll to pay. And yet much of it, if not all, might have been prevented. It can confidently be asserted that this tremendous bill, which the people of Chicago were forced to pay, was due largely to their carelessness and indifference. Scarlet fever cost \$2,170,459; diphtheria, \$4,535,395, and measles cost \$856,588; total, as stated, for the three diseases, \$7,562,442.—*Bulletin*, Chicago School of Sanitary Instruction.

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SATURDAY, AUGUST 3, 1918

SCIENCE AND THE FOOD ADMINISTRATION IN WAR

Although our public press has given scant notice of the existence of an Inter-Allied Commission on Alimentation, designated in some reports as the Scientific Food Commission, the significance of its organization deserves to be widely heralded. The Inter-Allied Conference, in London, Paris and Rome, of representatives of France (Gley and Langlois), Italy (Bottazzi and Pagliani), the United Kingdom (Starling and Wood), Belgium (Hulox), and the United States (Chittenden and Lusk) marks the recognition of a principle—the essential propriety of calling on men of science trained in the study of nutrition for expert advice in relation to the food problems now confronting the world. This was not done by the nations involved in the earlier days of the war. Physiologists and scientifically trained advisers or administrators received little consideration from the European governments; indeed, to an outside observer it seemed almost as if the expert in nutrition had been consistently "snubbed" in the management of the food situations. It remained for America, long taunted as the land of the "practical" man where dollars and cents leave little place for theoretical science, to show to the world the correct way to approach questions that cannot be solved satisfactorily or definitively by the political strategist or the untrained propagandist.

The Food Administration of the United States—an organization or division of the government made indispensable early in the war—has from its very inception recognized the supreme importance of consulting scientific men in those fields in which they may be presumed to have superior wisdom. The Food Administrator, Mr. Hoover, is himself a man trained in scientific methods and in full sympathy with the aims of science. He insists on scientific surveys as a basis of all important actions; and while he is intimately conversant with the industrial and economic factors that are so important in general in food control, this "food dictator" never loses from his mind the physiology, the psychology or the sociology of nutrition. As a member of the administration staff

has expressed its purpose, a fundamental aim is to bring all of the men who deal with the particular aspects of the problems in trade in close contact with the scientist, so that each may appreciate the other's point of view. Thus it would be a serious error for any government to attempt a reorganization of the dietary of its citizens or even of its domestic animals that was contrary to the dictates of scientific intelligence. Who is to determine what changes are safe, what reductions or substitutions can be made without detriment to health or efficiency? Who shall be the critic of the food factors on which national vitality hinges if not the men who have spent their lives in the investigation of the science of nutrition?

To its credit let it be reiterated that the United States Food Administration has never failed to understand the value of scientific experts. Only recently the *British Medical Journal* has pointed out that any propaganda having for its object the encouragement of food production and of economy in the use of food should be organized and directed by men of science well acquainted with the subject. Our English contemporary frankly admits that this elementary principle was at first neglected in Great Britain. "Even in Germany, which can boast of its Liebig, Pettenkofer, Voit and Pflüger, and which still is the home of Rubner and Zuntz, the counsel of the physiologist was not sought at first; although it appears, to quote the *British Medical Journal*, that the truth of the "elementary principle" is beginning to be recognized in Germany too, where "voices are being raised in favor of consultation of scientific and medical experts by the authorities."

How well the scientific side of our national Food Administration has been organized is perhaps best exemplified by the character of its representatives. An Advisory Committee on Alimentation includes Dr. Carl L. Alsberg, chief of the U. S. Bureau of Chemistry; Director R. H. Chittenden of the Sheffield Scientific School; V. L. Kellogg of Stanford University, who was active in the relief of Belgium; Dr. C. F. Langworthy, nutrition expert of the U. S. Department of Agriculture; Graham Lusk of the Cornell University Medical College; E. V. McCollum of Johns Hopkins University; Lafayette B. Mendel of Yale University; Raymond Pearl, statistician of the administration; A. E. Taylor of the University of Pennsylvania, and President R. L. Wilbur of Stanford University. The Advisory Committee on Public Health contains the names of Dr. L. P. Ayres of the Russell Sage Foundation; Dr. Herman Biggs; D. L. Edsall of the Harvard Medical School; Dr. Cary T. Grayson of the U. S. Navy; A. W. Hewlett of Stanford University; John Howland of Johns Hopkins University; F. G. Novy of the University of Michigan; R. M. Pearce of the University of Pennsylvania; H. Gideon Wells of the University of Chicago, and

Lieut.-Col. W. H. Welch. Amid the criticisms leveled at so many branches of the government in its gigantic efforts to win the war, it is worth while to point to one branch at least in which correct principles have been followed in pioneer ways. Guided by the judgment of such consulted experts, the medical profession may and should join in the efforts to dispel public alarm when wheat is forced to give way to other cereals, when the allowance of meat is reduced, when sugar is restricted to 3 pounds per person per month, and when other innovations are suggested in the interests of interallied food economy. We can do this the more gladly now that our allies too have recognized the value of scientific advisers in a conference that studies the food resources, the food needs, and the nutritional conditions in the allied nations at war.

BACTERIOLOGY OF WAR WOUNDS OF THE EXTREMITIES

Sacquépée¹ has made a careful study of a large series of war wounds of the extremities, with particular reference to the conditions preceding and accompanying infection. He determined the different kinds of bacteria and paid special attention to the number at different times. The enumeration was made by counting the bacteria in stained preparations according to the method of Carrel, by means of which it is possible to calculate approximately the number of bacteria in a given volume of exudate. This direct method of enumeration does not permit the recognition of any particular species except possibly the streptococcus. The method, however, is of value because by counting the bacteria one can determine in a rough way the rapidity with which they multiply. In the cultural work, Sacquépée made use of the accepted aerobic and anaerobic methods as well as of certain special methods. It appears that practically all severe (osteomuscular) war wounds of the extremities are contaminated with bacteria from the first, but not necessarily at once infected. Of 233 wounds examined by Sacquépée before any surgical treatment had been applied, 228 were contaminated and five sterile, two of the latter being revolver wounds. Of the 228 wounds, fifty-eight were contaminated exclusively by aerobic bacteria, seven by anaerobic, and 163 by both kinds. Of 100 wounds of which cultures were made within twenty-four hours and before infection could be recognized, 85 per cent. gave staphylococci, 12 per cent. streptococci, 40 per cent. enterococci, 20 per cent. diphtheroids, 68 per cent. *B. perfringens*, and 22 per cent. *B. sporogenes*, and a number of other forms in fewer cases. We see that of the aerobes, the staphylococcus and the enterococcus predominate, and of the anaerobes, *B. perfringens*; the streptococcus and the

more dangerous anaerobes (*vibrion septique*, 3 per cent. and *B. bellonensis*, 4 per cent.) being relatively rare. These proportions may vary according to climatic, geographic and anatomic conditions; in rainy weather the wounds are more contaminated and the anaerobic forms predominate. In clayey soil, the streptococcus and the pneumobacillus seem favored; in chalky soil, the enterococcus. Wounds with comminution of bone are in general more contaminated than simple wounds; thus, *B. perfringens*, that is, the gas bacillus, was found in about 85 per cent. of the fractures of the lower extremities.

We see that the important cocci are the streptococcus and the enterococcus, which Sacquépée thus distinguishes: In broth, the first forms long chains; on agar, shorter chains; it gives small colonies, a granular growth in broth, is of feeble vitality, and is hemolytic. The enterococcus is pleomorphic on agar; in broth, it forms short chains, masses and diplococci; on agar slants, small bluish colonies; in broth, turbidity with sediment. It acidifies and coagulates milk, and it is not hemolytic. Whether or not this enterococcus corresponds to any special variety of streptococcus cannot be decided from the facts at hand.

Every wound, then, is contaminated from the beginning, but not, as might be taken for granted, at once infected. Between the time of contamination and actual recognizable infection a certain period elapses, during which the microbes multiply; but the end of this period is not easily defined. It may be regarded as at an end, however, when the clinical conditions clearly indicate that infection is present; and Sacquépée shows that at this time bacteriologic examination gives a flora that seems characteristic of infection at least in numbers. This period of incubation is variable: some wounds are infected rapidly, others more slowly. The contamination of wounds with subsequent infection is, above all, the result of the introduction of foreign bodies, as projectiles and fragments of clothing, which are contaminated with the bacteria of the skin or of external origin. It is about the foreign body that the microbes multiply first, and it is from here that they pass along the track of the wound and into the depths of the tissues. Sacquépée found that in the first hours it was difficult to demonstrate any bacteria. From the seventh to the twelfth hour or so, multiplication is easily recognized, however, each cubic millimeter of the exudate containing about 600 germs, the multiplication being more rapid when the tissues were contused, and it may increase rapidly from now on, clinical conditions generally indicating infection. Now the number of bacteria increases rapidly and progressively for about thirty-six hours; at first aerobic forms, usually nonpathogenic, but soon the anaerobic forms begin to multiply also, and there may be a relative diminution in the nonpathogenic aerobes at the same time as there is increase in the pathogenic,

1. Sacquépée, E.: Etudes bactériologiques sur les plaies de guerre (blessures ostéo-musculaires des membres, Jour. de phys. et de path. gén., 1918, 17, 621.

such as the enterococcus and the pneumobacillus. It seems that the second day is the time for the streptococcus to begin development. Sacquépée recapitulates the details of his observations somewhat in this manner: In osteomuscular war wounds of the extremities, infection almost without exception becomes imminent between the seventh and eleventh hour after the receipt of the wound, and infection is established between the twelfth to the seventeenth hour so far as the anaerobes are concerned, and between the eighteenth and forty-eighth hour so far as the aerobes are concerned. The practical lesson from the surgical point of view is, of course, that intervention is the more likely of success the earlier it can be made.

VENTILATION AND SCHOOL HYGIENE

The engineer of the Chicago Commission on Ventilation, W. J. Mauer,¹ has remarked that the ventilating engineer stands in ill repute today in the eyes of many, not because of lack of knowledge or skill on his part, but because of lack of uniformity of opinion and the need of standards of good air conditions and installation methods. Ventilation is a definite problem which cannot be solved by the haphazard method of opening a window here and there. When one stops to remember that mankind is more immediately dependent on air than on either food or water, it seems surprising indeed that so little serious attention and scientific study have been devoted to the air we breathe, in comparison with diet and drinking supplies.

Motion, coolness, a certain degree of humidity, freshness—each of these factors has at some time been emphasized in relation to proper ventilation. The fear of drafts, at least of gentle drafts such as belong to ventilation schemes, is decreasing. The suspicion of subtle unidentified volatile “animal” poisons in assembly halls has been dispelled by the demonstration of their nonexistence. The propaganda for fresh air in public places has, however, found a topic for debate in respect to the methods of ventilation to be employed. Speaking specifically, the uncertainty concerns the comparative value of the open air and the mechanical type of ventilation. To cite an illustrative case we may ask, Shall our schoolrooms be ventilated by the system of fans or by open windows?

This is a timely question. The summer vacations are periods for repairs and alterations in school buildings. The period for essential changes that conduce to child health are at hand. Working in cooperation with the New York State Commission on Ventilation, whose investigations have been recorded from time to time in *THE JOURNAL*, the Bureau of Child Hygiene

of the New York City Department of Health has contributed some striking evidence on the subject.² In a comparison involving 5,533 pupils in many classrooms, the relation of the temperature and type of ventilation of the schoolrooms to absence due to respiratory disease was investigated. It was found that children in classrooms with closed windows and ventilated by mechanical methods, such as the plenum fan system, were more subject to such ailments severe enough to keep them from school attendance than were children who were in classrooms kept at the same or lower temperature and ventilated wholly by open windows. Furthermore, in the closed window, mechanically ventilated type of room, the rate of respiratory diseases occurring among pupils in actual attendance, that is, not ill enough to be kept at home, was 98 per cent. higher than in naturally ventilated schoolrooms at the same temperature (about 68 F.), and about 70 per cent. higher than in the open window type of classroom kept at about 50. There was no difference between the sexes. Contrary to popular notions, the relative humidity was in no case a causative factor in the occurrence of respiratory illness among schoolchildren. These observations on the hygiene of ventilation speak for themselves. Incidentally they give evidence of the value of one of the bureaus in the municipal health department organization of New York City which has recently become the target for something savoring of political interference.

THE ALLERGIC BASIS OF SYMPATHETIC OPHTHALMIA

The allergic theory of a sympathetic ophthalmia was first advocated by Elschnig.³ He assumed that an injury to the uvea of the exciting eye led to the disintegration of uveal tissue which was absorbed and, acting as antigen, produced hypersensitiveness of the organism and especially of the other eye, whereupon the circulating antigen would react with the sensitized eye and produce an allergic reaction manifested clinically as sympathetic ophthalmia.

To fulfil the tenets of this theory some constituent of uveal tissue must be able to act as an organ-specific antigen in the same animal, and ocular allergy or anaphylaxis must be demonstrable in a properly sensitized animal by means of the antigen introduced into the blood stream; that is, uveal tissue absorbed from one eye must be capable of sensitizing the other eye in the same animal.

Elschnig used complement fixation for the study of the immune bodies; other investigators have studied this problem, but with somewhat divergent results, using the epiphanin and precipitin reactions as well

1. Mauer, W. J.: Ventilation of Army Barracks, *Am. Jour. Pub. Health*, 1918, **8**, 112.

2. Baker, S. Josephine: Classroom Ventilation and Respiratory Diseases Among Schoolchildren, *Am. Jour. Pub. Health*, 1918, **8**, 19.

3. Elschnig, A.: *Arch. f. Ophth.*, 1909, **75**, 459; 1910, **76**, 509; 1911, **78**, 549, 1911, **79**, 428.

as complement fixation. Recently Woods,⁴ at the University of Pennsylvania, has made experiments primarily to study the immunologic properties of uveal tissue, and especially those of the pigment. He repeated substantially the work of Elschmig, and while his results do not seem as clear cut as those of Elschmig, they indicate that the uveal pigment is antigenic and lacks species specificity but possesses organ specificity. This is shown by the fixation of complement, by the use of serum against the uveal pigment of the dog with beef pigment as antigen, and by the use of serum against beef pigment with dog pigment as antigen. By perfusion experiments, Woods demonstrated that while the defibrinated blood of a normal dog caused no ocular reaction, when the antigen, uveal tissue or pigment to which the dog was sensitized was added to the perfusion fluid, a prompt contraction of the pupil occurred, followed shortly by small hemorrhages throughout the fundus. This is in agreement with the observation of Dale and Schultz, who discovered the contraction of sensitized smooth muscle in the presence of specific antigen. When injected into the vitreous of one eye, both heterologous and homologous uveal tissues were absorbed; after a suitable period to bring about a state of allergy, the injected eye was enucleated, and a week later the remaining eye was perfused with specific antigen, and allergic reactions resulted invariably.

In considering the results of these experiments, it should not be overlooked that they bring additional evidence in support of the cellular theory of allergy or anaphylaxis. The results are of general immunologic interest also because they show that the protein in the uveal pigment belongs to a limited class of proteins which are peculiar in that they give rise to antibodies that are specific for these proteins in whatever species they may occur; that is to say, the reactions are organ-specific and not species-specific. Heretofore the only other well established example of this organ specificity has been the crystalline lens. To the practical ophthalmologist the results should be of great interest not only because they would seem to throw light on the nature of sympathetic ophthalmia but also because they indicate the necessity of preventing as much as possible the absorption into the general circulation of uveal materials.

4. Woods, A. C.: *Jour. Immunol.*, 1918, **3**, 75.

Nutrition.—To the trained eye, the general appearance of the child may reveal much that is hidden to the mother. The posture, the tissue turgor, firm resistant subcutaneous tissues speak for health; flabby, nonresistant ones for malnutrition. Expressionless, tired looking children with dark circles about the eyes need to have their diets revised, or else have grave disturbances of health. Cyanosis of the cheeks, ears and finger tips may speak of cardiac or pulmonary disease. The bony changes in the skull of rachitic children are recognized at a glance. Disproportion between various skeletal members may reveal achondroplasia or other structural deformity.

Current Comment

ENZYMES IN TUBERCLE BACILLI

That many micro-organisms contain and produce enzymes of the type familiar in connection with the digestion of foodstuffs is a commonly known fact. For some bacteria this has been established with scientific precision, and their equipment of suitable enzymes has been assumed to play a part in the nutritive processes of these cells as well as in the disintegrative or other changes which some of them bring about in the tissues or fluids wherein they find lodgment and develop. The tubercle bacillus, on the other hand, has until recently been regarded as devoid of the ordinary well known enzymes. Not all investigators of the chemical bacteriology of this group have failed to obtain evidence of these digestive agents. An occasional report has recorded their presence.¹ It has remained for the development of more refined methods of estimating enzymatic performance to demonstrate something more definite about the tubercle bacilli. The new studies of Corper and Sweany² of the Municipal Tuberculosis Sanitarium in Chicago indicate that both the human and bovine varieties possess autolytic enzymes. The bacilli themselves, or the autolysates therefrom, possess a trypsin-like enzyme capable of splitting proteins in alkaline solution; an erepsin-like enzyme capable of decomposing peptone in acid solution; a small amount of pepsin-like protease capable of digesting proteins in acid solution; a nuclease that will split nucleic acid; and a urease. Although lipase has been reported, carbohydrate-digesting enzymes could not be detected. If we seek for an explanation for the tardy discovery of these facts in a much investigated micro-organism, it must be recalled that the sluggish tubercle bacillus has long been regarded, in common with the related acid-fast lepra and smegma bacilli, as an organism biologically and chemically distinct from the ordinary rapidly growing bacteria. So far as the equipment of enzymes is concerned, this now appears to be a quantitative rather than a qualitative distinction.

THE SIGNIFICANCE OF WEIGHT AT BIRTH

The weight of infants at birth is subject to marked variations. In the case of extremely low weights it is presumable that the prenatal development has not been satisfactorily completed. But even when such admittedly exceptional circumstances are left out of consideration, there is a not insignificant range of variation in what may be tentatively termed the normal weight of human infants at birth. By a careful study of the statistics of growth during the early days of life in infants nourished with milk, the most acceptable food, Hammett³ has evolved some interesting theses regarding the infant at this period of develop-

1. Kendall, A. I.; Day, A. A., and Walker, A. W.: *Jour. Infect. Dis.*, 1914, **15**.

2. Corper, H. J., and Sweany, H. C.: *The Enzymes of the Tubercle Bacillus*, *Jour. Bacteriol.*, 1918, **3**, 129.

3. Hammett, F. S.: *The Relation Between Growth Capacity and Weight at Birth*, *Am. Jour. Physiol.*, 1918, **45**, 396.

ment. The records of more than five hundred individuals at the Boston Lying-In Hospital show that the growth capacity of human infants during the first two weeks after birth is in a large degree dependent on the weight at birth. Roughly, it is inversely proportional to the initial weight. The ability to recover and pass the initial weight after the postnatal decline obviously varies in the same way, so that at the completion of the period studied, 82 per cent. of those infants weighing between 5 and 6 pounds at birth had recovered or passed their initial weight, as compared with 20 per cent. of those weighing from 10 to 11 pounds. The intermediate groups vary inversely as to their weight at birth. These facts recall the contention of Minot that the rate of growth is a function of age. As he expressed it, "the more rapid growth depends upon the youth of the individual." From this Hammett jumps to the conclusion that the weight of an infant at birth is an index of its relative physiologic age. Sixty-five per cent. of all infants weigh between 6 and 8 pounds at birth. The opinion has been advanced, furthermore, that a birth weight lying between 6 and 8 pounds is indicative of the completion of the intra-uterine growth cycle, that weights under 6 pounds represent physiologically younger individuals, and that those over 8 pounds at birth have completed and passed this cycle and are physiologically older.

METABOLISM IN MALARIAL FEVER

In afebrile conditions, the production of heat in the body equals heat elimination, so that the body temperature is kept at a constant level. Obviously in fever either or both of these factors may become upset. Under normal conditions of health, heat production is enormously increased during severe exercise or in such a physiologic response as the shivering after exposure to cold. But in such instances of increased metabolism no marked rise in temperature occurs, for the heat elimination is increased to compensate for it. From such considerations it would appear as if in fever there must be some disturbance in the power of the body to rid itself of heat. In Coleman and Du Bois¹ classic calorimetric observations on the metabolism of typhoid patients, an increase in heat production was found to accompany a rising temperature in nearly all cases observed. The heat elimination was not equal to the heat production, but rose to meet the higher level of metabolism. Barr and Du Bois,² likewise working with the calorimeter of the Russell Sage Institute, have added a valuable study of metabolism in malarial fever to the already numerous list of contributions of this organization to clinical calorimetry. They have arrived at the conclusion that in malarial paroxysms the increase in body temperature is due to an increasing heat production, which more than offsets a slightly increasing heat elimination. During a chill the heat production may increase from 100 to 200 per cent., falling imme-

diately thereafter to within from 20 to 38 per cent. of the average basal level. At this time there follows a fall of temperature due to the greatly increased heat elimination. According to Barr and Du Bois, there is no indication of abnormal processes of metabolism in malarial fever except that the protein metabolism is somewhat increased.

Medical Mobilization and the War

Medical Military Information

The following pamphlets have been prepared and are now available for distribution by THE JOURNAL. These pamphlets will be sent on receipt of postage as stated following the title:

1. Information Regarding Medical Service in the United States Army: Organization; Appointment in the Medical Reserve Corps; Reporting for Duty; Insurance, Compensation, Civil Rights; Customs of the Service; Work in the Training Camps; Equipment of Officers. Pocket size, 39 pp. 3 cents.

2. Standards of Physical Examination Governing the Entrance to All Branches of the Armies of the United States: Form 75, Issued Through the Office of the Provost Marshal-General. 3 cents.

3. Physical Examinations Under the Selective Service. Report of the meetings held on this subject in Chicago, June 13 and 14. 54 pp. 6 cents.

4. Reconstruction and Rehabilitation of Disabled Soldiers. A report of the meetings held on this subject in Chicago, June 13. 6 cents.

5. Trench Fever. A Report of the British War Office Trench Fever Investigation Committee, reprinted from THE JOURNAL of July 6, 13 and 20. 44 pp. 6 cents.

6. The Nature and Treatment of Wound Shock and Allied Conditions. Report of a special investigation committee of the Medical Research Committee of Great Britain. 104 pp. 20 cents.

Personnel of the Medical Department

For the week ending July 26, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 929, including 1 major-general, 65 colonels, 112 lieutenant-colonels, 296 majors and 455 lieutenants.

MEDICAL RESERVE CORPS: 22,149, including 1,502 majors, 6,506 captains and 14,141 lieutenants. On active duty: 20,381, including 1,428 majors, 6,022 captains and 12,931 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,199, including 22 lieutenant-colonels, 264 majors, 256 captains and 657 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 360, including 6 brigadier-generals, 86 colonels, 258 lieutenant-colonels, 9 majors and 1 captain.

THE DISCHARGES to date are:

Causes	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	737	54
Inaptitude	0	276	21
Other branches of service.....	3	644	74
Resignations	0	188	34
Domestic troubles	0	61	1
Needed by community	1	50	0
Deaths	1	96	6
Dismissals	0	16	4
Duty completed	0	3	0
No reasons given	0	14	1
	5	2,085	195

American Medical Men Decorated

Lieut. J. Breckinridge Bayne, Washington, D. C., who recently arrived from Roumania, was awarded a decoration by the King of Roumania for his efficient work in fighting the typhus epidemic in that country.—Surg. Wrey G. Farwell, U. S. Navy, Washington, D. C., in duty with the Marine Corps, has been cited for valor in rendering first aid with Col. Arnold W. Catlin, Brooklyn, of the Marine Corps.—Lieut. Theodore H. Sweetser, M. R. C., U. S. Army, New York City, has been recommended for a British War Cross, because of gallantry and devotion to duty near Passchendaele.—For courage and steadfastness during ten days and nights of continuous service, Capt. Harry Rogers, Orange, N. J., in command of the American Ambulance Service with the French Army has been decorated with the Croix de Guerre with a gold star.

1. Coleman, Warren, and Du Bois, E. F.: Clinical Calorimetry, Paper 7, Calorimetric Observations on the Metabolism of Typhoid Patients With and Without Food, Arch. Int. Med., May, 1915, p. 887.

2. Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, Paper 28, The Metabolism in Malarial Fever, Arch. Int. Med., May, 1918, p. 627.

Wounded

It is announced that P. A. Surg. Sydney Walker, Jr., U. S. N. R. F., Chicago, attached to the Marine Brigade in France, has been severely wounded in action.—Lieut. Howard L. Beye, M. R. C., U. S. Army, Evanston, Ill., on duty with the American Expeditionary Forces in France, was severely wounded, July 15.—Asst. Surgs. Lester L. Pratt, Orlando H. Petty, U. S. N., both of Philadelphia, attached to the U. S. Marine Corps, are reported to have been severely wounded in action, July 14.—Capt. William J. McGregor, M. R. C., U. S. Army, Wilkesburg, Pa., who recently suffered the amputation of both legs on account of wounds had a narrow escape from death recently when the hospital in which he was lying was bombed by German airplanes.—Capt. Charles H. Arnold, M. R. C., U. S. Army, Lincoln, Neb., on duty with the British Expeditionary Forces, while caring for the injured, June 1, was wounded by a German sniper.—Capt. Daniel A. Webb, C. A. M. C., Scranton, Pa., on duty with the expeditionary forces in France, was recently wounded in the left hand.—Lieut. Walter J. Daly, M. R. C., U. S. Army, Philadelphia, received severe shrapnel wounds and is now said to be in a base hospital in a serious condition.

Prisoners

The following medical officers are said to be prisoners in Germany: At Camp Villingen, Lieut. Franklin Burche Pedrick of Washington, D. C., captured at Fleurboix, April 9, and Bernard James Gallagher, Waseca, Minn., captured at Marcelcave, May 28; at Camp Tuchel, Lieut. John S. Abbott, St. Paul, captured, March 21, at Laguycourt; at Camp Hamlin, Lieut. Louis Martin Edens, Cabool, Mo., captured, April 10, at Messines; at Bad Stuer, Lieut. Maurice S. Redmond, M. R. C., Pittsburgh, captured at Ploegsteert, April 11.

Surgeon Whiteside Missing

In the sinking of the U. S. S. *President Lincoln*, which was torpedoed by an enemy submarine, May 31, with the loss of three officers and twenty-five enlisted men, P. A. Surg. Lindsay C. Whiteside, U. S. Navy, Washington, D. C., a graduate of Jefferson Medical College in 1907, aged 32, and a Fellow of the American Medical Association, is reported to have gone down with the ship.

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, and July 13, 20 and 27.

ALABAMA

Birmingham—Moore, C. H.
Dothan—Ellis, J. T.
Huntsville—Wilson, F. B.
Montgomery—Thigpen, W. G.
Prichard—Long, D. J.
Valley Head—Norton, E. M.
Walker Springs—Rudder, B. C.

ARIZONA

Mayer—Poole, R. E.
Tucson—Thomas, C. A.

ARKANSAS

Fort Smith—Moulton, E. C.
Prescott—Hesterly, J. B.

CALIFORNIA

Brentwood—Cook, F. S.
Dinuba—Tillotson, C. A.
Dos Palos—Johnson, B. W.
Fair Oaks—Bramhall, R. N.
Fresno—Thorne, W. M.
Hollywood—Mueller, O. H.
Jackson—Endicott, E. E.
Long Beach—Harvey, E. R.
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Skeel, D. W.
Smith, B.
Oakland—Vannuys, R. G.
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Kandsburg—Denton, W. L.
San Jose—Ryan, F. S.
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Whiffen, R. A.
Wilson, D. R.
Stockton—Six, C. L.

COLORADO

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CORRECTION

In the issue of May 4, under the head of "Orders to Officers of the Medical Reserve Corps" appeared the notice of the discharge of Lieut. FRANK E. WHEATLEY of North Abington, Mass., on account of physical disability. We have been informed that the information sent to us was erroneous.

ORDERS TO OFFICERS OF THE MEDICAL CORPS AND OF THE MEDICAL CORPS OF THE NATIONAL ARMY

To Camp Cody, Deming, N. M., as camp surgeon, from Fort Riley, Major JOHN J. REDDY.

To Camp Devens, Ayer, Mass., to command evacuation hospital, from Roland Park, Major GEORGE C. DUNHAM.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. ROBERT J. PLATT.

To Camp Greene, Charlotte, N. C., base hospital, from Fort Oglethorpe, Col. HENRY PAGE.

To Camp Hancock, Augusta, Ga., for duty, from Camp Sheridan, Major CHARLES C. HILLMAN.

To Camp MacArthur, Waco, Texas, as assistant to camp surgeon, from Fort D. A. Russell, Lieut. HENRY C. BIERBOWER. To command base hospital, from San Francisco, Major ROBERT DUR. HARDEN.

To Camp Meade, Admiral, Md., as division surgeon, from Fort Riley, Lieut.-Col. HENRY C. PILLSBURY.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Sheridan, Major ROSS H. SKILLERN.

To Camp Sheridan, Montgomery, Ala., as division surgeon, from Camp Hancock, Lieut.-Col. WILLIAM M. SMART.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Hancock, Major GEORGE M. COATES.

To Chicago, Ill., American Medical Association, for duty, in addition to his other duties, Major JOHN R. McKNIGHT.

To Fort Du Pont, Del., for duty, from New York, Col. MARLBOROUGH C. WYETH.

To Fort Oglethorpe for duty, from Fort Riley, Col. WILLIAM N. BISPHAM, Lieut.-Cols. THOMAS J. FLYNN, HENRY C. PILLSBURY, HOWARD McC. SNYDER; Major CHARLES L. GANDY, Lieuts. JOHN E. BOLAND, MATTHEW A. McGARTY, ANDREW W. SMITH.

To Fort Riley as assistant to camp surgeon, from Douglas, Lieut. CORNELIUS O. BAILEY. As division surgeon, from Camp Sherman, Lieut.-Col. GLENN I. JONES.

To Hoboken, N. J., for duty, from Camp Gordon, Lieut. ALBERT W. GREENWELL; from Fort Leavenworth, Lieut. WILLIAM S. McCANN.

To Mineola, L. I., N. Y., for duty, and on completion to his proper station, Col. WILLIAM O. OWEN.

To New Haven, Conn., as instructor, from Fort Leavenworth, Lieut.-Col. FERDINAND SCHMITTER, Major SYRUS B. WOOD. To organize and command a Yale Army Laboratory School, from Fort Leavenworth, Lieut.-Col. CHARLES F. CRAIG.

To Washington, D. C., for duty in the Surgeon-General's Office, from Fort Meyer, Lieut.-Col. SAMUEL J. MORRIS; from Mayo Clinic, Col. CHARLES H. MAYO.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Gordon, Atlanta, Ga., for duty, Lieuts. WILLIAM R. EIDSON, Enterprise; WALTER N. MOORE, Lisman.

To Camp Lee, Petersburg, Va., base hospital, from Camp Logan, Lieut. CARL A. HARRIS, Bessemer. For duty, from Fort Oglethorpe, Lieut. ROBERT H. SHEPHERD, Jasper.

To Camp McClellan, Anniston, Ala., base hospital, Lieuts. CLAUDE F. MYERS, NORMAN I. WOOD, Birmingham.

To Fort Monroe, Va., for temporary duty, Major CHARLES A. THIRPEN, Montgomery.

To Fort Oglethorpe for duty, from Fort Riley, Major HARRY T. LAY, Montgomery. For instruction, Capt. CHARLES P. MARTIN, Woodstock; Lieuts. HORACE A. LEYDEN, Anniston; ANDREW L. GASTON, Ensley; THOMAS H. DENNY, Wadley.

To New York City, Bellevue Hospital, for instruction, and on completion to *Camp Devens*, Ayer, Mass., base hospital, Lieut. CECIL D. GASTON, Birmingham.

To Richmond, Va., for duty, Capt. HAWKINS D. WESTMORELAND, Huntsville.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. HARRY E. HALL, Florence.

The following order has been revoked: *To report by wire to the commanding general*, Southeastern Department, for assignment to duty, Lieut. MALCOLM D. SMITH, Prattsville.

Arizona

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. GEORGE C. SNYDER, Johnson.

To Fort Oglethorpe for instruction, from Fort Sill, Lieut. EARL R. McPHEETERS, Clifton.

To Fort Riley for instruction, from duty as a private, Lieut. JOSEPH W. KEMPF, Fort Douglas.

Arkansas

To Camp Gordon, Atlanta, Ga., for duty, from Fort Riley, Lieut. BERT C. HINER, Evansville.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Fort Oglethorpe, Lieut. HENRY K. WADE, Hot Springs.

To Corpus Christi, Texas, for observation and treatment, from Camp MacArthur, Capt. ANTHONY C. THIELLIERE, Varner.

To Fort Riley for instruction, Lieuts. CLEVELAND B. HOLLABAUGH, Leslie; OLIVER C. STRUTHERS, Siloam Springs; JOHN C. HUGHES, Walnut Springs.

To Plattsburg Barracks, N. Y., for duty, from Army Medical School, Lieut. JACOB B. HESTERLY, Prescott.

California

To Camp Kearney, Linda Vista, Calif., base hospital, Capts. ERNEST L. COMMONS, GEORGE G. HUNTER, Los Angeles; PHILIP M. SAVAGE, San Bernardino; Lieuts. PERRY N. SIMS, Calexico; FLOYD L. R. BURKS, Fresno; GEORGE T. BOYD, Hollywood; EDWARD W. SEAFORTH, San Francisco; JOSEPH S. COCHRAN, WILLIAM F. PRIESTLEY, Stockton.

To Camp Lewis, American Lake, Wash., base hospital, Capts. ELBERT LER. BIGGS, HOWARD W. SEAGAR, Los Angeles; CLARENCE L. SIX, Stockton; Lieuts. WALTER W. DAVIS, Brea; EDWARD S. DRUCHS, ALVA F. MAINE, Oakland.

To Camp Logan, Houston, Texas, base hospital, from San Francisco, Major HERMAN J. SCHLAGETER, San Francisco.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. WILLIAM J. MARNEY, Sebastopol.

To Fort Oglethorpe, base hospital, from Camp Dix, Capt. WAYLAND A. MORRISON, Los Angeles; from Fort Riley, Capt. ROBERT C. HOWE, San Francisco. For instruction, Capts. JOHN L. AVFY, Redlands; JAMES EAVES, San Francisco; Lieut. PHILLIP L. WISE, San Jose.

To Fort Riley for instruction, Capts. ALBERT W. MOORE, Los Angeles; GARTH PARKER, Salinas; JOSEPH W. PINE, Eureka; ARTHUR W. BUELL, Long Beach; MONTAGUE CLEEVES, EDWIN M. CLINTON, WILLIAM S. HARTFORD, JOHN H. TEBBETTS, Los Angeles; HARRY B. MITCHELL, Needles; CHARLES C. ROSS, San Francisco; JOHN I. BEATTIE, San Jose.

To Rockefeller Institute for instruction in bacteriology, and on completion to *Army Medical School*, for duty, Capt. THOMAS H. T. WIGHT, Santa Monica.

To San Francisco, Calif., for instruction and on completion to *Letterman General Hospital*, that place, for duty, Lieut. LLEWELLYN R. JOHNSON, Stockton. *Letterman General Hospital*, for duty, Capt. NEWTON T. ENLOE, Chico; Lieut. ROY N. FULLER, Tulare. On completion to *Canal Zone*, for duty, Capt. JOHN N. FORCE, Los Angeles.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. HARVEY P. CHARLES, Berkeley.

The following order has been revoked: *To Hoboken, N. J.*, for duty, from Fort Oglethorpe, Lieut. TRUSTEN M. HART, Los Angeles.

Canal Zone

To Camp Pike, Little Rock, Ark., base hospital, from the Surgeon-General's Office, Major WILLIAM McC. JAMES, Panama City.

Colorado

To Camp Cody, Deming, N. M., base hospital, Capt. BURGETT WOODCOCK, Greeley; Lieut. NORBERT H. KNOCH, Denver.

To Camp Devens, Ayer, Mass., base hospital, from New York City, Lieut. WM. A. MCGUGAN, Denver.

To Camp Grant, Rockford, Ill., base hospital, from Fort Sill, Major CLARENCE B. INGRAHAM, Denver.

To Camp MacArthur, Waco, Texas, base hospital, Lieut. CHARLES E. CONDON, Breckenridge. For duty, from Fort Riley, Lieut. LANNING E. LINES, Lamar.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. JOHN G. WOLF, Pueblo.

To Fort Oglethorpe for instruction, Capts. CARBON GILLASPIE, Boulder; HENRY W. WILCOX, Lieut. LESLIE H. WADE, Denver; from Fort Riley, Lieut. VARDRY A. HUTTON, Florence.

To Fort Riley for instruction, Lieut. ELBERT S. WAYMIRE, Denver.

To New Haven, Conn., for duty, Lieut. EDGAR D. DOWNING, Woodman.

To Rockefeller Institute for instruction in bacteriology, and on completion to *Army Medical School* for duty, Capt. PHILIP HILLKOWITZ, Denver.

The following order has been revoked: *To Camp Cody*, Deming, N. M., base hospital, Lieut. NORBERT H. KNOCH, Denver.

Connecticut

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. HEMAN A. TYLER, Hartford.

To Camp Hancock, Augusta, Ga., to examine the command for nervous and mental diseases, Lieut. GEORGE McM. MELVIN, Middleton.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Mayo Clinic, Lieut. GEORGE M. SMITH, Waterbury.

To Fort Oglethorpe for instruction, Lieuts. GALEM F. SCUDDER, Glastonbury; ELIOT S. COGSWELL, Hartford; ARTHUR J. Sr. LAWRENCE, New Haven; ARTHUR A. J. JOHNSON, Waterbury.

To Garden City, L. I., N. Y., for duty, from Mineola, Lieut. HARTWELL G. THOMPSON, Hartford; from San Antonio, Lieut. ARTHUR F. McDONALD, Waterbury.

To New Haven, Conn., for observation and treatment, Lieut. LEWIS G. BEARDSLEY, Wallingford.

To Newport News, Va., for duty, from Camp Sevier, Lieut. MARMA DUKE H. DENSLOW, Marbledale.

To Rockefeller Institute for instruction, and on completion to *Fort Oglethorpe* for instruction, Major JOSIAH M. SLEMONS, New Haven.

District of Columbia

To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, Lieut. BERNARD GLUECK, Washington.

To Camp Dix, Wrightstown, N. J., for duty, Lieut. FRANK D. ADAMS, Washington.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Major HENRY T. PRICE, Washington.

To Fort Oglethorpe for duty, from Fort Riley, Capt. LEONARD P. BELL, Washington. For instruction, Major CLARENCE M. DOLLMAN, Capt. HENRY C. COOK, LOUIS A. JOHNSON, Lieut. DANIEL B. MOFFETT, Washington.

To Hot Springs, N. C., for duty, from Washington, Major JOSEPH M. HELLER, Washington.

To New Haven, Conn., for duty, Lieut. JAMES L. ANDERSON, Washington.

To *Newport News, Va.*, for temporary duty, Lieut. JOSEPH R. DARNALL, Washington.
To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to Camp Jackson, Columbia, S. C., base hospital, Lieut. SIMON R. KARPELES, Washington.

Florida

To *Camp Jackson*, Columbia, S. C., base hospital, Lieut. ROSCOE H. KNOWLTON, St. Petersburg.
To *Camp Lee*, Petersburg, Va., base hospital, from Camp Logan, Capt. FRANK F. FERRIS, Apalachicola.
To *Camp Sheridan*, Montgomery, Ala., for duty, Lieut. PARSONS M. GARCIA, West Tampa.
To *Fort Oglethorpe* for instruction, Lieut. ELLSWORTH C. BRUNNER, Miami.
To *Lakewood, N. J.*, for duty, from Camp Wheeler, Capt. JULIAN E. CAMMON, Jacksonville.

Georgia

To *Richmond, Va.*, for duty, Lieut. HENRY M. SMITH, Chattanooga.
To *Camp Dix*, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. LUCIUS LAMAR, Dawson.
To *Camp Gordon*, Atlanta, Ga., for duty, Lieut. GUY G. LUNSFORD, Weston.
To *Camp Greene*, Charlotte, N. C., base hospital, from Army Medical School, Lieut. SAMUEL LICHTENSTEIN, Augusta.
To *Camp Lee*, Petersburg, Va., base hospital, from Camp Jackson, Lieut. GEORGE H. LANG, Savannah.
To *Camp McClellan*, Anniston, Ala., base hospital, Lieut. ERNEST CORN, Macon.
To *Fort Slocum, N. Y.*, as orthopedic surgeon, from Camp Dix, Lieut. HENRY J. PEAVY, Byron.
To *Hoboken, N. J.*, base hospital, from Camp Crane, Lieut. JOHN R. TURNER, Temple. For duty, Major RUFUS T. DORSEY, Atlanta; Capt. ROBERT B. RIDLEY, Decatur.
To *Rockefeller Institute* for instruction, and on completion to *Camp Jackson*, Columbia, S. C., base hospital, Capt. WILLIAM B. CRAWFORD, Savannah. For instruction in bacteriology, and on completion to his proper station, from Camp Joseph E. Johnston, Lieut. PAUL H. CHRISTIAN, Columbus.
Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. RICHARD BINION, Sparta.

Idaho

To *Camp Leach*, American University, Washington, D. C., for duty, from Fort Riley, Lieut. OWEN D. PLATT, St. Maries.
To *Camp Lewis*, American Lake, Wash., base hospital, Capt. ADAM M. NEWTON, Pocatello.
To *Fort Oglethorpe* for duty, from Fort Riley, Capt. DONALD S. NUMBERS, Parma. For instruction, Capt. RICHARD E. SHURTZ, Boise.
To *Fort Riley* as sanitary inspector, from Fort Riley, Capt. WILLIAM H. TUKEY, Emmett. For instruction, Lieut. JOHN DIMON, Elk River.
To report by wire to the commanding general, Western Department, for assignment to duty, Lieut. EDWARD D. PIPER, Jerome.

Illinois

To *Army Medical School* for instruction, Lieuts. ARTHUR L. BEYERLEIN, Chicago; from Camp Wheeler, Lieut. CHARLES H. MANLOVE, Jr., Chicago.
To *Baltimore, Md.*, Johns Hopkins University, for duty, from Baltimore, Major EVARTS A. GRAHAM, Chicago.
To *Camp Abraham Eustis*, Lee Hall, Va., for duty, Lieuts. CHARLES B. ALEXANDER, Chicago; HENRY M. BOIES, Strawn; from Camp Sevier, Lieut. ALFRED A. WILLANDER, Rockford; from Fort Brady, Capt. CHARLES J. POOLE, Mt. Vernon; from Fort Oglethorpe, Capt. CORYDON DEK. BUNDY, Sadorus.
To *Camp Gordon*, Atlanta, Ga., for duty, from duty as a private, Lieut. ELI LEVIN, Chicago; from Fort Riley, Lieut. GWYN F. HAIG, LeRoy.
To *Camp Grant*, Rockford, Ill., base hospital, Lieuts. RAY M. FOUTS, SAMUEL J. PEARLMAN, Chicago; from Fort Oglethorpe, Capt. FRENCH S. CARY, Chicago; from Fort Sill, Lieuts. ROY D. SHORT, Melrose Park; HOBART C. RUDDICK, Sandoval. For duty, from Fort Riley, Lieuts. LEON P. KOZAKIEWICZ, WILLIAM RUPP, Chicago.
To *Camp Jackson*, Columbia, S. C., base hospital, Capt. HORATIO N. BOSHELL, Melvin; Lieut. ERWIN F. DUDLEY, Sandwich; from Army Medical School, Capt. OSCAR T. SCHULTZ, Chicago; from Camp Sherman, Capt. JOHN W. EAREL, Quincy.
To *Camp Joseph E. Johnston*, Jacksonville, Fla., base hospital, from Camp Doniphan, Capt. JOHN C. FOLEY, Waukegan. For duty, from Fort Oglethorpe, Lieut. RAYMOND J. JOSEPH, New Athens.
To *Camp Lee*, Petersburg, Va., base hospital, from Camp McClellan, Major CHARLES A. STEVENS, Chicago. For duty, Lieut. LOUIS A. LOEWENBERG, Chicago; from Fort Oglethorpe, Lieut. GEORGE M. SEGAL, Chicago.
To *Camp MacArthur*, Waco, Texas, base hospital, Capt. ARTHUR H. WEIS, Chicago.
To *Camp McClellan*, Anniston, Ala., base hospital, Lieut. ALBERT N. MUELLER, Rock Island.
To *Camp Meade*, Admiral, Md., as assistant to the division surgeon, from Fort Riley, Lieut. EUGENE W. FISKE, Evanston.
To *Camp Upton*, L. I., N. Y., base hospital, from Camp MacArthur, Lieut. EDMUND T. DOUGLAS, Hillsboro. For duty, Lieut. HALLOCK B. WARREN, Breese.
To *Camp Wadsworth*, Spartanburg, S. C., base hospital, Lieut. LESTER E. MEE, Wilmette; from Camp Dodge, Capt. GEORGE H. MILLER, IRVING PERRILL, Chicago. For duty, from Fort Oglethorpe, Lieut. CHARLES HIBBE, Springfield.
To *Canal Zone*, for duty, from Camp Grant, Lieut. WILLIAM H. GEHL, Chicago.
To *Chicago, Ill.*, for instruction, Lieut. JOHN E. BENTLEY, Chicago.
To *Fort McHenry*, Md., for duty, from Fort Oglethorpe, Major SIDNEY STRAUSS, Chicago.
To *Fort Oglethorpe*, base hospital, from Camp Devens, Lieut. LOUIS H. HAYES, Alton. For duty, from Fort Riley, Majors ELLIS K. KERR, RALPH W. WEBSTER, CHARLES H. S. WILLIAMSON, Lieut. ISAAC J. FRISCH, Chicago. For instruction, Capt. CHARLES S. AITKEN, GEORGE L. DAVENPORT, WILLIAM A. PORTER, Chicago; WILBERT F. McNARY, East St. Louis; ALBERT H.

WALES, Lanark; JAY H. BACON, Peoria; ALBERT C. ASCHAUER, Springfield; CLYDE F. HORNER, Tiskilwa; Lieuts. GILBERT H. GILFORD, Bloomington; JAMES H. SMITH, Canton; LEAF C. KNIGHT, Carthage; CHESTER J. CHALLENGER, JOHN B. CIPRIANI, CLARENCE H. COURTNEY, YNGVE JORANSON, GEORGE M. LANDAU, MICHAEL F. McGUIRE, SIDNEY M. ROBERTS, NICHOLAS WOLMAN, Chicago; CHESTER M. TAYLOR, Decatur; PAUL R. RADGER, Kankakee; WILLIAM F. JUSTUS, Littleton; MARK H. TIBBETTS, Shirland; JOHN F. DEAL, Springfield; from Fort Riley, Lieut. HENRY S. BENNETT, Moline; from Fort Sill, Capt. HARRY A. WARE, Chicago. To examine the command for nervous and mental diseases, Capt. CHARLES B. CALDWELL, Peoria.
To *Fort Riley* for instruction, Capt. CHARLES S. DAVIS, Campaign; GEORGE F. JOHNSON, East Moline; WALTER BURGESS, Pana; WILLIAM A. HINCKLE, Peoria; HENRY F. DICE, Ridgefarm; HOWARD R. HESS, Tiskilwa; Lieuts. ORVILLE J. SLOAN, Chatsworth, PETER S. CLARK, ANTHONY C. FORMUSA, JOSEPH H. JOHNSON, Chicago; DAVID B. FREEMAN, Moline; JOSEPH H. DOWNS, Morrison; EMIL Z. LEVITIN, Peoria; GLEN R. INGRAM, Tuscola; DEW. LOOMIS, Warsaw.

To *Rockefeller Institute* for instruction in bacteriology, and on completion to *Army Medical School* for duty, Capt. WALTER G. BAIN, Springfield; Lieuts. FRED C. CALDWELL, Chicago; HENRY E. LUTYENS, Farmingdale; HERMAN L. LE SAULNIER, Red Bud. For instruction in the treatment of infected wounds, and on completion to *New York City*, Bellevue Hospital, for further instruction, and on completion to his proper station, Capt. WILLIAM H. MALEY, Galesburg. On completion to his proper station, from Camp Lee, Lieut. EVERETT E. HOWARD, Rossville.

To *Washington, D. C.*, for duty in the Surgeon-General's Office, from Fort Riley, Major FREDERICK R. GREEN, Chicago.
To the inactive list, from the Surgeon-General's Office, Majors ALBERT J. OSCHNER, DANIEL A. K. STEELE, Chicago.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. JOHN F. TAYLOR, Buda.
Resignation of Lieut. RALPH B. SCOTT, Venice, accepted.
The following orders have been revoked: To *Fort Des Moines, Ia.*, base hospital, Capt. RUFUS W. BISHOP, Chicago. To *Williamsbridge, N. Y.*, for observation, treatment, and report, Capt. HART E. FISHER, Chicago.

Indiana

To report by wire to the commanding general, Central Department, for assignment to duty, Lieuts. JOSEPH F. GILLESPIE, Greencastle; CHARLES J. COOK, Indianapolis; PIERRE G. FERMIER, Leesburg.
To *Rockefeller Institute* for instruction in laboratory work, and on completion to *Army Medical School* for duty, from Camp Lee, Lieut. EDWIN M. KIME, Indianapolis.
To *Washington, D. C.*, for duty, Lieut. WILLIAM A. HOLLIS, Hartford City.
To *Camp Meade*, Admiral, Md., base hospital, Capt. JOHN M. FOUTS, Richmond; Lieut. JOHN L. GLENDENING, Indianapolis.
To *Camp Shelby*, Hattiesburg, Miss., base hospital, Lieut. HERBERT L. BUCKLES, Hartford City.
To *Camp Upton*, L. I., N. Y., for duty, Lieut. SAMUEL A. SMOOTS, New Middletown.
To *Camp Wadsworth*, Spartanburg, S. C., base hospital, Lieut. ARCHIE F. SCHULTZ, Lafayette.
To *Fort Benjamin Harrison*, base hospital, Capt. JOHN T. WHEELER, Indianapolis; Lieut. GEORGE B. HUNT, Richmond.
To *Fort McPherson, Ga.*, for duty, from Camp Gordon, Capt. MERTON A. FARLOW, Milroy.
To *Fort Oglethorpe* for duty, from Fort Riley, Major MAURICE H. KREBS, Huntington. For instruction, Major FRANK B. HUMPHREYS, Angola; Capt. JAMES B. YOUNG, Cumberland; SAMUEL W. HERVEY, Fortville; CHARLES M. GIBBS, Greenfield; JULIUS A. CHEVIGNY, Hammond; JOHN W. SHAFER, Lafayette; JOHN T. McFARLIN, Williams; Lieuts. JOHN C. ARMINGTON, Anderson; TERENCE E. DARNELLE, Ashley; CHARLES C. MARSHALL, Aurora; CHARLES H. SCHENK, Berne; FRED A. METTS, Bluffton; HARRY M. PELL, Brazil; PEARL R. BENNETT, Bridgeton; ALFRED B. COYNER, Chalmers; WILLIAM E. AMY, Corydon; EDWARD H. W. KUPKE, Francesville; SAMUEL PEARLMAN, EARL VAN REED, LaFayette; LUTHER H. RATLIFF, Lawrence; UTHIE R. WILSON, Lynnvill; WILLARD B. ASHBY, Oakland City; SCHUYLER F. TEAFORD, Paoli; MARK M. MORAN, Portland; MERLE D. GWIN, Rensselaer; from Fort Riley, Lieut. ROBERT C. SHANKLIN, South Bend.
To *Hoboken, N. J.*, for duty, Lieut. FRANK H. MERVIS, Indiana Harbor.

To *New Haven, Conn.*, for duty, Lieuts. EDWARD J. RICHSTEIN, Princeton; JOSHUA M. GORDON, South Bend. Yale Army Laboratory, for instruction in bacteriology, Lieut. FRANK P. HUNTER, La Fayette.

To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Devens*, Ayer, Mass., base hospital, Lieut. HENRY C. BRAUCHLA, Indianapolis.

Iowa

To *Camp Sevier*, Greenville, S. C., base hospital, from Camp Beauregard, Lieut. ARLO R. ZUERCHER, Cedar Rapids.
To *Camp Wheeler*, Macon, Ga., as assistant to camp surgeon, from Fort Riley, Capt. HARRY R. REYNOLDS, Clinton.
To *Camp A. A. Humphreys*, Accotink, Va., base hospital, Lieut. EGBERT W. SPROULE, Peterson.
To *Camp Bowie*, Fort Worth, Texas, base hospital, Major WILLIAM JEPSON, Sioux City. For duty, from Fort Clark, Capt. WILLIAM M. WILDMAN, Fort Dodge.
To *Camp Cody*, Deming, N. M., base hospital, Capt. JOHN F. STUDEBAKER, Fort Dodge.
To *Camp Crane*, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. NELSON McP. WHITEHILL, Boone; ERLE D. TOMPKINS, Clarion; Lieut. IRA J. GIBSON, Fontanelle.
To *Fort Oglethorpe* for duty, from Fort Riley, Major CLARENCE VAN EPPS, Iowa City; Capt. FRANCIS R. HOLBROOK, Des Moines; Lieuts. KENNETH E. MONTGOMERY, Lawrenceville; WALTER E. DRAPER, Manilla. For instruction, Capt. HARRY N. McCALL, Clearfield; CHARLES A. KEARNEY, Dubuque; JOHN M. GARRETT, Fort Dodge; Lieuts. ARTHUR M. WASHBURN, Burlington; HERMAN L. VON LACKUM, Dysart; SUMMER B. CHASE, Fort Dodge; WILLIAM H. JOHNSTON, Muscatine; from Fort Riley, Lieuts. SIDNEY B. BELLINGER, Council Bluffs; ALEXANDER P. STEWART, Inwood.
To *Fort Riley* for instruction, Capt. CHARLES S. KENNEDY, Logan; SYLVESTER E. HINSHAW, Newton; RICHARD HIUSENGA, Rock Valley; Lieuts. FREDERICK H. RODEMEYER, Alex-

andria; LEO A. NELSON, Allerton; PAUL O. ANDERSON, Bouton; GEORGE H. STEINLE, Burlington; JAMES H. BRUCE, Dickins; RUPERT C. HERRICK, Gilmore City; JOHN R. WRIGHT, Knoxville; ROBERT S. SHANE, Pilot Mound; FRANK H. DIERKER, West Point; EDWIN R. WHEELER, Zwingle.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. LONNIE A. COFFIN, Farmington.

To New Haven, Conn., Yale Army Laboratory School, as instructor, from Fort Leavenworth, Major GUTHRIE McCONNELL, Waterloo. For instruction in bacteriology, Lieut. MATTHEW T. MORTON, Estherville.

To Newport News, Va., for duty, from Fort Riley, Lieut. LONNIE A. COFFIN, Farmington.

To Otisville, N. Y., for temporary duty, from Camp Hancock, Capt. WILLIAM L. HEARST, Cedar Falls.

To Talmage, Calif., Mendocino Hospital, for intensive training, Lieut. HAROLD E. FARNSWORTH, Galva.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. LESLIE L. CARR, Clermont.

Kansas

To Camp Logan, Houston, Texas, base hospital, Major HENRY W. HORN, Wichita; Capt. LEROY W. BAXTER, Columbus; from Camp MacArthur, Lieut. ALEXANDER B. SCOTT, Bucklin.

To Camp MacArthur, Waco, Texas, for duty, Capt. JOHN H. RINEHART, Quinter; Lieut. WILLIAM H. UPDEGROVE, Pittsburg.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Riley, Lieut. EUGENE J. BRIBACH, Atchison.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. GEORGE H. HOBSON, Lieut. WILLIAM J. GATES, Kansas City.

To Fort Oglethorpe for duty, from Fort Riley, Major JIRAH M. DOWNS, Ellsworth. For instruction, Capt. GEORGE A. LANDES, Parsons; Lieut. ENRY R. SCATES, Kansas City; OTTO J. DIXON, Mound Valley; CALTEN B. GRISSOM, Syracuse; from Fort Riley, Lieut. EVERETT W. JOHNSON, Coffeyville.

To Fort Riley for instruction, Capt. CLARENCE E. KINLEY, Fort Dodge; WILLIAM F. NIENSTADT, Hartford; Lieuts. HUGH M. BARNES, Blue Mound.

To New Haven, Conn., Yale Army Laboratory, for instruction in bacteriology, Lieut. CHAUNCEY A. McKINLAY, Wichita.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. JAMES WELCH, Herrington; WILLIAM S. GRISSELL, Ransom.

Kentucky

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. WALTER F. McCROCKLIN, Louisville.

To Camp Lee, Petersburg, Va., base hospital, from Camp Zachary Taylor, Lieut. WILLIAM C. STIRLING, Jr., Louisville. For duty, Lieut. JOHN R. WEBB, Littrell.

To Camp Pike, Little Rock, Ark., to examine the command for nervous and mental diseases, Capt. WALLIS W. DURHAM, Crofton.

To Camp Sevier, Greenville, S. C., for duty, from Camp Dodge, Lieut. ELMORE B. BACKSMAN, Newport.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Custer, Capt. BENJAMIN F. ZIMMERMAN, Louisville; from Camp Lee, Lieut. CLIFFORD N. HEISEL, Covington; from Camp Sheridan, Lieut. MICHAEL J. HENRY, Louisville; from Camp Sherman, Capt. ELMER L. HENDERSON, Louisville; from Camp Zachary Taylor, Capt. JOHN B. RICHARDSON, Louisville.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. CHARLES H. MOORE, Canmer.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Riley, Capt. GEORGE A. ROBERTSON, Louisville.

To Fort Riley for instruction, Lieut. ARTHUR D. DONNELLY, Bowling Green.

To Fort Thomas, Ky., for duty, from Camp Sherman, Capt. MEREDITH W. HYATT, Springfield.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Gordon, Atlanta, Ga., base hospital, Capt. ROBERT H. HEARNE, Paducah.

To Rockefeller Institute for instruction, and on completion to Camp Meade, Admiral, Md., base hospital, Lieut. JAMES W. MARTIN, La Centre. On completion to Camp Sheridan, Montgomery, Ala., base hospital, Capt. WILLIAM H. SMITH, Danville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. RODMAN H. WILLIAMS, New Hope.

Louisiana

To Camp Beauregard, Alexandria, La., from Jackson Barracks, Lieut. ARTHUR W. RHYNE, New Orleans.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. ALBERT S. COOPER, Mansfield.

To Camp Grant, Rockford, Ill., base hospital, from Fort Sill, Lieut. ALBERT C. JACKSON, New Orleans.

To Camp Greene, Charlotte, N. C., base hospital, Lieut. ARCHIBALD C. KAPPEL, Franklin.

To Camp Logan, Houston, Texas, base hospital, from Fort Bayard, Lieut. JOSEPH R. D'AUNCY, New Orleans.

To Camp MacArthur, Waco, Texas, for duty, Lieut. WILLIAM N. HANKINS, Derry.

To Camp Sevier, Greenville, S. C., base hospital, from Camp MacArthur, Lieut. GEORGE M. JONES, New Orleans.

To Fort Oglethorpe for duty, from Fort Riley, Lieut. HARRY JENKINS, Churchpoint. For instruction, Capt. ANATOLE R. TRAHAM, Lafayette; STUART L. WHITE, Ruston; Lieut. FRED HAMILTON, Jena.

To Fort Riley for instruction, Lieut. CLAUDE E. BORDENAVE, New Orleans.

To Washington, D. C., for duty in the Surgeon-General's Office, from New Orleans, Major ISADORE DYER, New Orleans.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. ABRAHAM MATTES, New Orleans.

Maine

To Camp Wadsworth, Spartanburg, S. C., to examine the command for nervous and mental diseases, from Camp MacArthur, Major FRANK E. LESLIE, Andover.

To Fort Oglethorpe for instruction, Capt. LEWIS L. MANN, Augusta, Lieut. JOHN H. FOSTER, Farmington.

To Williamsbridge, N. Y., for duty, Lieut. ROLAND L. McKAY, Augusta.

Maryland

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. HENRY S. MITCHELL, Oakland.

To Camp Cody, Deming, N. M., for temporary duty, from Camp Lee, Lieut. THOMAS M. RIVERS, Baltimore.

To Camp Colt, Gettysburg, Pa., for duty, from Fort Oglethorpe, Lieut. HAROLD W. SHUTTER, Baltimore.

To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, from Fort Oglethorpe, Lieut. WILLIAM C. CHANEY, Chaney.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Jackson, Lieut. GEORGE R. WILKINSON, Baltimore.

To Camp Lee, Petersburg, Va., for duty, Lieut. WILLIAM H. HOUSTON, Fishing Creek.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Sheridan, Montgomery, Ala., base hospital, Capt. GEORGE M. LINTHICUM, Baltimore.

To Rockefeller Institute for instruction in chemistry and bacteriology, and on completion to Army Medical School, for instruction, Lieut. RALPH E. MYERS, Carroll Park.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. HORACE McM. BANKS, Baltimore.

The following order has been revoked: To Fort McPherson, Ga., for temporary duty, Capt. JAMES M. H. ROWLAND, Baltimore.

Massachusetts

To Camp Hancock, Augusta, Ga., for duty, from Camp Sevier, Capt. FRANK E. STETSON, New Bedford.

To Camp Lee, Petersburg, Va., for duty, Capt. JOSEPH S. LEBOEUF, Fall River; from Camp Meade, Lieut. MARTIN W. PECK, Marblehead; from Fort Oglethorpe, Lieut. MILES M. HAMBURG, Waltham.

To Camp Upton, L. I., N. Y., base hospital, Lieut. EDWARD I. TABOR, Lowell. For duty, Lieut. MORRIS F. KAUFMAN, Norwood.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Hancock, Lieut. DAVID W. HOUSTON, Jr., Boston.

To Fort Oglethorpe, base hospital, from Camp Devens, Major FRANKLIN G. BALCH, Lieuts. NEIL A. FOGG, HORACE K. SOWLES, Boston; from Camp McClellan, Lieuts. KENNETH L. WOLL, THOMAS H. LANMAN, Boston; from Camp Wadsworth, Capt. JAMES R. TORBERT, Boston. For instruction, Capt. JESHUA W. CLARKE, Attleboro; CHARLES B. DARLING, Boston; GEORGE A. GRIEUMARD, Fitchburg; GEORGE A. COOKE, Montague; JESSE H. LIBBY, Weymouth; GEORGE H. HILL, Worcester; Lieuts. MAURICE A. GILBERT, SAMUEL L. MARNOY, Chelsea; LORNE W. HARRIS, Cliftondale; EDWIN P. RUGGLES, Dorchester; AUSTIN E. ST. CLAIR, Framingham; EDWARD J. SAWYER, Gardner; DAVID A. GARBELNICK, Haverhill; FRANCIS A. O'SULLIVAN, Lowell; HAROLD E. DIEHL, Quincy; CHARLES C. PARKER, Jr., Roxbury; JOHN M. GILCHRIST, NEBUTHER HOLDEN, Springfield; GEORGE C. ANTHONY, Wellesley, ROBERT E. MERRITT, Wollaston.

To Hoboken, N. J., base hospital, from Walter Reed General Hospital, Lieut. GEORGE L. CURRAN, North Adams.

To New Haven, Conn., for duty, Lieut. NATHANIEL J. HEYWOOD, Williamsett; Yale Laboratory School, for instruction in bacteriology, Lieut. GEORGE L. BUNNELL, Foxboro.

To New York City, Bellevue Hospital, and on completion to Camp Gordon, Atlanta, Ga., base hospital, Capt. STANLEY C. COX, Holyoke. On completion to Camp Sevier, Greenville, S. C., base hospital, Lieut. CECIL N. BRADY, Newton.

Michigan

To Camp Bowie, Fort Worth, Texas, base hospital, from Fort Riley, Major PETER D. MACNAUGHTON, Calumet.

To Camp Custer, Battle Creek, Mich., as sanitary inspector, from Camp Custer, Major ROLLIN C. WINSLOW, Sault Ste Marie. Base hospital, Capt. ROY T. URQUHART, Grand Rapids.

To Camp Devens, Ayer, Mass., base hospital, from New York, Capt. MATTHEW KOLLIG, Saginaw.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Riley, Lieut. EDWARD GOODWIN, Bay City.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. FREDERIC C. WARNSHUIS, Grand Rapids.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp MacArthur, Capt. JOHN P. BLAND, Adrian.

To Fort Oglethorpe for duty, from Fort Riley, Major WILLIAM N. KENZIE, Richland; Capt. OTIS B. MALLOW, Detroit. For instruction, Capt. RUDOLPH J. E. ODEN, Cadillac; CLARENCE D. CHAPIN, Columbiaville; JULIUS F. PEPPLER, Grand Rapids; Lieuts. ALBERT E. BRYANT, JOHN D. MONROE, Detroit; THEODORE P. VANDER ZALM, Grand Haven; RUDOLPH R. MILLER, Harbor Springs; DON C. McCOWAN, Mecosta; FRANK W. HANNUM, Muskegon; from Camp Custer, Lieut. ROLAND S. CRON, Ann Arbor.

Minnesota

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Capt. JENNER P. CHANCE, International Falls.

To Camp Cody, Deming, N. M., for temporary duty, from Hoboken, Capt. FRANCIS G. BLAKE, Minneapolis.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. HENRY B. GRIMES, Madelia; Lieut. GERALD C. ROSKILLY, Deer Creek.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. THOMAS EDWIN FLINN, Redwood Falls.

To Camp Grant, Rockford, Ill., for duty, Lieuts. OSCAR E. NELSON, Minneapolis; DALE D. TURNCLIFF, St. Paul.

To Camp Greene, Charlotte, N. C., base hospital, Capt. WINSLOW C. CHAMBERS, Blue Earth; Lieut. BERNARD S. BOHLING, Sandstone.

To Fort Oglethorpe for instruction, Major ALEXANDER R. COLVIN, St. Paul; Capt. FREDERICK H. ROLLINS, St. Charles; THOMAS J. MALONEY, St. Paul; Lieut. GUSTAV T. NORDIN, Minneapolis; from Fort Riley, Lieuts. ERNEST W. COWERN, EDWARD SCHONS, St. Paul; SETH E. GILKEY, Watson.

To Fort Ontario, N. Y., base hospital, from Camp Kearney, Capt. HUGH S. WILLSON, Minneapolis.

To Fort Riley for instruction, Capt. MARION M. HURSH, Grand Rapids; CHARLES E. FAWCETT, Stewartville; Lieuts. WILLIAM J. KUCERA, Hutchinson; GUSTAV M. HELLAND, Spring Grove.

To Matuchen, N. J., for duty, from Fort Oglethorpe, Lieut. THOMAS J. TRUTNA, Silver Lake.

To New Haven, Conn., for duty, Capt. ROBERT I. HUBERT, St. Paul.

To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School, for duty, from Fort Snelling, Lieut. WILLIAM J. CARSON, St. Paul.

To Washington, D. C., for temporary duty in the Surgeon-General's Office, Capt. ARTHUR S. HAMILTON, Minneapolis. St. Elizabeth's Hospital, for intensive training, Lieut. WALTER B. MARTIN, Fergus Falls.

Resignation of Lieut. THEODOR BRATRUD, Warren, accepted.

Mississippi

To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort Oglethorpe, Capt. INMAN W. COOPER, Jr., Meridian.

To Fort Oglethorpe, base hospital, from Camp Dix, Lieut. EMILE O. WITHERS, Michigan City. For instruction, Capt. HENRY L. FLAKE, Meridian; JAMES B. MAGEE, Prentiss; Lieuts. DANIEL C. MONTGOMERY, Greenville; FERN CHAMPENOIS, Hattiesburg; HUGH Z. BROWNE, Kosciusko; HUGH D. GAYDEN, Leland; WILLIAM C. NORRIS, Quitman; MORRIS J. ALEXANDER, Tunica.

To Hoboken, N. J., base hospital, from Camp Sevier, Lieut. KUTCHEN T. KLEIN, Meridian.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Fort Sill, Lieut. JOSEPH T. IRBY, Enterprise.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. JOSEPH D. SAULS, Clarksdale.

Missouri

To New Haven, Conn., for duty, Lieut. ERNEST J. BUTZKE, Bowling Green.

To New York City, Hospital for Ruptured and Crippled, for instruction, from Fort Oglethorpe, Lieut. WILLIAM C. VERNON, Kansas City.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. WILLIAM P. DYSART, Columbia; GEORGE E. CECIL, Flat River; FRANK BOOGHER, JOSEPH L. MEREDITH, St. Louis; Lieuts. ARTHUR J. DECKER, Gray Ridge; EDMUND L. HARRISON, STEPHEN H. RAGAN, FRANKLIN F. SHARON, Kansas City; WELLMAN F. CHAFFIN, Raymore; DAVID N. DABBS, Rocky Comfort; WILLIAM J. BILLETER, Bynumville.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, Lieut. AHBURM M. GOLDMAN, Kansas City.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. CHARLES N. HAHN, Dunnigan; WILLIAM T. DEAN, St. Louis; FLOYD B. RICKETTS, Union.

To Camp Logan, Houston, Texas, base hospital, from Fort Oglethorpe, Lieut. GEORGE A. TELFER, St. Louis.

To Camp MacArthur, Waco, Texas, base hospital, Capt. FRANKLIN E. JACOBI, St. Louis. For duty, Capt. WALTER R. CARY, FREDERICK T. VAN EMAN, Kansas City; Lieuts. GEORGE T. TWYMAN, Independence; AMBROSE E. POTTER, Springfield.

To Camp McClellan, Anniston, Ala., base hospital, Capt. JAMES L. ROBERTS, Kansas City; Lieut. BOHUMIL J. WIESNER, St. Louis.

To Camp Meade, Admiral, Md., base hospital, Capt. FREDERICK C. ESSELBRUEGGE, St. Louis.

To Camp Pike, Little Rock, Ark., with the board examining the command for nervous and mental diseases, Lieut. THOMAS N. TOOMEY, St. Louis.

To Camp Sheridan, Montgomery, Ala., as orthopedic surgeon, from Lakewood, Capt. GREENE D. McCALL, Fulton.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. THOMAS C. RICHARDS, Fayette.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. JOHN D. PORTERFIELD, Cape Girardeau; ARTHUR R. TIMERMAN, St. Joseph; Lieuts. WERNER H. WAGNER, Berger; JAMES F. CLANCY, St. Louis.

To Camp Upton, L. I., N. Y., for duty, from Fort Riley, Lieut. ALLEN G. SCOTT, Cardwell.

To Dallas, Texas, Signal Corps Aviation School, for duty, from Kansas City, Lieut. SAM E. ROBERTS, Kansas City.

To Douglas, Ariz., for duty, from Fort Riley, Lieut. FRANK McC. POSTLETHWAITE, Kansas City.

To Fort Oglethorpe for duty, from Fort Oglethorpe, Major WILLIAM L. McBRIDE, Kansas City. For instruction, Capt. CHARLES C. SIMMON, Bunker; CLARENCE S. CAPELL, CLYDE O. DONALSON, ROBERT N. MORRIS, CLINTON C. RHODES, Kansas City; Lieuts. WILLIAM B. LEVENS, Creighton; CLINTON C. KLEINSCHMIDT, JOHN O'CONNELL, FREDERICK C. SCHWARTZ, ANTHONY O. YOUNG, St. Louis.

To Fort Ontario, N. Y., base hospital, from Camp MacArthur, Lieut. MERRILL N. SMITH, Fayette.

To Fort Riley for instruction, Capt. GLOVER F. ALTON, Gashond; ERNEST H. CARPENTER, Helena; CHARLES C. DRACE, Holcomb; JOSEPH G. BEATY, Huntingdale; IRWIN E. RUHL, Kansas City; WILL K. STATLER, Oakridge; EDWIN F. JAMES, Springfield; FRED H. LADD, St. Joseph; EDWARD H. EYERMAN, St. Louis; Lieuts. RICHARD G. HEREFORD, Ashley; TERRENCE P. GRONOWAY, Bevier; WILLIAM L. ABNEY, Blackwater; JOHN C. OTTMAN, Craig; JOSEPH H. STAPP, Hardin; JOHN A. CHENOWETH, Joplin; WILLIAM F. BYLER, CHESTER M. COUNSELL, GEORGE A. RUSH, ABRAHAM WEINBERG, Kansas City; ROBIN J. GUY, Paynesville; TYRE H. HALE, LEWIS E. MISSIMORE, ALBERT A. MULACH, NATHANIEL N. YAHLEN, St. Louis; ROBERT J. JENNINGS, Windsor.

To Fort Sheridan, Ill., as orthopedic surgeon, from Fort Slocum, Lieut. EDWARD L. COOLEY, St. Louis.

To Garden City, L. I., N. Y., for duty, from Dallas, Lieut. JOSEPH J. REILLY, St. Louis; from Fort Oglethorpe, Lieut. FRANCIS H. J. OSBORNE, St. Louis.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. JOHN A. POWERS, Warrensburg.

To Williamsbridge, N. Y., for duty, Lieuts. CHARLES A. ORR, Ash Grove; JAMES A. FARRELL, St. Louis.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. EDWARD FORD, Bloomfield.

Resignations of Lieuts. DAVID N. DUBBS, Rocky Comfort; FENTON N. GOODSON, St. Joseph, and ALBERT A. GEBHARDT, St. Louis, accepted.

Montana

To Camp Colt, Gettysburg, Pa., for duty, from Camp Wadsworth, Lieut. ALBERT A. PASTENE, Chester.

To Camp Fremont, Palo Alto, Calif., for duty, Capt. EDWIN C. ANDERSON, Missoula.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dodge, Major THOMAS C. WITHERSPOON, Lieut. HAROLD SCHWARTZ, Butte.

To Fort Douglas, Utah, for duty, Lieut. LOREN G. SHROAT, White Sulphur Springs.

To Fort Oglethorpe for instruction, Capt. ALLEN G. FULLER, Missoula.

To Fort Riley for instruction, Lieuts. BENJAMIN I. TOWNSEND, Crow Agency; CORTLANDT W. DAWE, Great Falls; LAWRENCE STEVENS, Laurel.

To Mount Clemens, Mich., Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. WEAVER B. ROGERS, White Sulphur Springs.

To Whipple Barracks, Ariz., for duty, Capt. LOUIS II. FALES, Stevensville.

The following order has been revoked: To Camp Dix, Wrightstown, N. J., base hospital, Lieut. THOMAS B. SCOTT, Butte.

Nebraska

To Camp Beauregard, Alexandria, La., base hospital, Capt. WASHINGTON I. DEVERS, Upland. For duty, from Fort Riley, Lieut. HENRY B. BOYDEN, Grand Rapids.

To Camp Cody, Deming, N. M., base hospital, Lieut. LEO J. KILLIAN, Blair. To examine the command for nervous and mental diseases from Camp Bowie, Capt. HARRY R. CARSON, Norfolk.

To Camp Grant, Rockford, Ill., base hospital, for observation and treatment, Lieut. J. IRWIN LIMBURG, Walthill.

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Greene, Capt. JUDD A. STRONG, Kearney.

To Fort Oglethorpe for duty, from Fort Riley, Majors ELMER S. TENNEY, Lincoln; HAROLD E. EGGERS, Omaha. For instruction, Capt. ROYAL WOODS, Haigler; ROY P. STOOBS, Scottsbluff; Lieuts. FRANK W. PLEHN, Scottsbluff; POLK RICHARDS, Winnebago; from Fort Sill, Capt. ELMER R. PORTER, Omaha.

To Fort Riley for instruction, Capt. CLAUDE B. CALBREATH, Hastings; ERSKINE M. BARNES, Omaha; FREDERICK H. KUEGLE, West Point; Lieuts. FREDERICK G. KOLOUGH, Schuyler.

The following orders have been revoked: To Camp Custer, Battle Creek, Mich., for duty, Capt. GEORGE H. BRASH, Beatrice. To report by wire to the commanding general, Central Department, for duty, Lieut. JOSEPH H. BOYES, Hebron.

Nevada

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. JOHN R. MASTERSON, Tonopah.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Bowie, Lieut. JOHN C. KITCHEN, Mina.

To Camp Kearney, Linda Vista, Calif., base hospital, Capt. EUGENE K. SMITH, Lovelock.

New Hampshire

To Camp Devens, Ayer, Mass., for duty, from Vancouver, Capt. CHARLES A. STURTEVANT, Manchester.

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Jackson, Lieut. PHILIAS A. PION, Concord; from Camp Lee, Lieut. JOHN C. ECKHARDT, Sanbornville.

To Fort Oglethorpe base hospital, from Fort Logan H. Roots, Lieut. GEORGE F. DWINELL, Manchester. For instruction, Capt. HIRAM L. JOHNSON, Franconia; CHARLES F. NUTTER, Nashua; Lieut. ANTHONY D. VANVAS, Manchester.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. ROLAND J. BENNETT, Dover.

To San Francisco, Calif., Letterman General Hospital, for duty, Major SAMUEL ROBINSON, Walpole.

Honorably discharged, Capt. ARSENE LAVALLET, Berlin.

The following order has been revoked: To Camp Jackson, Columbia, S. C., base hospital, from Fort Oglethorpe, Capt. NOEL E. GUILLET, Manchester.

New Jersey

To Camp Las Casas, San Juan, P. R., base hospital, from Camp Lee, Lieut. DAVID BERNER, Atlantic City.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. HARRY G. THIGPEN, Atlantic City.

To Camp Sheridan, Montgomery, Ala., to examine the troops for tuberculosis, from Camp Joseph E. Johnston, Lieut. SAMUEL BARMAN, Jersey City.

To Camp Upton, L. I., N. Y., base hospital, Capt. HOWARD S. FORMAN, Jersey City.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Dix, Lieut. SIDNEY C. LEVINE, Paterson.

To Fort Benjamin Harrison, base hospital, from Army Medical School, Lieut. EDMUND W. ILL, Newark.

To Fort McHenry, Md., base hospital, from Camp Dix, Lieut. GEORGE P. MEYER, Camden.

To Fort Oglethorpe, base hospital, from Camp Dix, Major J. SCHLICHTER, Elizabeth; from Fort Riley, Capt. JEREMIAH B. WINTERSTEEN, Morristown. For instruction, Capt. CHARLES L. BOSSERT, Atlantic City; PERRY B. PRESTON, Newark; ROBERT R. ARMSTRONG, Passaic; NORMAN W. CURRIE, Plainfield; Lieuts. BENJAMIN BOROW, Camden; RICHARD B. ERNEST, Jr., Salem; from Camp Hancock, Capt. JOHN A. FREESE, East Orange.

To Garden City, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. ABRAHAM OCKENE, West Hoboken.

To Hoboken, N. J., for duty, Lieut. CHARLES F. RATHGEBER, East Orange; from Camp Crane, Capt. HAROLD G. WALKER, Wyckoff.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Devens, Ayer, Mass., base hospital, Lieut. FRANK L. MARTINE, Newark.

To Richmond, Va., for duty, Lieut. JAMES P. SCHUREMAN, New Brunswick.

To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School for duty, Lieut. GIOVANNI FASANO, Newark. On completion to his proper station, from Camp Custer, Lieut. ABRAHAM J. NEWMAN, Jersey. For instruction in the treatment of infected wounds, and on completion to Camp McClellan, Anniston, Ala., base hospital, Lieut. DAVID P. BROWN, Bordentown.

New Mexico

To Camp Cody, Deming, N. M., base hospital, Lieut. WILLIAM C. WEBER, La Plata.

To Camp McClellan, Anniston, Ala., for duty, from Fort Riley, Lieut. WILLIAM C. MATTHEWS, Roswell.

To Camp Sheridan, Montgomery, Ala., as assistant to the division surgeon, from Fort Riley, Lieut. GEORGE W. SAMMONS, Farmington.

To *Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. LEWIS B. ROBINSON, Pinos Altos.

To *Del Rio, Texas*, camp hospital, Capt. SYLVESTER G. VON ALMEN, Roswell.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. WILLIAM M. SHERIDAN, Albuquerque.

New York

To *Camp Beauregard*, Alexandria, La., base hospital, Capt. MICHAEL OSATE, New York. For duty, from Fort L. H. Roots, Capt. WILLIAM C. CAUBLE, Brooklyn.

To *Camp Devens*, Ayer, Mass., base hospital, from Camp Meade, Lieut. ETHELBERG A. CALLAGHAN, Brooklyn. For duty, from Camp Dodge, Lieut. DAVID R. MELEN, Rochester; from Camp Upton, Capt. EDWARD J. RILEY, Lieuts. SAMUEL K. LEVY, TOM LOWRY, SAMUEL STRUMWASSER, New York. With the board examining the command for nervous and mental diseases, Lieut. WILLIAM C. SANDY, Shaldrake Springs.

To *Camp Dix*, Wrightstown, N. J., base hospital, Lieut. WILLIAM F. McTAGUE, New York. For duty, from Fort Oglethorpe, Lieuts. FRANCIS M. KUJAWA, Buffalo; SIMON MENCHER, New York.

To *Americus, Ga.*, Signal Corps Aviation School, as flight surgeon, from Mineola, Lieut. WILLIAM B. WHITE, New York.

To *Camp Hancock*, Augusta, Ga., base hospital, Lieut. JOHN W. WURTHMANN, New York City. To examine the command for nervous and mental diseases, Capt. GORDON PRIESTMAN, Willard.

To *Camp Jackson*, Columbia, S. C., base hospital, Capt. ERNEST N. WILCOX, Pleasantville; from Camp Pike, Lieut. EPHRAIM M. BLUESTONE, New York.

To *Camp Joseph E. Johnston*, Jacksonville, Fla., base hospital, from Camp Jackson, Lieut. HORACE E. ROBINSON, Pleasantville.

To *Camp Lee*, Petersburg, Va., base hospital, from Baltimore, Lieut. FREDERIC D. ZEMAN, New York; from Camp Dix, Capt. ROYALE H. FOWLER, Brooklyn; HARRY P. MENCHEN, Long Island; from Camp McClellan, Lieut. FRED W. EASTMAN, New York; from Camp Shelby, Capt. ROBERT H. FOWLER, New York; from Fort Riley, Major BERNARD S. OPPENHEIMER, New York. For duty, Capt. ABRAHAM L. CARDOZO, Brooklyn; Lieut. CLAYTON M. AXTELL, Deposit.

To *Camp Meade*, Admiral, Md., base hospital, Capt. ROLAND G. HOLT, Schenectady; from Camp Shelby, Capt. ABRAHAM ZINGHER, New York. With the board examining the troops for cardiovascular diseases, Capt. THEODORE B. BARRINGER, New York.

To *Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. WILLIAM W. DICKEY, New York. With the board examining the command for nervous and mental diseases, Lieut. GEORGE R. STALTER, Troy.

To *Camp Travis*, Fort Sam Houston, Texas, base hospital, from Camp Sherman, Lieut. HOWELL E. BABCOCK, Brooklyn.

To *Camp Upton*, L. I., N. Y., base hospital, Capt. GEORGE W. ANGLIN, Rochester; Lieut. SOLOMON HIRSCH, New York; JEREMIAH J. MORIN, Rochester; from Hoboken, Major DAVID BOVAIRD, New York. For duty, Lieut. JOSEPH J. McNAMARA, Waverly. With the board examining the command for nervous and mental diseases, Lieut. WALTER A. SCHMITZ, Middletown.

To *Camp Zachary Taylor*, Louisville, Ky., base hospital, from Walter Reed General Hospital, Capt. JAMES P. FISKE, New York.

To *Canal Zone* for duty, from Camp Sevier, Lieut. LEO EDELMAN, New York.

To *Columbus Barracks*, Ohio, for temporary duty, Lieut. ROLLIN VAN H. HADLEY, Collins.

To *Fort Des Moines*, Iowa, base hospital, from Fort Riley, Major MARTIN B. TINKER, Ithaca.

To *Fort McHenry*, Md., base hospital, from Camp Dix, Capt. HENRY W. JACKSON, New York.

To *Fort Jay*, N. Y., for duty, Capt. AMOS T. BAKER, Elmhurst.

To *Fort Oglethorpe*, as instructor, from Fort Riley, Capt. FREDERICK H. SPENCER, Waverly; Lieut. GEORGE J. CULVER, Au Sable Forks. To base hospital, from Rockefeller Institute, Lieut. ALBERT J. SCHOLL, Jr., New York. For duty, Lieut. MORTON E. BROWNELL, Oneonta; from Fort Riley, Major NATHANIEL P. BREED, Douglaston. For instruction, Capt. ROBERT T. BRIGGS, Brooklyn; JACOB H. DEWEES, Buffalo; JAMES M. HACKETT, Champlain; JAMES B. CROMLEY, JACOB C. FISK, JAMES J. S. WALSH, New York; GEORGE H. PEDDLE, Perry; JOSEPH B. KNIPE, Sparkhill; ALEXANDER F. WRIGHT, Wayne; Lieut. ROBERT M. ANDREWS, Bergen; NATHANIEL S. CARLIN, WALTER J. O'CONNELL, Brooklyn; HOBART S. VAN NOSTRAND, Little Neck; FRANK BRANCATO, HARRY KATZ, ELIAS RAPOPORT, EARL E. VANDERWERKER, ROSCOE S. VAN PELT, New York; SIDNEY C. VERMILYEA, Poughkeepsie; DAVID H. ATWATER, Rochester; WILLARD E. WHELOCK, Rockville Center; ARNOLD B. KAUFFMAN, Syracuse; from Akron, Ohio, Lieut. CHARLES GOTTLIEB, New York; from Biltmore, Lieut. ARCHIE E. GORDIN, New York; from Fort Sill, Lieut. THOMAS F. BERBEROVICH, New York.

To *Garden City*, L. I., N. Y., for duty, Lieut. RAYMOND D. HENDERSON, New Brighton; from Fort Oglethorpe, Lieut. ROBERT BAILIN, Brooklyn; from San Antonio, Lieut. SAMUEL ROTH, New York.

To *Hoboken*, N. J., base hospital, from Army Medical School, Capt. EUGENE F. CONNALLY, Troy; from Lakewood, Lieut. GUSTAVE A. BRAUN, Brooklyn. For duty, from Williamsbridge, Major MENUS S. GREGORY, New York.

To *Lakewood*, N. J., for duty, Capt. FREDERICK M. ALLEN, New York.

To *Richmond*, Va., for duty, from Camp Greene, Capt. GORDON T. GRAHAM, Rochester.

To *Rockefeller Institute* for instruction, and on completion to *Camp Devens*, Ayer, Mass., base hospital, Lieut. ALBERT W. BECK, Brooklyn. On completion to *Camp Upton*, L. I., N. Y., base hospital, Lieut. DANIEL J. DALY, New York. For instruction in bacteriology, and on completion to *Army Medical School*, for duty, Lieuts. GEORGE G. DAVIS, Arcade; MURRAY L. BRANDT, Bronx; JAMES L. MANGANO, HAROLD A. PATTERSON, Buffalo; RONALD M. FERRY, New York. For instruction in the treatment of infected wounds, and on completion to *Camp Lee*, Petersburg, Va., base hospital, Lieut. J. LOUIS PRESTON, Canisteo. On completion to *Camp Shelby*, Hattiesburg, Miss., base hospital, Capt. FLOYD PALMER, Glen Falls. On completion to *Camp Sheridan*, Montgomery, Ala., base hospital, Capt. WILLIAM R. THOMSON, Warsaw.

To *San Antonio*, Texas, United States Army School, as flight surgeon, from duty as a contract surgeon, Capt. DAVID H. WEBSTER, New York.

To *Walter Reed General Hospital*, Takoma Park, D. C., for temporary duty, Major HENRY C. HADEN, Saratoga Springs; from Camp Jackson, Lieut. FRANK G. WALZ, Buffalo.

Honorably discharged, Major JOHN P. FABER, Schenectady. On account of physical disability existing prior to entrance into the service, Lieut. FLOYD H. MOORE, Herkimer.

The following order has been revoked: To *Camp Jackson*, Columbia, S. C., base hospital, Lieut. EDWARD L. FROST, Buffalo.

North Carolina

To *Camp Dix*, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. ARTHUR E. GOUGE, Bakersville; HOWLAND McN. LANCASTER, Dolson.

To *Camp Lee*, Petersburg, Va., for duty, Lieut. ALBERT G. HORTON, Zebulon.

To *Camp Meade*, Admiral, Md., with the board examining the command for tuberculosis, from Camp Gordon, Capt. THOMPSON FRAZER, Asheville.

To *Camp Sheridan*, Montgomery, Ala., for duty, Lieut. NORMAN G. WILLIAMS, Franklin.

To *Fort Oglethorpe* for instruction, Capt. MICHAEL J. COSTELLO, Asheville; McLAIN ROGERS, Clyde; CLAUDE O. ABERNETHY, Raleigh; Lieuts. ARTHUR G. BOYER, Asheville; CHARLES F. STROSNIDER, Goldsboro; KEMP P. NEAL, Monroe; from Camp Mills, Lieut. JOHN B. LEWIN, Wilmington.

To *Raleigh*, N. C., State Board of Health, as epidemiologist, from Fort Sam Houston, Major CHARLES O'H. LAUGHINGHOUSE, Greenville.

The following order has been revoked: To *Army Medical School* for instruction, Lieut. FRANK H. GARRISS, Lewiston.

North Dakota

To *Camp Dodge*, Des Moines, Iowa, base hospital, Capt. ALBERT M. FISHER, Bismarck.

To *Camp Grant*, Rockford, Ill., for duty, from Fort Riley, Capt. JAMES E. CRAMMOND, Rugby.

To *Fort Oglethorpe*, for instruction, Lieut. LAWRENCE F. FISHER, Dickinson; from Fort Riley, Lieut. ARTHUR PEAKE, Grand Forks.

Ohio

To *Fort Sam Houston*, Texas, for duty, from Camp Travis, Major FRANK E. BUNTS, Cleveland.

To *Memphis, Tenn.*, Signal Corps Aviation School, for duty, from Mineola, Lieut. WILLIAM W. SAUER, Marietta. To *Mineola*, L. I., N. Y., Hazelhurst Field, for duty, from Camp Hancock, Capt. PERCY W. COBB, Cleveland.

To *Camp Beauregard*, Alexandria, La., for duty, from Fort Riley, Lieut. LARRY R. GALE, Newport.

To *Camp Bowie*, Fort Worth, Texas, base hospital, Lieut. WALTER CARY, Toledo.

To *Camp Cody*, Deming, N. M., for temporary duty, from Army Medical School, Major ALLEN W. FREEMAN, Columbus.

To *Camp Crane*, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. ALVA E. SNYDER, Bryan.

To *Camp Devens*, Ayer, Mass., as sanitary inspector, from Camp Abraham Eustis, Capt. JAMES M. DAY, Waynesfield.

To *Camp Dix*, Wrightstown, N. J., for duty, Capt. ARTHUR L. JONES, Lima; Lieuts. HAROLD FEIL, Cleveland; ANDREW B. WILKIE, Oxford.

To *Camp Gordon*, Atlanta, Ga., base hospital, Capt. EDGAR T. KNOOP, Cincinnati.

To *Camp Grant*, Rockford, Ill., base hospital, Capt. LAWRENCE C. GROSH, Toledo.

To *Camp Upton*, L. I., N. Y., base hospital, Capt. CHARLES F. TENNEY, Toledo; Lieut. JESSE B. SAMPSELL, Van Wert. For duty, Lieuts. ALVIN E. DRACK, Cleveland; JAMES S. COUDEN, Morrow.

To *Camp Wadsworth*, Spartanburg, S. C., base hospital, from Camp Dodge, Lieut. BRYCE A. MILLER, Amherst. For duty, from Fort Oglethorpe, Lieut. GEORGE O. HOSKINS, Columbus.

To *Camp Wheeler*, Macon, Ga., base hospital, from Fort Oglethorpe, Capt. FRANK S. GIBSON, Cleveland.

To *Fort Oglethorpe* for duty, Major SIMON P. KRAMER, Cincinnati; from Fort Riley, Capt. ROY A. BRINTNALL, Seville. For instruction, Capt. HERMAN R. DEWEY, Bellevue; LOUIS M. CUSHER, FRANK U. SWING, Cincinnati; FRANK MORRIS, Columbus Grove; JAMES R. TILLOTSON, Delphos; GEORGE W. BURNER, Dennison; RALPH W. REED, Middletown; Lieuts. CLAUDE A. LINGFELTER, Bucyrus; SAMUEL J. FEINGOLD, Canton; DENNIS RUPP, Cincinnati; WILLIAM H. MILLER, DAVID P. PHILLIPS, Jr., Columbus; HUGH S. JAMES, McArthur; ELROY L. HOOPER, Memphis; ERWIN H. HAYMAN, Murray City; JOHN A. SIPHER, Norwalk; FRED W. DIXON, Petersburg; GILBERT R. MICKLE-TWAITE, Portsmouth; HOMER M. YODER, Smithville; JAMES H. POULTON, Springfield; WALTER A. NOBLE, St. Mary's; JOHN F. HAMSHER, St. Paris; CHARLES R. KING, Toledo; HOMER H. WILLIAMS, Uhrichsville; ULRIC Z. JUNKERMANN, Westerville.

To *Fort Riley* for duty, from Fort Oglethorpe, Lieut. FRANK P. GERACI, Cleveland.

To *Garden City*, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. FRED E. HALL, Springfield.

To *Metuchen*, N. J., for duty, from Fort Oglethorpe, Lieut. JOHN E. TALBOTT, Alger.

To *New Haven, Conn.*, for duty, Lieut. WILLIAM F. BAY, Columbus. To *Yale Army Laboratory*, for instruction in bacteriology, Lieut. JACOB D. LOWER, Coshocton. To *Yale Laboratory School*, for instruction in bacteriology, Lieut. ALLEN J. FOX, Cincinnati.

To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Gordon*, Atlanta, Ga., base hospital, Lieut. LEO E. COURTRIGHT, Dayton.

To *Rockefeller Institute* for instruction in bacteriology, and on completion to *Army Medical School*, for duty, Lieut. SAMUEL H. MILLER, Columbus. For instruction in the treatment of infected wounds, and on completion to *Camp Sheridan*, Montgomery, Ala., base hospital, Capt. RAYMOND W. RUNYAN, Lieut. THEODORE W. WENNING, Cincinnati. On completion to *Camp Wadsworth*, Spartanburg, S. C., base hospital, Capt. JAMES W. ROWE, Cincinnati.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. DAVID R. KLINE, Cleveland; JOHN H. RAMEY, Rock Camp.

The following order has been revoked: To *Camp Meade*, Admiral, Md., for duty, Lieut. DANIEL W. JONES, Columbus.

Oklahoma

To *Camp Beauregard*, Alexandria, La., for duty, from Fort Riley, Capt. CHARLES W. HEITZMAN, Muskogee; Lieuts. LESLIE D. CONN, Cowlington; ROBERT E. CALHOUN, Hallett.

To *Camp Bowie*, Fort Worth, Texas, base hospital, Lieuts. ALFRED H. BUNGARDT, Cordell; CHARLES E. CALHOUN, Sand Springs; CHARLES E. DAVIS, Woodward.

To *Camp Cody*, Deming, N. M., base hospital, Lieuts. ROBERT LER. BROWNING, Haileyville; EDWARD R. ASKEW, Hugo.

To *Camp Crane*, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. HENRY S. DRUMMOND, Haileyville.

To *Camp Dix*, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. ARTHUR E. HALE, Alva; CARL L. McCALLUM, Sapulpa.

To *Camp Dodge*, Des Moines, Iowa, base hospital, Lieut. WILLIAM B. CATTE, El Reno; from Fort Sill, Capt. JOSEPH T. EDWARD, Lawton.

To *Camp Joseph E. Johnston*, Jacksonville, Fla., base hospital, from Camp Doniphan, Lieut. VICTOR C. TISDAL, Elk City.

To *Camp Logan*, Houston, Tex., base hospital, Capt. JAMES H. MAXWELL, Oklahoma City.

To *Camp MacArthur*, Waco, Texas, base hospital, Capt. GEORGE H. WETZEL, Sapulpa. For duty, Lieuts. PAUL H. CHRISTIAN, Oklahoma City; OSCAR C. NEWMAN, JAMES W. ROLLO, Shattuck.

To *Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Riley, Lieut. JULIUS W. NIEWEG, Duncan.

To *Camp Travis*, Fort Sam Houston, Texas, base hospital, Lieut. ANDREW W. HARRIS, Muskogee.

To *Camp Upton*, L. I., N. Y., for duty, from Fort Riley, Lieut. SAMUEL N. STONE, Edmond.

To *Fort Oglethorpe* for instruction, Capt. GEORGE A. KILPATRICK, McAlester; JAMES S. McALLISTER, Sapulpa; Lieuts. RICHARD F. KING, Ada; JERRY ASHLEY, Fletcher; EDWIN DAVIS, Haskell.

To *Fort Riley* for duty, from Fort Oglethorpe, Lieut. VICTOR M. GORE, Taloga. For instruction, Capt. CHARLES A. WALTERS, Nowata; GILES E. HARRIS, Hugo; Lieuts. CHARLES A. BRAKE, Ceary; LEONADUS H. McCONNELL, Elmer; THEODORE T. SHACKELFORD, Haskell; RUSSELL J. SHULL, Hugo; ERNEST R. CAVETT, Kiel; ERNEST H. LAIN, Paoli; PAUL G. EILERS, Quinlan; FRANK L. HUGHSON, Vinita. With the board examining the command for nervous and mental diseases, Capt. ERNEST L. BAGBY, Fairfax.

Oregon

To *Camp Beauregard*, Alexandria, La., for duty, from Fort Riley, Lieut. ARTHUR J. FAWCETT, Riddle.

To *Camp Custer*, Battle Creek, Mich., for duty, from Camp Lewis, Lieut. CHARLES R. McCOLL, Portland.

To *Camp Lewis*, American Lake, Wash., base hospital, Capt. WILSON JOHNSTON, Portland.

To *Fort Oglethorpe* for instruction, Lieut. CHARLES C. POTHERAM, Portland.

To *Fort Riley* for instruction, Lieut. ARCHIBALD D. MORRISON, Carlton.

To *Rockefeller Institute* for instruction in bacteriology, and on completion to *Army Medical School* for duty, Lieut. FRANK J. BROWN, Yale.

Pennsylvania

The following orders have been revoked: To *Camp Abraham Eustis*, Lee Hall, Va., for duty, Lieut. ORAM R. KLINE, Philadelphia. To *Camp Wheeler*, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. GUY E. DUTTER, Philadelphia. To *Camp Sevier*, Greenville, S. C., for duty, from Camp Custer, Major THOMAS W. JACKSON, Philadelphia. To *Fort McPherson*, Ga., for temporary duty, Lieut. PERRY McD. TIBBINS, Beech Creek. To *Fort Oglethorpe* as assistant instructor, from Philadelphia, Capt. WALTER E. LEE, Philadelphia. To *New York City*, Neurological Institute, for intensive training, Lieut. ABRAHAM M. ORNSTEIN, Philadelphia. To *Plattsburg Barracks*, N. Y., for duty, from Fort McPherson, Capt. HARRY C. WESTERVELT, Pittsburgh.

To *Army Medical School*, for instructions, Capt. WILLIAM F. ROSS, Aspinwall.

To *Camp A. A. Humphreys*, Accotink, Va., base hospital, from Army Medical School, Lieut. STANLEY P. REIMANN, Philadelphia.

To *Camp Abraham Eustis*, Lee Hall, Va., for duty, Lieut. JOHN W. HORN, Hellam; Lieut. ORAM R. KLINE, Philadelphia; from Fort Oglethorpe, Lieut. JULIUS A. BLASSER, Philadelphia.

To *Camp Beauregard*, Alexandria, La., base hospital, Lieut. CLARENCE A. PAULUS, Telford.

To *Camp Crane*, Allentown, Pa., base hospital, from Camp Dix, Capt. PERCY DELONG, Philadelphia.

To *Camp Grant*, Rockford, Ill., for duty, Capt. HORACE L. W. WIGNALL, Pittsburgh; Lieut. WILLIAM C. BEHEN, Philadelphia.

To *Camp Las Casas*, San Juan, P. R., base hospital, from Camp Logan, Lieut. JAMES G. MURFIN, Philadelphia.

To *Camp Lee*, Petersburg, Va., for duty, Capt. JAMES R. BIBIGHAUS, Glenside; Lieut. ARTHUR E. WHITTAKER, Zelenople; from Fort Oglethorpe, Lieut. WILLIAM E. SEIBERT, Lancaster; ALFRED R. SERAPHIN, Philadelphia.

To *Camp Logan*, Houston, Texas, base hospital, from Rockefeller Institute, Lieut. THEODORE MELNICK, Philadelphia.

To *Camp Meade*, Admiral, Md., for duty, Major THOMAS W. JACKSON, Philadelphia; from Camp Dodge, Lieut. LOUIS SEGAL, Philadelphia.

To *Camp Raritan*, Metuchen, N. J., for duty, from Camp Dix, Capt. I. WARNER KNIGHT, Philadelphia.

To *Camp Sevier*, Greenville, S. C., base hospital, Lieut. WALTER M. BLACK, St. Mary's; from Camp MacArthur, Lieut. OTTO C. HIRSCII, Philadelphia.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. PAUL H. GERHARDT, Reading; from Fort McPherson, Capt. SAMUEL D. INGHAM, Philadelphia.

To *Camp Sheridan*, Montgomery, Ala., base hospital, from Fort Oglethorpe, Major EDWARD J. G. BEARDSLEY, Philadelphia; Lieut. WALTER S. LUCAS, Wynnewood.

To *Fort Oglethorpe*, base hospital from Camp Pike, Lieut. EDWIN H. ERNEY, Philadelphia. For instruction, Capt. RICHARD R. PAXSON, Hulmeville; JOSEPH C. BOGGS, WARDEN A. CLARK, ALBERT R. MATHENY, MILES E. STOVER, Pittsburgh; JOHN B. McMURRAY, Washington; HARRY S. LAKE, Willock; WALTER R. SHOEMAKER, Wilmerding; Lieuts. JAMES P. ROTH, Ashland; LEWIS C. DRUFFNER, Avoca; MARSDEN D. CAMPBELL, Belleville; CALIXTO RODRIGUEZ, Easton; IRA DE McCOY, Emlenton;

ALBERT N. REDELIN, Freeland; EDGAR J. STEIN, Lancaster; GEORGE R. PRETZ, Lebanon; GEORGE A. MAYER, Marksville; PAUL L. BRUNER, Oil City; EDWIN P. KITCHEN, JAMES A. MALONEY, MICHAEL PLATT, JOSEPH D. SEIBERLING, MORRIS S. SHAPIRO, BERNARD P. WIDMANN, Philadelphia; HARRY P. SMITH, Pittsburgh; LINFORD R. ROBERTS, Quakertown; WARREN S. REESE, Scranton; FRANK R. HUMPHREYS, West Philadelphia; AMADA R. CORE, Whitley; ARTHUR H. GASTON, York.

To *Hoboken*, N. J., base hospital, from Camp Meade, Lieut. CAREY C. BRADIN, Tyrone. For duty, Lieut. GEORGE W. MUFFLY, Turbotville.

To *Metuchen*, N. J., for duty, from Fort Oglethorpe, Lieut. ROBERT O. KOONS, Conyngham.

To *Rockefeller Institute* for instruction, and on completion to *Camp Devens*, Ayer, Mass., base hospital, Capt. JOHN S. MACKRELL, Lieut. SAMUEL J. GLASS, Jr., Pittsburgh. And on completion to *Camp Upton*, L. I., N. Y., base hospital, Capt. CHARLES K. FERER, Meadville. For instruction in bacteriology, from Camp Meade, Lieut. JOHN R. CONOVER, Philadelphia. On completion to *Army Medical School*, for duty, Lieuts. RAY DE PAO, Bearden; JAMES McL. FLEMING, Blairs Mills. For instruction in the treatment of infected wounds, and on completion to *Camp Hancock*, Augusta, Ga., base hospital, Capt. JOEL S. KELSEY, Pittsburgh. On completion to *New York*, Bellevue Hospital, for further instruction, and on completion to *Camp Cody*, Deming, N. M., base hospital, Capt. SAMUEL A. BULON, Jr., Phoenixville.

To *Walter Reed General Hospital*, Takoma Park, D. C., for duty, Lieut. HILTON A. WICK, Philadelphia.

To *Williamsbridge*, N. Y., for temporary duty, Lieut. KIM D. CURTIS, Claghorn.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. JOHN H. BENNETT, York.

Resignation of Capt. HARRY M. ALLEN, Reading, accepted.

Philippine Islands

To *Camp Crane*, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JAMES L. BOOTH, Manila.

Porto Rico

To *Camp Crane*, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. ALFRED C. SMITH, Henry Barracks.

To *Camp Las Casas*, San Juan, P. R., base hospital, Lieut. HONORIO F. CARRASQUILLO, Ciales. For duty, Lieuts. JAMES W. BRICE, Humacao; JOSE R. MARQUES, Patillas; JOHN E. STEVENS, San Juan.

To *Mineola*, L. I., N. Y., Signal Corps Aviation School, for duty, from Camp Joseph E. Johnston, Major EMMETT I. VAUGHN, Central Aguirre.

To *Rockefeller Institute* for instruction in bacteriology, and on completion to *Army Medical School*, for duty, Lieut. LUIS A. SALIVA, Rio Piedras.

The following order has been revoked: To *Camp Abraham Eustis*, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. MARIANO B. CABALLERA, Humacao.

Rhode Island

To *Camp Devens*, Ayer, Mass., base hospital, Capt. JOHN CHAMPLIN, Westerly.

To *Camp Dix*, Wrightstown, N. J., base hospital, from New York, Capt. JOHN N. FERGUSON, Providence.

To *Camp Hancock*, Augusta, Ga., base hospital, from Army Medical School, Lieut. JOHN F. KENNEY, Pawtucket.

To *Camp Travis*, Fort Sam Houston, Texas, base hospital, Capt. WILLIAM McDONALD, Providence.

To *Fort Oglethorpe* for instruction, Capt. ARTHUR B. BRADSHAW, Providence.

South Carolina

To *Camp Dix*, Wrightstown, N. J., base hospital, Lieut. ARCHIE E. BROWN, Greenville.

To *Camp Greene*, Charlotte, N. C., base hospital, Lieut. WILLIAM B. BAKER, Hemingway.

To *Camp McClellan*, Anniston, Ala., base hospital, Lieut. THOMAS R. LITTLEJOHN, Sumter.

To *Fort McHenry*, Md., base hospital, Lieut. LOUIS A. BUIE, Georgetown.

To *Fort Oglethorpe* for instruction, Capt. GEORGE W. POOVEY, Lancaster; ARTHUR P. McELROY, Union; Lieuts. WILLIAM L. PRESSLY, Due West; ENOCH M. DIBBLE, Marion; FURMAN T. SIMPSON, Westminster.

To *Memphis, Tenn.*, Signal Corps Aviation School, for duty, from Charleston, S. C., Lieut. CLAUDIUS F. BULLOCK, Nicholes.

To *Mineola*, L. I., N. Y., Signal Corps Aviation School, for instruction, from Charleston, S. C., Capt. CHARLES W. KOLLOCK, Charleston.

South Dakota

To *Camp Dodge*, Des Moines, Iowa, base hospital, Capt. JESSIE D. WHITSIDE, Aberdeen; EUGENE M. STANSBURG, Vermilion; Lieuts. REZIN REAGAN, Garretson; ROY G. STEVENS, Sioux Falls. To examine the command for nervous and mental diseases, Lieut. MARTIN L. STIFFLER, Yankton.

To *Camp Fremont*, Palo Alto, Calif., for duty, Lieut. CLEVE R. SENESCALL, Veblan.

To *Camp Grant*, Rockford, Ill., base hospital, Capt. JOHN F. ADAM, Aberdeen; Lieuts. BUELL H. SPRAGUE, Huron; STEPHEN A. DONAHOE, GUY E. VAN DEMARK, Sioux Falls; from Fort Sill, Capt. THOMAS W. MOFFITT, Deadwood.

To *Camp MacArthur*, Waco, Texas, for duty, from Fort Riley, Capt. FLOYD S. KIDD, Woonsocket.

To *Camp Sherman*, Chillicothe, Ohio, for duty, from Fort Riley, Capt. ROBERT M. MALSTER, Carter.

To *Fort Oglethorpe* for duty, from Fort Riley, Lieut. DENNIS W. SULLIVAN, Britton. For instruction, Capt. WELLINGTON J. MAYTUM, Alexandria; WILLIAM F. KELLER, Lieut. FRANK I. PUTMAN, Sioux Falls.

Tennessee

To *Camp A. A. Humphreys*, Accotink, Va., for duty, Lieut. STANTON H. BARRETT, Chattanooga.

To *Camp Abraham Eustis*, Lee Hall, Va., for duty, Lieuts. FORREST S. LETELLIER, Knoxville; JOSEPH H. LITTERER, Nashville.

To *Camp Crane*, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JOHN H. McSWAIN, Paris.

To *Camp Gordon*, Atlanta, Ga., base hospital, Major GEORGE M. ELLIS, Chattanooga.

To Camp Lee, Petersburg, Va., for duty, Capt. DION A. GREER, Pikesville.

To Fort Benjamin Harrison, base hospital, Lieut. HENRY C. LONG, Chattanooga.

To Fort Des Moines, Iowa, base hospital, from Camp Dodge, Lieut. ELMER S. MAXWELL, Nashville.

To Fort Oglethorpe, base hospital, Lieut. JOHN A. McINTOSH, Memphis. For instruction, Capt. JESSE F. ADAMS, Bradyville; FRANCES H. BOMAR, Knoxville; ROBERT L. JONES, ALPHEUS L. SHARBER, Nashville; Lieuts. PHARES W. CALLIHAN, Memphis; FOUNTAIN B. HULME, Nashville.

To Hoboken, N. J., base hospital, from Buffalo, Lieut. ROBERT C. DAVIS, Knoxville; from Camp Dix, Lieut. ELLIS L. WILKINS, Dyersburg; from Fort Oglethorpe, Lieut. WILLIAM E. TROXLER, Lewisburg.

To New York City, Bellevue Hospital, for instruction, and on completion to Camp Gordon, Atlanta, Ga., base hospital, Lieut. RALEIGH R. DAVENPORT, Memphis. On completion to Camp Meade, Admiral, Md., base hospital, Lieut. HORACE E. THOMAS, Memphis.

To Rockefeller Institute for instruction, and on completion to Camp Gordon, Atlanta, Ga., base hospital, Capt. JOHN A. PRICE, Jasper.

Texas

To Camp Alfred Vail, Little Silver, N. J., for temporary duty, from Camp Devens, Lieut. DOLPHUS E. COMPERE, Dallas.

To Camp Cody, Deming, N. M., base hospital, Lieut. FRANK D. MABRY, Port Arthur.

To Camp Crane, Allentown, Pa., for duty, from Fort Oglethorpe, Lieut. JOHN W. BALKE, Rosenberg.

To Camp Grant, Rockford, Ill., base hospital, from Fort Sill, Lieut. BENJAMIN F. SMITH, Jr., Galveston. For duty from Fort Riley, Lieut. REUBEN W. JACKSON, Dallas; ELISHA H. ROBERTS, Marshall.

To Camp Jackson, Columbia, S. C., base hospital, from Fort Sam Houston, Lieut. RICHARD C. CURTIS, Temple.

To Camp John Wise, San Antonio, Texas, for duty, from South San Antonio, Lieuts. JAMES W. SHADDIX, Marietta; ARTEMUS H. MARTINDALE, Teneba.

To Camp Lee, Petersburg, Va., for duty, from Camp Beauregard, Lieut. JOHN J. GILL, Lamarco.

To Detroit, Mich., for duty, from San Antonio, Capt. WALTER R. RUSSELL, Ben Hur.

To Fort Des Moines, Iowa, base hospital, Lieut. HENRY G. NEW-SOM, Dallas.

To Fort Oglethorpe, base hospital, from Camp MacArthur, Capt. WILLIAM L. CROTHWAIT, Waco. For duty, from Fort Riley, Major CARL LOVELACE, Waco. For instruction, Capt. MANTON M. CARRICK, Dallas; EDWARD G. CLAVIN, San Antonio; Lieut. JIM CAMP, Pecos; from Fort Riley, Capt. WILLIAM H. MORROW, Dunn; from Fort Sill, Capt. LUKE P. ALLISON, Brownwood; from Washington, Lieut. JOHN W. GOODE, San Antonio.

To Fort Riley for instruction, Capt. WESTON W. NIPPER, Brackettville; CHARLES P. BROWN, El Paso; ROBERT D. HARRIS, Fulshear; GEORGE D. CRIMES, RAYMOND DAWES, Houston; Lieuts. ROBERT L. LONG, Atlanta; EDWARD H. SNYDER, Canadian; JOHN A. MONK, Kemper; LEWIS B. BIBB, Paris; RANDALL E. CROMEANS, Strawn; JAMES K. SMITH, Texarkana; WALTER W. ANDERSON, Village Mills.

To Garden City, L. I., N. Y., for duty, from Fort Riley, Lieut. ELISHA H. ROBERTS, Marshall.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. JOHN W. HARPER, Paducah.

To Richmond, Va., for duty, from Camp Greene, Lieut. WILMER A. HADLEY, Friendswood.

To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School for duty, Lieut. ALLEN H. NEIGH-BORS, Sequin.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. BRUNS P. HOLLAND, Beaumont.

The following order has been revoked: To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. FRED H. HODDE, Benton.

Utah

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. ARTHUR D. KNOTT, Murray.

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. GARLAND H. PACE, Murray.

To Camp Grant, Rockford, Ill., base hospital, from Philadelphia, Lieut. DAVID K. ALLEN, Salt Lake City. For duty, from Fort Riley, Lieut. HARRY S. SCOTT, Salt Lake City.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Riley, Lieut. FRANK K. BARTLETT, Ogden.

To Fort Oglethorpe for duty, from Fort Riley, Capt. FREDERICK G. CLARK, Ogden.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. BERT A. DANNENBERG, Hober.

Vermont

To Camp Dix, Wrightstown, N. J., for duty, Lieut. BARNET FRANK, Burlington.

To Fort Oglethorpe for instruction, Capt. STODDARD S. MARTIN, Windsor; Lieuts. BYRON E. WHITE, Brattleboro; JOHN A. HUNTER, MARTIN J. PAULSEN, Burlington.

To Fort Worth, Texas, Signal Corps Aviation School, for duty, from San Antonio, Capt. ARTHUR L. LARNER, Burlington.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Capt. HENRY L. CRAGAN, Rutland.

To Rockefeller Institute for instruction, and on completion to Camp Lee, Petersburg, Va., base hospital, Capt. WILLIAM E. LAZELL, Barre.

Virginia

To Camp Abraham Eustis, Lee Hall, Va., camp hospital, from Camp Lee, Major PHILANDER C. RILEY, Markham.

To Camp Greene, Charlotte, N. C., base hospital, Capt. GEORGE P. HAMNER, Lynchburg.

To Camp Las Casas, San Juan, P. R., for duty, from Camp Lee, Lieut. CARROLL E. FOLEY, Lovettsville.

To Camp Lee, Petersburg, Va., base hospital, Lieut. JAMES R. GORMAN, Lynchburg.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Zachary Taylor, Lieut. ROBERT J. EVANS, Jr., Hopewell.

To Fort Oglethorpe for instruction, Lieuts. BURL BASSETTE, Hampton; TURNER S. SHELTON, Richmond; RICHARD E. PARKER, Suffolk.

To Fort Ontario, N. Y., base hospital, from Fort Riley, Lieut. CLIFFORD A. FOLKES, Roanoke.

To Morrison, Va., for duty, from Fort Oglethorpe, Lieuts. JOHN S. GILMAN, Richmond; WILLIAM T. GAY, Suffolk.

To New Haven, Conn., Yale Army Laboratory School, for duty, from Army Medical School, Lieut. CORNELIUS B. COURTNEY, Richmond.

To Newport News, Va., base hospital, from New York, Lieut. JOSEPH T. McKINNEY, Richmond.

To Rockefeller Institute for instruction in bacteriology and on completion to Army Medical School for duty, Lieut. JAMES O. FITZGERALD, Richmond.

The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. EDWIN M. CORNS, Richmond.

Washington

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. RALPH F. GOETTER, Colville.

To Camp Fremont, Palo Alto, Calif., for duty, Lieut. CLARENCE E. WILSON, Seattle.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Lieut. WILLIAM W. MATTSON, Seattle.

To Camp Leach, American University, Washington, D. C., from Fort Riley, Lieut. LUNSFORD M. THOMPSON, Spokane.

To Camp Lewis, American Lake, Wash., base hospital, Capt. EDGAR L. INGERSOLL, Spokane.

To Camp Meade, Admiral, Md., base hospital, from New York, Capt. WILMOT DE L. READ, Tacoma.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Riley, Capt. FRANK C. ROBINSON, Walla Walla.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Capt. WIL-LARD G. PALMER, Seattle.

To Fort Riley for instruction, Capt. FREDERIC G. ULMAN, Enumclaw.

To Hoboken, N. J., base hospital, from Camp Meade, Lieut. WHITING B. MITCHELL, Sumner; from New York, Lieut. HAR-OLD B. THOMPSON, Seattle.

West Virginia

To Camp Devens, Ayer, Mass., for duty, from Camp Pike, Lieut. SOLOMON L. CHERRY, Clarksburg.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. CARTER S. FLEMING, Fairmont.

To Camp Lee, Petersburg, Va., for duty, Lieut. CARSON A. WILLIS, Clarksburg.

To Camp Upton, L. I., N. Y., with the board examining the command for nervous and mental diseases, Capt. CHARLES W. HALTER-MAN, Clarksburg.

To Fort Oglethorpe for instruction, Capt. TIB N. GOFF, Kenova; Lieuts. ERLAND H. HEDRICK, Beckley; WALTER W. HEALD, Huntington; GROVER C. ROBERTSON, Spencer; from duty as a drafted man, Lieut. JOHN E. CORKREAN, Sand Fork.

To Metuchee, N. J., for duty, from Fort Oglethorpe, Lieuts. ETLEY P. SMITH, Barrackville; CLAUDE M. VAUGHAN, Farmington; JOHN H. HOSKINS, Lillybrook.

To New York City, Neurological Institute, for instruction, from Camp Cody, Major LEWIS C. COVINGTON, Charleston.

To Rockefeller Institute for instruction, and on completion to Camp Sheridan, Montgomery, Ala., base hospital, Lieut. EDWARD E. ROSE, Huntington.

Wisconsin

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. CLARK C. POST, Barron, Capt. GEORGE H. DICKINSON, Milwaukee.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. VICTOR DROOCK, Rice Lake.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. WILLIAM H. BAYER, Gleason; FRANCIS J. BROGHAM-MER, Superior.

To Camp Grant, Rockford, Ill., base hospital, Lieut. WILLIAM F. GROTTAN, Milwaukee.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from Camp Doniphan, Capt. GEORGE E. THOMPSON, Kenosha.

To Camp McClellan, Anniston, Ala., for duty, from Fort Riley, Lieut. FRANK H. KENNEDY, Greenwood.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. FRANK E. ANDRE, Kenosha; from Fort Oglethorpe, Lieut. CHARLES E. STOLZ, Milwaukee. For duty, Lieut. FRANK B. TAYLOR, Madison; from Fort Riley, Lieut. SHERMAN M. KYES, Owen.

To Fort Leavenworth, Kan., for duty, from Fort Riley, Capt. JOHN W. BIRD, Stevens Point.

To Fort McDowell, Calif., for duty, from Fort Leavenworth, Lieut. ALEXANDER J. BERGER, New Holstein.

To Fort Oglethorpe, for duty, from Fort Riley, Capt. HERMAN G. MERTENS, Bayfield; JOHN W. BOREN, Marinette; CLIFFORD J. OUELLETTE, Oconto. For instruction, Lieut. JOHN W. ADAIR, Kenosha; JOHN D. GILLIS, Milwaukee.

To Fort Riley, for instruction, Capt. WILLIAM B. CAMPBELL, Menomonee Falls; Lieut. ALPHONSE J. GEREND, Cato; AVERY L. MYRICK, Eastman; ROBERT L. COWLES, Green Bay; Lieut. EBER E. HAGGERTY, La Forge; ROBERT J. BACH, THEODORE BURBACK, Milwaukee; JOHN H. BASSEN, Mount Calvary; THOMAS G. PARKER, Rome; JOHN J. MINAHAN, St. Nazianz; JOSEPH S. CUTLER, Wawatosa.

To Hoboken, N. J., base hospital, from Camp Sevier, Capt. THOMAS F. SHINNICK, Beloit.

To Montgomery, Ala., for duty, from College Station, Tex., Capt. HUBERT S. STEENBERG, Milwaukee.

To New Haven, Conn., Yale Laboratory School, for instruction in bacteriology, Lieut. URBAN J. DURNER, Milwaukee; Lieut. OSCAR E. ISMAEL, Mount Horeb.

To Washington, D. C., for temporary duty, from Fort Oglethorpe, Lieut. OTIS W. C. MAERCKLEIN, Wawatosa.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. CARL O. HERTZMAN, Ashland.

The following orders have been revoked: To Camp Dix, Wrightstown, N. J., base hospital, from Camp Crane, Lieut. CHARLES B. RYDELL, Superior. To Fort Riley, for instruction, Lieut. WAYNE A. MUNN, Janesville.

Wyoming

To Camp Beauregard, Alexandria, La., base hospital, Lieut. JOSEPH F. O'DONNELL, Casper.

To Fort Riley for instruction, Capt. JOHN HYND, Buffalo.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

City Establishes Pathologic Laboratory.—The Municipal Pathological Laboratory of San Barbara opened, July 10.

Personal.—Dr. Alexander S. Kelly, Oakland, was reelected president of the Oakland Board of Education, July 8.—Dr. E. Gilman Goodrich, Los Angeles, has been appointed assistant surgeon at the Los Angeles Receiving Hospital to succeed Dr. Arthur D. Houghton, who resigned to enter the military service.

GEORGIA

Personal.—Dr. Henry R. Donaldson, Atlanta, who has been confined to his home for three months on account of injuries received in an automobile accident, is convalescent, and has resumed practice.

Health Board Appropriations.—The house appropriations committee, July 15, set aside \$60,000 for the state board of health for the coming year, or exactly double the amount appropriated for the board in 1916. The board had asked for an appropriation of \$70,000.

ILLINOIS

Typhoid in Moline.—Typhoid fever is reported to be epidemic in Moline, where 109 cases have been reported, with one death. Officials of the state board of health have been sent to Moline to determine the cause of the epidemic, investigate the water and milk supplies and the matter of sewage outlets.

Personal.—Dr. Robert C. Bourland, Rockford, formerly major surgeon of the Third Infantry, Ill. N. G., was elected chairman of the west side selective service board, July 18.—Dr. S. Claude Andrus has been appointed chief surgeon for the Chicago, Milwaukee and Gary Railroad, with headquarters at Rockford.

Chicago

Memorial Institute Changes Name.—The name of the Memorial Institute for Infectious Diseases, founded in memory of John Rockefeller McCormick, has been changed to the John McCormick Institute for Infectious Diseases.

Mandamus Proceedings Instituted.—The Chicago Hospital College of Medicine, whose recognition as an institution in good standing was taken away by action of the Illinois State Board of Health, June 26, 1917, has instituted mandamus proceedings against Francis W. Shepardson, director, and other officers of the department of registration and education, with a view to compelling restoration to good standing. According to the last published report the college is not recognized by thirty-seven states.

INDIANA

New Baby Clinics.—Three additional baby clinics have been established by the Children's Aid Association of Indianapolis, which makes a total of eleven clinics at present in operation in the city.

Personal.—Dr. James E. Luckey, Wolflake, is reported to be in a critical condition as the result of stab wounds inflicted by a farmer living near Wolflake.—In the case of Dr. George F. Smith, Bicknell, charged with securing license to practice medicine in Indiana by fraud, the state medical board dismissed the proceedings.

IOWA

Personal.—Capt. Daniel J. McCarthy, Davenport, has returned after six months' service on the Roumanian front.—Dr. Maude Hall, Grant, has sailed for Palestine. She expects to make her headquarters at Jerusalem and do Red Cross work with the British Expeditionary Forces.

Warfare on Social Diseases.—Dr. Guilford H. Sumner, Des Moines, secretary of the state board of health, has prepared

and is having printed 20,000 copies of a bulletin entitled "Instructions for Preventing the Transmission of Venereal Diseases." Attached to the bulletin is a report form to be filled out by physicians treating cases of venereal disease.

KENTUCKY

Personal.—Dr. Robert V. Ferguson, Trenton, was stricken with cerebral hemorrhage, July 3.—Dr. Claude B. Rankin has resigned as city health officer of Lexington.

Staff at Zachary Taylor Adopts Resolutions on Death of Major Karpas.—The base hospital staff at Camp Zachary Taylor has adopted resolutions of sympathy on the death in France of Major Morris J. Karpas, an announcement of which appeared in THE JOURNAL last week. Before leaving for France, Major Karpas was attached to the neuropsychiatric personnel at Camp Taylor.

MAINE

Personal.—Dr. Joseph B. Drummond, Portland, has been nominated as a member of the Public Health Council and also as a member of the state board to regulate the practice of embalming.

Year of College Required.—At its July meeting the Maine Board of Registration in Medicine voted that in 1919 and thereafter all applicants for a license to practice medicine in that state must have completed at least one year of college work in addition to a four-year high school course before having entered on the study of medicine.

MARYLAND

Infantile Paralysis.—There have been sixteen cases of infantile paralysis in Baltimore since the end of April, and eight cases have been reported from the counties outside of Baltimore.

Visitor from Peru.—Col. Gerardo Alarco of Lima, Peru, surgeon in chief of the Peruvian Army, who is making a tour of the United States, visited Johns Hopkins Hospital, Baltimore, July 13.

Meetings.—The thirty-ninth meeting of the Maryland Psychiatric Society was held in conjunction with the Baltimore County Medical Association at the Sheppard and Enoch Pratt Hospital, Towson, July 17. Lieut. Charles C. Rowley, Winnebago, Wis., on duty at Camp Meade, spoke on "The Neuropsychiatrist in the Army."

Campaign to Secure Nurses Opened.—A meeting to mark the official opening of the local United States Student Nurse Campaign by which an effort will be made to secure 510 Maryland women to enroll for courses in hospital training, was held at Osler Hall, Baltimore, July 25. Lieut.-Col. William H. Welch, M. C., N. A., presided; Col. Winford H. Smith, superintendent of the Johns Hopkins Hospital, addressed the meeting, as did also Miss Annie Goodrich, dean of the Army School of Nursing, and Mrs. May Lamberton Becker, chairman of the Foreign News Bureau of Women's Section, National Council of Defense.

Personal.—Dr. Brooks I. Jamison, Emmitsburg, who sustained a fracture of the skull, arm and clavicle in an automobile collision, July 7, and was taken to the Frederick City Hospital for treatment, left the hospital for home, July 11.—Dr. G. Hampton Richards, formerly school physician at the Tome School, Port Deposit, who enlisted with the British forces in 1917 and later joined the American Army, has been slightly wounded. Dr. Richards was stationed in a field hospital behind the firing line and had just recovered from the effects of being gassed.—Dr. Arthur L. Fehsenfeld, Baltimore, who was recently operated on for appendicitis, is recovering at the University Hospital.

MASSACHUSETTS

Personal.—Dr. Jacob J. Golub, Dorchester, Boston, has been appointed acting assistant surgeon, U. S. P. H. S., with station at Long Wharf, Boston.—Dr. Paul Thorndyke has been appointed clinical professor of genito-urinary surgery, Dr. George R. Minot, assistant professor of medicine, Dr. Isaac Chandler Walker, assistant professor of medicine, and Dr. Cyrus H. Fiske, assistant professor of biological chemistry in Harvard Medical School.

Red Cross Convalescent Hospital.—A Red Cross convalescent hospital has been established at Cuttyhunk for convalescent officers of the Army, Navy and Allies, and Red Cross. The hospital is located on an island at the mouth of

Buzzard's Bay, lying between it and Vineyard Haven. All applications for admission should be made to Dr. Norman E. Ditman, medical director, and all officers will be met on arrival by boats at New Bedford. The hospital will remain open until October 1.

MICHIGAN

Whooping Cough Arm Band.—A regulation to enforce the wearing of a yellow arm band bearing the words "whooping cough," by children afflicted with the disease and the placarding of the houses in which the disease is found, went into effect in Detroit, July 16. Refusal to wear the arm band will entail arrest and prosecution. Wearers of this arm band are not to be admitted to places of public entertainment.

Reorganization of Administrative Staff.—Due to the absence of Dean Vaughan in war service, a reorganization of the administration staff of the University of Michigan Medical School was made necessary. The present officers are as follows: dean, Victor C. Vaughan, M.D., LL.D., Colonel, M. C., N. A. (absent on leave); assistant dean, Charles W. Edmunds, A.B., M.D.; acting secretary, Rollo E. McCotter, M.D., and assistant secretary, Ethel Bradley Flick.

MINNESOTA

Fight on Venereal Disease.—Application for an apportionment for Minnesota, of the million dollars which was voted by Congress to aid states in their campaigns against venereal disease, was made by Dr. Harry G. Irvine, Minneapolis, director of the venereal division of the state board of health, July 13. This application is based on action taken by the state emergency board allowing \$35,000 for this campaign in Minnesota.

Personal.—Dr. Harry A. Britton has been appointed acting superintendent of the Minneapolis City Hospital, succeeding Dr. Herbert O. Collins. Dr. Britton will take up his new duties, August 31.—Dr. T. M. Hall, formerly health commissioner of Minneapolis, has been appointed superintendent of the State Sanatorium for Consumptives, Walker, succeeding Dr. George W. Beach who has resigned to enter the military service.

NEBRASKA

Personal.—Dr. John P. Barry, Hebron, who has been ill with pneumonia at Fort Riley, Kan., is reported to be convalescent.

Addition to Medical School.—Excavation was started, July 18, for the foundation of the additional building to the University of Nebraska Medical School, Omaha, to be erected at a cost of \$150,000. The new building will be four stories in height, red brick and will house the laboratories of pharmacology, physiology and biologic chemistry.

Midsummer Medical Meeting.—The midsummer meeting of the Elkhorn Medical Association was held at the Norfolk Country Club, July 16, and Col. John M. Banister, Omaha, president-elect of the state medical association, delivered an address on "Medical Necessities of the War." The winter session of the association will be held at Omaha or Fremont.

NEW JERSEY

Personal.—Chester H. Mills, health officer of Montclair for thirteen years, announces his resignation to take effect, August 15, in order to become state commissioner of health of Delaware.—Dr. Frederick W. Maroney, Trenton, has been appointed instructor and director of physical education and hygiene in the state school system.—Dr. Henry P. Hess has been appointed attending physician to the Isolation Hospital, Paterson.

Open Army Medical School.—An Army medical school, said to be the first of its kind in the country for the reconstruction of deaf and nearly deaf soldiers, was opened yesterday in the New Hotel, Cape May. Major William W. Keen, M. R. C., U. S. Army, compared conditions today with those during the Civil War, in the opening address. Lieut.-Col. Charles W. Richardson, in charge of the new school, and Col. Paul F. Straub, commandant of the base hospital, explained the purposes of the institution.

NEW YORK

Brazil School Director in Albany.—Dr. Monsillo Sobia, medical director of schools of Brazil, visited Albany, July 20, and interviewed Dr. Clinton P. McCord relative to the inspection work which is being carried on in the public schools.

Child Welfare Work in Buffalo.—The city council of Buffalo, July 10, adopted a report authorizing an appropriation of \$15,000 for child welfare work. The money will be used for the equipment of nutrition clinics, for the care of convalescent mothers and sickly babies, for the health education of parents and children, and for the prevention of stillbirths.

Personal.—Dr. Frederick W. Fletcher, Freeport, has succeeded Dr. Louis N. Lanehart, resigned, as a member of Local Board No. 3.—Dr. John A. Lichty, Pittsburgh, formerly a member of the medical staff of the Clifton Springs Sanatorium, has been elected president of the board of trustees of the institution.—Dr. Calvin E. Nichols, health officer of Troy for eighteen years, has resigned.

Beloved Physician Honored.—The memorial statue of the late Dr. Edward A. Trudeau, founder of the Adirondack Cottage Sanatorium, now known as the Trudeau Sanatorium, Saranac, will be unveiled, August 10. The principal oration will be made by Rev. Philemon F. Sturgis. The statue is a gift of former patients of the sanatorium, and will bear an inscription indicative of the love and gratitude of the donors.

New York City

Physical Examinations for New York Children.—The Health Committee of the Mayor's Committee on National Defense has begun the work of making physical examinations of all children under 5 years of age. More than 100 nurses, welfare and social workers and 300 physicians have volunteered to work at least two days a week without charge. During the week of July 15 about 3,000 children were examined. Dr. S. Josephine Baker, director of the bureau of child hygiene of the department of health, is directing the work. She states that there are more than 600,000 children to be examined.

Health Department Warns Druggists Against "Ear Oil."—The manufacturer of "Leonard's Ear Oil," following a complaint of the health department, was arrested and arraigned before the Court of Special Sessions which adjudged him guilty of making false statements and claims and sentenced him to thirty days in jail or to pay a fine of \$250. He paid the fine. The department of health now warns all druggists that the continued sale of "Leonard's Ear Oil" with these false and fraudulent statements attached will constitute a violation of the Sanitary Code, and will subject the druggist so doing to prosecution by the department of health.

Health Department Wants Bureau of Oral Hygiene.—A resolution has been introduced before the committee on general welfare of the board of aldermen which provides for the creation of a bureau of oral hygiene in the division of child hygiene of the health department. At a hearing recently held for the purpose of discussing this resolution, Dr. S. Josephine Baker made the statement that of all the pupils in the schools of New York 67 per cent. had been found by the department inspectors to have defective teeth. The health department now conducts a number of dental clinics but desires to make these clinics mandatory on the health commissioner.

Board of Regents Gives Hearing on Women's Hospital Control.—The Alumnae of the New York Medical College and Hospital were granted a hearing before the board of regents, July 22. After listening to the argument of the counsel of the Alumnae Association the board of regents ordered the trustees to submit at once a detailed report of the finances of the institution. The women physicians have met with marked success in their effort to raise \$50,000 with which to continue the work of the hospital but they cannot go further until they have a knowledge of the financial affairs of the institution. When they get entire control of the institution they intend to turn it over to the government for war needs.

Major Caldwell Leaves Estate to Columbia University.—The will of Major Eugene Wilson Caldwell, M. R. C., U. S. Army, which was recently filed for probate, leaves the bulk of his estate of about \$150,000 to Columbia University on the death of his wife and mother. His laboratory and its contents and the good will of the establishment he leaves to his collaborators, Dr. Harry M. Imboden and Thomas Ricker. He requested them to continue the work on which he was engaged. A device that he recently perfected for determining the depth of a foreign body beneath the skin by photography, he gave to the United States government at the outbreak of the war. The bequest which Columbia University will receive is to be known as the Eugene Wilson Caldwell Fund for general educational purposes.

OHIO

Personal.—Dr. Erwin A. Peterson, Cleveland, will leave for Italy next month with the Red Cross Antituberculosis Unit. —Dr. Anderson L. Smedley, health officer of Hamilton since 1912, has resigned to take effect, August 14. He will enter the military service. —Dr. Everett E. LeFever, Athens, fractured his arm recently.

Educational Features of Venereal Campaign.—The state department of health has issued three new pamphlets of instruction regarding sex matters and venereal disease as educational features of the state campaign. The pamphlets are entitled "Some Things a Young Man Should Know About Sex and Sex Diseases," "How Any Boy Can Develop His Health and Strength," and "How to Instruct Your Child in the Facts of Sex." They are for free distribution. In the pamphlet on sex instruction, parents are advised as to the necessity for forestalling improper instruction from evil-minded companions by proper instruction in the home, and as to methods of conveying the necessary information. The pamphlet for boys gives general advice for physical development, bringing sex in as one of the phases of bodily health which must be considered. The pamphlet for young men deals plainly with the question of how a man should order his sexual life, stating the facts and leaving the individual to decide what course he will pursue. Pamphlets for girls and young women will be issued later, according to the health department.

PENNSYLVANIA

Carlisle Indian School to Become Base Hospital.—The Indian school, located at Carlisle, is to become a base hospital. This institution has been used for the last forty years as an educational institution for the Indians. It has been turned over to the War Department and in the future will house convalescent soldiers.

Philadelphia

Personal.—Dr. Albert E. Blackburn has been reappointed to the secretaryship of the city board for registration of nurses. —Dr. Henry K. Gaskill has resigned as chief of clinic and assistant professor of dermatology in the Jefferson Medical College Hospital. —Dr. Frank C. Hammond has been appointed medical aide to Governor Braumbaugh, succeeding Dr. Edward P. Davis.

CANADA

Hill Resigns.—Capt. Hibbert W. Hill, who recently resigned as medical officer of health of London to become director of public health of the state of Minnesota, has been presented with a handsome club bag by the medical men of London.

Additional Military Board.—An additional military medical board of review for Toronto district to be known as Board No. 4, has been appointed consisting of Lieut.-Col. Henry Bascom, Oshawa, president, Capt. C. C. Tissett, Brantford, and Capt. Robert J. Gibson, Sault Ste. Marie. The board will sit in Toronto for the present with Board No. 1.

New Ottawa District Officers.—The Ottawa District Medical Association held its annual meeting at Hull, July 27, under the presidency of Dr. J. D. Archambault, decided to petition the Provincial government for the establishment of a Workman's Board of Compensation, and elected the following officers: president, Dr. J. G. U. Archambault, Hull, Que.; vice presidents, Drs. Emile V. Desy, Ste. Rose de Lima, and J. Robillard, Thurso, Que., and secretary-treasurer, Dr. Joseph E. D'Armours, Papineauville.

GENERAL

Eye, Ear and Throat Men to Meet.—The annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Denver, August 5 to 7, under the presidency of Major Allen Greenwood, Boston.

Bequests and Donations.—The following bequests and donations have recently been announced:

East River Home Foundation, New York City, has made the following appropriations from its net income from the past year for the relief of tuberculosis: tuberculosis work of the Vanderbilt Clinic and Presbyterian Hospital tuberculosis clinic, each \$9,000; civilian tuberculosis relief work in France, under the direction of the American Red Cross, \$8,000; the Trudeau Sanatorium, Saranac Lake, N. Y., and the philanthropic work of the Loomis Sanatorium, each \$3,000; the New York Association for Improving the Condition of the Poor, New York City, \$2,500; the Stony Wold Sanatorium for the tuberculosis league work, Lake Kushaqua, N. Y., \$2,000; the Hospital and House of Rest for Consumptives, Inwood, N. Y., \$1,000, and the Henry Street Settlement for tuberculosis nursing, New York City, \$500.

Presbyterian Hospital, New York City, \$7,500, Bridgeport Hospital, Bridgeport, Conn., \$10,000 by the will of John W. Sterling.

Institutions for the benefit of sufferers from tuberculosis, \$5,000 by the will of Severt J. Marwick, Story City, Iowa.

FOREIGN

Death of German Pediatricist.—The *Nederlandsch Tijdschrift* mentions the death of the Berlin pediatricist, Prof. Ad. Baginsky, aged 75. He founded the *Archiv für Kinderheilkunde* in 1879.

Medical Unit Reaches London.—The first all Jewish medical unit composed of forty-three physicians, nurses, sanitarians, administrators and officers has reached London on its way to Palestine where it is to establish a public health service.

Cholera Appears.—Cholera has appeared in Moscow where 224 known cases, seventy-eight suspected cases, and twenty-six cases of stomach disease have been recorded. —Up to the present 120 cases of cholera have occurred in the province of Petrograd. —July 18, six cases of Asiatic cholera were reported from Stockholm, Sweden, on board the Swedish steamer which arrived from Petrograd, July 11. —It is reported from Copenhagen that 500 deaths from cholera occur daily in Petrograd, and that there are thousands of cases of the disease in Saratov.

Repatriated Tuberculous Italian Soldiers.—In June the Italian Red Cross train proceeded directly into Austria to get the tuberculous prisoners of war who were to be repatriated. On reaching the borders of Switzerland the physicians and nurses in charge of the train were substituted by Swiss, only one railroad official and the steward remaining on the train for the entire trip. The difficulties both of a diplomatic and railroad traffic nature were great, but were finally surmounted. The repatriated tuberculous prisoners were thus taken direct from Feldkirch in Austria to the sanatorium at Nervi, on the Italian shore, without change of cars.

A Medical Annual Meeting in Wartime in a Neutral Country.—The notice of the eighty-ninth general meeting of the medical Centralverein of Switzerland states that "notwithstanding the difficulties of the present time and the constantly increasing difficulties, we physicians of Switzerland must not get out of touch with each other. Hence the members of the *Verein* are summoned to this meeting." . . . It is stated that beverages will not be served with the lunches, and members are specifically warned not to forget to bring their bread and fat ration cards with them. The main address will be by Nägeli on the endocrine aspects of chlorosis, but the one subject appointed for discussion, with three addresses to open it, is the extent and causes of and the means to combat the declining birth rate.

Organization of Physicians in French Legislature.—The thirty-four medical members of the upper and lower houses of parliament in France have recently organized and decided to hold monthly meetings and seek to keep in closer touch with the profession in general. It is planned to have the chairman and secretary of the organized medical members attend the meetings of the more important medical organizations, especially the medical syndicates, when the latter have anything special they wish to discuss with them. The *Nederlandsch Tijdschrift* remarks that if the seven medical members of the Netherlands parliament would forget the party lines now separating them, and attend certain board meetings of the National Medical Association, it might prove possible to avert much legislation detrimental to the profession. "But this," it adds, "is altogether too beautiful a dream."

SOUTH AND CENTRAL AMERICA,
MEXICO AND WEST INDIES

Dr. Darling Appointed Professor in Brazilian School.—Dr. Samuel T. Darling of the International Health Board has been appointed professor of hygiene and director of laboratories of the Faculdade de Medicina e Cirurgia of São Paulo, Rua Brigadeiro Tobias 45, São Paulo, Brazil.

Lebrede Member of Rockefeller Institute.—Dr. M. G. Lebrede, a leading hygienist, bacteriologist and laboratory worker of Cuba and member of the editorial staff of the *Revista de Medicina y Cirugia* of Havana, has been appointed a member of the Rockefeller Institute and is leaving on a scientific mission for Ecuador on behalf of the institute.

Subscriptions for War Aid for French Physicians.—A Havana exchange relates that all the medical organizations of Cuba have contributed to the French war fund, the Caisse

d'Assistance Médicale de la guerre et secours de guerre de la famille médicale, the sum of 1,205 pesos being thus raised and forwarded through the French minister to Cuba. The list of donors included the committee of former students of the University of Paris, the four medical and the one dental and one pharmaceutic organizations, and the six leading medical journals, the Medical Press Association and the committee in charge of the recent National Medical Congress.

Prophylaxis of Disease in Brazil.—An important step has been taken in Brazil by the founding of the Liga Pro-Saneamento do Brazil with the comprehensive program of promoting in every possible way the physical and moral health of the population of Brazil. The aim is to aid the public authorities in every way, indirectly and directly by commissions of experts when such are needed in combating malaria, Chagas' disease, leishmaniasis, syphilis, trachoma, leprosy, etc. Owners wishing to improve the sanitary condition of their ranches will be given expert advice. The league plans to establish branches throughout the country, with subcommittees to carry on the work. One of the first resolutions adopted was to demand the abolishing of taxes and duties on articles necessary in sanitation, and reduction in the price of such articles to render their adoption easier. A sanitary code for the republic is to be drawn up and presented for the approval of the legislature, hoping by this means to standardize the work and establish the responsibility of the state, the province and the community. The Conselho Supremo de Assistencia is to consist of forty members, medical and lay, with Prof. Miguel Couto as the president. The executive board consists of Dr. B. Penna E. de Andrade and R. de A. Magalhaes, besides three vice presidents, secretary and treasurer. The *Liga* has a local habitation in the Journal de Commercio building. Chagas, A. de Castro, Austregesilo and Carlos Seidl, chief of the National Public Health Service, are among the members of the advisory board and the president of the republic is the honorary president. The details of the new organization were given in the *Revista Medico-Cirurgica do Brazil* which mentions also that S. Paulo has had a Codigo Sanitario for some time, and that it has rendered inestimable services in that district.

LONDON LETTER

LONDON, July 2, 1918.

The Medical Grading of Recruits

In THE JOURNAL, June 1, p. 1618, the grading system of the older recruits aged between 43 and 50, now brought under medical review for the first time, was described. A good deal of concern has been manifested in Parliament and elsewhere as to whether these older men will be given training and duties of which they are capable. Replying to questions in the House of Commons, Sir Auckland Geddes, Minister of National Service, said that the definitions of the grades had been most carefully drawn up. The instructions giving all the conditions that should exclude and the conditions which allow a man to be included in any grade filled twenty-eight pages. The clause had been quoted which said that men who fulfilled the conditions named for Grade I were fit for general service in the army, but there was also the instruction that the physical training of the men was to be carried out under medical supervision. Every man required two indexes to place him in the proper place in the posting chart—his grade and his age. The combination of these settled his place in the "square" and the service he was to render. The actual posting was a matter for the War Office, but it worked closely with the civilian medical board. The only thing that a physician could do was to judge on the physical signs whether a man was reasonably fit for his age. Sir Auckland Geddes admitted that the results of some of the medical boards had given grave cause of anxiety. But a great number of examinations had been made within a short period. A quarter of an hour was allowed for every examination. It was not possible to examine every man in a quarter of an hour, nor was it necessary to examine every man for a quarter of an hour. Many cases could be dealt with in two or three minutes, because the man was either rejected or was obviously of the lowest grade that could become available for service. Men in Grade III of the new age period were not being called on, so that it was not necessary to submit them to an elaborate examination.

Maternity and Child Welfare

Mr. Hayes Fisher, president of the Local Government Board, moved the second reading of the maternity and child welfare bill, by which he proposes to extend the powers of

local authorities in England and Wales with regard to motherhood and the care and welfare of the infant population of the country. Similar powers are now exercised by local authorities in Scotland and have been used with considerable success. The objects are proposed to be carried out by a system of maternity and child welfare committees which the local authorities are required to set up. For the administration of the new powers it has been thought advisable that a council should include members to the proportion of about one third who had not been elected but were peculiarly fitted for the work. Among the powers which the local authorities will be able to exercise without stepping outside the law is the provision of crèches, day nurseries and convalescent homes. The Local Government Board also attaches great value to local authorities setting up complete schemes for maternity and child welfare centers.

The Health of Munition Workers

Every effort is made by the government to safeguard the health of munition workers. An elaborate "welfare" scheme, by which voluntary and other workers supervise the conditions of work and the facilities for obtaining food and recreation, has been in force almost since the beginning of the war. Committees have been appointed by the government from time to time to investigate the subject. The latest one had as chairman Sir George Newman, medical chief of the board of education, and included Sir Thomas Barlow, Sir Morley Fletcher, Prof. Leonard Hill, a labor member of Parliament and some large employers. The report states that the environment and conditions of employment of munition workers throughout the country are now vastly better than they were two and a half years ago, though there is still much room for improvement, and further care and attention are essential if a serious breakdown of industry is to be avoided. Among the conclusions of the committee are the following:

Women in Industry: Hitherto there has been no marked breakdown in the health of women workers, but the strain is probably greater than is yet apparent, having been counteracted or disguised by improved food, better factory environment, welfare supervision, and the dropping out of the physically weaker. Many women can keep working only by abandoning all recreation and social intercourse. Shorter hours, medical supervision, careful choice of workers, and other precautions are necessary. Owing to the strain of home claims, married women workers need special attention, especially during pregnancy and while caring for young children. They should be kept on "light" work as far as possible, and some relaxation at the beginning and the end of the day is recommended.

Hours of Labor: In January, 1916, the committee recommended that the average weekly hours of work for men and boys should be limited to 65 or 67, and those of women workers and boys under 16 to 60. Two years' experience shows that even these reduced hours are now too long, and can be substantially reduced without loss of output.

Shifts and Breaks: The three-shift system, especially for women, is recommended; the difficulties of organizing it are ordinarily surmountable. Work before breakfast is a mistake, and many women and young persons cannot profitably be employed for five hours on continuous work. Authorized rest pauses, systematically determined, are desirable, and all workers should be allowed periodic holidays, preferably of several days' duration.

Sunday and Night Work: Sunday labor has been conclusively proved to be unpopular, uneconomical, and not productive of increased output. Night work is uneconomical and unnatural, and among women and girls it should be stopped as soon as it ceases to be essential. Among boys under 16 it should be altogether stopped.

Sickness, etc.: To prevent sickness, the preliminary medical examination provided for in certain works should be extended to all workers, especially when dangerous substances are handled. Periodic reexamination is also necessary. In the case of young persons their school medical records should be consulted. Adequate medical and nursing schemes are necessary. Poisoning in trinitrotoluene works depends to some extent on personal idiosyncrasy. The great majority of workers are insusceptible; those affected are not always the delicate and ill nourished. Protective clothing (essential where dirt, dust, damp, heat or dangerous machinery is involved) is desirable for all workers, and especially for women and girls. Comfortable seats should be provided during meal hours.

PARIS LETTER

PARIS, June 27, 1918.

Regeneration of Bone After Resection

Dr. Leriche of Lyon presented a communication to the Société de chirurgie de Paris recently in which he described an operation for resection of the hip which makes it possible to obtain a regeneration of the femoral neck. A very interesting discussion was held. Dr. Tuffier attributed the good results obtained by Leriche to the fact that he, like all the surgeons of the École de Lyon, used instruments which not only loosened the periosteum but which entered the bone, whereas most surgeons try only to loosen the periosteum. Any resection which is to be followed by bone regeneration must be not only subperiosteal but intraosseous. This procedure is supported by Dr. Quénu, who stated that, theoretically, Ollier had attributed all the regenerative power to the periosteum, when, as a matter of fact, he always left attached to the periosteum a layer of bone cells—*couche osseuse*—and not merely medullary tissue to be detected only with the microscope. Recent research, especially by Dr. Heitz-Boyer, tends to show that bone regeneration will take place only from bone, and that the periosteum, of itself alone, without any bone cells attached to it, is wholly negative from the osteogenetic standpoint. Dr. Maucclair stated that for several years research made in America has shown that in order to have bone regeneration take place, it is necessary that the periosteum have bone cells adherent to it.

Eventual Evacuation of Paris and Its Hospitals

At this time the eventual evacuation of Paris is being agitated by the press and it appears to occupy a large share of public attention. M. G. Mesureur, director of l'administration générale de l'Assistance publique, has informed the directors of the hospitals of Paris that there is no need for them to give that matter a single thought. Any measures of that kind, in case of necessity, should be directed only to the children and the aged in institutions. M. Mesureur is of the opinion, and justly so, that all hospitals should continue their usual activities in caring for the wounded from the front sent to them by the Service de Santé militaire, as well as for the sick and wounded civilians whose admission cannot be deferred or postponed. It is unfortunate, however, that in his communication to the hospital directors, M. Mesureur said: "First of all, you should by your example show the personnel (physicians, nurses and subordinates that their first duty is to remain at their posts, no matter what the circumstances may be." Dr. G. Variot of the hospice des Enfants-Assistés stated that the doctors in the hospitals did not need to be set an example by the administrative agents of the Assistance publique in order to do their duty. He said: "It is most inopportune to doubt the morale of the medical staff of the hospitals, who do not stand in need of any exhortation when it is a question of dignity, courage and devotion."

Interrupted General Anesthesia

At a recent meeting of the Société de chirurgie de Paris, Dr. Henri Chaput demonstrated a method of anesthesia consisting in the alternate administration and suppression of the anesthetic in the course of the operation. At the beginning of the procedure, the anesthetic (chloroform, ether, ethyl chlorid) is given in a quantity just sufficient to suppress sensibility and all reaction on the part of the patient. The anesthetic is then discontinued and the operation is proceeded with until the patient begins to react in such manner as to interfere with the progress of the work; then the anesthesia is resumed and continued until the patient is again in condition for the surgeon to proceed with the operation, and so on.

The advantages of this method are said to be: The corneal reflex is preserved; the face keeps the normal tint; the pupils are not modified to any extent; the pulse is strong and of good quality; the patient never vomits during the operation; cardiac or respiratory syncope never occur. As soon as the anesthesia is terminated, the patient regains consciousness almost immediately; the face is of good color and the features are calm. There is never any postoperative vomiting, sickness or shock; no icterus; and if it is a case of operation above the umbilicus the patient can get up the same day and go home. Chaput has used this method of anesthesia in more than 100 cases without any untoward accident.

Deaths

Lawrence William Littig, Iowa City, Iowa; State University of Iowa, Iowa City, 1883; University of Pennsylvania, Philadelphia, 1884; M.R.C.S. (Eng.), 1887; aged 59; a Fellow of the American Medical Association, and chairman of the Hospital Section in 1916; president of the Iowa State Medical Society, 1911-1912; president of the Western Surgical Association in 1916; secretary of the Iowa and Illinois District Medical Society; a member of the American Association of Railway Surgeons, Mississippi Valley Medical Association, Medical Society of the Missouri Valley, and many other special societies; professor of anatomy in the State University of Iowa, Iowa City, from 1889 to 1891; professor of theory and practice of medicine from 1891 to 1902, and assistant to the chair of surgery from 1899 to 1902; director of the University Hospital from 1900 to 1902; at one time physician of Scott County; attending surgeon to Mercy and St. Luke's hospitals, Davenport; a surgeon of international repute; died in a hospital in Iowa City, July 16, from septicemia following the bite of an insect.

Luther Dana Waterman, Indianapolis; Medical College of Ohio, Cincinnati, 1853; aged 87; surgeon of the 39th Indiana Volunteer Infantry, and later division medical director in the Army of the Cumberland; one of the founders and for several years professor of anatomy in the Indiana Medical College; secretary of the Indiana State Medical Association, and its president in 1878; a charter member of the Indianapolis Literary Club; who recently gave more than \$100,000 for the foundation of the Waterman Institute for Scientific Research at the University of Indiana; died at his home, June 30.

Samuel Logan, New Orleans; Tulane University, New Orleans, 1900; aged 42; a Fellow of the American Medical Association; visiting surgeon to Charity Hospital, New Orleans, senior chief of clinics to surgical department and assistant demonstrator of anatomy in his alma mater; who made several trips to Africa as a medical officer on British transports during the Boer War; died at his home, July 1.

Edward Henry Sholl, Birmingham, Ala.; Pennsylvania Medical College, Philadelphia, 1856; aged 86; a surgeon in the Confederate service throughout the Civil War; a charter member of the Jefferson County Medical Association; at one time professor of medical history in Birmingham Medical College; died at the home of his son in New Orleans, July 13.

Ida Grant Rhoades, Cedar Falls, Ia.; Drake University, Des Moines, Ia., 1896; aged 38; a Fellow of the American Medical Association; for three years secretary of the Society of Iowa Medical Women, and since 1916, secretary of the Blackhawk County Medical Society; died at her home, June 20, from uremia.

William Alexander Packard, Fort Morgan, Colo.; College of Physicians and Surgeons, Keokuk, Ia., 1881; aged 66; at one time a Fellow of the American Medical Association; for several years physician to the Soldiers' and Sailors' Home, Monte Vista, Colo.; died at his home, July 10, from heart disease.

George G. Murray, Bellows Falls, Vt.; University of the South, Sewanee, Tenn., 1901; aged 43; at one time a Fellow of the American Medical Association; a member of the Vermont State Medical Society; a specialist on diseases of the eye, ear, nose and throat; died at his home, July 5, from pneumonia.

William Hunt Hall, New York City; New York University, New York City, 1858; aged 85; at one time a member of the Medical Society of the State of New York; a surgeon in the Confederate service and in charge of a base hospital, at Petersburg, Va., during the Civil War; died at his home, July 8.

John Shiver Wentz, Philadelphia; University of Pennsylvania, Philadelphia, 1864; aged 81; a surgeon of U. S. Volunteers during the Civil War; for many years a leading coal operator; a trustee of the Presbyterian Hospital, Philadelphia; died at his home, July 1.

Gottfried Merkel, New York City; Long Island College Hospital, Brooklyn, 1907; aged 51; attending surgeon to the German Hospital; while on his way in his motor car to make a professional call, July 16, was struck by a fire patrol car, and instantly killed.

Henry Knappenberger, Macomb, Ill.; Rush Medical College, 1881; aged 67; a Fellow of the American Medical

Association and past president of the McDonough County Medical Society; died at his home, July 1, from disease of the gall bladder.

T. N. Sellers, Island Ford, Va.; University of Virginia, Charlottesville, 1854; aged 88; for many years justice of the peace; from 1873 to 1875 a member of the Virginia House of Delegates; died at his home, July 7, from senile debility.

August Helmbold, Newport, Ky.; Eclectic Medical Institute, Cincinnati, 1887; aged 55; a Fellow of the American Medical Association; first mayor of Newport under the commission plan; died at his home, July 9, from nephritis.

Axel Alexander Pesonen, Duluth, Minn.; University of Michigan, Ann Arbor, 1911; aged 38; a member of the Minnesota State Medical Society; died in St. Mary's Hospital, Duluth, July 17, from gangrenous appendicitis.

Clarence A. Warwick, Chicago; Hospital College of Medicine, Louisville, Ky., 1898; aged 45; a veteran of the War with Spain; who later had Philippine service; died at his home, July 22, from heat prostration.

Richard O'Leary, Vicksburg, Miss.; New York University, New York City, 1861; aged 80; surgeon in the Confederate Service during the Civil War; twice mayor of Vicksburg; died at his home, July 2.

Lemon Dwight Washburn, Farmingdale, N. Y.; Albany, N. Y., Medical College, 1906; aged 38; at one time a member of the Medical Society of the State of New York; died at his home, recently.

Paul E. Buchanan, Gary, Ind.; Meharry Medical College, Nashville, Tenn., 1911; aged 33; was found dead beneath his overturned automobile, near Hammond, Ind., July 11.

John C. Hamilton, Seattle, Wash.; Cincinnati College of Medicine and Surgery, 1875; aged 65; for twenty-five years a practitioner of Ithaca, O.; died at his home, July 14.

Philip J. Brady, Hastings, Minn.; Jefferson Medical College, 1909; aged 36; a Fellow of the American Medical Association; died at his home, July 20, from nephritis.

John M. Carter, Jackson Center, Ohio; Cincinnati College of Medicine and Surgery, 1868; aged 79; died in a hotel in Hot Springs, Ark., July 7, from cerebral hemorrhage.

Thorsten N. Kjerland, Webster, S. D.; Hamlin University, Minneapolis, Minn., 1898; aged 57; a Fellow of the American Medical Association; died at his home, June 1.

Herman Olaus Fjelde, Rolla, N. D.; University of Minnesota, Minneapolis, 1895; aged 52; died at his home, July 14, from cerebral hemorrhage.

A. B. McNaughton, Augusta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1887; aged 58; died at his home, June 15.

Henry Neville, Jamestown, N. Y.; Homeopathic Hospital College, Cleveland, 1872; aged 78; died at his home, July 16.

Eli B. Conaway, Centerville, W. Va.; Miami Medical College, Cincinnati, 1874; aged 70; died at his home, July 15.

Henry F. Baker, Yellow Springs, O.; Pulte Medical College, Cincinnati, 1875; aged 72; died at his home, July 19.

William Karniol, New York City; University and Bellevue Medical College, 1902; aged 40; died at his home, July 1.

Marriages

LIEUT. JOHN HARRISON ALEXANDER, M. R. C., U. S. Army, Pittsburgh, on duty at Camp Grant, Rockford, Ill., to Miss Marie Christine Myers of Rockford, Ill., July 10.

CAPT. CHARLES SHEWELL ABBOTT, M. R. C., U. S. Army, Philadelphia, on duty at Fort Riley, Kan., to Mrs. Rhoda M. Stevens, at Salt Lake City, Utah, July 6.

LIEUT. H. F. ALVES, M. R. C., U. S. Army, on duty at Camp Travis, Texas, to Miss Ruby Tracy of Houston, Texas, July 3.

LIEUT. DANIEL MILLIKEN SKINNER, M. R. C., U. S. Army, Hamilton, Ohio, to Miss Bess Eigher of Cincinnati, July 4.

GROVER CLEVELAND BEARD, Kerr, N. C., to Miss Sallie Rebekah Herring of Wallace, N. C., July 2.

THOMAS HUDSON HARTER to Miss Margaretta Laurine Wahl, both of East Brady, Pa., June 19.

GEORGE KINNEY DUNKLEE to Miss Ruth McCaffrey, both of Denver, at Littleton, Colo., February 7.

PAUL JONES to Miss Cordie L. Hall, both of Blue Ball, Ark., June 27.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ANOTHER MAIL-ORDER FRAUD

The Dr. J. Russell Price Company is Debarred from the Mails

On June 25, 1918, the federal authorities denied the use of the mails to a fraudulent concern known as the "Dr. J. Russell Price Company" of Chicago. This concern was controlled by one Charles E. Cessna, of whom the Chicago *Tribune* said he "at different times in his business career has been a loan shark, patent medicine vendor and land promoter."

The earlier name of the Price concern—"Dr. Joseph Lister & Company"—was abandoned in 1914 when the federal authorities commenced action against it and the business was continued under the name of J. Russell Price. Price, who seems to have been a mere figurehead, claims graduation by the National Medical University, a school that has been defunct for some time and even before it went out of existence was not recognized by the majority of the states in the Union. Price, it seems, is or was one of the vice presidents and directors of the "Liberal Medical Union," an organization of which another vice president and director was Quack Carr of "Peruna" advertising fame.

Cessna was called on to show cause by Dec. 19, 1917, why a fraud order should not be issued against the "Dr. J. Russell Price Company" and "V. Leverne," the latter a "confidential address" under which mail was received by the company. At the request of James T. Lloyd, attorney for Cessna, a postponement was granted to Jan. 16, 1918. At that time Cessna appeared at the Solicitor's Office, Washington, D. C., with Mr. Lloyd and a Mr. Frank McMillin, another attorney. Inspector D. F. Angier of the Chicago Division, who for some years has done valuable work in investigating medical mail-order frauds and who made the investigation of the J. Russell Price concern, was also present and testified as a witness for the government. The hearing took five days. The charges in brief were to the effect that under the names of Dr. J. Russell Price Company and V. Leverne "one Dr. James Russell Price, one Dr. Charles E. Cessna and one Everett G. Cisle were engaged in conducting a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises." Judge Lamar, the Solicitor for the Post Office Department in his memorandum to the Postmaster-General, describes fully the facts in the case. To quote in part:

CONTROLLED BY CESSNA

"Dr. Charles E. Cessna who controls this company was the chief promoter of the business of Dr. Joseph Lister & Company of Chicago, Illinois, who were cited to show cause why a fraud order should not be issued against them on Sept. 15, 1914. That case was closed on the affidavit of Dr. Cessna, acting for the Lister Company, to the effect that the business had been entirely discontinued and abandoned and will not be resumed at any future date, and that the postmaster at Chicago, Illinois, had been directed to treat as refused all mail addressed to said Dr. Joseph Lister & Company, its officers and agents as such, and to Z. Wiren. Z. Wiren was the name used by the Lister Company as a confidential address.

"While it is denied by Dr. Cessna that the J. Russell Price Company has continued the business of the Lister Company I nevertheless find from the evidence that this is in substance the case. At the time negotiations were taking place between this office and representatives of the Lister Company for the closing of the case without the issuance of a fraud order on the filing of an affidavit, Dr. Cessna bought control of the J. Russell Price Company, which was a small mail-order medical concern operating from Chicago, and reorganized it into a similitude of the Lister Company, and began sending out circular matter in which it was stated

that the Lister Company was going out of business and that the Dr. J. Russell Price Company was its successor and urging those who had theretofore dealt with the Lister Company to continue their dealings with the Price Company.

"The advertisements and advertising matter of the Lister Company, modified to a slight degree, became those of the Price Company, and the *modus operandi* of the former company with nearly all of its fraudulent features was continued in the Price Company business. Essentially the two schemes differ not at all. Modifications of advertising matter were made in an effort to avoid some of the minor frauds involved in the old case. . . ."

"The one change throughout the matter used by the Price Company, on which Dr. Cessna laid great stress, is the sub-

KNOWINGLY FRAUDULENT

"That Dr. Cessna well knew the fraudulent character of this enterprise is clear from his testimony at the hearing. He admitted on cross-examination in substance that his endeavor after the Lister case had been before the Department was to eliminate what he thought the Department would object to without reference to the truth or falsity of the representations made. The whole object of the man as clearly revealed at the hearing was to go as far as he could in continuing the fraudulent business of the Lister Company and eliminate only such minor features as he felt might give rise to complaint and bring him again before the Post Office Department.

"The fact that Dr. Cessna is a physician makes his offense all the more flagrant. From his medical education he must know that this method of treating disease is entirely impracticable and that the representations he makes in pursuance of the scheme are without any scientific foundation."

In defense, Cessna showed that in some instances specimens of urine and of blood were called for and were sent to a laboratory for examination. The value of the urinalysis which Cessna caused to be made was shown by a test case conducted by Inspector Angier in which, in response to a call for a sample of urine, he sent to the J. Russell Price

Company a mixture of water, albumin, pepsin, sodium chlorid and hydrochloric acid slightly colored. The specific gravity of this mixture was 1.020. The "analysis" showed the specific gravity as 1.030, and declared further that there was 1.6 per cent. of urea, no albumin, chlorids or phosphates! The memorandum says further:

"The name V. Laverne is used as a so-called confidential address.

"At the time of the issuance of the citation the postmaster's report showed the receipt by the company of 400 letters on an average daily.

"Through his attorney, Mr. Lloyd, Dr. Cessna has just submitted an affidavit to the effect that he has discontinued all

TELLS ABOUT

50,000 BOOKS

FREE BY MAIL

WORTH \$10 TO ANY MAN

FOR MEN

THE HOME CURE OF MEN'S AILMENTS

DR. JOS. LISTER & CO., 917 North Western Bldg., Chicago, Ill., U. S. A.

TELLS ABOUT

50,000 BOOKS

FREE BY MAIL

FOR MEN

THE HOME Treatment for MEN'S AILMENTS

DR. J. RUSSELL PRICE CO., 1111 N. Fifth St., Chicago, Ill.

(V. Laverne is our private address for Confidential Communications.)

The "Dr. Jos. Lister & Co." humbug went out of business—under that name—when Cessna, the promoter, was cited by the government to show cause why a fraud order should not be issued against it. This was in 1914. But the business itself went merrily on under the new name "Dr. J. Russell Price Co." Compare the advertisements reproduced above. The one important (?) change consisted in eliminating from the advertising the word "cure" and substituting the expres-

sion "restored to health." A less substantive change in terminology could hardly be imagined. These changes constitute practically all that were made with the exception of a few other immaterial modifications of language. Dr. Cessna was responsible for the representations in both cases.

A "HIT AND MISS" CONCERN

"The business of the Price Company, like that of the Lister Company, is what has become known as a 'hit or miss' mail-order medical scheme. Advertisements are inserted in newspapers of general circulation through the mails, and particularly in foreign and other newspapers which have a circulation among ignorant and credulous people, in which it is sought to lead the reader to believe that a great number of symptoms of disease set forth therein are amenable to the treatment prescribed by the company, and they are urged to send for a free trial treatment and a booklet further detailing the wonderful results which it is claimed will flow from the use of the alleged remedies prescribed.

"A symptom blank accompanies the booklet and the trial treatment. This symptom blank, which is a printed question blank the same in every case, contains a great number of queries under different headings, such as, 'inherited or constitutional diseases,' 'stomach disorders,' 'kidney or bladder disorders,' 'prostatic irritation and inflammation,' etc. There are a great number of questions on this blank but few under each division, and while they are of a character that might be helpful to a physician in making a diagnosis the evidence shows clearly that they are not such as when taken alone would enable a physician to determine which of a great number of diseases the patient was afflicted with. Nevertheless on the basis of the answers to these questions Dr. Cessna undertakes to 'restore to health' those induced to correspond with him."

It was shown at the hearing that the expressions used by the J. Russell Price concern in its advertising described either symptoms of disease or groups of diseases; that the symptoms are such as arise in a great many different conditions which it is impossible to differentiate by means of a symptom blank such as the concern used; that in order to determine what treatment would be applicable to any particular case, it was necessary to take into consideration many other things such as the condition of the blood, of the urine, respiration, temperature, etc., and that any alleged diagnosis made on the basis of answers to questions that were uniform in all cases would reveal practically nothing and that the prescribing of treatment on such information would, in the vast majority of cases, fail to relieve the patient. Judge Lamar's memorandum continues:

PILYO LIGOS

Dr. J. Russell Price Co., 1111 N. Fifth St., Chicago, Ill.

BRANCI 96 PUSLAPU NYVGA SUNCIANA BIKAI.

OTKAI BUDABAROS NYVGAOS KUPONAS

Болезни Желудка

Dr. J. Russell Price Co., 1111 N. Fifth St., Chicago, Ill.

ЦЕЛЫЕ КНИЖКИ, СОДЕРЖАЩИЕ 96 СТРАНИЦ, ВЫСЛАЕВАЕТСЯ ДАРОМ.

Typical advertisements of the Dr. J. Russell Price Co. as used in the foreign-language papers—a class of publications now largely patronized by quacks who are unable to get their advertisements into the English-language papers.

advertising or circularizing for new business and that it is not his intention to advertise or circularize for new business in the future, and further that he is closing the business up and will within the next few months have it finally wound up and disposed of. As he is still obtaining remittances on the strength of the advertisements heretofore used, and as in view of his actions in the past no faith can be accorded to Dr. Cessna's promises as to his future conduct, I do not believe that the filing of this affidavit warrants the withholding of my recommendation for the issuance of a fraud order in this case."

As a result of this recommendation, the Postmaster-General closed the mails to the Price concern.

Correspondence

“OASES IN THE NATIONAL DESERT”

To the Editor:—Your editorial comment in THE JOURNAL, July 20, “Oases in the National Desert” seems especially pat here, as our town has just buried a man who bought six bottles of a beef, iron and wine preparation (19 per cent. alcohol), went up the river with a comrade in a boat and did not return until the river had been dragged for some eight or ten hours. If our government desires to make effective prohibition of alcoholic liquors for conservation of food or other reasons, it would seem that it must take into consideration the “patent medicine” evil.

H. H. LOVELAND, M.D., Republic, Mich.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE ARMY SCHOOL OF NURSING

To the Editor:—Please give me the following information concerning the Army School of Nursing: 1. What are the essentials of eligibility, such as educational prerequisites, etc.? 2. To whom is application for admission made? 3. What is the extent of the course and the amount of training given? 4. Will those completing the course qualify as graduate nurses? 5. Will those taking training have to bear their own expenses? 6. What salary is paid after completion of the course?

C. MAX ANDERSON, M.D., Manteno, Ill.

ANSWER.—1. A candidate must be between 21 and 35 years of age, single or a widow, in good physical condition and of good moral character. She must be a graduate of a recognized high school or present evidence of an educational equivalent.

2. Candidates should make application to the Surgeon-General of the Army in person or in writing or through the Division Directors of the Bureau of Nursing of the American Red Cross, who may be addressed as follows:

- New England Division, 755 Boylston St., Boston.
- Atlantic Division, 44 East 23d St., New York
- Pennsylvania Division, 1601 Walnut St., Philadelphia
- Potomac Division, 930 Sixteenth St., N. W., Washington, D. C.
- Southern Division, 424 Healy Bldg., Atlanta, Ga.
- Lake Division, 929 Garfield Bldg., Cleveland
- Gulf Division, Post Office Bldg., New Orleans
- Northern Division, 202 Essex Bldg., Minneapolis
- Central Division, 180 N. Wabash Ave., Chicago
- Southwestern Division, 1617 Ry. Exchange, St. Louis
- Mountain Division, 14th and Welton Sts., Denver
- Northwestern Division, White Bldg., Seattle
- Pacific Division, 942 Market St., San Francisco

The candidate should make application to the division director nearest her place of residence.

3. The Army School of Nursing, located in the Surgeon-General's Office, Washington, D. C., offers to women desiring to care for sick and wounded soldiers a course leading to a diploma in nursing if the military hospitals—in which the training will be given—continue in operation for the full period of the course. Should the cessation of hostilities occur before the completion of this period, credit for all branches of nursing completed will be given in a certificate by the Army School of Nursing that will entitle the holder to recognition by such civil training school as she may subsequently enter as a student.

The course extends over a period of three years. A credit of nine months, or approximately an academic year, will be given to graduates of accredited colleges, and credit of three or more months to students who have had two or more years of work in college or in approved technical schools that have included prescribed courses in the sciences. The course will be divided into a preliminary term of four months, which is also a probationary period, a junior year of eight months, an intermediate year of twelve months and a senior year of twelve months. A vacation of one month for each year in the school will be granted. Lectures, recitations and laboratory work will be given in the required subjects, and hours of duty on the ward will be arranged in accordance with the required class work. The military hospitals will provide

experience in surgical nursing, including orthopedic, eye, ear, nose and throat work, and medical nursing, including communicable, nervous and mental diseases. Experience in the diseases of children, gynecology, obstetrics, and public health nursing will be provided through affiliations in the second or third year of the course.

Special consideration will be given to those who have taken the course in elementary hygiene and home care of the sick under the auspices of the American Red Cross, and such candidate should request application blanks from the division directors of the Bureau of Nursing or the instructors of the course in elementary hygiene and home care of the sick.

Candidates will be admitted in accordance with the needs of the service, the first class beginning about July 1, 1918.

The subjects included in the preliminary course will be: anatomy and physiology, applied chemistry, bacteriology, personal hygiene, hospital housekeeping, nutrition and cookery, drugs and solutions, elementary nursing principles and methods, bandaging, and the historical, ethical and social bases of nursing. The subjects following the preliminary course will include: materia medica and therapeutics, diet in disease, massage, surgery, orthopedics, diseases of the eye, ear, nose and throat, operating room technic, general medicine, communicable diseases, occupational, venereal and skin diseases, nervous and mental diseases, diseases of infants and children, gynecology and obstetrics. Public health nursing, social service and other subjects relating to the problems of the several fields of nursing and modern social conditions will be considered in the third year.

4. Yes.

5. No tuition fee is demanded. Students will be provided with board, lodging, laundry and textbooks during the course; but they will be required to provide themselves with indoor uniforms for the preliminary course, and on its completion, with an outdoor uniform and such additional indoor uniforms as are necessary during their residence in the school. Fifteen dollars a month is allowed to meet these and other school expenses, except for the period of affiliation.

6. On completion of the course the students will become members of the regular Army Nurse Corps in the order of the vacancies; in case there are no vacancies, they will be placed on the list for appointment as vacancies occur. These nurses receive \$50 a month in the United States and \$60 a month abroad.

DOSAGE OF VARIOUS SALTS OF QUININ

To the Editor:—In using quinin for malaria, is there much or any difference in the quantity of quinin alkaloid carried in the different salts? For instance, what size dose of the hydrochlorate or bisulphate would equal (in actual quinin) a 10 grain dose of the sulphate?

W. D. WHELESS, M.D., Rayville, La.

ANSWER.—We give below a brief table comparing the dosage of the various salts of quinin about which our correspondent makes inquiry. It will be noticed that the difference in dosage when based on that of the U. S. Pharmacopeia quinin is not very great. In fact, we find on comparing all the ordinary salts of quinin of the U. S. Pharmacopeia and New and Nonofficial Remedies, that the greatest difference is between quinin and quinin bisulphate. It may be of interest to note that there are two hydrochlorids of quinin now official. The dihydrochlorid is much more soluble but contains almost exactly the same percentage of quinin as the ordinary hydrochlorid.

	Quinin, Per Cent.	If Dose of U. S. P. Quinin is 10 Grains
Quinin, U. S. P. (contains 3H ₂ O)	85.71	10.00
Quinin hydrochlorid, U. S. P.	81.72	10.49
Quinin dihydrochlorid, U. S. P.	81.63	10.5
Quinin bisulphate, U. S. P.	59.12	14.5
Quinin sulphate, U. S. P.	74.33	11.54

This gives direct comparison of dosage on the basis of a 10 grain dose of official quinin. The comparison on the basis of a 10 grain dose of the sulphate is obviously almost the same.

INFORMATION DESIRED CONCERNING A VOCATIONAL SCHOOL FOR THE PARALYZED

To the Editor:—Please inform me if you know of any institution or school to which a young man with a paralysis following a poliomyelitis may be sent to learn some trade or vocation.

H. A. A.

ANSWER.—If any of our readers who know of such an institution will notify THE JOURNAL, we will forward its name to our correspondent.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.
HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.
IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

Book Notices

DIETOTHERAPY. Chemistry and Physiology of Digestion, Classification and Analysis of Foods. By William Edward Fitch, M.D., Major, Medical Reserve Corps, U. S. Army, Attending Physician to the Vanderbilt Clinic, College of Physicians and Surgeons, New York City, and forty contributors. Published with the permission of the Surgeon-General of the Army. Three volumes. Cloth. Price, \$21 net. New York: D. Appleton & Co., 1918.

These volumes: the first, on the "chemistry and physiology of digestion, classification and analysis of food"; the second, on "nutrition and diet in health," and the third labeled "nutrition and diet in disease," bear the imprint "published with the permission of the Surgeon-General of the Army." It would be unfortunate if any one were thereby led to believe that they were presented to the medical profession at the request of any department of the government; for it is assuredly surprising to find that they fall far short of representing the best that may be expected of writers in America, which has contributed so splendidly to the science of nutrition in recent years. It is an occasion for regret to find so much that is mediocre in a work that promises so much. We suspect that if reviewers were to confine their attention to some of the chapters of Volume I, on the chemistry and physiology of digestion and the properties of foods, the reaction on the publishers might be decidedly unfavorable. The contrast between the voluminous discussions in some of the earlier chapters and such a modest yet excellent book as Professor Sherman's "Chemistry of Food and Nutrition" or even the semipopular volume "Feeding the Family," by Mrs. Rose, leaves a feeling of regret at the failure to attain a higher standard in the larger effort.

In a measure these volumes represent reviews and excerpts from other writers on diet. In this way much that is "ancient" is handed down in the familiar unprogressive manner of commonplace textbook writing. Thus the authority of Liebig is presented for an attempt at a classification of foods. We read the inexact statement that "protein foods are noncrystallizable" (I, 56), and that "all starch molecules contain a certain proportion of nitrogenous material," etc. (I, 57)—specimens of inexcusable or slipshod comments that might be quoted in considerable numbers. Students of the present century will be astonished to find standard quantitative data expressed in *grains*, as for example: "The amount of nitrogen required . . . averages 300 grains" (I, 231), or "a daily requirement of about 360 grains of the inorganic salts" (I, 258), or again of "3,000 grains of sodium chlorid" (I, 256). In a chapter (I, Chapter V) on the processes of digestion in the alimentary tract, the digestive changes in the intestine seem to have been forgotten amid the rest of the somewhat confused discussion. Despite details about body components and food make-up, the classic researches of Jones and of Levene on the nucleic acids and their derivatives are entirely overlooked, though terpenes and aldehyds are discussed among the foodstuffs. E. E. Smith is quoted as authority for the statement that "the simple amino acid formed in the intestinal tract from protein breakdown are absorbed as such," etc. (II, 169), without mention of the pioneer discoveries in this important field. In the discussion of starvation (cf. II, chapter V), the classic investigations of the Boston Nutrition Laboratory of the Carnegie Institution find no reference amid the quotations from less carefully controlled records. A chapter discussing acidosis in detail scarcely mentions the noteworthy scientific work

of distinguished American investigators in this field. No reference whatever is made to their names in the bibliography. One could fill a page with errors of statement, as, for example, the classification of "uric, hippuric and other radicles produced by catabolism or by fermentation" among inorganic substances (I, 55); the statement that "water absorbed in the intestine is rapidly passed into the lymphatics" (I, 249); that "water taken in moderate quantities acts as a diluent of the blood" (I, 251), or that "meat is one of the most important foods since *it is from animal flesh that the muscular part of the body derives its sustenance*" (I, 277). We are left to wonder how vegetarians ever survive the lack of animal flesh in the diet!

There are, furthermore, not a few extravagant statements to be found. Thus we are told dogmatically that "vitamines are the mother substances of ferment and hormones" (I, 378); that bananas develop an odor of amyl nitrite and "occasionally produce mild symptoms of vascular dilation"; that asparagus contains an "active principle," asparagin, which is an "arterial and nerve sedative," whatever that may imply to the uninitiated. For some undiscoverable reason the word "hydrocarbons" is used to designate fats in distinction from carbohydrates (I, 64, 92; II, 100). Obscure statements are also not lacking; thus, we are told "that a small amount of protein *in excess of the daily requirement for needed calories* may be stored" (II, 102), leaving the critical reader to his own devices of interpretation. The carelessness of chemical statements is further exemplified by the pronouncement that "the proteins differ from other foodstuffs in containing nitrogen, sulphur and phosphates" (sic) (I, 233). The statement that in "torpor of the liver"—this sounds like a "patent medicine" advertisement of a generation ago—"as the name denotes, the organ is tardy in performing its normal functions and has a tendency to become choked with bile, glycogen and urea" (III, 180) is almost humorous A. D. 1918. So is the platitude that "the mouth is an oval box situated at the beginning of the alimentary tract" (I, 108). Why rehearse such stuff to modern physicians? Why reiterate the properties of pure water? There is a pathetic humor in the comment on the functions of the bile: "Another property of this excrementitious biliary fluid is a medium for the separation of the excess of carbon and hydrogen from the blood, particularly during 'intra-uterine life'" (I, 119, 120). It reads like the monographs of a century ago, and the editor tells us soberly that "as bearers of electricity the mineral elements dominate the whole course of metabolism" (II, 358).

The preface recommends the bibliographies following each chapter "for the convenience of those who may wish to go deeper into the subject." This sounds admirable; but how can the enthusiast for learning at firsthand be expected to find references such as the following selected from dozens of equally useless titles: Maxwell, Bio-Chem. J., Liverp.; Kraus, Ztsch. f. diätet. u. physik. Therap.; Woodruff, J. Am. Cavalry Assn.; Auer, J. Am. Med. Assn.; Lane and Catherwood (no other data are given); etc. Authors' and typographic errors abound everywhere. A textbook of physiology is attributed to Isaac A. Abt (I, 251). A paper published in 1911 is credited to Liebig (I, 104). Urticaria is alleged to be due to histarium (histamin?), (III, 613). Among phospholipins such novelties of misspelling as cuerin, sphingomylin and jecavin are found (I, 100). Woodyatt, Kunkel, McCollum and Prausnitz are cited as Woodgat, Kimbel, McCallum, and Pransintz. Some of the lists of references as given look almost like printers' pi to one familiar at first hand with medical literature. The multiplicity of such errors is inexcusable.

Enough has been indicated to show the lack of up-to-date treatment in many of the chapters. Some of them are essentially cyclopedic in character, useful for reference rather than for continuous reading. Little effect seems to have been made to prepare analytic summaries of recent date. The table of the composition of meat products, for instance, dates back to 1891 (I, 288), although numerous recent statistics of this sort are easily available. There is an unpardonable amount of repetition. One diagram of Benedict's respiration apparatus is printed in three different places. Statements about the food requirements of man are reiterated over and over. Many of

the tabulated data on the composition of foods are also duplicated unnecessarily (e. g., I, 273; III, 501, both somewhat out of date). Various contributors have seemingly written with little concern for the other collaborators; and the editor has often rehearsed their findings anew. Hypothetic vitamins are drawn on for much help—to assist digestion (III, 290), cure tuberculosis (I, 279), etc., without due critical consideration. Formidable words are conspicuous; witness trophology, trophodynamics, bradyphagia, etc.

In the third volume, dealing more largely with dietotherapy proper, a greater latitude of opinion is to be expected where tradition and clinical experience have so long acted as guides to feeding. Nevertheless we hesitate to accept as wise the recommendation of five meals followed by two bottles of lager beer (III, 143) as an exemplary dietary in cases of constipation; nor can we agree to the continuance of the old fashioned prescription of fashionable bottled waters, sold at high prices, as essential to good dietotherapy. Why continue the fetish of "brandy diluted with Apollinaris or Vichy" (III, 160) or of "milk diluted with White Rock or Apollinaris" for liver chills (sic) (III, 173)?

The impression must not be conceived that there are no commendable chapters in these volumes. Forty contributors ought to produce something worth while. The parts on bacteria, by Kendall; on foods, by Jaffa; on cookery, by Grindley; the pages on infant feeding; the collected list of hospital diets now in use; the rationing of the Army, as well as the final summary for ready reference, are among the better sections. The indispensable Atwater-Bryant tables of the composition of foods are reprinted.

The justification for an attempt to do better what von Leyden's Handbuch accomplished so well for its generation has been expressed well by Grindley, (II, 51).

While the physician need not be a cook, he should understand the general methods of preparing foods, and he should know the ingredients of common dishes just as thoroughly as he knows the meaning of galenic terms and the ingredients of tinctures, compound powders, pills, etc. If he is ignorant of the composition and proper preparation of foods, he cannot intelligently supervise the diet of his patients. He should study dietetics exactly as he studies the Pharmacopoeia or a work dealing with pharmacognosy or materia medica, not that he need master the art either of cookery or pharmacy, but that he may have an intelligent, general comprehension of both subjects.

To assist in this commendable program we need not more, but better books; not massive systems of conglomerate contributions, but compact monographs by competent writers.

BIPP TREATMENT OF WAR WOUNDS. By Rutherford Morison, Professor of Surgery, Durham University. Price, \$1. Pp. 72, with 9 illustrations. New York: Oxford University Press, 1918.

"This small book has been written by request as a war contribution," says the author, "and in it I have endeavored to avoid two difficulties which I feared. The first concerned an explanation of our results which I knew would plunge me into ventures from which I could not escape unscathed; the second was to avoid any overestimation, from excess of enthusiasm, of the value of this method of wound treatment." To one who reads the book—one of a series of "war primers"—it is evident that the foregoing thoughts of the author have guided him in this abstract of his previous publications. The book is well written and the subject matter is presented clearly but tersely. It deals, of course, with his bismuth iodoform paraffin paste, the use of which has been frequently mentioned in THE JOURNAL.

WHAT MEN LIVE BY AND OTHER TALES. By Leo Tolstoi. Translated by L. and A. Maude. Boards. Price 25 cents. Pp. 66. Boston: The Stratford Company, 1918.

STORIES OF THE STEPPE. By Maxim Gorki. Translated by Henry T. Schnitzkind and Isaac Goldberg. Boards. Price 25 cents. Pp. 59. Boston: The Stratford Company, 1918.

These booklets are the most recent issued by the Stratford Company in their twenty-five cent series of classics. The selection has been excellent and the translations are quite worthy of the originals. In these days when Russia is in the limelight an acquaintance, even though not intimate, with Russian classics is almost a necessity to some understanding of the minds of the Russian people.

Medicolegal

Exception as to Physicians in Law Against Prevention of Conception

(*People v. Sanger* (N. Y.), 118 N. E. R. 637)

The Court of Appeals of New York, in affirming a conviction of the defendant of violating Section 1142 of the Penal Law, holds constitutional that section which, among other things, makes it a misdemeanor for a person to sell or give away or to advertise or offer for sale any instrument or article, drug or medicine for the prevention of conception, or to give information orally, stating when, where or how such an instrument, article or medicine can be purchased or obtained. It was argued that if this law was broad enough to prevent a duly licensed physician from giving advice and help to his married patients in a proper case, it was an unreasonable police regulation, and therefore, unconstitutional. The court says there were two answers to this suggestion. In the first place, the defendant was not a physician, and the rule applies in a criminal as well as a civil case that no one can plead the unconstitutionality of a law except the person affected thereby. Secondly, by Section 1145 of the Penal Law, physicians are excepted from the provisions of this act under circumstances therein mentioned. This section reads:

An article or instrument, used or applied by physicians lawfully practicing, or by their direction or prescription, for the cure or prevention of disease, is not an article of indecent or immoral nature or use, within this article. The supplying of such articles to such physicians, or by their direction or prescription, is not an offense under this article.

This exception in behalf of physicians does not permit advertisements regarding such matters, nor promiscuous advice to patients irrespective of their condition, but it is broad enough to protect the physician who in good faith gives such help or advice to a married person to cure or prevent disease. "Disease," by Webster's International Dictionary, is defined to be:

An alteration in the state of the body, or of some of its organs, interrupting or disturbing the performance of the vital functions, and causing or threatening pain and sickness; illness; sickness; disorder.

Evidence and Questions for Jury in an Action for Malpractice

(*Swanson v. Hood et ux.* (Wash.), 170 Pac. R. 136)

The Supreme Court of Washington reverses for error in the trial of this case a judgment for \$3,000 that was entered in favor of the plaintiff, who sued the community composed of defendant Hood and wife, charging malpractice and negligence on the part of the former, who was called to set the plaintiff's arm after the plaintiff had broken both bones of his right forearm while cranking an automobile. The court says, among other things, that there is an obvious distinction between a claim of negligence in the choice of methods of treatment and a charge of negligence in the actual performance of the work of treatment after such is made. As to the first, the charge is refuted as a matter of law by showing that a respectable minority of expert physicians approved of the method selected, thus taking the case from the jury. As to the second, a charge of negligent performance, when there is any evidence tending to show such negligence, the case is for the jury, as in other cases of negligence, whenever on the evidence the minds of reasonable men might differ. The court thinks the case here fell within the latter category. There was evidence that the defendant admitted to the plaintiff, the plaintiff's wife, his mother-in-law and his clerk that he drilled the holes in the bone too large for the screws used in placing the plate, and for that reason wrapped the plate and bone with a wire, and that the wire caused the trouble. There was also evidence that in removing the wire the defendant had used great force, and in removal of the plate, splinters of bone were pulled away. True, this use of excessive force was controverted by the defendant and some of his witnesses, but the conflict made a question for the jury. The defendant himself testified that he and other physicians thereafter advised curettement because a roentgenogram showed a delayed union.

The jury might have inferred from the evidence that the force used in removing the wire was in itself sufficient to destroy any incipient union that might have existed, and thus caused the final failure of the bone to unite. Aside from any expert evidence on the subject, such an inference might reasonably be drawn by any man of common understanding. These things presented questions of negligence pure and simple, and were for the jury. They were not questions relating to the discretion of the physician in his choice between recognized methods of treatment. The evidence would have warranted an instruction categorically taking from the jury the question of negligence in resorting to the Lane plate method and limiting this phase of the question to negligence in the manner in which that method was employed or performed.

The court is further of the opinion that the question of contributory negligence was also one for the jury. Though there was evidence that the plaintiff used his arm in driving his automobile and in working about his store, he himself contradicted these charges. Moreover, there was some evidence that the defendant recommended a moderate use of the arm, and himself at different times took hold of the plaintiff's hand and rotated the forearm. On such a conflict of evidence no court would be warranted in holding the plaintiff guilty of contributory negligence as a matter of law.

When a final bad result of any sort of operation is sought to be accounted for by expert opinion, the question should include everything in evidence which could reasonably contribute to that result. It was error not to include in a hypothetical question touching the infection reference to the physical condition of the patient when there was evidence that at the time he was suffering from a bronchial trouble which might have accounted for the infection of the wound. The evidence being uncontradicted that all of the instruments, materials and accessories used in the operation were surgically clean, an instruction should have been given taking from the jury the question of the defendant's responsibility for the primary infection of the forearm. If the criterions by which a witness measures the defendant's treatment are those of the defendant's own school, the witness is not disqualified merely because he belongs to another school.

Physical Examination of Plaintiffs

(*Kennedy v. New Orleans Railway & Light Co. (La.)*, 77 So. R. 777)

The Supreme Court of Louisiana holds that, in a civil action in damages for personal injuries, the trial judge has no authority to require the plaintiff to submit to a physical examination by experts to be called as witnesses for the defendant. On the other hand, the jury and trial judge cannot reach a legal verdict and judgment against the defendant in such case on an ex parte or one-sided version of injuries of the nature and character of which only the plaintiff and the witnesses selected by the plaintiff are permitted to become informed; for, if the defendants in such cases can be condemned on that basis, they will be at the mercy of the plaintiffs, who have only to complain of injuries not visible outside of their clothing, produce themselves and their own selected witnesses to testify to them, and sit tight, with no fear of possible contradiction. Such a proceeding, however, fails to furnish the principal element in due process of law, namely, a hearing, and ordinarily would be dismissed, since a court cannot well place a value on ex parte testimony.

Society Proceedings

COMING MEETINGS

American Academy of Ophth. and Oto-Laryn., Denver, Aug. 6-8.
Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Indiana Medical Association, Indianapolis, Sept. 25-27.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
Wyoming State Medical Society, Casper, Aug. 7.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

July, 1918, 16, No. 1

- 1 *New Microbody Found in Blood in Case of Myelogenous Leukemia; Efficacy of Arsphenamin. I. Inaba and S. Ohashi, Mukden, South Manchuria.—p. 1.
- 2 *Macewen's Sign in Poliomyelitis. J. G. Regan, Brooklyn.—p. 13.
- 3 *Value of Vaccines in Pertussis. L. H. Barenberg, New York.—p. 23.
- 4 *Use of Pertussis Vaccine Controlled by Complement Fixation Test. E. J. Huenekens, Minneapolis.—p. 30.
- 5 *Protective Therapy for Varicella; Its Pathogenesis. A. F. Hess and L. J. Unger, New York.—p. 34.
- 6 Energy Metabolism of an Amaurotic Family Idiot. F. B. Talbot, Boston.—p. 39.
- 7 Combined Temperature, Weight, Food, Symptom, etc., Record Chart for Pediatric Work. H. J. Gerstenberger and H. O. Ruh, Cleveland.—p. 44.
- 8 *Is Amount of Calcium Usually Given in Dilutions of Cow's Milk Injurious to Infants? L. E. Holt, A. M. Courtney and H. L. Fales, New York.—p. 52.

1. **Microbody in Leukemia.**—A case is reported by Inaba and Ohashi of acute myeloblastic leukemia accompanied by chloroma-like tumor growths in the skull, occurring in the course of the disease. Arsphenamin was used in three injections, which resulted in an astonishingly good effect in causing the cessation of all of the leukemic symptoms, with the exception of the gradual enlargement of the tumors. The improvement in the blood findings was very remarkable. In consequence of the arsphenamin treatment, a great number of peculiar microbodies made their appearance in the blood. The nature of these bodies was not determined, but it is considered justifiable to regard them as a new variety of parasitic micro-organism of a certain pathogenic significance in this case of leukemia.

2. **Macewen's Sign in Poliomyelitis.**—During the 1916 epidemic of poliomyelitis Regan tested the value of this sign in 1,798 cases. It was present in all cases seen in the paralytic stage of the malady, and was usually of a marked degree. It was also extremely frequent in the early paralytic period of the disease, being present to some extent in over 80 per cent. of the patients, and in some cases, especially of the respiratory type, it persisted for as long as from three to eight weeks after the onset. The degree of the positive sign was usually proportionate to the pressure and quantity of spinal fluid removed on lumbar puncture. If Macewen's sign was marked, the fluid was usually under marked pressure, spurting from the needle as soon as the stilet was withdrawn, while if it was slight the fluid would merely flow away rapidly. The relation between the positive sign and the quantity of fluid removed was more easily proved. It was not uncommon to see distinct evidence of pain exhibited on percussion of the skull. Thus, if the examination was carried on while a child was sleeping, he would frequently awaken and begin to cry; or in a stuporous case, the percussion would often arouse the patient to such an extent that he would show evident disapproval of its further use. In children old enough to talk, it was common to have them say that their head hurt and ask to be let alone.

3. **Vaccines in Pertussis.**—As a result of the use of vaccines in an epidemic of pertussis we are led to about the same conclusions which Hess reached in 1914 following a similar therapeutic test. It would seem almost certain Barenberg concludes that pertussis vaccine, given even in large dosage, not only has no curative effect, but does not tend to lessen the severity of the disease. As regards the prophylactic value of pertussis vaccine, the case is different. In both the former epidemic and in this one the percentage of vaccinated children who developed the disease was considerably less than of those who were not vaccinated.

4. **Complement Fixation Control of Pertussis Vaccine.**—Huenekens claims that pertussis vaccine from 2 to 3 months old, employed in very large doses, 1 billion and over, immunizes in only 12.5 per cent. of cases. Two to 4 weeks old vaccine confers immunity in from 25 to 75 per cent. of cases.

Freshly prepared vaccine, employed in the same dosage, shows evidence of antibody formation in 94 per cent. of cases. When used in still larger doses, 1, 1½ and 2 billion, 100 per cent. positive reactions are obtained. The antibodies are demonstrable within one week after the last injection. Huenekens believes that the following conclusions, therefore, seem warranted: Pertussis vaccine should be employed only when freshly prepared and without preservative. By fresh vaccine is meant a vaccine less than 1 week old. The most effective dosage is 1 billion, 1½ billion and 2 billion, given on alternate days, for three doses. It is most effective as a prophylactic, but should be of great value in the early catarrhal stage of pertussis. In doubtful cases of pertussis the vaccine should be administered before an exact diagnosis can be made, especially during an epidemic or where there is a history of previous exposure.

5. **Therapy for Varicella.**—Hess and Unger injected the contents of the vesicles intravenously. The technic was as follows: In each instance only vesicles, and not pustules, were made use of; the surfaces were very gently washed with sterile salt solution and the contents allowed to ascend into capillary tubes. As much as possible of the clear fluid was obtained and was immediately mixed with sterile normal salt solution. This diluted virus was diluted still further with salt solution before it was injected. The dosage was entirely empiric, three-quarters inch, as measured in the capillary tube, was used in each instance. In all, thirty-eight children, about 3 or 4 years of age, were vaccinated intravenously after this method. None of the children developed any local or general signs, or any eruption suggestive of varicella. They were all, in the course of the epidemic, unavoidably in contact with one or more cases of chickenpox, but in spite of this proximity only one developed the disease, this one thirty-six days after the date of inoculation. It is evident, therefore, that by means of these intravenous vaccinations almost absolute immunity was brought about, and no symptoms of the disease.

8. **Calcium of Cow's Milk.**—The authors are of the opinion that it is yet to be demonstrated that infants fed on simple dilutions of cow's milk do not retain an adequate amount of fat, when the stools are formed or semiformal and soapy; nor do they think that a high calcium intake necessarily causes a large fat loss in the feces; while a great reduction of the calcium in the food of infants may be attended with considerable risk.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

July, 1918, 78, No. 1

- 9 Overlapping of Fascia of Posterior Vaginal Wall for Cure of Rectocele. D. Bissell, New York.—p. 1.
- 10 Case of Paragenital Teratoma. L. W. Strong, New York.—p. 5.
- 11 Nonpuerperal Pelvic Infection. E. J. Ill. Newark, N. J.—p. 11.
- 12 *Mortality among Women from Causes Incidental to Childbearing. L. I. Dublin, New York.—p. 20.
- 13 Treatment of Benign Tumors of Breast. J. B. Deaver, Philadelphia.—p. 37.
- 14 Prevention of Mastitis. R. C. Norris, Philadelphia.—p. 46.
- 15 Treatment of Mastitis. W. R. Nicholson, Philadelphia.—p. 52.
- 16 Anomalies of Mammary Secretion. T. S. Westcott, Philadelphia.—p. 55.
- 17 Case of Papillary Cystadenoma of Ovary; without Recurrence After Seven Years. J. Corcia, New York.—p. 62.
- 18 Hospital Standardization and Its Application to Organization of Special Hospital. G. G. Ward, Jr., New York.—p. 65.
- 19 Papillomatous Cysts of Ovary; Report of Eleven Cases. L. S. Schwartz, Brooklyn.—p. 79.
- 20 Inventory of Gynecologic Clinics. F. C. Holden, Brooklyn.—p. 93.
- 21 Most Efficient Means of Preventing Infant Mortality. W. L. Putnam, Boston.—p. 103.

12. **Mortality from Causes Incidental to Childbearing.**—In this investigation there were recorded in all 10,056 deaths from the diseases and conditions incidental to childbirth in the age period 15 to 44 years. This covers the six-year period from 1911 to 1916, inclusive. These deaths, when related to the 14,694,260 women exposed, correspond to a death rate of 68.4 per hundred thousand women at these ages. Of the total deaths, 8,288 occurred among white females and 1,768 among colored females; the rates per hundred thousand for the two races, being 66.1 to 82.3 for the white and colored women, respectively. It is thus shown at the outset that

colored females suffer much more seriously than do white women from the diseases and conditions incidental to childbearing. The 10,056 deaths were due to a considerable number of diseases and conditions complicating or characteristic of the puerperal state. The most important of these is septicemia, which alone was responsible for 4,321 deaths, or 43 per cent. of the total. This condition was followed in numerical order, by albuminuria and convulsions with 2,654 deaths, or 26.4 per cent. of the total. Together, these two definite conditions account for 69.4 per cent. of the puerperal cases, but it is realized that the actual proportion is even higher. Many deaths from septicemia and albuminuria are unfortunately still reported under the disguise of one or another title which results in their assignment to other of the puerperal conditions and in fact to other conditions not puerperal at all.

American Journal of Ophthalmology, Chicago

July, 1918, 1, No. 7

- 22 War and Night Blindness. M. Danis, Brussels, Belgium.—p. 465.
- 23 Whip Cracker Injury of Eye; Report of Three Cases. E. B. Heckel, Pittsburgh.—p. 468.
- 24 Concomitant Movements, Especially of Upper Eyelid with Suction. C. Zimmermann, Milwaukee, Wis.—p. 473.
- 25 Etiologic Factors in Epidemic of Acute Conjunctivitis at Camp Sherman. W. E. Kershner.—p. 480.
- 26 Defects in Education for Ophthalmic Practice. E. Jackson, Denver.—p. 482.
- 27 Computation of Compensation for Ocular Injuries. H. S. Gradle, Camp Grant, Ill.—p. 487.
- 28 Etiologic Factor in Trachoma. O. C. Netto, Brazil.—p. 493.

American Journal of Roentgenology, New York

April, 1918, 5, No. 4

- 29 Pyeloscopy. W. F. Manges, Philadelphia.—p. 165.
- 30 Medicolegal Status of Roentgenology. A. Soiland, Los Angeles.—p. 173.
- 31 Opaque Roentgen Ray Meals and Enemas. D. Spangler, Kansas City, Mo.—p. 175.
- 32 Roentgenologic Examination of Mediastinum. H. J. Walton, Baltimore.—p. 181.
- 33 Roentgen Differentiation of Cavities, Retractions and Partial Pneumothoraces in Chest. J. M. Steiner, New York.—p. 185.
- 34 Importance of Position of Upper Arm in Detection of Roentgenologic Shadows in Region of Shoulder Joint. F. W. George, Worcester.—p. 187.
- 35 Lead Glass and Lead Rubber—U. S. Bureau of Standards. E. B. Rosa, Washington, D. C.—p. 188.
- 36 Some Unusual Stomach Cases. A. M. Cole, Indianapolis.—p. 189.
- 37 Periosteal Sarcoma in Dog. W. H. Stewart, New York.—p. 192.
- 38 Method of Obtaining an Accurate Lateral Roentgenogram of Shoulder Joint. W. S. Lawrence, Memphis, Tenn.—p. 193.
- 39 Roentgenograms of Myxoma of Femur. A. Cotton and S. McCleary, Baltimore.—p. 195.
- 40 Congenital Case of Syphilis of Stomach. G. Von Poswik, Scranton, Pa.—p. 199.

May, 1918, 5, No. 5

- 41 Roentgenoscopy at Front. R. Desplats, France.—p. 222.
- 42 Localization of Foreign Bodies. J. S. Shearer, Ithaca.—p. 229.
- 43 Adjuncts to Roentgenotherapy in Treatment of Malignant Disease. G. E. Pfahler, Philadelphia.—p. 249.
- 44 Differential Diagnosis of Bone Tumors. F. H. Baetjer, Baltimore.—p. 260.

Archives of Ophthalmology, New Rochelle, N. Y.

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- 45 Value of Blood Count in Diagnosis of Sympathetic Ophthalmia. S. R. Gifford.—p. 327.
- 46 Case of Bilateral Papilledema Due to Empyema of Sphenoid and Ethmoid Sinuses. Operation and Recovery. G. H. Bell, New York.—p. 344.
- 47 Intimate Relation Between Ear and Eye as Shown by Bárány Tests. H. M. Langdon and I. H. Jones, Philadelphia.—p. 348.
- 48 Some Phases of Vestibular Nerve Problem. J. Dunn, Richmond, Va.—p. 354.
- 49 Light Pupillary Reflex; Case of Unilateral Argyll Robertson Pupil, with Consensual Reaction in Both Eyes. A. Lutz, Havana.—p. 370.
- 50 Influence of Function on Structure of Eye. E. Uhlenhuth, New York.—p. 401.
- 51 Operative Treatment of Traumatic Coloboma of Lid. L. v. Blaskovics, Budapest.—p. 404.
- 52 Opticociliary Neurotomy, Resection of Optic Nerve, Substitute for Enucleation. A. H. Pagenstecher, Wiesbaden.—p. 409.

Boston Medical and Surgical Journal

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- 53 Extremes in Infant Feeding, Present Tendencies. F. B. Talbot, Boston.—p. 35.
- 54 Mentally Defective Criminal. A. T. Baker, East View, N. Y.—p. 38.
- 55 Treatment of Colds. D. C. Dennett, Winchester.—p. 41.

California State Journal of Medicine, San FranciscoJuly, 1918, **16**, No. 7

- 56 Metabolism in Diabetes, Nephritis and Cholecystitis. L. M. Breed, Pasadena.—p. 327.
- 57 *Autogenous Colon Vaccines in Eczema. J. A. Jackson and R. J. Pickard, San Diego.—p. 330.
- 58 Granuloma of Larynx. J. M. Brown, Los Angeles.—p. 332.
- 59 Xanthoma Tuberosum Multiplex. A. Davidson, Los Angeles.—p. 333.
- 60 Vincent's Angina; Report of Case. J. M. King, Los Angeles.—p. 334.
- 61 Neurologic Aspect of Brain Tumors. W. F. Schaller, San Francisco.—p. 336.
- 62 Abscess of Liver in Young Infant. A. J. Scott, Jr., Los Angeles.—p. 337.
- 63 Cause and Prevention of Postoperative Gas Pains. W. C. Alvarez, San Francisco.—p. 338.

57. **Autogenous Colon Vaccines in Eczema.**—In twelve cases of eczema with indicanuria *B. coli* was isolated from the feces and a vaccine made. This vaccine was injected two or three times a week. Nine patients were cured, two showed no result from vaccines. Twenty other patients with traces of indican, or no indican, showed improvement and cure attributable to the vaccine in three patients, and slight benefit in one. In all the patients a simple diet was prescribed, elimination was watched, and the usual mild, local applications made, except in four cases in which the vaccine was used alone. Jackson and Pickard believe that this is a new group of eczema cases, in which there is a perverted metabolism of the individual's colon bacilli, possibly a mild inflammation (an eczema) of the bowel itself, with toxemia, and eczema in the susceptible skin. Through the use of the specific vaccine the individual immunity is reestablished, the colon bacilli subside to their ordinary habits of growth, losing their acquired virulence, and the symptoms disappear.

Canadian Medical Association Journal, TorontoJuly, 1918, **8**, No. 7

64. *Significance of Heart Murmurs That May be Found on Examination of Candidates for Military Service. L. F. Barker, Baltimore.—p. 577.
- 65 Duodenojejunoscopy; Its Indications and Technic. J. McKenty, Winnipeg.—p. 586.
- 66 Diagnosis of Inflammations of Uveal Tract of Systemic Origin. W. G. M. Byers, Montreal.—p. 593.
- 67 Ozena. D. J. G. Wishart, Toronto.—p. 606.
- 68 Vesical Symptoms in Renal Disease. D. W. MacKenzie.—p. 611.
- 69 Abdominal Surgery as Factor in Treatment of Pulmonary Tuberculosis. N. H. Beal, London, Ont.—p. 617.
- 70 Report of Special Clinic for Treatment of Syphilis, Toronto General Hospital. E. J. Trow, Toronto.—p. 622.
- 71 Treatment of Syphilis, Report of Special Clinic for Syphilis, Toronto General Hospital. W. T. Williams, Toronto.—p. 627.

64. **Heart Murmurs in Candidates for Military Service.**—Barker's experience at a Medical Advisory Board during the past three months, where with others he has examined the hearts of 2,500 drafted men between the ages of 21 and 31, indicates: 1. That many organic murmurs (diastolic murmur of aortic insufficiency, presystolic murmur and snapping first sound of mitral stenosis) are often entirely overlooked by examiners in local boards, for they are not infrequently detected in men referred to the Advisory Board for defects other than those of the cardiovascular system. 2. That many extracardiac (cardiorespiratory) murmurs, and accidental intracardiac murmurs, are suspected by medical examiners to be murmurs of serious import. 3. That the hearts of some of the men presenting organic murmurs are better prepared to stand exertion than are the hearts of some men presenting no murmurs. 4. That good response to the exercise test by no means rules out the existence of organic disease of the valves of the heart. 5. That many men with organic disease of the valves of the heart need not be unconditionally rejected, though according to present regulations they must be, for many of them are entirely capable of undertaking special service not involving severe exertion, and some of them could, without harm, even be given duties requiring considerable bodily exertion. Experience in the armies in Europe would indicate that mild stenotic lesions stand strain better than lesions causing valvular insufficiency. The lesions of "barrage" are less serious than the lesions of "fuite." That, on the whole, while the study of cardiac murmurs is of great

importance in estimating the fitness of a candidate for military service, still greater importance attaches to the study of the condition of the cardiac muscle and to the estimation of its ability to bear strain.

Colorado Medicine, DenverJuly, 1918, **15**, No. 7

72. Acute Cholecystitis. Z. H. McClanahan, Colorado Springs.—p. 162.
- 73 Cholecystectomy vs. Cholecystostomy. F. N. Cochems and A. J. Bender, Salida.—p. 164.
- 74 Function and Fate of Bone Graft. H. G. Wetherill, Denver.—p. 170.
- 75 Eclampsia. P. A. Murphy, Denver.—p. 175.
- 76 Congenital Stenosis of Esophagus; Report of Case. C. T. Knuckey, Lamar.—p. 177.

Delaware State Medical Journal, WilmingtonApril-June, 1918, **9**, No. 2

- 77 Unusual Surgical Conditions. J. Palmer, Wilmington.—p. 2.
- 78 Pneumonia. J. W. Bastian, Wilmington.—p. 8.
- 79 Tuberculosis Situation. F. H. Edsall, Wilmington.—p. 14.
- 80 Relation of Tonsils to General Disease, and Sluder Method of Extirpation. E. R. Mayerberg, Wilmington.—p. 18.

Florida Medical Association Journal, JacksonvilleMay, 1918, **4**, No. 11

- 81 Treatment of Syphilis of Central Nervous System. H. M. Smith, Chattahoochee.—p. 319.
- 82 Colony Care for Epileptic and Feeble-minded of Florida. W. M. Bevis, Chattahoochee.—p. 322.
- 83 Relation of Medical Profession to Each Other and to Public. R. R. Kimc, Lakeland.—p. 325.
- 84 Uvula. U. S. Bird, Tampa.—p. 331.

Illinois Medical Journal, ChicagoJuly, 1918, **34**, No. 1

- 85 Oration on Surgery. W. O. Sherman, Pittsburgh.—p. 4.
- 86 Work of Grievance Committee. F. L. Glenn, Chicago.—p. 10.
- 87 Roentgen Examination of Kidney Tumors. P. Eisen, Chicago.—p. 14.
- 88 Osteosarcoma of Femur with Unusual Roentgen Findings. M. Reichmann, Chicago.—p. 16.
- 89 Strictures of Urethra. C. H. Solomon, Chicago.—p. 18.

Journal of Experimental Medicine, BaltimoreJuly, 1918, **38**, No. 1

- 90 *Lymphocyte in Natural and Induced Resistance to Transplanted Cancer. Effect of Roentgen Rays on Artificially Induced Immunity. J. B. Murphy and H. D. Taylor, New York.—p. 1.
- 91 Passage of Neutralizing Substance from Blood into Cerebrospinal Fluid in Actively Immunized Monkeys. S. Flexner and H. L. Amoss, New York.—p. 11.
- 92 *Results of Prophylactic Inoculation against Pneumococcus in Twelve Thousand Five Hundred and Nineteen Men. R. L. Cecil and J. H. Austin, New York.—p. 19.
- 93 *Homohemolytic System for Serum Diagnosis of Syphilis. H. Noguchi, New York.—p. 43.
- 94 *Experimental Study of Vaccination against Bacilli Dysenteriae. P. K. Olitsky, New York.—p. 69.
- 95 Coccidiosis in Young Calves. T. Smith and H. W. Graybill, Princeton, N. J.—p. 89.

90. **Resistance to Transplanted Cancer.**—According to Murphy and Taylor, mice artificially immunized against a transplantable carcinoma, inoculated and proved immune, may be again rendered susceptible to the same tumor by exposure to the roentgen rays. The immune animals which have not been treated with the roentgen rays preserve, to a large degree, their resistance to a second inoculation of the tumor in question.

92. **Prophylactic Inoculation Against Pneumococcus.**—From a study of the agglutinins and protective power of the serum of forty-two persons vaccinated against the pneumococcus, Types I, II and III, it is demonstrated by Cecil and Austin that a definite immune response has been secured to Types I and II by the dose of vaccine employed. Little evidence of response to Type III can be demonstrated by these methods, but this is of less significance in that in animals it is relatively difficult to secure antibodies against this strain in the serum, even though a considerable degree of active immunity may have been produced in the vaccinated animal. The degree of response to the vaccination appears to be dependent on the total dosage of each type of pneumococcus administered. While some response may be elicited by 2½ billion cocci of each type, a much more constant and greater response follows

13 billion. In subcutaneous administration the manner in which the total dosage is divided, whether given in a single large dose, in seven small daily doses, or in three to five moderate doses at three to seven days intervals, seems to have little influence on the degree of immune response, provided the total dosage is the same. The local and general toxic reaction varies greatly in different persons. The smaller the individual doses, the fewer are the severe reactions. This makes it desirable to divide the total dosage into as many inoculations as circumstances make practicable.

At Camp Upton 12,519 men have been vaccinated against *Pneumococcus* Types I, II and III. Three or four doses were given at intervals of five to seven days with a total dosage of 6 to 9 billion of Types I and II, and $4\frac{1}{2}$ to 6 billion of Type III. During the ten weeks that elapsed since the vaccination, no cases of pneumonia of these three types occurred among the men who had received two or more injections of vaccine. In a control of approximately 20,000 men there were twenty-six cases of *Pneumococcus* Types I, II and III pneumonias during the same period. The incidence of *Pneumococcus* Type IV pneumonia and streptococcus pneumonia was much less among the vaccinated troops than among the unvaccinated. No explanation has been advanced for this difference. Small sterile infiltrations disappearing spontaneously occasionally follow the injection of large doses of pneumococcus vaccine and appear to be an expression of cutaneous hypersusceptibility. The persons who develop these lesions exhibit local reactions to each dose of vaccine. They also give abnormally marked reactions to intradermal injections of pneumotoxin. They do not, however, exhibit anything notable in the agglutinative or protective powers of their serums after vaccination. Whereas the immune response is characteristically specific for the type of pneumococcus, this reaction is not specific for any type. The authors have found no evidence that Type III is more prone to elicit these severe local reactions than are Types I and II. Prophylactic vaccination against pneumococcus of Types I, II and III is practical and apparently gives protection against pneumonia produced by these types. It remains to be determined how long this immunity persists.

93. Serum Diagnosis of Syphilis.—Noguchi has examined 1,331 specimens of blood and fifty-two cerebrospinal fluids. Of 1,118 specimens of serums from these sources 517 gave a positive and 601 a negative reaction, the results conforming to those reported by the serologic departments of the various hospitals. Of 132 specimens from psychiatric cases, fifty-four were from general paralysis cases, and all except two gave a strongly positive reaction. Among other psychoses, including seventy-five cases of dementia praecox, three of alcoholic psychosis, three of imbecility, three of senile psychosis, six of arteriosclerosis, one of manic depressive insanity, and one paranoic condition, there were only two positive reactions, these occurring among the dementia praecox cases. The reactions with eighty-one inactivated serums agreed with those obtained by others with the same material. Twenty cerebrospinal fluids from cases of general paralysis gave a strongly positive reaction, while thirty-two specimens from other non-syphilitic cases showed a negative reaction. The statement will perhaps bear repeating that of 1,250 fresh human serums complement was deficient in ninety-three specimens, which had to be examined either by means of additional amboceptor or by supplying active human complement from fresh negative serums. This special adjustment with fresh serums is one which demands particular attention on the part of serologists adopting the method.

94. Vaccination Against Bacilli Dysenteriae.—The purpose of Olitsky's investigation was to determine a practical method of vaccination against bacillary dysentery. His study seems to emphasize the advantages of a bland oily medium for suspending dysentery bacilli for purposes of active immunization or vaccination. The experiments on animals and a small number of tests on man indicate that the single injection of an almond oil suspension of the Shiga and Flexner groups of dysentery bacilli suffices to afford protection as indicated by the appearance in the blood of definite specific antibodies for each group of the bacilli, and by the protection

of animals from otherwise lethal doses of the living organisms or their toxic products. Olitsky says that the extent to which vaccination should be applied to man will depend on circumstances and conditions still to be defined, but the method appears to be wholly practicable.

Journal of Infectious Diseases, Chicago

June, 1918. 22, No. 6

- 96 **Meningococcus* Carriers and Bacteriology of Epidemic Meningitis. G. Mathers and R. D. Herrold, Chicago.—p. 523.
- 97 *Thermostabile and So-Called Thermolabile Hemolysin. H. Sherman, Lawrence, Kans.—p. 534.
- 98 *Attenuation of Hog Cholera Virus and Its Effect on Normal Hogs. C. L. McArthur, Fayetteville, Ark.—p. 541.
- 99 *Cultures of *Leptothrix* from Case of Parinaud's Conjunctivitis. W. B. Wherry and V. Ray, Cincinnati.—p. 554.
- 100 *Action of Glycerol on Micrococci from Epidemic Poliomyelitis. G. Mathers and G. H. Weaver, Chicago.—p. 559.
- 101 *Production of Precipitins by Fowl. L. Hektoen, Chicago.—p. 561.
- 102 *Streptothrix Interproximalis*. N. Sp. An Obligate Micro-Aerophile from Human Mouth. E. A. Fennel, Cincinnati.—p. 567.
- 103 *Pneumococidal Power of Rabbit Serum After Administration of Ethylhydrocuprein Hydrochlorid, Quinin and Urea Hydrochlorid, and Other Cinchona Derivatives. C. Weiss, Philadelphia.—p. 573.
- 104 Studies on B. Abortus and Related Bacteria. Pathogenicity of B. Lipolyticus for Guinea-Pigs. A. C. Evans, Washington, D. C.—p. 576.
- 105 Id.: Comparison of B. Abortus with B. Bronchisepticus and with Organism which Causes Malta Fever. A. C. Evans, Washington, D. C.—p. 580.
- 106 *Hypersensitiveness and Asthma, Especially in Relation to Emanations from Horses. A. de Besche, Christiania, Norway.—p. 594.

96. Meningococcus Carriers and Bacteriology of Epidemic Meningitis.—During the summer and fall of 1917 an extensive bacteriologic study was made by Mathers and Herrold of epidemic meningitis in one of the large military camps. The meningococcus carriers in the infected organizations were identified and isolated. For the cultures plain blood agar was found to be satisfactory and the material for culture was obtained from the nasopharynx by means of a simple uncovered wire swab. It was found that 3 to 6 per cent. of the men examined were meningococcus carriers. The majority of these carriers, however, were of the temporary type; only 1.2 per cent. of the total number of suspects examined proved to be chronic carriers. Chronic meningococcus carriers, as distinguished from the temporary type, often harbor great numbers of meningococci in the secretions of the nose and throat. The number of carriers was found to be high among those coming in contact with meningitis cases. In a study of the biologic reactions of 150 strains of meningococci from different sources two large biologic groups were differentiated by means of macroscopic agglutination tests using monovalent serums. The agglutination reactions were in most instances definite and specific but a number of atypical and inagglutinable strains were met with in each group. The atypical strains, however, did not differ enough from the other members of the group to warrant different classification as determined by agglutination. The classification of the inagglutinable strains was accomplished by means of agglutination with monovalent serums prepared from these strains; these serums yielded specific reactions with organisms of one or the other main type. The biologic type of meningococcus predominant in the camp epidemic was identical with the type prevailing among the chronic carriers, but different from the type of meningococcus causing the majority of the sporadic cases of cerebrospinal fever in Chicago. Also the type of meningococcus found in the cases and in corresponding immediate contacts was in every instance the same. These facts suggest that there is a close relationship between cases of epidemic meningitis and meningococcus carriers.

97. Thermostabile and Thermolabile Hemolysis.—As the result of his investigations, Sherman suggests that all of those hemolysins which can be titrated direct be called "obvious" hemolysins, and that the term "masked" be applied to those "obvious" hemolysins which are not detectable by direct titration after inactivation. As there are no thermolabile hemolysins, there can be no "evolution of the antibody" from a thermolabile complement through a thermolabile hemolysin to a thermostabile hemolysin. Sherman found that the immune hemolysin first formed on injection of the antigen is thermostabile.

98. **Attenuation of Hog Cholera Virus and Effect on Normal Hogs.**—The results of McArthur's experiments would indicate that hog cholera virus can be attenuated to a certain extent by heating, but this heated material is not suitable as vaccine, because in many cases it is apt to cause the disease.

99. **Leptothrix from Parinaud's Conjunctivitis.**—Pus aspirated from the preauricular gland of a case of Parinaud's conjunctivitis and injected subcutaneously in a white mouse, produced an infection, after an incubation period of from four to five days, characterized by purulent conjunctivitis and death. From muscular abscesses found postmortem, a leptothrix was isolated which grew only on slants of egg yolk incubated under partial tension and anaerobic condition. Pus from the mouse injected into a second white mouse reproduced the symptoms but resulted in recovery. The leptothrix isolated was nonpathogenic for white rats and a wild mouse. White mice were not inoculated with the pure culture. Later in the course of the human case a similar organism was isolated on egg yolk directly from the preauricular gland. Wherry and Ray are rather of the opinion that the organism grown by them is identical with that found in sections by Verhoeff. The use of a guinea-pig and a rabbit seemed to rule out the presence of the tubercle bacillus.

100. **Action of Glycerol on Micrococci from Epidemic Poliomyelitis.**—Mathers and Weaver found that poliomyelitic cocci as well as pneumococci, hemolytic streptococci and *Streptococcus viridans* when suspended in 50 per cent. glycerol remain viable for fifteen to thirty days. In the presence of a suitable culture medium such as blood agar, however, cultures of these organisms may remain alive for ninety days. In two instances poliomyelitic cocci were obtained in culture from the glycerolated nervous system of cases of poliomyelitis after a period of fifteen months. The authors regard it as probable then that the micrococci associated with poliomyelitis similar to the virus of the disease, are highly resistant to the bactericidal action of glycerol in 50 per cent. solution. Ordinary streptococci and pneumococci are also markedly resistant to this germicide.

101. **Production of Precipitins by Fowl.**—According to Hektoen the domestic fowl is a prompt, reliable and liberal producer of precipitins, more so than the rabbit. A single intraperitoneal injection of 20 c.c. of defibrinated blood or serum in most cases in ten to twelve days yields a precipitating serum of sufficient strength and specificity for practical purposes. On account of an unwelcome tendency to give nonspecific reactions, especially on rapid transfer from low to higher temperatures, great care must be exercised in all tests with fowl antiserum, and 1.8 per cent. salt solution should be used in making all mixtures and dilutions. In case of necessity, Hektoen says, the fowl can be used as a substitute for the rabbit for the production of precipitating serums in general, as has been done by Sutherland in India. Wherever rabbit antiserum is available, however, it perhaps will be best in forensic work to limit the use of fowl antiserum for the present to cases which demand a definite answer to the question whether a given blood spot is rabbit blood. According to Hektoen in two cases it proved easy by means of antirabbit fowl serum to demonstrate that certain blood spots, in one case on a newspaper and in the other on shoes, were due to rabbit blood.

103. **Pneumococcal Power of Rabbit Serum After Injection of Cinchona Derivatives.**—No pneumococcal action of rabbit serum could be demonstrated after a single large tolerated dose, after a single fatal dose, after repeated injections of tolerated doses either by oral or by intravenous routes of various cinchona derivatives including ethylhydrocuprein hydrochlorid, quinin and urea hydrochlorid, quinin dihydrobromid, and quinin chlorohydrosulphate. A review of the literature indicates that the liver of the rabbit has a high destructive action on quinin alkaloids and that both leukocytes and red blood cells (but not serum) have a marked affinity for cinchona compounds.

106. **Hypersensitiveness and Asthma.**—De Besche examined eighteen cases of ordinary bronchial asthma without being able to discover any relation to horses or to find any exciting cause.

Medical Record, New York

July 13, 1918, 94, No. 2

- 107 Soldier and Tuberculosis. E. O. Otis, Boston.—p. 47.
- 108 Analysis of Weak Foot with Reference to Precision in Use of Descriptive Terms in Teaching. R. Whitman, New York.—p. 49.
- 109 Feeding in Marasmus. M. S. Reuben, New York.—p. 51.
- 110 Results and Interpretation of Wassermann Test. C. A. Johnson, Los Angeles.—p. 59.
- 111 Stammering. E. Tompkins, Pasadena, Calif.—p. 62.
- 112 Transfusion of Blood by Citrate Method. A. Zingher, New York.—p. 64.
- 113 *Death from Volvulus Caused by Roundworms. V. G. Heiser, New York.—p. 65.

113. **Death from Volvulus Caused by Roundworms.**—A child 4 years of age was given 6 minims of oil of chenopodium. Two days after the administration of the chenopodium the child was reported very ill. There was marked distention of the abdomen, with severe pains, frequent vomiting, and the bowels had not moved since the day treatment was given. On postmortem a mass of roundworms the size of a man's fist was found blocking the bowel; the intestines below the mass were so twisted as to cause complete obstruction; there was local peritonitis in the vicinity of the obstruction, and more than 300 roundworms were found in the intestinal canal.

Military Surgeon, Washington, D. C.

July, 1918, 43, No. 1

- 114 Prevention and Treatment of Delayed and Faulty Union of Fractures. W. A. Clark.—p. 1.
- 115 *Examination of Men of First Draft Referred to Cardiovascular Board, 89th Division, Camp Funston, Kan. J. L. Benjamin.—p. 12.
- 116 *Communicable Disease at Camp Funston and Medical Officers' Training Camp, Fort Riley, Kan., Oct. 15, 1917, to Jan. 15, 1918. H. E. Eggers and E. H. Kerr.—p. 17.
- 117 *Report of Physical Examination of Twenty Thousand Volunteers. C. L. Cole, E. W. Loomis and E. A. Campbell.—p. 45.

115. **Examination of Heart of Drafted Men.**—The new system of examining recruits as conducted at Camp Funston, at the present time Benjamin describes as follows: In the first place, the men are immediately assigned en masse to one depot brigade. Immediately on arrival they are all examined in this organization, where also meet the special boards. The men are stripped of their civilian clothes, given their initial bath, and proceed immediately to undergo their first general examination, where they are also vaccinated, inoculated against typhoid, their finger-prints taken, and all examined for tuberculosis. This latter board immediately refers the cardiac cases to the special examiners.

In the cardiac room the system is as follows: One examiner and one corps man are in attendance. A record is kept of each man. Six men can conveniently be examined at one time. Various numbers are written on the chest by the examiner to be copied by the corps man, thus eliminating the necessity of calling off data. The interpretation of the numbers is as follows: A number at the top of the sternum represents the dorsal pulse rate. A number under the left shoulder is the serial number of the recruit, one to the right of the sternum is the measurement of the right border of the heart from midsternum and one to the left is the number of centimeters the left cardiac border extends from the midsternum. Two numbers are written beneath the nipple to indicate the space where the apical pulsation is felt, with greatest force and its location inside or outside the nipple line. After completion of this data the patient is directed to lie down, when the dorsal pulse rate and blood pressure are taken. After this he is directed to hop 100 times on one foot (the type of hop being first demonstrated), after which the pulse rate is taken by listening with the stethoscope. The largest number of recruits examined in this way in one day was forty-five.

Concerning the lesions found during the examinations, of special interest is the numerical relation of mitral stenosis to mitral insufficiency. During the earlier months of the examination very few cases of mitral stenosis were reported. It was only after the tuberculosis board began its work that these cases started to roll in. They were referred, first, because of symptoms of cough, dyspnea or hemoptysis, for which they were sent for examination of their lungs because of suspected phthisis, or they were picked up in the course

of the chest examination, hitherto unsuspected. The members of the tuberculosis board had been previously instructed as to just what cardiac signs to look for in the course of their work. The criteria of diagnosis as explained to them were: (1) presystolic thrill, (2) snapping first sound at the apex, (3) presystolic roll at the mitral area, (4) loud pulmonic second sound.

Doubtful cases were sent back to their organizations with a note requesting that the soldier be watched for the ensuing four weeks and at the expiration of which time to be returned with a note stating how he endured Regular Army duties. With the exception of a very few, such persons proved to be very undesirable soldiers. The cause, so far as was possible to determine, seemed to have been previous attacks of rheumatism. Insufficiency of the aortic valves was relatively frequent. With the exception of five cases, rheumatism seemed to have been the etiologic factor. Wassermann tests were made of all the persons in this group, and in only five were positive results obtained. Curiously enough, persons who had this lesion stood Army duties peculiarly well, as in only a very few instances were the lesions found except in the routine examination, symptoms having been wholly lacking. As regards aortic stenosis, only two positive cases were found by Benjamin.

Fifteen cases of undisputed hyperthyroidism were diagnosed. The irregularities were rather conspicuous by their almost entire absence. By the aid of roentgen ray the diagnosis of two cases of aneurysm was confirmed. In one instance the sacculum occurred in the middle of the arch, in the other in the beginning of the descending branch of the aorta. It is Benjamin's opinion that the close association of cardiovascular and tuberculosis examiners is a most desirable one. There is no doubting the fact that undesirable soldiers are thus eliminated early in their training. Of special interest is the observation that practically no case of "disordered action on the heart," so vividly described by members of the research committee of the Hampstead Hospital, England, has been found.

116. Communicable Disease at Camps.—On the basis of study and experience, the following recommendations are offered by Eggers and Kerr: (1) That the work of the department be given to as large a percentage as possible to men in line for regimental assignments. (2) That the present scheme of cooperation with the Department of Sanitation be continued. (3) That certain men be trained in all features of the work, so as to be available as epidemiologists. (4) That the attention of the Surgeon-General be attracted to this work, and the following suggestions made: (a) That one or more assistant epidemiologists be assigned to each camp to instruct the regimental men in inspection for communicable diseases. (b) That specially trained men to take charge of isolation and detention camps are advisable. (c) That flying squadrons to take over meningitis cultures be formed, or, at any rate, be listed and held where they will be available, these squadrons to be made up of a field chief and assistants to handle the cultures and a laboratory chief and assistants to handle the laboratory work. (d) With the organization and the size and character of the camp, men can be trained for this work, and the authors feel that this is advisable.

117. Physical Examination of Volunteers.—According to Cole and his associates practically 50 per cent. of all candidates volunteering for military service—20,000 men examined—have physical defects which incapacitate for military service entirely or reduce efficiency. The present method of examination requires acceptance of many defective men or rejection of many men who can be made capable of performing military service. Establishment of refitting stations with properly organized staff for medical treatment and military drill would afford time for observation of men before discharge or afford an opportunity for treatment of curable defects. The number of men available for military service would be increased. The military efficiency of the forces would be increased through bringing all men to a higher physical standard. More efficient intensive training could be given at training camps through reducing the number of men

admitted to camp hospitals for physical defects existing at the time of enlistment. Many physical defects exist in young men of military age which could have been corrected, by proper inspection and physical development, while the persons were schoolchildren, if provision had been made for such procedure in the public schools.

New Jersey Medical Society Journal, Orange

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- 118 War Strain and Shell Shock. M. A. Starr, New York.—p. 221.
- 119 Differential Diagnosis of Various Forms of Laryngeal Obstruction. F. M. Hoffman, New Brunswick.—p. 227.
- 120 Eating. D. E. English, Summit.—p. 231.
- 121 Immortality of Man. G. B. Philhower, Nutley.—p. 234.

New York Medical Journal

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- 122 Some Relations of Diet to Disease. L. B. Mendel, New Haven, Conn.—p. 49.
- 123 Pituitary Extract and Epinephrin Injections in Hay Fever; Report of Cases. E. Zueblin, Cincinnati.—p. 51.
- 124 Analytic View of Psychic Factor in Shock. G. M. Parker, New York.—p. 58.
- 125 Adrenopathic Hyperchlorhydrias. D. M. Kaplan and J. G. W. Greeff, New York.—p. 61.
- 126 Twilight Sleep. H. Aranow, New York.—p. 64.
- 127 Survey of Ear Conditions in Schoolchildren. E. W. Kobler, New York.—p. 66.
- 128 Scarlet Fever and Epilepsy. H. Friedel, Stapleton, S. I.—p. 68.
- 129 Eye, Ear, Nose and Throat Work at Recruiting Depot. J. J. Smith, Fort McDowell, Calif.—p. 69.

Oklahoma State Medical Association Journal, Muskogee

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- 130 Radium and Its Application in Medicine and Surgery. E. S. Lain, Oklahoma City.—p. 219.
- 131 Carcinoma of Mastoid; Report of Case. C. M. Fullenwider, Muskogee.—p. 224.
- 132 Suggestions on Cause of Cancer. A. W. White, Oklahoma City.—p. 226.
- 133 Cancer of Uterus. R. Grosshart, Tulsa.—p. 228.
- 134 Relative Etiology and Pathology of Cancer. W. F. Dutton, Tulsa.—p. 229.
- 135 Early Diagnosis of Cancer of Stomach. C. J. Fishman, Oklahoma City.—p. 235.

Rhode Island Medical Journal, Providence

July, 1918, 2, No. 7

- 136 Roentgen Method of Gastro-Intestinal Investigation. W. L. Chapman, Providence.—p. 102.

Social Hygiene, Baltimore

April, 1918, 4, No. 2

- 137 Venereal Disease Knows No Boundaries. V. C. Vaughan.—p. 139.
- 138 Story of Committee of Fifteen of Chicago. C. W. Barnes, Chicago.—p. 145.
- 139 Social Status of Sailor. J. S. Taylor.—p. 157.
- 140 Criticism of Venereal Prophylaxis. E. H. Hooker.—p. 179.
- 141 Passing of Red Light District—Vice Investigations and Results. J. Mayer.—p. 197.
- 142 Democracy at Work—San Antonio Reborn. H. B. Ayres.—p. 211.
- 143 Possible Effects of War on Future of Social Hygiene Movement. T. D. Eliot.—p. 219.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

June 22, 1918, 1, No. 2999

- 1 Significance of Cardiac Murmurs. C. Wilson.—p. 687.
- 2 *Transfusion with Preserved Red Blood Cells. O. H. Robertson.—p. 691.
- 3 *Blood Transfusion in Field Ambulance. N. M. Guiou.—p. 695.
- 4 Amebic Abscess of Liver. R. J. McN. Love.—p. 696.
- 5 Acute Intestinal Obstruction by Tapeworms (T. Saginata). J. B. Christopherson and M. Izzedin.—p. 697.

2. Transfusion with Preserved Red Blood Cells.—The blood used for transfusion by Robertson had been kept varying periods of time up to twenty-six days. The majority of the transfusions were given with blood preserved from ten days to two weeks. The patients transfused included cases of hemorrhage, shock and sepsis, chiefly the two former. An attempt was made to choose only those patients who would probably die without transfusion and yet who had a chance of recovery if given blood, that is, the only moderately serious and the apparently hopeless cases were excluded. The

amounts given in a single transfusion varied from 500 c.c. to 1,000 c.c., depending on the type of case. If the condition was one of marked anemia the blood sediments of two large bottles were combined. Where the anemia was less severe a large bottle and a small one—750 c.c.—were given. In cases judged to be chiefly shock, 500 c.c. amounts were used. The total fluid bulk of the transfusion was always made up to 1,000 c.c. with gelatin solution. The effect of transfusion with preserved blood was fully as striking as that observed after the giving of freshly drawn blood. There was the same marked improvement in color, the pulse became slower and stronger, and the blood pressure showed an increase of 20 to 40 points. Furthermore, this improvement was maintained and increased. Patients transfused before operation stood the operative procedure well, and subsequent progress was quite as good as in those cases transfused by the usual methods.

In all, twenty-two transfusions were given to twenty persons. Of these, eleven were discharged to the base in good condition and nine died, a mortality of 45 per cent. Those patients who died later all showed the immediate stimulating effect of transfusion with one exception, a patient with profound anemia who died just after transfusion. Four died within forty-eight hours of gas gangrene, and four lived from two to six days, dying ultimately from the same cause. Three of the four patients in this last mentioned group showed very marked improvement subsequent to transfusion; they stood operation well and were making satisfactory progress several days afterward when gas infection appeared. The length of time the blood had been kept appeared to have no influence on its beneficial effect. The improvement in those cases transfused with blood kept three weeks or more seemed to be just as marked as in those who received blood preserved for much shorter periods. Robertson thinks it is probable that four weeks represents about the limit to which blood can be kept for transfusion, as the red cells usually begin to disintegrate soon after this. The chief advantage of this method (Rous and Turner) over other methods of transfusion in current use is the great convenience of having a stock of blood on hand for busy times. The transfusions can be given relatively quickly, and the technic, which is simple and easily acquired, can be carried out entirely by one medical officer.

3. Blood Transfusion in Field Ambulance.—In Guiou's opinion, blood transfusion by the syringe method can be done easily in an A. D. S. and in an average regimental aid post; and by its use some patients with severe primary hemorrhage which would in the natural course of events die in the forward area will live to reach the casualty clearing station.

Bulletin of Canadian Army Medical Corps, Ottawa

June, 1918, 1, No. 3

- 6 *Combined Inquiry into Presence of Diphtheria and Diphtheroid Bacilli in Open Wounds. J. G. Adami and others.—P. 34.
7. Chronic Hypertrophic Pulmonary Osteo-Arthropathy Following Bronchiectasis. T. B. Fletcher.—p. 38.
- 8 *After-Effects of Wounds in Chest and Their Treatment. J. Meakins and T. W. Walker.—p. 40.
- 9 *Examination of Sputum for Albumin in Pulmonary Tuberculosis and Chronic Bronchitis. B. S. Cornell.—p. 45.
- 10 Delayed Tetanus. H. Morell.—p. 46.

6. Presence of Diphtheria and Diphtheroid Bacilli in Wounds.—Adami and his associates point out that morphologically and, in the early stages, culturally, diphtheroid bacilli from wounds are, many of them, indistinguishable from *B. diphtheriae*. Harmless, nontoxic bacilli may be present in wounds affording cultures possessing the same sugar formula as regards dextrose, lactose, saccharose and dextrine, as does the true virulent Klebs-Loeffler bacillus. It is not justifiable, therefore, to make a diagnosis of diphtherial infection of wounds, either from smears alone or from stained preparations and cultural characteristics. The demonstration that the bacilli produce toxins, ectotoxins, that is, the result of inoculation of broth cultures, is alone capable of proving the presence of infection by the true virulent *B. diphtheriae*. By the staining, cultural and fermentation tests, four cases of apparent diphtherial infection have been detected in a bacteriologic study of 306 cases of open wounds. By the decisive test of inoculation these are reduced to two. There is a large

body of evidence showing that even isolated cases of diphtherial infection of wounds are distinctly uncommon among the wounded overseas, and complete absence of any evidence in Great Britain that these isolated cases have acted as foci for the spread of the infection to other wounded men. No evidence of a widespread infection of open wounds by diphtheria bacilli has been discovered in Canadian hospitals overseas in Great Britain. Diphtheroid bacilli of various orders, while not common, are, as might be expected, more frequent in open wounds. There is no evidence that these have exerted deleterious effects. There is a certain amount of evidence that particular species of diphtheroid bacilli characterize particular hospitals.

8. After-Effects of Wounds of Chest and Treatment.—According to Meakins and Walker deformity of the chest wall is a very important disabling after-effect of gunshot wounds of the chest. This deformity follows most frequently prolonged involvement of the pleural cavity. The early and persistent evacuation of fluid from the pleural cavity, either by aspiration or by operation, is of great importance in preventing the development of the deformity. Especially is this so in cases of hemothorax. The early use of special exercises is beneficial in preventing or overcoming this deformity. The prognosis in this condition is exceptionally good under suitable treatment.

9. Examination of Sputum for Albumin in Tuberculosis and Bronchitis.—Altogether 580 tests were done by Cornell. All tests were done on twenty-four hour specimens. To 5 c.c. of sputum, add 20 c.c. of normal saline and 5 or 6 drops of acetic acid. Shake thoroughly and filter. Test the filtrate by boiling or with nitric acid for albumin. In fifty-seven cases of chronic bronchitis the albumin test was invariably negative. In seventy-three cases of suspected tuberculosis without definite signs about 87 per cent. gave a positive reaction, and probably 60 per cent. of these showed organisms within two or three months. In seventy-one cases of clinical tuberculosis 79 per cent. showed albumin if the sputum was taken during an elevation of temperature, but albumin was nearly always absent from sputum collected when the temperature and pulse were normal or subnormal. In about 98 per cent. of forty-two cases of proved tuberculosis, the albumin test was positive at some period in the course of the disease. The author points out that in examining sputum for albumin, whether the case be one of suspected, clinical, or proved tuberculosis, a negative result gives no information unless the sputum be taken over a period of time on successive days and during a rise of temperature. In other words, choose a febrile period for taking the sputum, as albumin will be present then if ever.

Lancet, London

June 22, 1918, 1, No. 4947

- 11 Modern Views on Diabetes. E. P. Poulton.—p. 863.
- 12 *Treatment of Severe Relapsing Cases of Malaria. E. B. Gunson, F. W. Winning, G. A. Johnstone, J. H. Porter and G. B. Scott.—p. 866.
- 13 Clinical Aspects of Tuberculous Mesenteric Glands. H. W. Carson.—p. 869.
- 14 Sanatorium Treatment of Pulmonary Tuberculosis. N. D. Bardswell.—p. 872.

12. Treatment of Relapsing Cases of Malaria.—A considerable number of patients suffering from severe malaria—amounting in one series of 328 cases to 30 per cent. of the total number under treatment at one period—when treated by oral quinin continue to relapse, develop long periods of sustained pyrexia, or become increasingly cachectic. A group of ninety successive patients of this type were treated by Gunson and his associates by two intensive courses of quinin (intramuscular, 20 grains, 20 grain oral, intramuscular, 20 grains daily for four days, the course being repeated ten days later). The result of such treatment was an immediate, progressive and marked improvement in the general condition in all cases. Relapses occurred in 44 per cent. of cases within four weeks, but were of considerably less severity than previously and were completely controlled by oral quinin. Another series of 552 relapsing cases, less severe in type, were treated during the apyrexia period, by three different methods: A. 368 were given no quinin; of these, 46 per cent. relapsed within three

weeks; *B.* 94 were given 20 grains of quinin on Saturdays and Sundays; of these, 10 per cent. relapsed within three weeks; *C.* 90 were given 20 grains of quinin daily; of these, 8 per cent. relapsed within three weeks.

The authors conclude therefore that routine treatment of oral quinin is adequate in the majority of cases of relapsing malaria; it is necessary to continue the quinin treatment in doses of 20 grains either daily or twice weekly during the patient's stay in the hospital to obviate a high incidence of relapses. In the cases (the minority) where oral quinin proves inadequate intensive treatment by one or more courses of combined oral and intramuscular quinin (60 grains daily for four days) is followed by such marked improvement as to justify the adoption of this treatment as a routine procedure for such cases, the chief indication for this course being progressive cachexia and visceral enlargement in a patient suffering from repeated relapses or prolonged pyrexia and not responding to oral quinin.

Medical Journal of Australia, Sydney

June 8, 1918, **1**, No. 23

- 15 Gunshot Wounds of Knee Joint. B. Quick.—p. 469. To be continued.
16 Portable Apparatus for Administration of Warmed Anesthetic Vapor. C. Dyring.—p. 474.
17 Research and General Practitioner. W. T. J. Newton.—p. 476.

Bulletin de l'Académie de Médecine, Paris

June 11, 1918, **79**, No. 23

- 18 *Treatment of Gastro-Intestinal Atony. G. Hayem.—p. 440.
19 Projectiles in Contact with Vessels. R. Le Fort.—p. 443.

18. **Artificial Mineral Water in Treatment of Gastro-Intestinal Atony.**—Hayem here reports what he calls Nos. 6 and 7 in his series of salt solutions adapted for various pathologic conditions in the digestive tract. Each has been tested in hundreds of cases and has proved its efficacy in the field specified. The formulas are based on certain natural mineral waters, and are adapted for cases of dilatation of the stomach, myasthenia, with or without marked atrophy of muscles. There is usually more or less atrophy of glands in such cases, as well as atony of the bowels. The formula for No. 6 calls for 1 liter distilled water with 2.5 gm. each of sodium chlorid and of magnesium chlorid, with 2 gm. of sodium bicarbonate. If the constipation fails to yield to this, he changes to No. 7 which is the same except that the sodium bicarbonate is replaced by 3 or 5 gm. of sodium sulphate. The magnesium chlorid seems to act on the smooth muscle fibers of the digestive tract, stimulating them to contract and regulating them. He does not mention the doses to be taken.

Paris Médical

May 4, 1918, **8**, No. 18

- 20 Ouabain and Digitalis in Heart Disease. H. Vaquez and R. Lutembacher.—p. 338.
21 *Serotherapy of Meningitis. A. Netter.—p. 343.
22 Present Status of Transfusion of Blood. J. Rieux.—p. 349.
23 *Serotherapy of Pneumonia. P. Menetrier and Wolff.—p. 355.
24 The Chloramins in Surgery and Hygiene. M. Guillot and M. Dufresne.—p. 359.
25 Does Lactic Bacteriotherapy Acidify the Intestines? P. Carnot and H. Bondouy.—p. 365.

21. **Importance of Polyvalent Serotherapy.**—Netter reports clinical experiences which confirm the superior efficacy of polyvalent serums. He specifies in particular that polyvalent serum from the Rockefeller Institute gave better results than the serum made at Paris or obtained from the official establishments at Berlin, Berne, Darmstadt and elsewhere. Some patients who had been showing no improvement under antiserum from the Paris Pasteur Institute began to improve at once to complete recovery under the serum from the Rockefeller Institute. He expatiates further on the advantages of determining the strain of meningococci involved. The results of serotherapy have grown constantly better in his experience with 347 cases in the last ten years since he has made a practice of doing this. The mortality in 110 infants has dropped from 20.5 to 13.2 per cent.; in 199 older children, from 21.4 to 4.1 per cent., and in the global mortality from 16.3 to 8.49 per cent. While waiting for certainty, a

polyvalent serum should be used, or an antiserum for each of the two principal types of meningococci can be injected simultaneously.

23. **Serotherapy in Pneumonia.**—The action of the anti-pneumococcus serum given in twenty-four cases was more intensely toxic than with any other form of serotherapy in the writers' experience. About twelve days after the first injection of serum, ten of the eighteen surviving patients developed general malaise, pains in joints and muscles and some had eruptions. There was also fever, and in some, diarrhea, abdominal pains, vomiting and albuminuria. In one woman of 29 the fever kept at 104.3 for eight days, with other symptoms. In four of the twenty-four a marked and decided change for the better followed the injection of the serum. This group included a pregnant woman and an aged man; both are conditions in which the disease is liable to prove grave. In the others the disease continued its regular course to recovery in all but six; these were exceptionally severe cases or the system was debilitated from other cause. The anti-pneumococcus serum came from the Paris Pasteur Institute.

Presse Médicale, Paris

May 30, 1918, **26**, No. 30

- 26 *War Wounds of Chest. J. L. Roux-Berger.—p. 269.
27 *Reflex Stomach Symptoms. G. Faroy.—p. 271.
28 Factitious Skin Diseases. J. Minet.—p. 274.
29 Bedside Roentgenoscopy of the Wounded. *H. Bécclère.—p. 275.
30 Device to Correct Talipes Equinus. Privat and Belot.—p. 276.
31 *Intertrigo Mycosis. R. Sabouraud.—p. 276.

June 13, 1918, **26**, No. 33

- 32 *Classification of Colon and Proteus Groups. H. Roger.—p. 301.
33 *Projectiles in Pleura or Diaphragm. E. P. de la Villéon.—p. 302.
34 *Soldiers' Enlarged Parotids. C. Mattéi.—p. 303.
35 *Subcutaneous Homohemotherapy. J. A. Sicard.—p. 304.

June 20, 1918, **26**, No. 34

- 36 *Dyspepsias. F. Ramond.—p. 309.
37 Bullet Fractures of Long Bones. J. Delmas.—p. 310.
38 Factitious Jaundice. Héluin.—p. 312.
39 Intravenous Injection of Water-Insoluble Products. P. Chevallier.—p. 312.

26. **Dangers of Incomplete Operations After War Wounds of Chest.**—Roux-Berger has had a number of cases in his service in which complications had developed after a war wound of the chest in which the wound at the first operation had not been thoroughly cleared out. Infected fractures of ribs, shell scraps, etc., had been left in the tissues, or a pleuro-bronchial fistula. Attempts to correct these later necessitated dangerous and tedious operations in addition to the long train of disturbances and sequels from these complications. He emphasizes that all would have been avoided if the wound had been treated thoroughly at the start, clearing out all foreign bodies and warding off infection and hemothorax by taking an inventory, as it were, of all the lesions caused by the projectile and repairing them in turn.

27. **Stomach Trouble of Intestinal Origin.**—Faroy refers to disturbances of the sensorimotor gastric dyspepsia type for which some colon trouble is responsible. The colitis may be latent and unsuspected; the patient refers all his disturbances to the stomach. The drowsiness after meals contrasts with the occasional sleeplessness at night. Sometimes the insomnia is accompanied by agitation, dyspnea, tachycardia and other nervous symptoms. During the daytime there may be headache, lassitude, fleeting rheumatic pains, jumping from joint to joint. The objective findings in the stomach are practically normal, but the solar plexus is tender and spasm of the colon can be palpated. This directs attention to the bowels, and by questioning we get at the diagnosis of an abortive, incomplete form of mucous colitis, the source of the reflex nervous-gastric set of symptoms by mediation of the sympathetic system—an entero-solar-gastric neurosis. Ptosis, atony of the stomach and bolting the food are supposed to be capable of creating a similar set of symptoms, but, more probably, the underlying bowel trouble has simply been overlooked. The causal importance of the intestinal factor is demonstrated once for all by the benefit from a course of laxatives to improve bowel functioning and combat the tendency to spasm. The stomach can be disregarded in treatment. Examination of the stools may suggest the necessity for measures addressed

to the kidney or pancreas, and the neuropathic tendency should also be combated.

31. Intertrigo Mycosis.—Sabouraud describes a form of intertrigo which develops between the toes and seems to be eczema, but is rebellious to all treatment based on this assumption. A special fungus is involved, and the treatment must begin with removal of all the dead and horny tissue, scraping with a curet and pumice stone. If the tissues are made to bleed, this does no harm. The epidermophyton causing the lesion is very vulnerable, but it is embedded in a horny epidermis which protects it unless this is thoroughly removed. This once accomplished, tincture of iodine, diluted 1 to 5, is rubbed very hard into the skin and left to dry. Then a zinc oxid cream is applied. The whole procedure, scraping, iodine, zinc cream, is repeated daily for eight days. Then the zinc cream is changed for a salve of 0.30 gm. chrysophanic acid in 30 gm. lard. Recurrence is the rule because the horny tissues are so seldom completely removed.

32. Classification of Colon and Proteus Groups of Bacteria.—Roger declares that the classification should be by the action of these bacteria on gelatin, on milk and on sugars. His table shows how this brings order out of confusion. He advocates further the restriction of the term "bacillus" to mobile and of "bacterium" to immobile microbes.

33. Projectiles in Pleura and Diaphragm.—De la Villéon has extracted projectiles from the pleura in forty-eight cases and from the diaphragm in sixteen. This experience has convinced him that the best method to extract a projectile from the pleura is by a buttonhole incision, under screen control, except when the foreign body is in the mediastinal pleura. This requires an ample thoracotomy to avoid injury of important organs. The buttonhole incision should always be at some distance from the site of the projectile which is thus reached slanting, to avoid ribs. The long slanting passage of the forceps he has devised for the purpose does not seem to do any harm. With a projectile in the right diaphragm, the forceps are introduced from above, through a buttonhole, the diaphragm resting on the liver as on a table. In the left diaphragm conditions are entirely different, and there would be danger of injuring viscera by entering from above. For the left side, he makes the extraction from below, with a laparotomy incision parallel to the costal arch. With this, the roentgen screen is seldom needed. A high supra-umbilical laparotomy is the preferable mode of access to a projectile in the mediastinal diaphragm. His operations for extraction of projectiles in pleura or diaphragm were done usually after the wound had healed, that is, at least three weeks after the injury.

34. Soldiers' Large Parotids.—Mattéi has investigated fifty cases of what he calls hypertrophic cirrhosis of the parotid glands but was unable to find any history of mumps in the antecedents, or of orchitis. On the other hand in 170 men (French and Americans), who had recently recovered from mumps, he never discovered any tendency afterward to hardness or protrusion of the parotid glands. The chronic large parotids were especially common in Arab and Indochinese troops, but in them the parotids returned to approximately normal size in the spring. They were mostly men over 30.

35. Subcutaneous Injection of Blood.—Sicard reports very favorable experiences with this method, which he calls subcutaneous homohemotherapy. A needle is introduced into the cellular tissue of the abdominal wall of the receptor. Then the venous blood is drawn from the donor into a paraffined capsule and is taken up at once from the capsule into a syringe. The syringe is then adapted to the needle in the receptor's abdominal wall, and the blood is injected at once into the subcutaneous cellular tissue. The whole procedure is simple and harmless and permits injection of from 80 to 120 c.c. of whole blood at one sitting. The blood was always smoothly absorbed in his cases even in the much debilitated. In the last four years he has cured by this means four patients with purpura and internal hemorrhages which had not been influenced by injections of horse serum. They recovered after injection of 100 c.c. of whole blood in this way on four successive days. He also found the method successful in two hemophiliacs who had exhibited anaphylac-

tic reactions when injected with horse serum. The subcutaneous injection of whole blood was borne without mishap and permitted the extraction of teeth in one case and appendectomy in the other case. The benefit is promptly apparent when it is a hemorrhagic case, but takes longer to show in the cases of anemia.

36. The Principal Dyspepsia Syndromes.—Ramond describes the four main types of dyspepsia ordinarily encountered. With the first, the vasomotor type, the meal, especially at night, may be immediately followed by congestion of the face, cold hands and feet, sometimes headache, dizziness, with or without tinnitus, dilated pupils, lassitude, tachycardia, tachypnea, etc., all testifying to vasomotor disturbances of the sympathetic system. The trouble here is not dyspepsia; treatment should be addressed to soothing the nervous system, suppressing stimulants and ordering sedatives, of which belladonna is the most active, with hydrotherapy and hygiene. The second, the cyclic type, includes a vasomotor phase but it does not come on at once after the meal; there is usually an interval of fifteen minutes or more. After the vasomotor phase, lasting for a few minutes or half hour, and an interval of one or several hours, comes a phase of pain. It may be like the pain from a burn or a colic, and the pain may radiate. This tardy pain is probably of inflammatory origin. After the chyme has passed out of the stomach the congested and more or less inflamed mucosa is exposed unprotected to the gastric secretions, and pain results. This explanation is even more plausible in the cases of the third type he describes, the inverse type, in which the pain comes on at once after the meal or after the first few mouthfuls, with possibly nausea and vomiting for a few minutes or half an hour and then these sensations subside, disappearing in the course of fifteen minutes, leaving vasomotor symptoms. The epigastric and xiphoid points are tender and also two points on the left side, at the junction of the cartilages of the eighth and tenth ribs and at a point on the outer margin of the rectus two finger-breadths above the transverse umbilicus line. The congestion or gastritis in this type is in the upper portion of the stomach, while in the preceding type it is in the lower portion. The disturbances in this inverse type seem to be mainly of toxic origin, from abuse of alcohol, from gas poisoning, from auto-intoxication. The fourth type is a combination of these two types, the pain is both early and tardy.

In examining a patient it is important to ask the questions in a certain order, inquiring as to symptoms from waking to bedtime and at night, the nature of the breakfast and whether it is taken with appetite, the sensations between breakfast and lunch, between the midday and the evening meal, the sensations experienced one hour, two hours, three hours after the meal, and the sensations from the stomach during the night. By interrogating the patient in this way, the physician refrains from suggesting symptoms, and at the same time he gets a surprisingly complete oversight of conditions, with consequent indications for the special treatment of each type.

Progrès Médical, Paris

May 25, 1918, 33, No. 21

40 *Psycho-Nervous Pains. Bernheim.—p. 181.

41 *War Neurasthenias. H. Damaye.—p. 182.

42 Phlebitis from Muscular Effort. J. Murard.—p. 186.

40. Pains Created or Maintained by Autosuggestion.—Bernheim gives some typical examples of purely imaginary pains, or imaginary pains grafted on a primary organic pain from some transient lesion. Two of the patients were children of 9; one screamed whenever the umbilicus was touched. A small healed excoriation explained the trouble. In the other child there was pain in the back and hand, sequels of acute articular rheumatism. In the adults the pain developed after a physical effort or joint lesion. In each case waking suggestion cured the pain immediately, or it subsided more gradually, but all yielded in time. In another group of cases the autosuggestion pain, as sequel of some fall or gunshot wound or without appreciable organic lesion, had lasted up to twenty years, and had become rebellious to all measures. He explains that the sensory innervation, like other functions, is rarely in a state of absolute repose; in some region

or other there is an itching, a fleeting painful sensation, a feeling of heat or of heaviness, muscular or vasomotor spasms, etc. These sensations are not noticed as a rule during the day, but, when wakeful at night, they force themselves on the consciousness and are remembered and in the more impressionable may gradually become fixed obsessions. In one case the tenderness and pain were in a small patch in the vertex. Bernheim reiterates that every "psycho-nervous pain," single or multiple, primary or secondary, is amenable to psychotherapy unless of such long standing that it has become a sensory tic as it were. It is important to recognize the nature of these disturbances; when the physician tries one remedy after another on the assumption of an organic basis and the patient feels no relief, the latter is confirmed more and more in the belief that his pain is strongly rooted. The physician thus applies suggestion in the wrong direction.

41. War Neurasthenia.—Damaye has had a total of 123 men with neurasthenia in his psychiatric service in the Amiens region. In seventy-six cases the neurasthenia was pure. These neurasthenia cases formed nearly one eighth of the 916 patients in the course of two years. The neurasthenia occurs in four different forms according as it affects the predisposed or develops after a concussion or bombardment or after a skull wound. The symptoms became attenuated in the majority of cases under treatment with quiet and repose, daily half-hour baths at body temperature, courses of sodium cacodylate, with prolonged hot foot baths or mustard baths in case of headache, wet packs on the cicatrix in the skull and iodized potions, in addition to a calomel purge and milk diet at first.

Correspondenz-Blatt für Schweizer Aerzte, Basel

March 23, 1918, **48**, No. 12

- 43 *Iodin in Prophylaxis of Endemic Goiter. C. Roux.—p. 369.
44 *Eczema Problems. F. Lewandowsky.—p. 371.
45 Artificial Leg. (Eine neue Beinprothese.) W. Odermatt.—p. 380.

March 30, 1918, **48**, No. 13

- 46 Treatment of Fractured Fingers. A. Ziegler.—p. 401.
47 *Asthma in Children and Mountain Climate. A. von Planta.—p. 408.
48 *Ligation of Internal Jugular Vein. Stolz.—p. 415.
49 Modern Dietaries and Dental Caries. H. Koller.—p. 421.

43. Prophylaxis of Goiter.—Roux emphasizes that the one absolutely certain fact acquired to date in the epidemiology of endemic goiter is that iodine, applied at the right time, is the best treatment and that it is usually effectual, and without danger if given cautiously. After the goiter has once developed enough to attract attention, it is too late for iodine to be effectual in the same way. Roux suggests that it would be a simple matter to have an open jar with a few crystals of iodine placed in each schoolroom, the crystals renewed as they evaporate. The amount of iodine thus inhaled would be infinitesimal and could not do any harm, while during the school year it might act as effectually as the iodine inhaled during a month at the seashore, which generally suffices. At the hospital and polyclinic in his charge, he distributes on every occasion small boxwood medallions containing a crystal of iodine in waxed paper. Without waiting for the etiology of goiter to be cleared up, the marvellous and rapid action of preparations of iodine in homeopathic doses on the diffuse goiters of young pigs, young dogs and young children should be utilized in arresting the progress of the goiter and warding it off in others. The only thing is to warn the public and pharmacists of the dangers of iodine medication when not properly managed.

44. Eczema.—Lewandowsky concludes his historical and clinical study of eczema by defining it as the result of a congenital or acquired hypersusceptibility of the skin to irritations of the most diverse kinds, acting on the skin from without or from within. Every case in which an eczema can be traced to a certain definite irritation acting from within is of essential importance, to science, and the reliance here must be mainly on the observations of practitioners. The experts in medical chemistry may then determine the substances circulating in the blood which induce the excessive susceptibility, and seek to reproduce with them the eczema in other subjects. Lewandowsky is professor of dermatology at

the University of Basel, and he advances this hypothesis as to the nature of eczema as the one that to date best conforms to the known facts.

47. Asthma in Children.—Planta reports that seven years of additional experience have confirmed his previous statements as to the value of mountain climate in treatment of asthma in children, especially those of the exudative diathesis type. He practices at St. Moritz and gives the details of twenty-one cases in children in his charge there. Over 38 per cent. have had no further attacks of asthma since their return to the lowlands, and 33 per cent. were materially improved. Five of the twenty-one children have had a return of the asthma since, but in all the children the general health improved remarkably. The asthma had developed between the ages of 2 and 6. One of the cured children is brought back to the mountains for two months each year. He has known of several instances in which children born with the exudative diathesis in the mountains developed asthma when the family moved to the lowlands, and the asthma disappeared when the child returned to a mountain climate.

48. Ligation of Internal Jugular Vein.—Stolz adds a fourth case to the three he has found on record in which ligation of the internal jugular vein had fatal consequences. Linser found evidences of insufficiency of this vein in 3 per cent. of 1,000 skulls examined, and this was five times more frequent on the left side than on the right. Stolz' experience suggests that when a tumor has been compressing the vein, a ligature can be thrown around it without apprehension, as a reliable collateral circulation must have developed. When this is not the case, he advises to clamp the vein and watch what happens in the circulation. If this looks threatening it is better to implant a segment from the saphenous vein after the resection rather than to ligate alone. In his case a cancer in the right side of the neck had been excised, with resection of the internal jugular. The face became cyanotic at once for a time, and the breathing became deep and slow; the man of 56 never regained full consciousness and died the fourth day.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 16, 1918, **39**, No. 39

- 50 *Epinephrin Cardiovascular Test. G. Ghedini.—p. 385.
51 Cysts in the Vagina. F. Bindi.—p. 387.

May 19, 1918, **39**, No. 40

- 52 Chemical Diagnosis of Picric Acid Jaundice. E. Pittarelli.—p. 395.

May 23, 1918, **39**, No. 41

- 53 Abscess in Abdominal Wall Simulating Enlarged Gallbladder. A. Cardarelli.—p. 405.

50. Epinephrin Test of Functional Capacity of the Heart.—Ghedini discusses the value of the information to be derived from the behavior of the heart after epinephrin has induced contraction of the peripheral vessels. The response may vary with the amount of epinephrin already circulating in the blood, also with the degree of arteriosclerosis that may be present, and with other conditions. The response may thus vary widely in different persons and in the same person at various times, giving misleading findings, some persons presenting a strong reaction and others none at all, even under apparently similar conditions. He shows, however, that by combining the test with careful investigation of the blood pressure and pulse before and after, a dependable oversight of conditions may be obtained, beyond anything to be realized with either method of examining alone. The Uskoff sphygmotonomograph, the Pachon oscillometer with recording drum attachment, or other apparatus of the kind, used in connection with the epinephrin test, recording the findings before and afterward, provides an important means of estimating conditions in the cardiovascular apparatus. He adds that the epinephrin test is simple and easy, and seems to be harmless.

Policlinico, Rome

June 9, 1918, **25**, No. 23

- 54 *Treatment of Protozoan Diseases. T. Pontano.—p. 533.
55 Splenectomy for War Wound. I. Scalone.—p. 538.

June 16, 1918, **25**, No. 24

- 56 *False Aneurysm of the Carotid. P. Gilberti.—p. 557.
57 *Treatment of Malaria. D. Giannelli.—p. 562.

54. **Varying the Technic in Treatment of Malaria and Other Protozoan Diseases.**—Pontano is instructor in pathology at the University of Rome, and for a year has been in charge of a hospital there to which are sent the soldiers returning with malaria from Macedonia. In about 11 per cent. of the cases it proved impossible to cure the malaria by the usual method, that is, by giving 2 gm. of quinin by the mouth daily for three weeks, with intermissions of four or five days between the weeks. He explains the various reasons which interfered at times with the systematic preventive use of quinin when the troops were sent to Macedonia. The men were supposed to be taking 0.60 gm. of quinin daily between April and November, but many did not get this systematic prophylaxis all the time. One reason for the nontaking or the nonabsorption of the drug was the epidemic of dysentery which preceded, by a month, the outbreak of the malaria epidemic in each of the two years of the campaign. From this extensive experience Pontano writes that the malaria parasites and protozoa in general are liable to become resistant to the specific drug given constantly by one route. Even increasing the dose manyfold gives no better results. But by changing the mode of administration, the drug then is able to act on the parasites with its pristine force. It is possible that the molecular composition of the drug becomes altered as it enters the organism by another route. A few small doses by subcutaneous or intramuscular injection may speedily conquer the malaria when it had proved refractory even to large doses long continued by the mouth. The same principle probably applies to all protozoan diseases. They may succumb to the same drug when its molecular composition has been modified by changing to another method of introduction.

56. **Paralysis of Recurrent Nerve from False Aneurysm.**—The traumatic false aneurysm from a war wound had induced paralysis of the recurrent and hypoglossal nerves and inability to swallow from homolateral paralysis of the uvula and paralysis of the lingual nerve. Gilberti opened the pulsating hematoma, cleared it of clots, and clamped the trunk of the spurting common carotid. The operation was concluded by ligating the common carotid and also the internal jugular vein. Apparently complete clinical recovery followed. Ligation of both artery and vein reduced both the arterial and the venous circulation together, and the circulation left, although reduced, is balanced.

57. **Treatment of Malaria.**—Gianelli quotes a popular saying to the effect that malaria in a soldier never gets cured, and adds that, unfortunately, this often is true. The lack of systematic quinin treatment is the reason for this, as the malarial soldier passes through so many hands. He urges that special malaria sanatoriums should be established in elevated positions not far behind the front, where the men could be given thorough treatment without delay, before the parasites get too firm a foothold and grow drug-fast. This would also prevent infection of the home regions by the malarial soldiers returning from the hotbeds of malaria in Macedonia and elsewhere.

Riforma Medica, Naples

May 25, 1918, **34**, No. 21

58 Abscess in Abdominal Wall Simulating Enlarged Gallbladder. A. Cardarelli.—p. 402.

59 *Traumatic Hernia of the Diaphragm. P. Guizzetti.—p. 404.

June 1, 1918, **34**, No. 22

60 *Fracture of Internal Epicondyle of Femur. G. Ferrarini.—p. 422.

61 *Treatment of Sciatica by Lumbar Anesthesia. C. Mancini.—p. 428.

62 The Diet and Certain Skin Diseases. D. Barduzzi.—p. 430.

63 Child Welfare Work in Italy. A. Anile.—p. 431.

64 *Care of Tuberculous Soldiers. C. Baduel and C. Mendes.—p. 438.

59. **Traumatic Hernia of the Diaphragm.**—Guizzetti reports hernia of the diaphragm in five soldiers, confirmed by necropsy. Two of the men lived one and eight years after the fall or stab wound causing the hernia. Then strangulation of viscera in the hernia proved speedily fatal. The site of the hernia was in the left pleura in these five cases, and in all he has found reported from war wounds. The liver protects the right half of the diaphragm. The laceration is always in the unsupported center. The colon was found in the hernia

in each of his cases, the stomach in three, and the spleen, besides, in two.

60. **Fracture of Internal Epicondyle of Femur.**—Ferrarini describes the aspect of and symptoms from this typical traumatic lesion of the internal epicondyle of the femur. The epicondyle is tender and every step in walking is accompanied by pain in the inner side of the knee, and by a brusque muscular contraction, a defense phenomenon. Electric tests confirm that the distal attachment of certain muscles has been torn loose, especially the inferior fascia of the great adductor muscle.

61 **Lumbar Anesthesia in Treatment of Sciatica.**—Mancini remarks that the conditions at the advanced front amply explain the large number of cases of sciatica that are found constantly in the military hospitals. Treatment is mainly restricted to local injection of phenol, baths and electricity but the disturbances soon return as a rule after any or all of these. He has obtained much better and more durable results by inducing lumbar anesthesia. He injects 12 or 15 cc. of a 5 per cent. solution of novocain, introducing the needle in the third or fourth lumbar intervertebral space. The relief of pain is immediate and complete. The anesthesia lasts from forty-five minutes to two hours. This brings the anesthetic into direct contact with the roots of the injured nerves, as well as with their connections with the spinal cord. The relief from pain is more complete and more durable than when the anesthetic is injected into the spinal cavity. The anesthetic seems to have a favorable action likewise on motor and trophic disturbances. He has applied this treatment in pure sciatica and also in cases of pain in the sciatic and ischium region from disease or injury by a projectile. Of course the benefit is durable only in the absence of anatomic lesions along the sensory nerve, but even these seem to be favorably modified to a certain extent. Any anesthetic might do, but novocain or its equivalents have certain advantages. He adds a minute quantity of epinephrin to the anesthetic. In one case he injected by mistake nearly twice the intended dose of the anesthetic, but no harm resulted.

64. Summarized, July 20, p. 232, when it appeared elsewhere.

Rivista Critica di Clinica Medica, Florence

May 18, 1918, **19**, No. 20

65 *The Skin in Typhoid. A. Campani and F. Bergolli.—p. 229. Commenced in No. 19, p. 217.

May 25, 1918, **19**, No. 21

66 Prescribing in Wartime. G. Coronedi.—p. 241.

June 1, 1918, **19**, No. 22

67 *Serotherapy in Meningitis. G. Marchetti.—p. 253.

65. **Skin Manifestations in Typhoid.**—Campani and Bergolli found rose spots more pronounced and more numerous in their cases of typhoid with a favorable outcome than in the graver cases. This suggests that they may be regarded as evidence of good reacting and defensive powers. Herpes was noted in twelve of the 350 cases. Desquamation was common, and the tendency to hyperkeratosis of palms and soles with yellowish discoloration—the palmo-plantar sign—was pronounced in the graver cases and in 90 per cent. of the fatal cases. There was also an occasional fetid maceration of the palms. This, with the other skin changes in typhoid, suggests that the skin in typhoid has an active eliminating function for the typhoid toxins, especially the palms of the hands.

67. **Serotherapy of Meningitis.**—Marchetti injected the anti-meningococcus serum one day by the vein, the next day intraspinally, and continued the alternate injections in this way. Only one of the eleven patients died and this one was already debilitated by malaria. The general symptoms grew milder under this alternate treatment, the course of the cases averaging five days less than in the parallel series given intraspinal injections alone. The largest amount of serum used was 280 c.c., the average being 238 c.c. with 125 by the vein and 113 by the intraspinal route. The drop in the mortality from 53 to 9 per cent. was too striking to be merely a coincidence.

Tumori, Rome

May 18, 1918, 6, No. 1

- 68 *Dercum's Disease in Young Soldier. C. Martelli.—p. 1.
69. Cystic Tumor of Kidney. G. Buschi.—p. 18.
70 *When Is Cancer Operable? J. W. Vaughan (Detroit).—p. 46.
G. Fichera.—p. 53.
71 Action of Sarcoma Autolysates on Rat Sarcoma. B. Morpurgo.—
p. 55. G. Fichera.—p. 58.

68. **Adiposis Dolorosa in Young Soldier.**—The symmetrical and extremely painful subcutaneous lipomas were accompanied by profound asthenia, the whole presenting the picture of typical Dercum's disease. The first lipoma developed about one month after the man had made an exceptionally violent effort to lift a heavy stone, during which his shoulder had become dislocated. The pain was intense and the previously robust young man grew weaker as more lipomas developed. They lay free in the subcutaneous adipose tissue and were easily removed. From study of this case and the literature, Martelli deduces that the cause is some upset in the balance of fat production, the result of multiple disturbance in the endocrine-sympathetic systems. It seems that the organism in trying to get rid of the resulting toxic products from this abnormal fat production localizes them in the form of these subcutaneous lipomas.

70. **When Is Cancer Operable?**—This is a translation of Vaughan's work published in THE JOURNAL, Dec. 8, 1917. He referred to Fichera's research and experiences with autolysates of cancer tissue in treatment of cancer, and Fichera here brings the subject and literature down to date.

Medicina Ibera, Madrid

March 21, 1918, 2, No. 20

- 72 *Strabismus. Marquez.—p. 341.
73 Aortitis with Tumor in Sternum. M. U. Sarachaga.—p. 342.
74 *Secondary Nephrectomy. C. Negrete.—p. 343.
75 Alcoholic Polyneuritis. C. Juarros.—p. 345.
76 Eczema Around Orifices. Sicilia.—p. 346.
77 *Titration of Antigen for Wassermann Reaction. J. P. Courtier.—
p. 347.

March 30, 1918, 2, No. 21

- 78 *Remedies for Constipation. F. F. Martinez.—p. 369.
79 *Prolapse of the Urethra. A. Roldan.—p. 372.
80 *Experiences with Wassermann Reaction. Villapadierna.—p. 373.
81 Digestive Disturbances in Children. C. S. de los Terreros.—p. 378.

72. **Strabismus.**—The special features of the case reported by Marquez are that after operative correction of the convergent strabismus of 30 degrees in the young man, the surgical measures were supplemented by exercises to train the eyes in direct vision. These orthoptic exercises complete the task begun by the operation on the eye muscles in severe cases. In mild cases they may alone, with atropin and glasses, correct the squint, thus avoiding the necessity for an operation. (He does not describe the orthoptic measures used.)

74. **Tuberculosis of the Kidney.**—Negrete relieved the threatening symptoms from the tuberculous pyonephrosis by nephrostomy and rinsing out the suppurating cavity. When the woman of 29 had improved under these measures, he removed the kidney, and this secondary nephrectomy was perfectly tolerated and the woman's health has been good since. He warns that tuberculosis of the kidney often presents bladder disturbances as the first manifestation. Later come polyuria, the urine limpid at first and then turbid, with slight hematuria not connected with exercise. Or hematuria may be the first sign of trouble. No time should be wasted in trying to cure the bladder disturbances as the trouble is a renal cystitis. An early diagnosis of renal tuberculosis permits early nephrectomy. To wait for a spontaneous or medical cure is to invite disaster. On the other hand, after removal of a kidney with not very far advanced tuberculosis, tuberculous lesions elsewhere may retrogress, especially incipient involvement of the other kidney.

77. **The Wassermann Reaction.**—Courtier insists that the antigen should be titrated for the Wassermann test. To fix the quantity of complement regardless of the specific power of the antigen exposes to error. He describes a simple method for titrating the antigen, using five sets of tubes.

78. **Habitual Constipation.**—Martinez, in discussing habitual constipation, remarks that the action of purgatives is much more complex than is generally realized. They inflame the bowel, with consequent exudation, they stimulate the digestive glands to hypersecretion, and there is desquamation of the bowel mucosa, along with other phenomena which suggest that the purgative induces the formation of some substance that is carried to all points in the glands, muscles and nerves. A similar result can be attained with magnesium sulphate, he says, reporting excellent results from its use. It modifies conditions so that the habit of constipation seems to be broken up. He gives the magnesium sulphate in a 25 per cent. solution, using ampules containing 0.5 gm. of the drug in 2 gm. of distilled water, and injects one ampule a day, continuing for from six to ten days as a rule in the inveterate cases. In the mild cases one or two injections may suffice, or half the above dose may be given. As a rule, by the sixth or tenth day even the most inveterate constipation is broken up permanently. In exceptionally intractable cases he injected two ampules morning and night, in arm or buttocks.

79. **Prolapse of the Urethra.**—In a girl of 15 the prolapsed mucosa on one side of the urethra resembled a polyp, and it was cauterized. In an older woman the prolapse was annular and extensive, requiring resection of a ring of mucosa. In both cases Roldan insisted on preliminary treatment of concomitant vaginitis as the first step, as infection and hypertrophy of the mucosa are the main factors in the prolapse.

80. **Experiences with the Wassermann Reaction.**—Villapadierna has applied the original Wassermann technic and the simpler Noguchi method, as modified by Azua, and regards the latter as sufficiently exact for all practical purposes. Only when a decision as to marriage or other important question requires extra precision is it necessary to apply both technics.

Prensa Medica Argentina, Buenos Aires

April 20, 1918, 4, No. 32

- 82 Rôle of the Dispensary in the Campaign Against Tuberculosis. G. A. Alfaro and R. Iribarne.—p. 463.
83 *Thyroid Deficiency Inducing Congestions. J. C. M. Fournier.—
p. 463.
84 *Gastric Ulcer plus Polyneuritis. C. B. Udaondo.—p. 465.
85 Teaching of Pediatrics in Medical Schools of Argentina and Europe. M. Acuña.—p. 471.

83. **Thyroid Deficiency of Congestive Type.**—Summarized, July 27, page 321, when published elsewhere.

84. **Gastric Ulcer with Polyneuritis.**—Udaondo's patient was a man of 45 who developed polyneuritis in the course of his florid gastric ulcer. The pains were worse when the gastric ulcer disturbances were most pronounced, and they subsided as the latter improved. Klippel and Weil reported in 1909 three cases of polyneuritis in the course of gastric ulcer, and others have been published since. The ulcers in all the cases had had a protracted course, and the spontaneous pains in the limbs and in muscles were irregularly intermittent. The nerves and muscles involved are sensitive to pressure and there may be some motor disturbance, to lax paralysis. The tendon reflexes are absent or much attenuated, but the muscles show no signs of atrophy, and as the ulcer heals the polyneuritis disappears.

Revista de Medicina y Cirugia, Havana

May 10, 1918, 23, No. 9

- 86 *Trachoma. C. E. Finlay.—p. 233
87 *Laryngeal Tuberculosis in Cuba. J. Aleman.—p. 238.
88 *Sarcoma in Nasopharynx. H. Segui.—p. 241.

86. **Trachoma.**—Finlay queries whether the different varieties of what is called trachoma in Cuba are different forms of a single disease or whether different diseases are not being grouped under this heading. He presents arguments on both sides, without coming to any conclusion although personally he inclines to the single theory.

87. **Laryngeal Tuberculosis in Cuba.**—Aleman found laryngeal tuberculosis in about 17 per cent. of 1,597 cases of tuberculosis examined during 1915. He cites statistics from the literature which show throat or nose lesions with pulmonary tuberculosis in from 13.8 to 97 per cent. This wide variation casts some doubt on the correctness of the observations.

88. **Sarcoma of the Nasopharynx.**—Segui comments on the grave prognosis of these tumors as they develop so insidiously that they are usually far advanced when a physician is consulted. In the two cases he reports, in men of 28 and 52, the younger man complained of headache and epistaxis, and a tumor was found filling the nasopharynx. He refused an operation and died in three months. There were no symptoms in the other case except the sensation of obstruction in the nose. The tumor filling the right nasopharynx was removed but the man returned six months later with intracranial propagation of the sarcoma, speedily fatal.

Revista de Medicina y Cirugia Practicas, Madrid

May 28, 1918, **120**, No. 1508

- 89 Treatment of Femoral Hernia through Inguinal Canal. J. Blanc y Fortacin.—p. 228.

Semana Medica, Buenos Aires

Dec. 20, 1917, **24**, No. 51

- 90 Tuberculous Glands in the Neck. C. R. Lavallo.—p. 685.
91 *Climatic Factors in Treatment of Tuberculosis. P. Galatoire.—p. 689.
92 Hygiene of the Eyes. P. B. Ferro.—p. 706.
93 *Cancer in Buenos Aires. E. R. Coni.—p. 711.
94 Welfare Work in Buenos Aires. E. R. Coni.—p. 714. Cont'n.

March 21, 1918, **25**, No. 12

- 95 Serotherapy and Vaccine Therapy in Various Diseases in Children. R. Cabrera and T. Scannavino.—p. 309.
96 Gastro-Intestinal Symptoms Masking Appendicitis. J. C. Berri.—p. 324.
97 *Necessity for Code of Medical Ethics. E. R. Coni.—p. 326.
98 Pseudo-Appendicitis as Manifestation of Serum Sickness. G. Giacobini.—p. 327.
99 The Campaign against Tuberculosis. C. Ferreira.—p. 327.

91. **Climatic Treatment of Tuberculosis.**—Galatoire's long review of the climatic factors and opportunities for treatment of tuberculosis in Argentina concludes with the statement that the mountain climate is unquestionably an important aid in the treatment of pulmonary tuberculosis, but that a patient should have it impressed on him that he must apply at once on arrival to some local physician. Constant medical oversight at first is indispensable. The measures recommended in his home town or the patient's usual customs, or the customs of an ordinary outing, may prove directly injurious if applied at a higher altitude.

93. **Cancer at Buenos Aires.**—Coni's statistics show that Buenos Aires with a cancer mortality of 8.55 per ten thousand inhabitants is the sixteenth in the list of twenty-four large cities, with Copenhagen and Berlin at the top, with cancer mortality of 16.13 and 13.35, and Chicago and New York the eighteenth and nineteenth, with 7.89 and 7.71.

97. **Code of Ethics.**—Coni relates that for years he has been lauding the Code of Ethics of the American Medical Association, urging that it be adopted officially by the Buenos Aires Medical Association and by the faculty of the medical school, but no steps have been taken as yet in the matter. He here repeats his urgent appeal, saying: "This Code of Ethics comes from the principal medical association of the continent of America, an authority the less to be suspected because it comes from an illustrious and friendly people, educated in the shade of institutions free like our own, and who know how to subordinate the liberty of the citizen to the principles of justice and honor, whatever his standing in the social order. It is not a new code which the American Medical Association has adopted; it is the conjunction of maxims and precepts recognized by eminent physicians the world around. It is only morally binding on the members of the Association, but they impose it on themselves as an undecidable and inherent duty in the practice of their noble profession."

"The precepts which the American Medical Association makes obligatory on its members are equally morally obligatory on all physicians who appreciate their own dignity, respect the dignity of others and consider our profession a sacred trust, not merely a lucrative occupation. These precepts are based on sound principles of universal morality, justice, loyalty and consideration for one's neighbor, which are the same for all the peoples in the world." Coni adds that in his days as a medical student, he never heard any reference

from the teachers to medical ethics, but since then one of the professors of legal medicine has included a few precepts of medical ethics in his course. The Academy of Medicine of Venezuela is discussing at present the adoption of a code of medical ethics, and it is rumored that when a satisfactory code has been drawn up, the central government will enforce it. Coni reiterates in conclusion that the time has come for something of the kind to be inaugurated in Argentina, as lately a certain number of physicians have stooped to practices which degrade the high character of the profession down to the level of a sordid business.

Kitasato Archives of Experimental Medicine, Tokyo

May, 1918, **2**, No. 1

- 100 *Action of Sensitized Cholera Vaccine. K. Shiga, R. Takano and S. Yabe.—p. 1. In German.
101 Cholera Sero-Vaccine. S. Yabe.—p. 13. In German.
102 The Processes of Immunization as They Occur in Subdural Cavity. R. Takano.—p. 43. In English.
103 Glycerinated Cattle Plague Vaccine. C. Kakizaki.—p. 59. In English.
104 Sensitized Plague Vaccine and Its Practical Application. T. Kitano and K. Sukegawa.—p. 67. In English.
105 Technic for Intravenous Injection of Small Animals. K. Shiga.—p. 87. In German.

100. **Sensitized Cholera Vaccine.**—The research on rabbits and guinea-pigs reported seems to show that the serum of a vaccinated animal has a protecting power when injected into another animal. It is readily and rapidly absorbed and induces only very weak reactions. When an animal is immunized by vaccination, the cells acquire a tendency to secrete antibodies. The essential active immunity is thus a cell phenomenon; the antibodies generated and passing into the blood are only a supplementary phenomenon to this.

Mitteilungen a. d. med. Fakultät der k. Univ., Tokyo

Aug. 31, 1917, **18**, No. 2, German Edition

- 106 *Causes of Action of Instilled Drugs on the Eye. N. Kumagai.—p. 103.
107 Absorption by the Cornea. N. Kumagai.—p. 161.
108 *Anemia with Aplastic Bone Marrow. T. Irisawa and K. Koga.—p. 179.
109 *Anaphylaxis with Serum Albumin. Y. Kato.—p. 195.
110 Antipepsin of Stomach Wall. K. Katayama.—p. 235.
111 *Peptic Disturbances in the Stomach. K. Katayama.—p. 253.
112 *Extrasystoles of the Auricle. S. Osato.—p. 265.

106. **Causes of Action of Instilled Fluids in the Eye.**—Kumagai determined the albumin content of the fluid and the pressure in the rabbit eye, and studied them in turn under the influence of atropin, of eserine, pilocarpin and epinephrin. He determined further that the aqueous humor seems to be derived from the iris.

108. **Anemia with Aplastic Marrow.**—The young man was robust, and except for two attacks of digestive disturbance in childhood and in 1913 seemed constantly well. Early in January, 1918, headache and lassitude, chills and vertigo compelled him to stay in bed, and he died in March. The necropsy findings confirmed the diagnosis of primary aplastic anemia. The color index increased above normal parallel to the progress of the disease, from 0.64 the second month to 1.73 the third month, just before death.

109. **Anaphylaxis with Serum Albumin.**—Kato has been studying means to deprive serum of its possible anaphylactic properties. The sensitizing and anaphylaxis-inducing power of the serum of a healthy horse was subjected to various tests, first separating out the different albumins in the serum and testing them separately, comparing the findings with the literature on the subject. Thirty experiments on guinea-pigs are described. When the latter were sensitized with any of the separate albumins from the serum, they reacted with phenomena of anaphylaxis to any of the albumins indiscriminately, but the reaction was strongest to the albumin used in the sensitizing. The water insoluble globulin seems the most active, the water soluble globulin next; the whole serum next, and the precipitate obtained with ammonium sulphate next.

111. **Gastric Ulcer in Japan.**—Katayama found open ulcer in the stomach in 4.3 per cent. and healed ulcer in 3.98 per cent. in 3,942 cadavers at Tokyo, including 574 cadavers of

children under 16. This is a total of 7.96 per cent. which is a larger proportion than is recorded in European and American cities. It is larger than the 5 per cent. credited to England and Germany, but is less than half of Denmark's 16.7 per cent. The gastric ulcer had been responsible for the death only in twenty-seven of the total 314 ulcer cadavers. There was concomitant pulmonary tuberculosis in only 24.2 per cent.; persisting thymus in seven; signs of syphilis in twenty-nine, and hypertrophy of the suprarenals in twenty-nine. Arteriosclerosis was evident in 45.26 per cent. and valvular disease in 21.94 per cent. of the 3,942 cadavers, but the relative proportion was less in the ulcer cases. In a fourth of the ulcer cadavers there were multiple ulcerations. Males predominated in the ulcer cases, but stenosis of the pylorus was found in only four of the 314 ulcer cadavers. The ulceration was usually on the lesser curvature, next in frequency on the pylorus, fundus and corpus; the cardia and greater curvature were rarely affected.

112. Auricular Extrasystoles.—The auricular extrasystoles in the man of 68 seemed to start close to the sinus.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1917, No. 6

113 *Rôle of Field Rat in Spread of Plague. L. Otten.—p. 1.

114 Biology of Small House Rat. L. Otten.—p. 82.

115 *Duration of Infectiousness of Indian Rat Flea. L. Otten.—p. 120.

113. The Field Rat and Plague.—Otten devotes eighty pages to description of his investigations on the field rat and its fleas as factors in the epidemiology of plague. Other writers have reported negative results from such investigations, but his examination of 2,111 field rats showed fleas on 565, and that more than half of the fleas were of the cheopis species. His research indicates that the field rats get this flea from the house rats, but that this species dies off out of doors when inclement weather arrives. The ahalae flea is the regular outdoor flea that infests the field rat the year around. The field rat is susceptible to plague, but Otten does not ascribe any importance to it in the spread of the plague from village to village. He adds that the importance of human traffic in the broadest sense of the term in the spread of plague, both short and long distances, is confirmed anew by his research. He gives thirty-five tables of his research in detail, and remarks that the reason his findings differ from those previously reported is probably because others have left the collections of the field rats and their fleas to the natives, while Otten superintended every step of the work in person in dozens of different villages. The article is in parallel columns of Dutch and English.

115. Duration of Infectiousness of Rat Flea.—In connection with the research mentioned in the preceding abstract, Otten found that forty-three days was the longest period in which the rat flea was capable of transmitting plague. This long protracted infectiousness throws new light on the mode of transmission of the plague by means of human traffic.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

April 27, 1918, 1, No. 17

116 *Polycythemia with Heart Defect. K. A. Rombach.—p. 1144.

117 Tonsillectomy. I. J. van den Helm.—p. 1152.

118 *Amebiasis of Urinary Passages. S. Koster.—p. 1158.

May 4, 1918, 1, No. 18

119 *Cirrhosis of the Liver. N. P. van Spanje.—p. 1221.

120 *The Campaign against Tuberculosis. C. J. Brenkman and L. A. Faber, Jr.—p. 1240.

121 *Slow Sepsis. M. W. Scheltema.—p. 1242.

116. Polycythemia with Heart Defect.—The little girl over 4 years old had typical erythemia with cyanosis and enlargement of the spleen and hemoglobin of 140 or 150 per cent. (Sahli instrument). The reds numbered 7,608,000 to 6,000 whites. Roentgen examination showed that the whole heart was unusually far over on the left side, and that the pulmonary artery cast a protruding shadow, suggesting a patent duct of Botallo, confirmed by the electrocardiogram. Rombach theorizes that this defect prevents proper oxygenation of the blood. The imperfectly oxygenated blood stimulates the spleen to extra functioning, and this in turn has a stimulating action on the blood-producing organs, which explains

the excessive numbers of red corpuscles. This assumption is sustained further by the numbers of "mast cells" in the blood. The child's sister of 21 also has high hemoglobin percentage, 105, and 4,664,000 reds, and the mother and the grandmother are said to have "looked blue" at times.

118. Amebiasis of Urinary Passages.—Koster has found fourteen cases of amebic cystitis or pyelitis on record. In the five bladder cases the symptoms were tenesmus and hematuria; Craig found at necropsy a rectovesical fistula in his case. The ameba in its vegetative form dies speedily in an acid medium; this aids in locating the focus in the bladder or pelvis according as the reaction is acid or alkaline. In a case described, the man of 44 had evidently been a chronic carrier of the ameba for nearly nine years after an attack of acute amebic dysentery in the tropics. Then came another acute attack, followed by pyelonephritis and then by cystitis. The ameba was responsible for both in turn. Under emetin, 0.03 gm. twice a day for five days, the urine was freed of amebas and cysts. The bladder had been given local treatment with silver nitrate, followed by acetate of lead, changing soon to 10 per cent. tannin, as tannin is said to have a specific action on the ameba.

119. Cirrhosis of the Liver.—Van Spanje relates that among the 52 men and 30 women in his service with cirrhosis of the liver, there were 9 of syphilitic and 8 of echinococcus origin. During the same period there were 143 men and 112 women with cancer of the liver. Including the gastric cancer cases, there were 296 men to 196 women in the cancer cases, although the women patients in general much predominated. Abuse of alcohol was evident in about 90 per cent. of the cirrhosis cases. Many had the habit of drinking liquor on an empty stomach in the morning. But in some of the cases alcohol could not be incriminated. The early complaints of loss of appetite, oppression in the abdomen, scanty urine and lassitude, do not point to the liver, but he was impressed with the fact that the beginning of trouble was so often stated to date from a period of severe grief or worry. In two of the cases of obscure origin the spleen was much enlarged, and its capsule had become thick and hard and adherent to the omentum and this to the abdominal wall. Nature had thus done omentopexy, but no favorable influence from it on the course of the disease could be detected, although, except for the absence of anemia, the case suggested Banti's disease.

Some cases ran their course without hemorrhage; in others there was fatal vomiting of blood, or melena, even before ascites had developed. In one man of 48 there was repeated and extensive bleeding from an artery in the cheek. One man of 53 had had two attacks of delirium tremens with an interval of sixteen years. The second attack was soon followed by hematemesis, the man vomiting about 5 liters of blood in four days. The liver and spleen were enlarged but there was no ascites till nearly five weeks later. In another case severe hematemesis was the first symptom; then came a latent period of eight years and then a fatal hematemesis. The liver was not palpable but there was urobilinuria. Necropsy revealed atrophic cirrhosis of the liver. In a number of the cases the cirrhosis of the liver was a necropsy surprise, the patient's complaints not having suggested liver trouble. Liver disease may rouse a slumbering tuberculous process; on the other hand, a tuberculous process may start or aggravate cirrhosis of the liver, especially when the tuberculosis is in the peritoneum.

The benefit from copious diuresis was illustrated repeatedly in his cases. In one elderly woman one drug after another was tried without effect, including digitalis, besides restriction of fluids and warm baths. But striking benefit followed a course of small doses of calomel, 25 mg. with 400 mg. milk sugar, three times a day. The output of urine increased from about 500 c.c. to 3 liters a day and then averaged under the calomel 1,800 c.c. In several cases discovery of the echinococcus, gallstones or syphilis permitted effectual treatment.

120. The Campaign Against Tuberculosis.—Brinkman and Faber deplore the lack of systematic cooperation between family physicians and the medical directors of sanatoriums.

The sanatoriums are filled with the tuberculous for whom there is no prospect of actual cure by this means, thus crowding out those who would really benefit by it. On the other hand, the precariously won benefit is lost in a few months after dismissal from the sanatorium and return to the former conditions of life.

121. Slow Endocarditis or Slow Sepsis.—Scheltema describes a case in a young woman which seemed to be of the slow endocarditis type as there were fever, anemia, enlargement of the spleen and progressive loss of flesh, pains in certain bones and the *Streptococcus viridans* in the blood. The whole syndrome had been ushered in with an attack of influenza. This sepsis lenta kept up with fever for 134 days. Scheltema was unable to determine whether the heart murmurs were the result of endocarditis or of the anemia, but their disappearance when the anemia subsided confirmed their comparatively harmless nature. The euphoria all through the case was remarkable, as also the early recovery of comparative strength when the patient got up after her 134 days of fever in bed. The onset of the fever had been slow and gradual; at first it was remittent and kept within moderate range, except during a period when there was involvement of the right sciatic nerve and an attack of periostitis. The temperature ran up to 41.4 C. during the neuritis and during the periostitis. Each lasted only a few days. Some red and tender spots developed on the legs and also petechial spots. His treatment was with methylene blue, 200 mg. in capsules three times a day, followed in an hour with a large dose of hexamethylenamin. The patient felt better under this treatment, and the temperature displayed a tendency to drop. When a gastro-enteritis developed, with high fever, this treatment was suspended. Then he gave iodine, 4 drops tincture of iodine in a glass of wine three times a day, followed an hour later with 0.5 gm. quinine in a wafer. The fever disappeared after three days of this, falling by lysis, and the patient felt that she was cured. The periostitis and the papulous red spots had subsided when painted with iodine—another reason for trying this drug internally.

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- 122 Gibes at Physicians in the Classics. J. L. Heiberg.—p. 855.
123 *Dystrophy and Xerophthalmia in Infants. II. C. E. Bloch.—p. 868. Conclusion.
124 *Unit for Standardizing Digitalis Preparations. M. Krogh.—p. 874.
125 Strength and Keeping Properties of Digitalis Infusions. M. Krogh.—p. 875.

123. Xerophthalmia and Dystrophy in Infants.—The preceding instalments of Bloch's communication were summarized in these columns, July 27, p. 322. He here theorizes to explain the mechanism of the xerosis which developed among others in eleven children in an institution in his own charge, the infants being supposed to have an unexceptionable diet. Three factors seem to have been operative, a deficiency in fat in the diet, the period of extra growth, and the predisposing influence of a chronic infectious disease. His charts show a surprising concordance between the development of the eye trouble and the period of extra growth, that is, from March to August. From August to December is the period of minimal growth, and from December to March is the phase of moderate growth. These three periods of children's maximal, minimal and moderate growth were first determined by Malling-Hansen but they have been confirmed by others. The xerophthalmia in Bloch's sixty-three cases never developed during the minimal period of growth.

The three factors form a vicious circle: the lack of fat in the diet interferes with the proper development of the child and reduces its resisting power to infections while predisposing to xerosis of the conjunctivas and cornea. The xerosis develops predominantly among infants fed on separator milk, from which the lipid elements have been centrifuged out, or if they get whole milk it has been boiled so thoroughly that the lipid elements have been denatured. The reason why these disturbances are more common in Denmark than in other countries must be because Denmark is a dairy country, devoted to making and exporting butter. The xerophthalmia retrogresses at once, if irreparable lesions are not already

installed, when fat is given the infants, especially cod liver oil, but also cream, butter, eggs or other foods containing the lipid elements not denatured by long cooking. Xerophthalmia, he adds, is probably the main cause for the large number of blind children in Denmark. The cases of blindness of gonorrheal origin in infants are growing constantly less numerous.

124. Standardization of Digitalis Preparations.—Krogh suggests as the unit of physiologic action the lowest concentration of a digitalis preparation which arrests for one minute or more the spontaneous rhythm of the isolated heart of a frog.

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- 126 *Sensibility of the Bones to Pain. G. Nyström.—p. 237.
127 *Pain as Symptom of Fracture. G. Nyström.—p. 257.
128 *Nitrogen-Poor Diet in Nephritis. N. O. Nilsson.—p. 295.
129 *Ethylhydrocuprein (Optochin) in Pneumonia. A. Wallgren.—p. 308.

126. Sensation of Pain by Bone.—Nyström reviews what has been written on the sensibility of the skeleton, and describes experiences in thirteen cases of operations on bones in young and old of both sexes, including a case of sarcoma of the tibia in a girl of 9. He also experimented on himself, having a surgeon expose the tibia and bore into it at two points, above the middle, and again near the malleolus. His findings were constantly concordant, to the effect that the periosteum is richly supplied with pain nerves, but the bone tissue below seems to be entirely nonsensitive. The marrow has scanty pain nerves; the sensation from them is more an ache, and this is induced only by action over quite an area. A single prick is rarely felt. The cartilage of joints and the epiphyses are also free from pain nerves.

127. Pain with Indirect Pressure as Symptom of Fracture.—Nyström gives illustrations of the findings in 100 cases of fracture and several cases of sprains, etc., when the bones were pulled lengthwise or to the side or pushed in, and the resulting sensations compared with the roentgen findings. The soft parts share in the production of the pain, and the findings generally are not specific, but certain instructive points seem to be brought out by his research. Among them is that no pain was induced in this way when the fracture was not complete and there was merely a fissure or infraction. Also with a transverse fracture without dislocation of the stump. The absence of pain with these maneuvers thus does not exclude fracture, but testifies that it is incomplete or in a good position. Pain speaks in favor of a probable fracture when a long bone is involved. The bones of the hand and foot are generally painful on indirect pressure whatever the injury.

128. Nitrogen-Poor Diet in Nephritis.—Nilsson compares the experiences in this line at the University medical clinic at Upsala with recent literature on the diet in nephritis, including a number of American articles. His patients were given about 2,000 calories a day, with never over 40 gm. albumin, and usually less than this. This made it necessary to reduce milk to 50 gm. a day, but butter and sugar were allowed freely. The experiences are too few for a decisive judgment, and it is evident that the type of the nephritis determines the prognosis. At the same time, the parallelism between the rise and fall of the residual nitrogen in the blood and the aggravation and subsidence of severe symptoms, and the improvement in some of the cases as the residual nitrogen dropped while the former condition returned on resumption of nitrogen foods—all these suggest the advantage of a nitrogen-poor diet in renal disease. Close supervision is necessary, and care in preparation of the food to keep the appetite good.

129. Ethylhydrocuprein (Optochin) in Pneumonia.—Wallgren reports that the experiences in his nine cases were disappointing. Three of the patients died. He cites the figures from seventeen writers with a total of 268 cases in which the ethylhydrocuprein was given in the first three days, with 8 per cent. mortality and amblyopia in 7 per cent. In a further series of 134 cases the ethylhydrocuprein had not been given till after the third day. The mortality was 19 per cent. and amblyopia developed in 4 per cent.

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THE CASUALTIES OF WAR AND INDUSTRY AND THEIR RELATION TO ORTHOPEDIC SURGERY *

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With the entrance of our country into the great war, in which we are now involved, there has come a great and new emphasis on the importance of orthopedic surgery. Before our government had placed a regiment on the shores of Europe, even before it had made known its plans for raising its great army of citizen soldiers, we were made acquainted with the fact that it would demand the service of orthopedic surgeons in numbers much greater than were known to exist in the land. It is needless to say that its plans were not based on previous military experience of our country but on the results of three years' warfare among the European nations, both those with whom we are now allied and those with whom we are at present at war. The numbers of wounded have been quite unprecedented, the character of injuries and disablement which has prevailed, distressing beyond all previous human experience.

The call to activity of the orthopedic surgeon came, however, not by reason of either of these factors; it came because it has been found that in him and his peculiar training there lay hitherto unrealized possibilities for the preservation of function in the terribly shattered human frame. It became evident that the orthopedic surgeon was proving himself to be of conspicuous usefulness with his combination of superior mechanical skill and resourcefulness, together with general mastery of the technic of operative surgery. Without such combination we have, indeed, no orthopedic surgeon but merely an orthopedist. We shall not fail to remember that only a few years ago the term "orthopedist" was applied quite as freely to the man who made and sold braces as to the medical man who ordered them; that, not infrequently, mechanical appliances were fitted without professional advice. This was not always inappropriate; frequently the artisan knew more about them and their use than the physician. Many of us, in this day, do not know how large a rôle the skilled workman played in the development of orthopedic apparatus. Hessing, whose appliances have been so largely used by the Germans in times of peace, was not a graduate in medicine, but really a quack; the book published over his

name shows clearly that however marvelous his mechanical aptitude, he was never an orthopedic surgeon. He was an orthopedist, however, and one such as could never be developed by the curriculum of a medical college.

There are quite a few among us in America who have a practical acquaintance with the Hessing types of apparatus as they were extensively used in Germany some years ago. We recognize that they were ingenious, exact in operation and very elegant in appearance; yet we, who are always so ready to adopt that which is mechanically attractive and purposeful, make practically no use of such appliances today. I believe that the reason for this is to be found in the fact that our professional background has become steadily more scientific and, by the measure of this, our methods more direct and simple; we are more concerned with the application of the principles of surgical pathology than with the elaboration of apparatus. It is a striking thing that our colleagues who are working in France have been able to respond to practically all of their needs in the way of mechanical appliances by means of six pieces of apparatus, as they may be modified to suit the various exigencies. Those who know the men will also know that this has not been done at the cost of efficiency. Let us take heed, therefore, and not fail to learn the lesson, for our greatest task is at hand. Let us realize that the fundamental thing about the orthopedic point of view is not that we shall possess superior knowledge in the application of mechanical methods, but rather that we shall be adept in utilizing the mechanics of physiology under conditions both normal and abnormal. From this, after all, must our mechanical methods of treatment be derived.

To my mind, there could be no greater mistake for the orthopedic surgeon than to find in the demand for large numbers of his kind the cause for self-congratulation by reason of the fact that recognition of his merit has become inevitable. On the contrary, he should be sobered by a sense of increased responsibility and should be impelled to inquire with a view to ascertaining the reasons and thus enable himself to respond most efficiently to his enlarged duties. Do we find an explanation of the need for an unusually large proportion of orthopedic surgeons in the Army in the large number of wounded, simply? 'Are the wounds of war so different from those of peace that we find in this the explanation? Has military practice brought forth methods of orthopedic surgery so different from those of peace that this must be considered the reason? Perhaps, with nothing but information at second hand and without any personal military experience, I am not qualified to make the inquiry and consequently surely unable to furnish the answer. I shall leave the decision open, to be finally made by

*Address of the chairman of the Section on Orthopedic Surgery, read before the joint meeting of the Section on Orthopedic Surgery and the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

those whose right to form it is beyond question. At the same time it seems to me that I can forestall it. From the information at hand I believe that however different the causes of injury in combat may be from those operative in industrial life and in times of peace, the results on the human organism can differ only in degree and in the conditions under which the surgeon must do his work. I dare say that there are few injuries of war whose prototypes have not been encountered for years by the surgeons of our large industrial establishments, even though in numbers small beyond comparison in consideration of the time unit. If this be true, perhaps it would be even fair to say that, to this extent, we have always been at war.

WORK OF THE ORTHOPEDIC SURGEON

From the recorded experience of our allies it is already evident that the work of the orthopedic surgeon has accomplished certain things which have established a new value for him in the eyes of military leaders. Through his work many wounded men have been returned to active military duty within a reasonable time, who under former conditions must have been relegated to civil life with their industrial usefulness impaired; thus have been saved to the government two losses. The one is a military loss, as complete as if death had resulted, and perhaps even greater since the burden of care must fall on the military establishment. The second may be spoken of as an economic loss by as much as it means a reduction of the productive activity of the nation; in consideration of the large numbers involved in present day warfare, it constitutes a very great economic loss.

To the members of this section I need say but little concerning that which constitutes modern orthopedic surgery; they, of all persons, should understand that it does not mean a system of practice, that it is neither operative, nonoperative, manipulative nor mechanical in its methods, but that it avails itself of all of these resources as the occasion demands. That which is characteristic of orthopedic surgery today is an especial and distinctive point of view. Sir Robert Jones has expressed this in epigrammatic form by saying that "the orthopedic mind thinks in terms of function." I am unable to refrain from quoting two additional sentences from his recent address before the Hunterian Society. He said:

The pathetic side of an orthopedic center is the collection of physical disabilities which should never have been. The inspiring fact is, that in our experience, hardly a case is to be found to whom we cannot offer help.

Reflection will disclose that within these two short sentences are to be found the widest limits of our activities in cases of traumatic damage.

The justification of specialism can, however, never rest in what the specialist says he can do but in that which speaks for itself as an accomplishment. Neither is specialism in any department of human endeavor to have its *raison d'être* in the limited capacity of the specialist, if it is to mean much to humanity. Specialization in scientific fields is to be justified only as it constitutes an element of human progress. That it may do so implies that men of high ability will devote themselves to it and that they shall have the advantage of applying their talents to a field of limited extent only in order that it may be tilled with unusual care, that its problems may be studied without interference by that diffusion of interest which is necessarily

associated with a great multiplicity of questions. One is to be a specialist, therefore, not in order to fit the task to an aptitude which is restricted, but rather to apply a larger vision to the solution of difficulties in a sphere which is narrowed for the sake of a greater efficiency, and not for any other reason. The success of special endeavor depends, therefore, on the measure of its particular efficiency. Men of distinguished ability are often led astray, however, by the temptation to widen unduly the compass of their labors and at the expense of thoroughness; they fall into the error of believing that their capacities are too great to be confined. The distinctiveness of the product of such a state of mind is far more likely to be quantitative than qualitative. Let us, therefore, not say to ourselves by preference, How many more things can we do? but rather, How much better can we do them? By as much as we can do them better, shall we prevail.

FUNDAMENTAL IDENTITY OF PROBLEMS CONCERNING WAR CRIPPLES AND PEACE CRIPPLES

The burden of my message, however, may be found in the fact that the sentences which I have quoted from Sir Robert Jones are pregnant with meaning, not simply in respect of the injuries of war, but likewise in respect of those of peace. Except as a compound comminuted fracture of the femur has been produced on the battlefield by bullet, shrapnel or shell, it does not materially differ from the one produced in railroad yard or steel mill, as concerns the prevention of deformity and the preservation of function, to begin with, or the correction of deformity and the restoration of usefulness when the primary indications have failed of being met. Unfortunately, both the pathos and the inspiration of Sir Robert's words are as apposite in industrial practice of peace times as they are in military experience, notwithstanding the disparity in numbers involved. The principles are the same; once a man has lost an extremity or has had it crippled, it does not matter how it happened; the possibilities of restoration to usefulness and the means of accomplishment are the same. In some respects the war cripple is, in fact, in advantage over the industrial cripple; he has the advantage of being a part of an exigent national problem, appalling by its magnitude but attractive by its patriotic appeal. The industrial cripple, on the other hand, is very likely to be looked on as the private concern of his employer, whether corporate or individual. The pity of it is that it has required the impulse of a world catastrophe to furnish the proper stress for these facts; they should have been commonplaces in every center of industrial activity in times of peace. But this has not been the case, save in exceptional instances. Immense effort has now to be made to provide curative workshops, equipment for physical therapy in its various forms, and a skilled personnel to operate them, as if these were peculiarly the needs of war times. This is true, however, only as concerns the greatness of the needs. We are plainly guilty of having neglected the means of physical and psychic reconstruction in our days of peace, and we now see the writing on the wall. Orthopedic surgery has been held within too narrow limits, but we are now compelled to recognize the fact that this has had the effect of making the surgeon himself too contracted in his outlook.

The call is for us to meet the emergency of the appalling situation of war, first of all and by all means. We must not rest content with this, however; we must

emerge from the world conflagration as orthopedic surgeons with the broadest outlook, and we must look on the lessons learned in the reconstruction and rehabilitation of maimed soldiers as a heritage to be passed on to the coming generation of our profession and our people at large, but also to be incorporated at once into the service of those whose sacrifices have been made in the peaceful, but nevertheless relentless, combat of industrial enterprise and production. Not until this has been done shall we have responded to our duty in an adequate manner.

THE FREQUENCY OF PULMONARY COMPRESSION SIGNS IN ACUTE FIBRINOUS PERICARDITIS *

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In books on physical diagnosis, attention frequently is called to dulness and bronchial breathing in an area of varying size in the left back just in the region of the angle of the scapula or below it as an accompaniment of pericardial effusion. For example, Musser,¹ under the heading of "Pericardial Effusion," says:

Pulmonary resonance is modified posteriorly. At the angle of the scapula is a small area of dulness, increased vocal fremitus and bronchovesicular and bronchial breathing when the patient is sitting upright, which disappears when he leans forward (Bamberger's sign). The dulness in large effusion includes the axillary region so that it may simulate pneumonia or pleural effusion.

Roberts² thus discusses these pulmonary signs in pericardial effusion:

In considerable pericardial effusion, the condition of the left lung may give rise to a definite group of signs at the back of the chest on that side; namely, a limited area of deficient resonance or actual dulness, about the size of a crown piece, generally localized in the vicinity of the angle of the scapula with increased vocal fremitus, bronchial or tubular breathing, and bronchophony or egophony. Sansom regarded these as valuable signs in children and young subjects. I have in a few instances noted them in older persons, in a pronounced degree. Dr. Ewart attaches special diagnostic importance to a patch of marked dulness at the left inner base, which he described as of square shape with abrupt boundaries, extending for a variable distance from the spine outward and upward, but limited. Over the dull patch respiratory sounds are absent and voice sounds feeble.

Robey,³ in discussing fluid in the pericardial sac, says:

In these cases almost all authors, Billings, Babcock, J. Mackenzie, Cabot, Musser, Parkinson, call attention to a small area of dulness in the left back just inside the angle of the scapula, described by Ewart and produced by mechanical atelectasis of the compressed lung.

These various authors seem to lay emphasis on the pulmonary signs described by them as indicating very considerable amounts of fluid in the pericardium. The writings indicate that the signs are found chiefly in patients who would be diagnosed as having pericar-

ditis with effusion. In my own experience I have been struck with the very great frequency of occurrence of abnormal physical signs in the left lower lobe of the lung in cases which ordinarily would be diagnosed as cases of acute or fibrinous pericarditis because of the presence of a to and fro friction rub over the precordium.

In my wards at the Peter Bent Brigham Hospital I have had opportunity to observe fifty-three patients, almost all adults and some elderly, in whom, among others, the diagnosis of acute pericarditis was made because of an audible pericardial friction rub. Of these fifty-three patients, thirty-nine, or 73.5 per cent., showed abnormal physical signs indicating some sort of a pathologic condition in the left lower back. These were not patients with signs indicating extensive pericardial effusion, but rather, so far as signs over the precordial area go, probably patients with fibrinous exudate, at least over the anterior part of the pericardial sac. Seventeen of the thirty-nine patients showing pulmonary signs had acute articular rheumatism on admission or had had an attack a very short time before admission.

As an example of the occurrence of these compression signs, Case 1 will serve:

CASE 1 (P. B. B. H. Med. No. 1159).—A woman, aged 48, was admitted to the hospital, May 5, with a history of acute rheumatism beginning one week prior to that time. On admission her heart was essentially normal and her lungs were normal. May 14, she had a recurrence of acute rheumatism. May 19, a slight pericardial friction rub was detected over the precordium. By May 25 this friction rub had become very distinct. June 2, the pulse suggested partial heart block. June 8, there was made out at the left back below the angle of the scapula moderate dulness with distinct bronchial breathing. Three days later bronchial breathing at the left base was loud and there was distinct bronchophony. By June 9 these pulmonary signs had entirely disappeared. During the period of the rheumatism, the patient's temperature fluctuated between 100 and 102 F. During the period of development of the pericarditis and of the signs at the left base, the temperature fluctuated from normal up to 100, from which point it gradually fell to normal; but the change in temperature was at no time sudden, such as might be expected from a consolidation ending by crisis.

When the physical signs are more extensive, the difficulty of making a diagnosis is increased, as is shown in Case 2:

CASE 2 (P. B. B. H. Med. No. 2201).—A man, aged 20, admitted, January 20, with a history of developing rheumatism three days before he came in, was found on admission to have normal heart and lungs. January 23, there was a suggestive pericardial friction sound, and the area of cardiac dulness was slightly increased. The pericardial friction rub became much more definite, January 26. January 28, roentgenoscopy revealed only a moderate degree of cardiac enlargement, and no pulmonary lesion. January 29, pericardial friction sounds had disappeared. February 3, dulness and bronchial breathing were noted in the left back from the spine of the scapula to the base, and in the left axilla below the fourth rib. The observer interpreted these as compression signs. Another observer on the same day interpreted the findings as consolidation in the left lower lobe. A little later, on the same day, bronchial breathing was noted in the entire distribution of the left lower lobe, including that portion of the lung that lies over the lower outer quadrant of the precordium. The finding of this very extensive consolidation coming well over the precordium indicated to this observer that there was an actual consolidation rather than simply compression. Two days later the dulness and bronchial breathing persisted over the lower back as well as over the precordium. On this day the left chest was tapped in several places to see if any fluid

* From the Medical Clinic of the Peter Bent Brigham Hospital.

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Musser: Practical Treatise on Medical Diagnosis for Students and Physicians, Philadelphia, Lea and Febiger, 1913, p. 615.

2. Roberts, in Allbutt and Rolleston: System of Medicine, New York, the Macmillan Company, 1909, 6, 61.

3. Robey, W. H., Jr.: Acute Pericarditis, Am. Jour. Med. Sc., 1917, 153, 529.

could be obtained. All of the tappings were negative. On the next day in the left back dulness was found from the middle of the scapula to the base. Over the upper part of the dull area there was distinct bronchial breathing for from 2 to 3 cm., then a rapid decrease to distant and finally practically absent breath sounds. Two days later the signs in the left back were noticed to be decreasing, and during this period the temperature gradually fell to normal. By February 11 the signs in the left back had decreased so that there was remaining only a small area of intense bronchial breathing just below the level of the angle of the left scapula with rather suppressed breath sounds generally throughout the back. During most of these observations no râles were heard in the left lower back. February 13, another roentgenogram of the chest disclosed nothing to indicate fluid or pneumonic consolidation on either side. March 1, the patient complained of pain in the left side, and a slight friction rub was heard. The next day, on the right side low down in the back there was dulness to flatness with markedly decreased breath sounds, absent tactile fremitus, and the voice sounds had a nasal quality. Roentgen examination of the chest revealed the signs of a moderate amount of fluid on the right side. Two days later 300 c.c. of fluid were withdrawn from the right chest. Following this the signs in both backs gradually cleared up, and no abnormal pulmonary signs were made out subsequently during a prolonged stay in the hospital.

In this case, during part of the time at least, it seemed probable that there was actual consolidation of the left lower lobe. However, the patient ran the same course as others in which the pulmonary signs were regarded as due to compression.

Another example is afforded by Case 3:

CASE 3 (P. B. B. H. Med. No. 3799).—A woman, aged 40, began to have rheumatic pains four days before admission. When she came in there was a pericardial friction rub audible over the precordium, and slight dulness at the left base of the lung. Two days later the dulness at the left base was more marked, though not more extensive, and over it bronchovesicular breathing was heard and there was a slight nasal twang to the whispered voice sounds. Ten days later the dulness was still present, and there was the same quality to breath and voice sounds over the left lower back. Two days later it is described as being a practically flat percussion note from the midscapula to the base on the left, with distinct bronchial breathing and bronchophony but no râles. This area extended to but did not occupy the axillary region. Three days later the dulness had increased and breath and voice sounds had become somewhat distant, suggesting fluid in the left chest. A trocar was introduced, and 300 c.c. of fluid were withdrawn. After withdrawal of the fluid, the dulness decreased; but the bronchial character to the breath sounds persisted. During all this time the pericardial friction persisted, and three weeks later it was still present and the pulmonary signs on the left remained as previously described. Ten days later the pericardial friction had disappeared, and the pulmonary signs were gradually decreasing.

Here there was demonstrated pleural fluid in moderate quantity; but its removal did not greatly alter the physical signs, and it seemed as if in addition to the fluid there was some other cause for most of the physical signs described above.

In another patient very similar conditions existed:

CASE 4 (P. B. B. H. Med. No. 6225).—A woman, aged 62, entered the hospital, February 28, with chronic nephritis. March 15, she developed a to and fro friction rub over the precordium and showed slight dulness over the left lower back, with distinct bronchial breathing over part of the dull area. Two days later the pericardial friction rub was loud and there were both bronchial breathing and bronchophony in the left lower back. The following day she died and necropsy revealed acute pericarditis with a slight excess of pericardial fluid. In the left pleural cavity there were 300 c.c. of fluid, and the left lower lobe of the lung showed atelectasis.

Here pleural fluid without doubt contributed to the pulmonary signs in the back, but atelectasis was more marked than one ordinarily encounters with that amount of pleural fluid. Still in this particular case there was but little pericardial fluid at the time of death.

The physical signs in these cases have varied much. In some the dulness is slight, in others well marked; usually it is distinct, and if small in area, occupies the region just about the angle of the scapula. When more extensive, it occupies the lower one third to one half of the back; but as a rule it does not occupy much of the axillary region. Over the dull area in part or in the whole there is bronchial breathing of varying intensity and bronchophony. Râles are usually not present.

EXPLANATION OF THE PHENOMENA

What causes these pulmonary signs with acute pericarditis? Their great frequency in this group of cases indicates a causal relationship. That the signs described above are nearly always on the left and rarely found on the right suggests that they are related to the heart in some direct way. Two explanations offer themselves: one, that a distended pericardial sac presses on the lung and causes compression signs; the other, that an inflammatory process extends from the pericardium to the adjacent pleura or lung and leads to changes there responsible for the pulmonary signs.

In most of our cases the heart outline was not greatly increased in size, and the pericardial layers were in contact, at least in front, as shown by the to and fro friction rub. The pulmonary signs here described are not common with cardiac hypertrophy and dilatation unaccompanied by pericarditis, even when the size of the heart is very great. Williamson⁴ has emphasized the early appearance of fluid about the apex and behind the heart in pericardial effusion a position in which pressure would be exerted readily on the lower left lobe of the lung; and this suggests a possible reason for pressure on the lung from a distended pericardium with a friction rub heard over the precordium. However, in the necropsy cited, only a little excess of fluid was present in the pericardial sac, and this was true in a second necropsy.

In none of our cases with these signs was there clinical evidence of extensive pericardial effusion. In a few cases the attempt was made to tap the pericardium, but no fluid was obtained. Consequently it would seem that these pulmonary signs may occur when there is no excessive amount of pericardial fluid and so no very great mechanical pressure from the heart and pericardium of this origin. If they result from pressure, the element of quick development of dilatation of the pericardial sac and especially of the posterior portion must be an important element.

On the other hand, in several cases we have obtained small but never large amounts of fluid from the left pleural cavity during life, or found it at death in the few fatal cases; but in other cases no fluid could be demonstrated by puncture. The finding of pleural fluid suggests an extension of the inflammatory process to the pleura, with a moderate pleural exudate causing pressure on the lung or possibly leading to consolidation of the lung. In the necropsy just cited, atelectasis of the left lower lobe of the lung was found. As we have seen the cases, the pulmonary physical signs clear up gradually while the temperature curve gradu-

4. Williamson: The Medical Clinics of Chicago, March, 1917, p. 937.

ally declines as the signs of pericarditis disappear. Moreover, those pulmonary signs seem to have little influence on the course of the disease. Often they occur when the patients are not very sick and do not influence to any extent the respiratory rate. Most of the patients recover except those in whom the pericarditis is more or less a terminal event in some chronic disease. All of this is against an ordinary pneumonic consolidation. Perhaps both factors are present—there is pressure from a distended pericardium or pleural fluid or both, and some inflammatory change within the lung accentuates the effect and causes the physical signs, when under other circumstances equal pressure from an enlarged heart or pleural effusion does not lead to similar signs.

Whatever the explanation, dulness, bronchial breathing and bronchophony over the left lower back are very common accompaniments of acute pericarditis, and in our experience when found suggest acute pericarditis even though at the time of the observation no pericardial friction rub is detectable. In a few cases we have made this tentative diagnosis, and in a few days have heard the pericardial friction rub develop as confirmatory of our opinion. In our experience, these signs do not indicate necessarily any large amount of pericardial fluid nor call for any attempt to tap the pericardium to withdraw fluid.

SUMMARY

In a large percentage of patients with acute pericarditis (thirty-nine, or 73.5 per cent. of fifty-three patients observed), definite physical signs are found in the left lower back. These are dulness of varying extent and usually bronchial breathing and bronchophony. The signs appear to be the result of compression of pulmonary tissue, that is, atelectasis of the left lower lobe. Moderate amounts of pleural fluid are often demonstrated. Compression either from the heart and pericardium or from the pleural fluid or from both appears to be the main cause. Intrapulmonary changes of an inflammatory nature may play a part, but this is not proved. The frequency of the occurrence of these signs and their localization on the left point to some causal relationship to the acute pericarditis. The pulmonary signs exert little influence on the course of the disease and the prognosis. Almost all of the patients recover, except those in whom the pericarditis is more or less a terminal event in some chronic condition.

ABSTRACT OF DISCUSSION

DR. WILLIAM H. ROBEY, JR., Boston: Sir James Mackenzie states in his book that on one or two occasions he has tapped in this posterior area which Dr. Christian mentioned, supposing that he was dealing with a pleural effusion. Later, from the relief in cardiac signs, he was convinced that he had aspirated a posterior cardiac effusion. In one case which I found in the literature these signs were present near the angle of the left scapula. Pericarditis with effusion had been suspected, but on aspirating the sac in the anterior areas usually selected for aspiration, no fluid was obtained, still the symptoms indicated that fluid was present. Aspirating near the angle of the scapula brought forth 400 c.c. of seropurulent fluid. Four or five days later, there still being cardiac distress, aspiration was again attempted and 600 c.c. of seropurulent fluid were removed.

It is surprising how much fluid the pericardial sac can hold. Cases have been reported in which as much as 3,500 and 4,000 c.c. have been found in the sac. In a case which we had in the Boston City Hospital there was very evident cardiac distress, but there was also a left pleural effusion. The patient

was a child, 11 years old, with hydrothorax, and with very marked cardiac symptoms, dyspnea, breathlessness, orthopnea. On tapping in the axillary median line evacuated some fluid, but very little relief was obtained from the cardiac distress. Tapping again in the same area, and pushing the needle forward, a large amount of bloody fluid was obtained, and the patient had almost immediate cessation of the cardiac symptoms. What we did was to go unwittingly into the pericardial sac on the second aspiration, causing cessation of the symptoms.

The cases which are apt to mislead us are those in which the heart is pushed forward against the chest so that there is no diminution in the sounds, and we feel the cardiac impulse against the chest wall with considerable force. In one case the sounds were so prominent we were doubtful of the presence of fluid, but the roentgen ray showed a steadily increasing cardiac area, and aspiration removed 150 c.c. of fluid. Of course, if you get any fluid on aspiration, it means that there is an increase in the amount, because the 50 c.c. which the sac normally contains for lubrication is so evenly distributed in the pericardial sac that it cannot be obtained unless the sac is distended.

Another point: In these early cases the patients will give no indication, such as pain. In only 25 per cent. of the cases of fibrinous pericarditis is pain a symptom. I know that this is at variance with the experience of many clinicians. Possibly, the reason is because quite a number of the cases occur in the course of pneumonia, and the patient is so ill and so often suffering from pain in the chest due to the pneumonia that the pericardial pain is overlooked; but in some of the worst cases of purulent pericarditis that I have seen, and which I have followed from their inception, there was no pain at any time. Pain, if it does occur, is apt to be present very early in the disease when the sac begins to be distended. Of course, if there is a fibrinous rub, an indication of fibrinous pericarditis, that may be the only sign elicited that fluid is accumulating, but, as Dr. Christian says, in cases in the rheumatic group the effusion is apt to quiet down, and Dr. Chapin says he has never had occasion to aspirate the sac.

DR. H. D'ARCY POWER, San Francisco: As I understand, the principal question brought up by Dr. Christian is the pathogenesis of the symptom of dulness over the base of the left lung occurring in many cases of pericarditis, and, seemingly, the amount of necropsy evidence is not very large. That is the reason it is well to give the necropsy findings in one undoubted case of this type. Some time ago I reported four cases of chronic nephritis of the so-called Rose-Bradford type. One of the patients died and three or four days before death the symptoms referred to by Dr. Christian were very marked; that is, on first seeing this case, there was a distinct pericardial friction rub and a distinct area of left basal dulness, with the usual signs of consolidation. At necropsy there was entire absence of any consolidation in the lung. The lung was in the state of passive hyperemia and slightly edematous. The heart had great left ventricular hypertrophy, but, nevertheless, it was a small heart, and there was only a little fluid in the pericardium, though there was sufficient evidence of the pericarditis to account for the physical signs. The case is valuable because it is clear that the pulmonary condition was not due to pericardial compression from fluid in the pericardium, nor was it due to any enlargement of the heart itself. There must be some other factor which we must seek for to account for this frequent left-sided pulmonary dulness in pericarditis. I have met with it frequently, but this was the only occasion I have had to check the diagnosis by necropsy.

DR. FRANK B. WYNN, Indianapolis: The cases reported by Dr. Christian suggest the etiology from the rheumatic standpoint—a clear history of rheumatism, followed by friction rub and such physical signs as would ordinarily be expected in pericarditis. I assume, from what he stated and the other speakers said, that the opinion generally held is that pericarditis arises from infection through diseased tonsils and bad teeth, contaminating the blood stream, and so the pericardium becomes infected. More frequently than is generally supposed, pericarditis arises from contiguity of infection in the

pulmonic and pleural tissues. In tuberculosis of the lungs and pleura, especially in children, the necropsy often reveals extension to the pericardium. Pericarditis is of much more frequent occurrence than we have been taught to believe. In the postmortem room one is impressed by the frequency with which white spots are observed over the parietal pericardium, indicating pericarditis during life.

DR. GEORGE D. HEAD, Minneapolis: I have been struggling during the last winter with three of these cases which Dr. Christian has described. There are many difficulties which confuse the determination of the actual condition existing in the lung, in the left pleura and in the pericardium. The absence of fluid in the left pleural cavity as revealed by the exploring needle and the absence of the signs of fluid in the pericardium and the presence of well-marked signs of dulness and tubular breathing in the base of the left lung, leaves one with the impression that a consolidation of the lung exists. Necropsy experience, however, clearly indicates that this is not the case, in many cases. Inasmuch as the patients rarely die, one does not have an opportunity of confirming the diagnosis by postmortem examination. In none of the cases which I have had an opportunity of studying has death occurred. I would like to ask Dr. Christian whether post-mortem evidence in the two fatal cases which he reports showed a large fibrinous exudate in the pericardium, without evidence of fluid, and whether, in his opinion, in any of these cases the signs exhibited in the left lower lung posteriorly were caused by pressure symptoms produced by a pericardial sac distended by a fibrinous exudate. I should like to know whether the necropsy findings in Dr. Christian's cases revealed the presence of a large fibrinous exudate in the pericardium.

DR. LAWRENCE LITCHFIELD, Pittsburgh: Unless I am mistaken, you are going to learn more about pericarditis than ever before. If you take the conditions we have had at the base hospitals as an indication of what you are going to have in civil practice, you are going to have a lot of these streptococcus cases of pericarditis, serous, serofibrinous and purulent. The question of tapping the pericardium is an interesting one. I have seen many cases of streptococcus empyema, many of them with pericardial effusion, and the varieties of the pocketing of the fluid—in different parts of the pericardium, in the pleura overlying the pericardium, and beneath the anterior lappet of the lung at the side of the pericardium, and behind the pericardium—make it so enigmatical that I do not feel you can be absolutely certain in any given case whether you are in the pericardium or not. I did feel much more confidence until in a recent case we got pus by needle in an empyema overlying the pericardium, and diagnosed pyopericardium, yet the operation showed this pus to be in the pleura, while postmortem showed that there was also considerable fluid in the pericardium, but serofibrinous. It seems to me that the greatest aid we have in determining the presence and location of fluid is the most careful, systematic and oft-repeated fluoroscopy of all these cases. We at Camp Lee would feel that we were almost hopelessly crippled if you took away our fluoroscope. All our doubtful chest cases are fluoroscoped, and fluoroscoped repeatedly, in both horizontal and upright positions, when possible, and at all possible angles of obliquity. I know of no other method of investigation which has added so much to our knowledge of these cases. Fatal cases have been roentgenographed postmortem also, and fluoroscopic and plate findings studied by the light of the necropsy findings.

DR. GRANVILLE RYAN, Des Moines: In a limited number of cases the fluoroscope has been a wonderful aid in determining whether empyema was present or whether it was a case of lung abscess or of pericarditis with effusion. Major Miller of Camp Dodge called my attention to the great value of the fluoroscope, and of percussing the patient in the upright position. The fluid can be seen very plainly. In a number of these cases we have found a beginning pericarditis associated with or following acute rheumatism, with a hypostatic condition of the lower lobe of the left lung. By getting a good roentgenogram we found a marked shadow in the lower lobe of the left lung, and by giving the patient expectant treatment the lung cleared up and the pericarditis cleared up

largely within a very short time as the symptoms of the rheumatism cleared up.

It has been my observation that many of these cases of pericarditis have followed acute infections of the throat. I feel that many men have made a mistake in overlooking the streptococcus infection of the throat or passing it by lightly.

DR. HENRY A. CHRISTIAN, Boston: I want to emphasize the good prognosis in these cases. From physical signs the outlook is pretty serious—the patient has an acute infection of the pericardium, there are physical signs in the lungs that, off-hand, suggest pneumonia. Almost all of the patients get well, and you need not worry very much about the outlook. I have not included any cases of pneumonia and empyema in this group I have reported, but have dealt with those cases which begin as acute infections and have signs, as far as we can judge, of pericardial exudation. I realize the great difficulty of localizing fluid, especially in connection with the typical types of pneumonia and the frequency with which these types of infection are accompanied with trouble in the pericardium; but these cases are not included in this group, and there is no reason to suppose that in the cases I reported empyema or pneumonia was present, except for the physical signs. The fact that these patients get well without tapping, without any particular treatment, except for their rheumatism, is strong evidence against their having empyema and fairly good evidence against their having ordinary pneumonia. Roentgen-ray studies in these cases have not given very much information. The physical signs are behind the heart shadow, and in rotating the body to get a better view you get tangled up with the shadow of the vertebral column and you do not get a very good picture. The roentgen ray has not helped us much in detecting fluid in the pericardial sac. The roentgenologist diagnoses its presence from the silhouette of the heart. In my experience there usually is no fluid. My reason for saying that is that those particular cases diagnosed as pericardial effusion by the roentgenologist often terminate fatally, and at necropsy you do not find fluid. I have a number of such cases recorded. Pericardial effusion, in my experience, in the sense of fluid being present in sufficient amount to embarrass the heart and need tapping, is an unusual condition. In the last five years we have successfully tapped the pericardium twice, once in a child with pus. The patient died the next day, and necropsy showed that, although we had gotten a considerable amount of pus out, we had also left some behind. The other case was one of pericardial effusion in which we at one time removed 600 c.c. of fluid. The second time we removed 400 c.c. of fluid. The patient died two months later. Necropsy showed some chronic change in the pericardium with no recurrence of the fluid. Neither of these cases with the large amount of fluid showed these pulmonary signs of compression. Why, I do not know.

Now, you may say, we miss a great many cases of pericardial effusion. Perhaps we do. If these cases that I have reported have pericardial effusion, they have it in insufficient amount to require tapping. Against the fact that we miss many cases where pericardial effusion is an important factor in the condition of the patient is the fact that we have averaged necropsies in 60 per cent of our fatal cases, and no case has turned up with considerable pericardial effusion, except in the two I have referred to, and they were discovered during life. So that the number of cases with fluid requiring tapping is very small. It is an unusual condition to have fluid in the pericardium of adults that requires tapping, and there is no reason to tap the cases such as I have described; in fact, there is no reason to worry about them, because at the time these patients do not look sick, and almost all of them get well. What the infection is I do not know. I have given some suggestions as to what the pathology is. Those are only suggestions, because we have had necropsies in only two cases. They showed atelectasis without any considerable amount of fluid in the pericardial sac or in the pleural sac. The exudate was fibrinous with a very moderate amount of fluid.

Lice on Flies.—The *Hospitalstidende* quotes a German writer to the effect that human body lice have been repeatedly found clinging to the bodies of ordinary house flies.

PUS IN THE FEMALE PELVIS

A SURGICAL RETROSPECT *

JOHN YOUNG BROWN, M.D.

ST. LOUIS

In 1877, Mr. Tait published a series of papers recording his observations on the etiology, pathology and treatment of ascending infections of the uterus and adnexa. For many years following his teachings, then considered revolutionary, a most bitter controversy ensued. He was subjected to the severest criticism and abuse. In England and on the continent, as well as in America, the profession was divided, many men rallying to the teachings of the Birmingham School of Gynecology and many others fiercely opposing them. At the International Medical Congress in 1881, Sir Spencer Wells, in a bitter attack on Mr. Tait, made the statement that he had seen only one case of pus tubes and that he supposed they all went to Birmingham.

As time went on, Mr. Tait and his pupils demonstrated conclusively the fact that pyosalpinx was due to an ascending infection and that cellulitis, parametritis and perimetritis were, with rare exception, secondary to infections of the tubes. It was also conclusively demonstrated that such conditions were susceptible to radical surgical relief.

In this country, under the leadership of the late Joseph Price of Philadelphia, a similar battle was waged. To Price, more than to any one man in America, is due the credit of having placed pelvic surgery on a sound and substantial basis.

MANY RECOVERIES WITHOUT SURGICAL AID

A review of the literature of the last thirty years on the treatment of pus in the female pelvis will show that the pendulum has frequently swung from extreme radicalism to ridiculous conservatism. All must admit that in the early days of this work, tubes and ovaries, which are so essential to the health of women, were sacrificed by the thousands. This, however, was in no sense due to the teachings of Tait or his pupils. In one of his works,¹ he states it to be his belief that many cases of acute inflammation of the uterine appendages end in complete recovery, and he further states that there can be equally no doubt that a very large number of them do end in this way.

But these are not the cases that are seen by the specialist. The patients who come to us are chiefly those who have recovered from the acute stage and passed into a condition of chronic invalidism. This class includes those who suffer from chronic ovaritis, chronic salpingitis, even simple adhesions of these organs, and who are always worse still if the adhesions are complicated by occlusion of the fallopian tubes and their distention, either by serum or by pus or by bloody fluid; and any man who has run through a long experience of general practice may easily call to mind fifteen or twenty cases of the kind that he has seen, all of which ended under his care in apparent recovery: That is, the acute stage passes off and the patients rise from their beds, after a more or less prolonged convalescence. But he does not see these twenty cases ten or twelve years afterward. Those of them in whom the damage has been sufficiently great to cause prolonged suffering, seek relief from the specialist at the hospital or in his consulting-room; and therefore it is that the shield con-

cerning which so much discussion has arisen is found to have both a gold and a silver side, and has to be looked at from both sides before a reasonable understanding can be arrived at.

WATCHFUL WAITING VERSUS OPERATION

After all, the treatment to be applied to any given case of purulent salpingitis must be left to the judgment of the surgeon in charge. It has been clearly established that general peritonitis following salpingitis is an exceedingly rare occurrence. It has also been clearly proved that in 98 per cent. of these cases, the acute condition will subside if the patient is given a rest in bed and proper medical attention. It is, therefore, safe in all cases to practice watchful waiting and to govern future operative treatment by the conditions present after the acute inflammation has become tranquil. It has also been demonstrated that such patients may be operated on with safety during an acute attack. In view, however, of the fact that many of them recover completely without operation, it is unwise to operate at this stage, as such work would, in all probability, lead to unnecessary sacrifice of the tubes and ovaries, which, if left alone, would be restored to usefulness by nature. In those cases in which acute exacerbations of chronic pelvic inflammation occur and in which the uterus is fixed and the adnexa are tightly bound down by old adhesions, it is wiser to defer operation until they become quiescent.

Dr. F. F. Simpson of Pittsburgh, in a paper read before the American Gynecological Association, advocated that all such patients should be put to bed and that no operative work should be done until they had been free from high temperature for three weeks. Dr. J. G. Clark of Philadelphia, has pointed out the impossibility of carrying out this procedure in the average hospital case. While admitting the wisdom of Dr. Simpson's contention, he urges earlier interference.

I cannot persuade myself to believe that tubo-ovarian abscess with multiple abscesses and strictures in the fallopian tubes can be relieved by any operation short of radical removal. Cases have been reported by most competent observers in which these conditions are relieved by baking, tamponing, curetting, hot douching, and similar conservative methods of treatment. Apostoli and his pupils reported many cases of fibroids cured by electricity, but we hear nothing of this treatment today. If gynecologists are able to cure such patients by treatment of this type, they are not the type of cases that come under my care. Neither do I believe that such patients can be cured by vaginal drainage or that most unsurgical procedure, rectal drainage.

A study of the tissues removed from the type of patient that is now subject to radical operation will demonstrate this conclusively. Incomplete work is responsible for an immense amount of suffering. I heartily agree with Mr. Tait when he says, "I am quite certain now that in the hands of a competent operator there are no adhesions of the uterine appendages which cannot be overcome, and no case ought to be left unfinished. Incomplete operations are the opprobrium of abdominal surgery, and operators ought to be more discredited by them than by anything else."

It is unnecessary before an audience of this type to discuss the technical details involved in the handling of such conditions. Each case is a law unto itself and the surgeon must adjust his work to meet conditions.

* Read before the Section on Obstetrics and Gynecology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Tait, Lawson: Diseases of Women and Abdominal Surgery, Philadelphia, 1889, p. 377.

DRAINAGE

There are certain points relative to drainage to which attention may well be called, as the outcome depends largely on the proper application of a drain. After the operator separates the adhesions and removes large and inflamed pus tubes, whether the operation be removal of the adnexa or a hysterectomy, the culdesac is left denuded. We were taught by Price the value of the coffer dam drain. Dr. Coffey of Portland, Ore., a few years ago in a paper read before this Association, elaborated on the technic of applying this drain. With slight change in detail the method of Coffey is almost identical with that of Price. When the pathologic condition has been removed and all angulations of the small bowel have been separated and denuded surfaces have been covered, with the patient in the Trendelenburg posture, the intestines are lifted up out of the culdesac. Gauze tape about 36 inches in length is now placed from right to left, filling the culdesac and covering all raw areas. The end of the gauze is brought out at the lower angle of the wound and slipped through a very thin rubber tube. The wound is then closed in the usual manner.

A properly adjusted drain of this type, I am confident, will prevent many cases of postoperative ileus. Such drains can be removed without difficulty, and while an occasional hernia may result from their use, the clean convalescence of patients who have received a peritoneal toilet of this type more than offsets this objection.

CONCLUSIONS

1. Many patients with acute salpingitis recover and remain permanently well without operative intervention.
2. Ninety-eight per cent. of such cases will become quiescent and the pathology will be limited to the pelvis.
3. With rare exceptions, operative work should not be undertaken in the acute stage of pelvic inflammation.
4. When operative work is undertaken, it should be radical in the extreme.

Irish Moss as a Food.—Consul H. Abert Johnson, Dundee, Scotland, says (*Commerce Reports*, June 21, 1918) the Dundee Food Control Committee has recently had its attention directed to the value as a food of what is known as carrageen, or Irish moss. It is claimed that the potentiality of carrageen as a food has been fully recognized by Scotch and Irish people for generations.

Carrageen is known in various parts of Scotland under the name of "hen's dulse"; to the scientifically inclined it is known as *chondrus crispus*. It grows abundantly on rocks and stones within the littoral zone, flourishing in salt water which has a dash of fresh in it. In its natural state it has the appearance of dwarf dulse, the small flag being soft and cartilaginous, and in color it ranges from a greenish yellow to a purplish brown. When picked and sun dried it becomes translucent and of a horn-like consistency. Among the poorer classes in Scotland it is boiled in water until it assumes the consistency of porridge and is served in a like manner with milk. It forms a jelly in about 20 to 30 times its weight in water, but is more commonly used in making various kinds of puddings. Other purposes for which it may be utilized is fining beer and in connection with calico printing. It has 55 per cent. of mucilaginous matter, 10 per cent. albuminoids, and 15 per cent. mineral, being rich in iodine and sulphur. There is little doubt that carrageen, if methodically collected and properly used, would help in augmenting the national food supply.

RECTAL SECTION FOR PELVIC ABSCESS *

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ST. PAUL

Several years ago, before the Surgical Section of this Association, my senior associate, Dr. A. MacLaren, called attention to the efficacy of rectal section in certain phases of peritonitis. During the succeeding years the operation has, on many occasions, served its purpose to such a satisfactory degree that we have become earnest advocates of its use and are continually seeking the opportunity to have it performed. Such a method of drainage, departing from more accepted methods, lacking refined technic, and in some degree offending surgical principles, can be made popular only when it can be proved worthy.

It may be that the operation is in universal use, but the results are too variable, the experience with it too limited, and the procedure too simple to secure for it the consideration it merits. In speaking of its performance, we are met with more or less surprise, as though it were an entirely new suggestion. Often the justifications and indications are questioned, particularly on the grounds that pus accumulation in the abdomen may be reached by more accepted surgical avenues.

Those of experience in gynecologic surgery need no advice in the selection of cases for vaginal section. This was, at one time, an operation in wide use and patients were frequently subjected to it, many of whom would today be considered unfitted for it. It is our experience that vaginal section is becoming ever less frequent. It is probable that in many such cases, classed as tubal in origin, the infection was due to other causes. The great advance in the science of midwifery and the wider information on the perils of abortion and miscarriages have, beyond a doubt, greatly diminished infection of these organs. It is true, however, that in many cases the effect was most satisfactory, followed by immediate recovery, and it is certain that pelvic abscess of appendiceal origin was not uncommon among them.

It would seem reasonable to expect that peritonitis, resulting from appendicitis, with all the publicity and exhaustive discussions would lead to a full appreciation of the necessity of early surgical attention. There are, however, many cross currents of opinion as to the proper method of care, not only affecting the profession but also confusing the laity. The result is that the problem of perforative appendicitis and peritonitis is ever present.

The diagnosis of acute appendicitis is not always easy. The sequence of general abdominal pain, nausea or vomiting, localization of tenderness in the right fossa and occurrence of varying degree of fever, runs true to form in most cases. Nevertheless misinterpretation or minimization of the symptoms, neglect of the patients, and lack of hospital care or difficult transportation lead to frequent cases of perforative appendicitis, not only of recent origin but also of many days standing. Even in early operation, the chance of insufficient or indirect drainage is always present, and with the inexperienced operator and sometimes with operators of experience, the first operation may be incomplete.

* Read before the Section on Obstetrics and Gynecology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Pelvic abscess is therefore a possibility in every case of acute perforative appendicitis, and may form, early, late or remote, because of the several foregoing contingencies. Its occurrence is most serious to the patient who must submit to further operative work, and most disturbing to the surgeon who assumes the responsibility. It is possible, then, that this simple procedure may solve the problem.

VARIOUS ASPECTS OF THE OPERATION

There is but little to say and the comments to be made may be briefly summarized as follows:

1. It is not in any sense an exploratory operation! Digital examination should reveal a round, resistant mass—a bulging of the anterior rectal wall. It is surprising how far distant from the anus this may occasionally be. Any uncertainty should lead to a postponement or acceptance of other measures. On three occasions, under imperative circumstances, the puncture was made either without result or with the result that so small a quantity of pus was obtained as to have no bearing on the case. We have come to believe that its use should be limited strictly to that case in which the mass is well defined.

2. When it is a primary operation, the patient is brought in with rigid abdomen, with all the constitutional signs of virulent infection involving a large area of the peritoneum, and in such a condition owing to the long period of the inflammation that a laparotomy would be most critical, as evidenced by the high mortality in these cases. Almost constantly laparotomy reveals fluid in the pelvis constituting the general feature of the general peritonitis. We have come to believe that if the abdominal pressure can be relieved by the removal of the fluid from below, the patient will thereby gain the balance and the laparotomy attack will be withstood without risk. This was done in seventeen cases, in two of which the situation was cleared so satisfactorily that the patients refused formal operation and left the hospital without further attention. It is, however, seldom that the pelvic accumulation is sufficiently definite at an early date in the course of the inflammation to justify puncture. In several of these cases the puncture was done on the fourth, fifth and sixth, and, remarkable to state, on the tenth day. When the patient has weathered the process this long, localization has to some degree taken place, and it must be admitted that several of the patients in the seventeen primary section cases would have recovered without its performance. It has the very great advantage of evacuating the quantity of pus, which often adds to the

seriousness of the formal operation. The puncture will drain only a part of the field and if it is undertaken, laparotomy should soon be done, as the primary abscess about the appendix may lead to a recrudescence of the serious symptoms.

3. It is as a secondary operation that it has its greatest effect and is best considered as an accessory—a follow-up procedure in the complicated case.

4. It should not be considered a last-resort operation. We have been called to operate on moribund patients who were carried along by so-called conservative measures to a point beyond relief. We believe that no patient should be denied the operation, whatever his condition, providing the local indication is present, nor should a few or a series of successful cases lead one to accept it in lieu of laparotomy in the hope of the formation of a pelvic abscess.

Under this heading, attention is also called to the fact shown in two cases, that rectal drainage will not

always drain pus from the left fossa, so that a temporary improvement should not argue against counter opening above.

5. The operation has no advantage over vaginal section and its use is thereby confined to men and children.

6. The dangers and risks of section are not to be considered because of the usual imperative circumstances. The bladder should always be emptied by catheter as the inflammation contiguous to this organ may cause incomplete emptying. Puncture of the bladder, however, may lead to no serious results, providing the damage is immediately repaired. In one early case, the bladder was opened and closed without causing any symptoms whatever.

Some vessels of the rectal

wall may be cut across. In one very young child there was a good deal of bleeding. This baby died, and death may have been due to hemorrhage, although at the time our feeling was that her death was inevitable. In no other case was there any accident.

7. The technic (if the operation may be so dignified) is simple, involving an empty bladder, a thoroughly dilated sphincter, the demonstration of the mass back of the prostate, the incision by sharp pointed scissors, the dilatation of the opening by dull pointed forceps, and the insertion of a winged rubber tube. If the patient is in an exaggerated lithotomy position, it sometimes brings the field more in line with the eye. This helps a great deal at times and it is surprising how far back from the anus the point may be. The tube remains a varying period and is to be left longer rather than to be removed early. Several times it was reinserted and we have seen no ill effects from delayed removal.

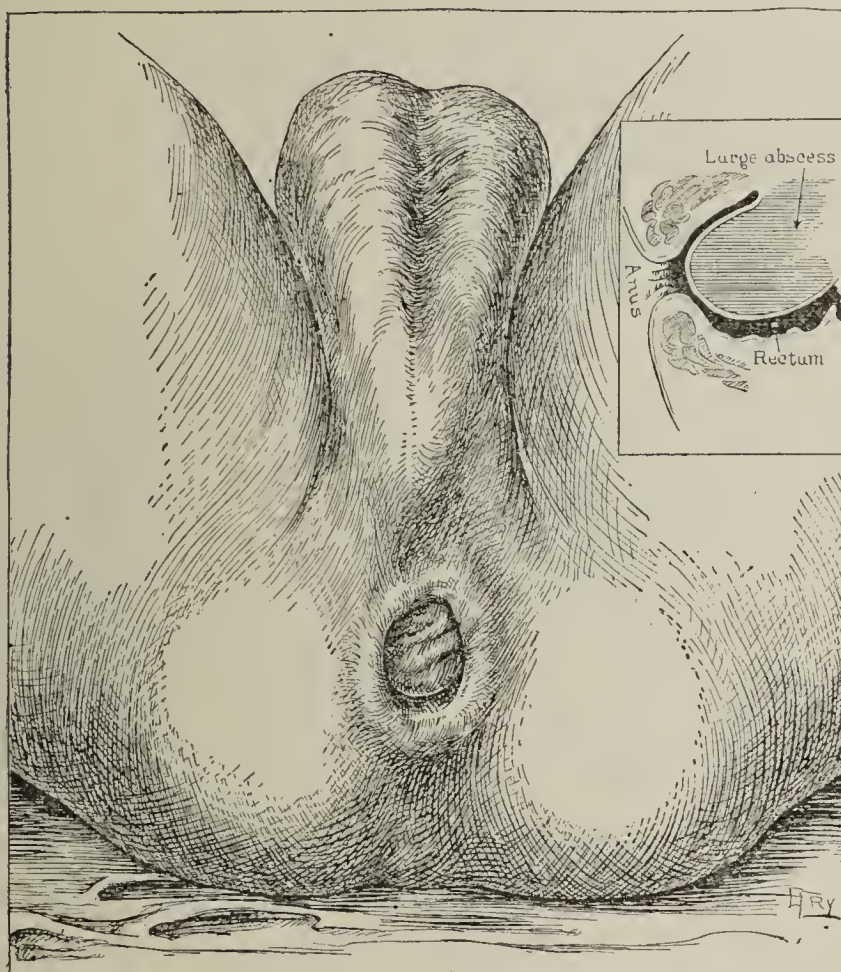


Fig. 1.—Dilatation of sphincter from pressure of large pelvic abscess through anterior wall of rectum.

The search for pelvic abscess is really the most important feature. It is surprising how frequently the rectal examination is forgotten when in many conditions its value is proved. While all women with acute abdominal symptoms are subjected to vaginal examination, the rectal examination in men and children is often overlooked. When a patient is under observation it is not wise to allow one examination to decide. Repeated examinations are necessary, as it is surprising what changes may occur in a few hours. In this connection I shall cite one remarkable case: A routine examination of a young boy, to whom I had been called in the country to drain an empyema, and who presented some abdominal symptoms which could readily be placed as concomitant to the lung condition, revealed a pelvic abscess. I was then able to do a rib resection and rectal puncture at the same sitting and cure the patient, whereas a laparotomy, under the circumstances, would have ended fatally.

CONCLUSION

It is difficult to present any statistics and I think it hardly necessary, for the reason that the occasion for the performance of the operation is not frequent. Keeping it in mind and looking for it several years, we made the puncture in but fifty-three cases. The principles of abdominal drainage are well standardized and rectal drainage is not suggested as a substitute for established methods. But once in a while, a critical situation arises in which a rectal examination will reveal an accumulation so definite as to solve the problem. The primary section is but a temporary affair and must be followed soon by the major operation procedure. The secondary section is often dramatic. The patient, already subjected to formal operation, has every expectation of recovery, but does not do well, the pain continues, and the fever is still up. He is restless, anxious, often critical of nursing and orderly attention and fearful of further surgery. It is then that this operation merits closest attention. In the properly selected case, its effect is positively startling.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. BROWN AND RITCHIE

DR. J. H. CARSTENS, Detroit: All the work we have been doing for twenty-five years ought to enable any doctor to diagnose appendicitis; and, if you have a case of appendicitis, why open down in the rectum, when you can get the appendix out so much more easily through the right inguinal region. Nature walls off this abscess, plasters on exudate, plasters on intestine and plasters on omentum to keep it localized in that particular place, and then if you will open the abscess you will have no trouble in draining it, and in twenty-four cases out of twenty-five healing will take place. So, I cannot see why we should open it in the rectum. In an exceptional

case, in which an abscess develops between the bladder and the rectum, wholly spontaneously you might say, the abscess might be opened through the rectum. But in that kind of a case a cure is attained spontaneously by rupture of the abscess into the bowel. We followed Tait and Price for a good many years. Tait had wonderful results because he operated on these old chronic pus cases that were sterile. We, in this country, did not always wait until the case was chronic and sterile, but operated in the acute stage, with the result that our mortality was 15 instead of being 4 or 5 per cent. Finally we learned that the best thing to do was to let the acute cases alone. Ninety-nine per cent. of them will recover. If later they show symptoms we can do whatever is necessary. In some of these cases radical operation must be done. You may have to remove the tubes, but you can usually save the ovaries, or at least one. One of the gentlemen spoke of the so-called cofferdam of Price. He is about twenty years behind the times. Why not drain by gravity? In these cases I open the culdesac and insert a little rubber tube with a cross piece, so that it will not slip out, and that will drain. I close the incision absolutely, and whatever septic material may

have to come out goes down the drain. When the acute symptoms have subsided, showing that the microbes have been killed and walled in, then is the time to operate.

DR. E. E. MONTGOMERY, Philadelphia: Having graduated at about the time that Tait issued his great lesson on surgical treatment of pelvic inflammation, and having been contemporaneous with Dr. Price in the work which he did in Philadelphia, I appreciate greatly the work done by these men. They were positive in their opinions, and yet much has been learned since their time concerning the treatment of many of these conditions. Patients suffering from gonorrheal infection of the tubes, with a palpable mass in the pelvis, have been advised of the absolute necessity of removal of such an inflammatory mass, but refused operation, recovered and gave birth to children. This led to the knowledge that many of these patients do much better surgically if operated on late. As has been said, after the microorganisms die the condition becomes sterile. In another class of cases the inflammation extended through the tubes leading to inflammation of the peritoneum and

a mass within the pelvis. It was then found that a vaginal incision might be employed for relieving acute symptoms in a case unfavorable for radical operation and that many of these patients recovered. This was shown to be a procedure which could and should be employed in cases with a mass in the pelvis capable of being reached readily through the vagina. In other cases it was found that abdominal operation was necessary. I fully agree with Dr. Carstens that there should not be drainage through the abdominal wall, that the patient should not be subjected to the discomfort of such drainage, to the prolongation of convalescence and the danger of subsequent hernia when drainage is so readily possible through the vagina. In many of the cases in which there was extensive suppuration within the pelvis, the packing of gauze, supplemented by the introduction of a tube, kept the intestines out of the pelvis until the peritoneum could be reformed, and spared the patient the danger of adhesions. The tubes and ovaries are not always responsible for pelvic abscess. The appendix may be the cause. In such cases the evacuation of the pus will not afford complete relief, because there are other pus pockets higher up around the appendix.

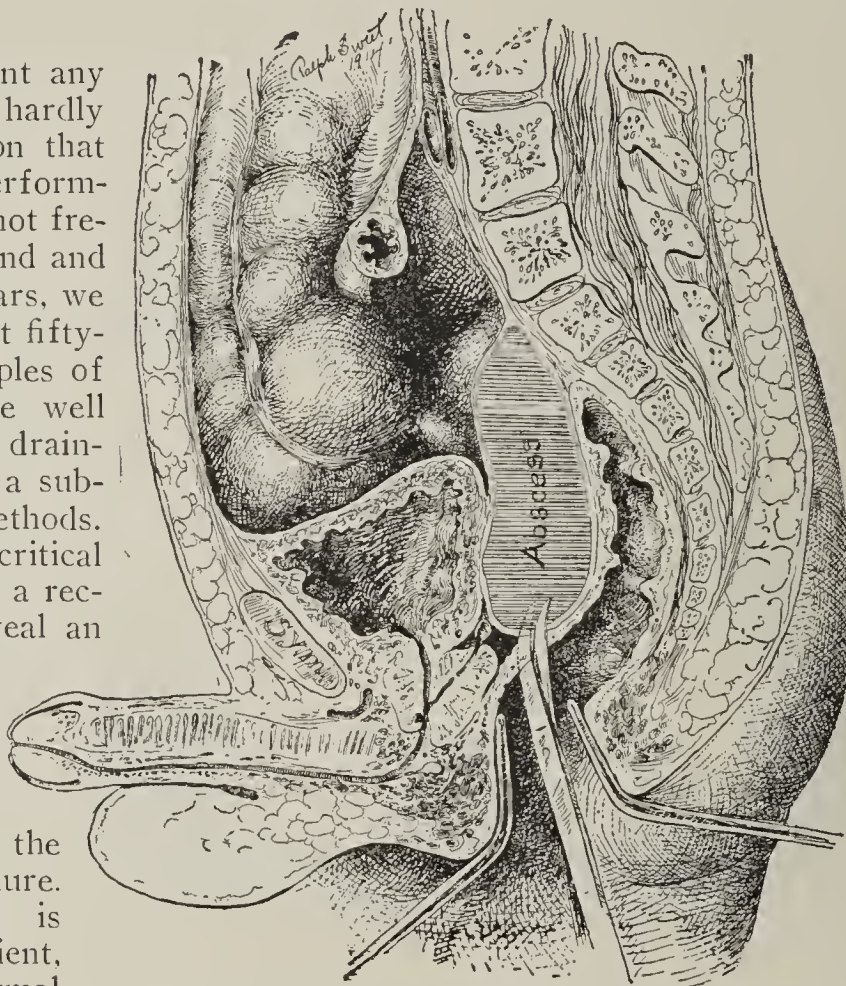


Fig. 2.—Method of opening small pelvic abscess; scissors used to puncture abscess and as dilators.

I recently saw a woman who had pus in the pelvis. I opened the abscess through the vagina. Drainage tubes did not give the expected relief. An abdominal incision was made and it was found that the appendix was the cause of the infection. There was pus not only around the appendix but higher up, walled off in the liver and spleen. In this case, therefore, drainage had to be instituted on both sides of the upper abdomen as well as through the vagina. The patient recovered. Now, in reference to the paper by Dr. Ritchie in which the abscess occurred as the result of appendicitis and was walled off in the lower part of the abdomen bulging into the rectum, there is no reason, in my judgment, why he should not, as a prophylactic measure, open this abscess and effect evacuation. This leaves the patient no worse, better, indeed, because he has gotten rid of that pus. The cases, in my judgment, would be limited to men, since the vagina affords a much better means for relieving the condition in women. Whenever the intestines are patulous, with no kinking above the point where the bulging occurs, an incision in the rectum has no ultimate bad effect.

DR. G. N. THOMAS, El Paso, Texas: Our point of view on the subject treated in these two papers depends on the line of work we are doing, the nationality of the patients and the grade of operations. We all agree on the different stages of pelvic conditions. Few surgeons would want to operate during the acute stage. In the El Paso County Hospital most of the work is done on Mexican women. The infection is nearly always neisserian and probably in all cases goes through the vagina, uterus and tubes. In the American woman the infection is mixed and enters through the broad ligament producing adhesions down in the culdesac. I divide the infection into the acute stage and the stage in which the inflammation runs a normal course. If a secondary temperature starts up and there is marked bulging over either tube the case is surgical in almost every instance. If the case, after running an acute course, becomes normal and with proper care the temperature and symptoms do not again become pronounced, operation is avoided. The cases which are best treated through a vaginal incision are those in which there is bulging of the culdesac and fluctuation. In other cases better results are obtained by abdominal section, and then the stab puncture in the culdesac is unnecessary.

DR. MATHER PFEIFFENBERGER, Alton, Ill.: Walling off the abscess and proper drainage has reduced the morbidity and mortality in these cases to a minimum. Comparing the condition of pus in the pelvis to pus in the appendix and gallbladder would, in the latter case, liberate the pus as quickly as recognized. Why not do likewise in the pelvic cases when it could be done safely? Dr. Ritchie spoke of a well defined mass in the pelvis and evacuation per rectum. Both tubes may be involved in the female and yet only one abscess is palpated. One tube might be evacuated and the other not. My practice is to make a rectal examination in appendiceal trouble. You can then easily explore and ascertain whether the abscess is in the pelvis. The abdominal route with drainage, in my opinion, gives the best results.

DR. HORACE G. WETHERILL, Denver: It is hard to believe that the nationality or race of the individual patient would make a very great difference in the pathologic process. It would make little difference whether the infection were "neisser" or not so "nice." Certain types of infections run certain courses. It is the consensus of opinion today that abdominal operations should not be done in the acute stage of tubal infection. After they have become chronic, operation may be done with better results. The infection is more or less self-limited, and if we let it alone it will often take care of itself, and the patient may even bear children afterward. The limitation of the infection is governed by the biology of the particular bacterium involved, and the life of most bacteria is limited. If we are going to operate on these patients in the chronic stage by an abdominal operation we must consider carefully whether we want to drain, and, if so, how. My experience is that in cases in which a very considerable degree of sterilization has taken place no drainage whatever is necessary. I have gone in, as all of you have, broken up these cheesy masses, taken them out and closed without drainage

and had the smoothest possible convalescence. I agree with Dr. Carstens as to drainage. One more phase of this question must be considered. We know now how infections may be taken up from certain local foci in the blood stream and may cause difficulties in other parts of the body. We must consider these local foci of infection from the standpoint of a focus from which a constitutional infection may arise, and it frequently becomes necessary to do an operation because of constitutional toxemia from such origin.

DR. PETER B. SALATICH, New Orleans: One of the mistakes many of us make, and which is the reason we have hernia, is the fact that we leave too big an opening for the drain. I leave only room enough beside the drain for the entrance of the forceps. As a means of preventing adhesions I take a piece of rubber tissue and suture it with fine catgut to the bottom of the pelvis so that it will come up in a fan-shape, then close the incision as tightly as possible. I do not drain by the vagina. Many of these patients have too short a rest period. I keep the patient in bed for four or five weeks, and after the temperature has subsided and remains so for three or four days, if the structures are movable, I operate. I remember one case of pelvic drainage in a woman who had an abscess on the right side above the umbilicus. The temperature was 105 F. Drainage was established through the vagina. In two or three years it was necessary to do a laparotomy, when I found that this tube was absolutely free, the only evidence of drainage being a small patulous opening about the center. Another mistake we make is that we drain for too long a time. I make it a rule when I put two cigaret drains in to take them out at the end of forty-eight or ninety-six hours. Then I place one little drain at the level of the incision.

DR. ROBERT T. MORRIS, New York: In any acute inflammatory process the bacterial involvement will be self-limited. The best way to control the acute process is by the Clark opium treatment. It is the best treatment if you do it in the right way. In West Virginia they say that whisky is a cure for snakebite, but that the only way to use it right is to "have it in you when you're bit." If you are going to use opium in the right way you must get the respirations down to 10 and 12 and keep them there. Clark says do not measure the amount of opium you give, but measure the respirations of the patient. There is much to be done in the way of conservatism in the saving of structures. Often we do not find the fimbriated end of the tube. I do not believe in removing the uterus. I am sure it has an internal secretion of its own. You can do a lot of conservative work where you really are at liberty to use judgment in your conservatism. In the acute stage you cannot use conservatism. Here the means of making a diagnosis are not on the same basis.

DR. JOHN YOUNG BROWN, St. Louis: My paper dealt entirely with ascending inflammations of the pelvis. Those of us who are old enough can recall that fifteen or twenty years ago Henrotin of Chicago advocated doing away with laparotomy and urged that all pus collections be attacked from below. In all inflammations above the pelvic brim I operate early. When the condition is an ascending infection the time to operate is when the condition is quiescent. Hard and fast rules of when to operate and what operation to do cannot be laid down; each case is a law unto itself. Regarding drainage from above, I agree that many cases can be closed without any drainage at all. The cofferdam drain I have been using is used not so much for drainage, but to lift the intestines up out of the pelvis and to prevent the small intestine falling back and producing ileus. I have never seen a case in which I felt justified in opening an abscess through the rectum. If the conditions were reversed and the abscess were attacked from above and it happened that the rectum was injured there is not a man who would not close that abdomen with a good deal of temerity. I have never seen an occasion to do this operation. I have seen one case in which there was a large accumulation of pus in the pelvis, with the woman in an acute condition with a bulging abscess in the vagina. As a primary measure such a case should be opened through the culdesac and further work done governed by the conditions left. Each case of this type is a law unto itself and the sur-

geon must adjust his work in accordance with the condition which confronts him.

DR. HARRY P. RITCHIE, St. Paul: I want to correct any impression I may have given that rectal section ought to take the place of any formerly recognized procedure. Practically every case has been subjected to the ordinary drainage. When one presents such a bizarre operation for drainage, it is certainly open to criticism. Only under certain circumstances is it justifiable. When the abscess presents at the pelvis and a simple procedure will give evacuation of this abscess from below there is no question but that it is the proper thing to do and is an easy way out of a critical situation.

THE TOO INTENSIVE ARSPHENAMIN TREATMENT OF SYPHILIS *

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Syphilis therapy, in spite of its remarkable present day attainments, remains, as ever, a greatly mooted problem. There is much variance in opinion in regard to what agents and methods best subserve their purpose. The modern arsphenamin remedies of par excellence, and the remarkable laboratory achievements in therapeutic precision and control, have been able to secure scarcely more unanimity of opinion in this special field of therapy than the less efficient remedies and the uncertain methods of the past.

Seven years of general experience with arsphenamin has been ample to accord to this remedy its well recognized preeminence as the most efficient of all antisyphilitic remedies. Nothing has yet been advanced, however, to clearly, definitely and decisively demonstrate that any one given method of systematic treatment answers its purpose best.

Arsphenamin therapists can be conveniently divided into two factions: (1) those who believe in intensive, frequently repeated, almost to the point of tolerance, and long continued administrations, and (2) those who practice a more conservative, less frequently administered plan of treatment. The former method has by far the greater number of adherents, and has received almost universal sanction and recognition.

In my early arsphenamin experience I adopted the intensive method of treatment. I shared the general conviction that if one administration was efficacious and devoid of deleterious results, a half dozen or more well tolerated administrations could be manifold more efficacious. A year of carefully exercised serologic control and clinical study, soon changed my conviction. Cases intensively treated compared very unfavorably with those which received only one or two administrations. The well-to-do individual who eagerly sought and received the most prodigal attention became usually serologically fixed positive, and showed persistent clinical manifestations which nothing could favorably influence. The indifferent, careless, negligent and often indigent patient who received only one administration, and wilfully absented himself for six months or a year, almost uniformly showed no trace of clinical manifestation and became serologically negative. These routine observations soon led me to adopt a more conservative plan of treatment, and after an interval of a year I presented

my results to Ehrlich in a personal visit. Ehrlich informed me that he was most favorably impressed with the results, but good as they were, he believed that they would be far better if I returned to the more intensive form of treatment.

I returned to my work impressed that I had made a tactical error, and resolved again to employ intensive arsphenamin treatment. I was not long in again reaching the conviction that conservative treatment was conducive to more favorable results. After another year's interval, I again returned to Ehrlich and submitted my tabulated results. Ehrlich this time acknowledged that his former advice may have been erroneous and that he was beginning to experience a growing conviction that there was a good basis for my contention.

I have since that time steadfastly employed a conservative method of arsphenamin therapy, based on clinical observation and serologic control. Every case of syphilis, not previously treated with arsphenamin, received a commensurate full dosage of arsphenamin which is not again repeated in from four to six months, except in the face of a threatening and serious clinical manifestation. A serologic examination is made every thirty days for the first six months. If there is no material change for the better, or the serologic examination shows a relapsing character, treatment is repeated at the end of the first four months. If the serologic reaction shows improvement, but is not negative, or if there are fairly well defined clinical manifestations, treatment is invariably repeated in six months. This plan is continued until the patient becomes persistently serologically negative and devoid of all manifestations of well defined clinical nature.

SEROLOGIC CONTROL

I have the utmost faith and confidence in a careful, well exercised serologic control. This faith and confidence would not be nearly so great if it reposed merely in the Wassermann reaction. The Wassermann reaction is eminently trustworthy in the sense that a positive Wassermann reaction indicates positive syphilis. The test, however, does not possess sufficient delicacy, even with cholesterinized antigen to demonstrate more than a moderate degree of therapeutic progress. For the past three years, I have employed both the Wassermann test and the Hecht-Weinberg serologic control test as cleverly modified by Gradwohl, and I am supremely impressed with their combined efficacy, delicacy and reliability in exercising the highest degree of diagnostic and therapeutic control. Both are exceedingly valuable and indispensable in efficient therapeutic management, and bear a reciprocal value to each other. The Wassermann reaction uniformly shows the first evidence of improvement, and frequently reaches a complete negative phase before the Hecht-Gradwohl test becomes completely negative. It presents, in the absence of clinical manifestations, the best evidence that can be adduced that therapy has progressed to a satisfactory stage. Relapses can be noted in the Hecht-Gradwohl reaction long before it is evidenced in the Wassermann test, and usually long before the manifestation of a clinical nature. The Hecht-Gradwohl test is positive in incipient syphilis before the Wassermann reaction, and is indispensable as an aid in early diagnosis. Furthermore, the two reactions are a check on each other, and are in a position to overcome any discrepancy or error in technic.

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

REPORT OF CASES

From 1911 to 1918, I treated 1,133 cases of syphilis in private practice, for the most part in the early stages, employing the conservative method of treatment as outlined. Some of the early cases were treated intensively, and quite a number received preliminary intensive arsphenamin treatment at the hands of confrères before placing themselves under my control. In all, 10,589 serologic examinations were made. After deducting 286 patients who wilfully or unwilfully absented themselves from further observation within ninety days after initial treatment was instituted, and 245 patients who, were serologically and clinically negative cases, less than two years, and forty-six cases which were positive not longer than one year, there remained 456 sufficiently long and carefully observed cases to permit the following deductions. Of these cases 367, or 80 per cent., were serologically and clinically negative for two or more years. Of the 367 negative cases, 154 passed to a clinical and laboratory negative phase with one administration, many of them being under regular systematic observation for more than five years; 107 passed to a negative phase with two administrations, 53 with three administrations, 27 with four, 9 with five, and only 17 with six or more. Of the 89 positive cases, 30 have failed with three, 20 with four, 16 with five, 11 with six, 3 with seven, and 9 with eight or more arsphenamin administrations. Seventy-five per cent. of the positive failures give a negative Wassermann reaction and are free from clinical manifestations. With these excluded, this conservative method of treatment yields about 5 per cent. of abject therapeutic failures from a clinical and serologic standpoint. The latter cases, however, give a Hecht-Gradwohl test that is positive, many weakly positive, and as such must be looked on as incomplete results. Quite a number of the patients who show a persistently positive Wassermann reaction were recipient of intensive initial arsphenamin treatment.

LABORATORY STUDIES IN SPIROCHETE DRUG
TOLERANCE

Laboratory investigation is in a position to cast some light on past and present clinical and therapeutic results. Ehrlich and Hata¹ were able to demonstrate, as early as 1910, that repeated injections of arsenic in animals and man would produce a strain of spirochetes which so successfully resisted arsenical medication as to merit the special designation of "arsenic-fast." Similar investigation with bacteria have yielded similar results. Of greater interest and more practical importance are the recent laboratory investigations of Akatsu and Noguchi.² These investigators determined the degree of tolerance of pure cultures of the *Spirochaeta pallida* to arsphenamin, neoarsphenamin, mercuric chlorid, iodine, and potassium iodid in vitro against gradually increasing doses of these drugs. A gradual increased resistance of the organisms against these various agents could be distinctly noted. The *Spirochaetae pallidae* increased their resistance to arsphenamin and neoarsphenamin within from three to four months, five and one-half times their original mark. The same organisms

increased their resistance to mercuric chlorid from thirty-five to seventy times; and to potassium iodid about three times. This acquired drug fastness in vitro disappears when the spirochetes are cultivated in drug-free mediums for several generations. It is fair to assume that what takes place in vitro can also occur in vivo, and particularly if the analogy bears some degree of clinical confirmation.

INTENSIVE AND CONSERVATIVE SYPHILIS THERA-
PEUSIS OF THE PAST

Long before the discovery of the cause of syphilis and present day laboratory achievement, the therapy of syphilis was an equally mooted problem. The remedies which were used were naturally the products of pure empiricism, and the methods for their administration were the result of careful clinical study and observation. Therapy at that time was as much mooted as today. There were eminent syphilographers and therapists who practiced and advocated intensive, uninterrupted treatment, covering years and years. There were many who practiced more conservative, and a more interrupted form of treatment. These investigators of the past had little to guide them, aside from empiricism and careful clinical study and observation. Present day laboratory investigation and achievement enables us to give their results a more intelligent and comprehensive interpretation.

Those who employed intensive, uninterrupted and long continued treatment in the past were doubtless actuated by the long and frequent relapsing character of the affection. Those who practiced a more interrupted and more conservative method of treatment, doubtless noted that continuous and uninterrupted treatment did not entirely prevent clinical relapses, nor stay completely cerebrospinal complications. In fact, many to this day are of the opinion that tabes and taboparesis find their largest contingent in persons who, in the past, have taken protoiodid continuously for two or more years without any interruption. Furthermore, they observed when clinical relapses occurred in patients receiving continuous and intensive treatment that these relapses became worse instead of better, if treatment with mercurials and iodid was further intensified and prolonged. They further observed that a clinical result could only be obtained if antispecific remedies were entirely removed for a period of several months and temporarily replaced by general tonic treatment. In other words, they observed clinically and empirically what the laboratory is today able scientifically to demonstrate, namely, that syphilis in a relatively short time acquires a tolerance to anti-specific remedies, which is not removed until the individual is given a definite respite from further specific treatment.

The rapidly acquired tolerance of syphilis to anti-specific remedies readily accounts for the results that sometimes follow the use of inert proprietary and quack remedies. It doubtless explains the supposititious value of remedies of the sarsaparilla type. A combination of senna and licorice has been credited in Europe and elsewhere as a highly successful therapeutic agent in the treatment of severe intractable syphilis. This was no doubt in large measure due to the fact that many cases of intensively treated syphilis enjoyed a well deserved respite when the remedy mentioned was temporarily substituted for the over-worked mercury and potash.

1. Ehrlich and Hata: Die experimentelle Chemotherapie der Spirillose, Berlin, 1910.

2. Akatsu, S., and Noguchi, H.: Drug-Fastness of Spirochetes to Arsenic, Mercurial and Iodine Compounds, in Vitro, Jour. Exper. Med., 1917, 25, 349.

THERAPEUTIC CONSIDERATIONS

It must be conceded that the ideal goal in syphilis therapeutics would be reached if Ehrlich's concept of a "therapia sterilans magna" could be successfully attained. Such a remedy should possess a maximum of parasitotropic and a minimum of organotropic activity. The arsphenamin remedies are the nearest present day approximate of this desideratum. Mercuric chlorid possesses much greater parasitotropic activity, but its marked organotropic properties preclude its use in this special direction. It is needless to state that the arsphenamin remedies have not attained Ehrlich's concept of a "dosis sterilans magna." It is possible that the full extent of their parasitotropic power within reasonable limits of organotropic activity have not been fully consummated. The careful study of method and dosage may effect some improvement in this direction. It must be acknowledged that many cases proceed to an apparently successful clinical and laboratory recovery with a single administration of arsphenamin. It is also noteworthy that the greatest degree of clinical improvement and usually the most prompt and greatest amount of serologic improvement follows on the heels of the first administration. It is quite possible that two or three quickly repeated treatments before sufficient time has elapsed to establish arsphenamin tolerance, would give equally good or better results. Inasmuch as the parasitotropic properties of the remedy depends on its degree of concentration, I believe that a single maximum initial dose should theoretically effect the best therapeutic results. I particularly decry the long continued administration of small fractional doses. This is a form of treatment that is particularly prone to establish arsphenamin tolerance, and is so evidenced in clinical experience. I am also strongly opposed to a too intensive arsphenamin therapy. Patients have come to my personal notice who have received, within from six to twelve months, from ten to fifteen arsphenamin administrations, and remained serologically + + + +, and with unmistakable clinical manifestations, which made satisfactory clinical progress and showed laboratory improvement only when arsphenamin was entirely withdrawn for a period of from four to six months.

It is reasonable to assume that present day clinical experience with arsphenamin bears a close analogy to mercury of the past. Experience with mercury has taught us that there are many cases that have fared badly in a clinical way with very persistent and intense treatment; that many have fared extremely well with very neglected and indifferent treatment. Many cases progressed often to an apparently satisfactory clinical recovery with little and indifferent treatment, and developed intractable severe manifestations only when a very energetic treatment was instituted. The old adage of "let sleeping dogs lie" has a possible application in both instances, and finds further exemplification in the arsphenamin provocative reaction in cases that have been persistently serologically negative, and free from clinical manifestations, which after a single administration of arsphenamin become strongly and persistently serologically positive, and develop intractable clinical manifestations.

Syphilis therapy is too often inconsiderate of the fact that it is often best to leave well enough alone. It is much more difficult to refuse than to give attention. One of my early preceptors was prone to fre-

quently remark that a man should often be rewarded more for doing nothing than something. Its significance was never fully appreciated until the realm of medicine and syphilis therapy in particular were thoroughly invaded. It is unfortunate for an individual to know that he is infected with syphilis; it is doubly unfortunate for that individual not to realize within the lapse of a few years that he is clinically well, and that he must continue his treatment from month to month, and year to year indefinitely, in order successfully to ward off future complications. Under such a regimen, neither patient nor physician possesses any moral assurance of a satisfactory recovery. Syphilis is essentially an affection in which the patient should be treated as well as the disease, and to lead such an individual to the point at which he becomes, as it were, a hopeless drug addict is unfortunate. The repeated administrations of arsphenamin even at long intervals, though well tolerated; the intermittent administrations of mercury and iodid, in their various forms; and all other forms of antisiphilitic treatment, if unnecessary, cannot be other than baneful. There is an incomparable degree of personal satisfaction to patient and physician to feel that a definite goal has been reached which precludes further treatment and attention, except an annual or semiannual serologic examination. There is an inexpressible degree of peace of mind to the patient, when he can realize that he can place his head on his pillow at night and entertain no fears that the succeeding six months, year or two years, will bear him untoward results. Thanks to arsphenamin and serology, this assurance can be granted to the vast majority of syphilitic patients within two or three years.

CONCLUSION

This paper is prepared and presented in order to set forth that there may be considerable unnoted virtue in a conservative method of arsphenamin treatment. Its second and no less important purpose is to impress that too intensive arsphenamin treatment may be conducive to unlooked for deleterious results. What is set forth in this direction is based on painstaking clinical and laboratory study of a fairly large number of patients, in private practice, carefully and routinely observed for a goodly number of years. They are not intended to express an absolute conviction, nor are they presented with the hope that they will receive general and universal acceptance. I trust that they will bear future investigation and study and possibly stimulate others along similar lines so that a better and more general comparison between intensive and conservative treatment of the future can be elicited. I feel assured as far as my personal experience permits me to judge that my results compare most favorably with those who have pursued a more intensive arsphenamin treatment of the past, and the recent interesting laboratory investigations, which have clearly established gradually acquired arsphenamin tolerance on the part of the *Spirochaeta pallida*, add material weight and color to my contentions. The fact that out of a grand total of 1,133 cases, from which 677 were eliminated as unfit for careful report, 80 per cent. proceeded to a clinical and laboratory recovery without trace or evidence of any infection for a period of two or more years, must speak somewhat in favor of such a conservative method of treatment. If we can add to these 367 cases, 65 cases that were negative to the Wassermann test and clinically negative, but

more or less persistently positive to the Hecht-Gradwohl control test, 95 per cent. of cases proceeded to a clinical recovery. This negative phase was reached by 154 cases with only one administration of arsphenamin or neo-arsphenamin, and in 107 cases with only two administrations.

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ABSTRACT OF DISCUSSION

DR. JOHN A. FORDYCE, New York: Dr. Heidingsfeld does not state in what stage of the infection his results in the treatment of syphilis were obtained. In early syphilis, before the Wassermann reaction becomes positive, it is possible to abort syphilis with comparatively few doses of arsphenamin. How many doses may be required we cannot tell. In fully developed secondary syphilis it usually requires at least two courses of arsphenamin of six doses each, combined with intramuscular injections of mercury and followed by mercurial injections, for a period of two or three months, before the Wassermann reaction yields to treatment. In my opinion, it is advisable in all cases of secondary syphilis to continue the treatment at intervals for a year to insure the patient against a relapse. I have repeatedly seen patients in early syphilis, treated with two or three injections of arsphenamin, who have left the hospital and returned within six months or a year with precocious ulcerative lesions of the skin. It is difficult to compare the serologic results obtained in different laboratories, but we have not been able to influence our cases either clinically or serologically with the amount of treatment which was employed by Dr. Heidingsfeld. He should have stated more carefully the stage of the disease in which his results have been obtained by the use of the minimum amount of treatment as indicated. I am not in favor of the very intensive treatment which is advocated by certain syphilographers. I think we should feel our way carefully and give 0.3 or 0.4 gm. of the drug for the initial dose, gradually increasing the dose to 0.5. The first three or four doses may be given at intervals of five or six days, the next two or three doses at intervals of a week. At the end of this time I think we should permit an interval of six weeks to elapse before repeating another course of arsphenamin. I have seen very injurious results from too intensive treatment. In one patient, who received fourteen injections of arsphenamin at a well-known sanatorium at three-day intervals, a very widely disseminated form of exfoliative dermatitis resulted, followed by the death of the patient. It is very difficult to formulate in definite terms the size of the dose, the intervals and the number of treatments. It is largely individual and depends to a great extent on the experience of the physician.

DR. BUDD C. CORBUS, Chicago: I should like to ask Dr. Heidingsfeld on what conclusions he bases his results. Is it on the blood Wassermann alone? I do not doubt that in some cases he was able to get an early clinical cure of the disease because there are many different strains of spirochetes. The most important factor, however, is the negative blood Wassermann, checked up with the spinal fluid Wassermann. Many cases with a negative blood Wassermann show spinal fluid involvement. In this class of cases my procedure is a most intensive intravenous therapy, followed by a spinal fluid drainage. It is much better to run the risk in overtreating an individual rather than have him succumb to paresis or some other form of spinal fluid involvement. In one case I have given as high as forty-one intravenous arsphenamin treatments for spinal fluid involvement. This patient has maintained his negative serologic test for over a year without any treatment.

MAJOR W. L. MCBRIDE, Fort Riley, Kan.: Within a few years I am sure that men can report favorably on the intensive results of treatment. In the Army men now get a minimal dose of 5 grains, with gradual increase, receiving eight injections in all in a little over seven weeks, then rest forty days, and then the serologic test is made. The cases are being observed carefully, records are made, and before long I am certain reports will come in from men interested in this work giving you just what this intensive treatment means. So far

we have not noticed any deleterious results. A few slight accidents have occurred, but these men are given the treatment as laid out by the department. Probably a year or two will elapse before you can get the actual result, but many cases are under observation, and I am sure we can come to definite conclusions before long as to what intensive treatment will mean to these men.

DR. JOHN E. LANE, New Haven, Conn.: If we have learned anything in recent years about the treatment of syphilis it is that the intensive treatment in the early stages is necessary and that in the stage of the chancre before the Wassermann reaction has become positive the amount of treatment is limited only by the patient's ability to stand the dosage without danger. By intensive treatment in the early stages I mean the injection of arsphenamin combined with the injection of mercury. It has been demonstrated pretty well that both can be given together without danger and that in many cases this treatment, begun before the Wassermann reaction becomes positive, prevents it from ever becoming positive. The treatment of late syphilis, especially of syphilis of the nervous system, is a problem of an altogether different nature. The control of the cases classed by Dr. Heidingsfeld as cured seems entirely inadequate. Dependence on the Wassermann reaction of the blood without any consideration of the findings in the spinal fluid does not give sufficient evidence of a cure.

DR. RICHARD L. SUTTON, Kansas City: If I were to be infected with syphilis and had to depend on any one drug for treatment, I should prefer mercury above all others. Wile and Elliott and Schamberg and his associates have found that inunctions give the maximum therapeutic effect with minimum renal irritation, and I think the drug should be administered by this route. In my experience it is extremely difficult to secure a negative serum reaction by means of arsenic alone, and I think it a mistake to depend wholly on this agent. Quite frequently I see patients who have had from four to ten doses of arsphenamin intravenously at three to seven day intervals with practically no serologic change; the blood is as strongly positive as before treatment was begun, although the cutaneous lesions had totally disappeared. I agree with White, Reasoner, Craig and Nichols that certain strains of the *Spirochaeta pallida* appear to have an affinity for nerve structures, and for this reason it is essential that at least one spinal fluid test be made in every case. Before discharging a patient as cured, I think it advisable that the blood be tested at least three times during a period of twelve months in which no treatment is being administered, and, finally, a cell count, serum and gold test should be made on the spinal fluid. A thousand cases of syphilis are undertreated to one that is overtreated.

CAPT. E. J. TROW, Toronto: I have found that the intensive treatment is the best and most effective. As far as the Army is concerned, the principle there is to give ten injections in the course of two months, and as the need of men is so urgent we have turned them loose regardless of their Wassermann reaction and let them take their chance at the front. Of course, there are exceptions to that rule and some cases are retained much longer. My experience in the clinic has been that arsphenamin long continued ultimately does have some effect on the Wassermann reaction. In Toronto we have been determining the effect of treatment on the Wassermann reaction by using seven tubes and noting the effect of the drug on all dilutions, but particularly the weaker ones. In nearly every case we see some result almost immediately in the higher dilutions, whereas in the ordinary Wassermann we see no result for a long time.

DR. FRED WISE, New York: In Dr. Heidingsfeld's title he means the long-continued treatment of syphilis, but not the intensive treatment used in the meaning of the term which Pollitzer and others have used. Pollitzer uses three or four injections on three or four successive days in all favorable cases. He has had no ill results from this practice in the past three years. His dosage is 0.1 gm. to thirty pounds of body weight. On several occasions I have had an opportunity to take over Dr. Pollitzer's practice and gave the same treatment and had no ill results. I have given three successive

doses on three successive days at intervals of a week. The number of courses varied. The chief point I wish to bring out is the use of the word intensive.

Why results in Cincinnati should differ so much from those in New York is difficult to understand. Dr. Heidingsfeld's observations are dependable, but his paper should be analyzed and scrutinized closely in order to discuss it properly. It is difficult to get its full import by hearing it read.

DR. JOSEPH ZEISLER, Chicago: I want to call your attention to the great change which has taken place since the new treatment was introduced in 1910. At first all injections were administered subcutaneously or intramuscularly. The severe pain and great inconvenience connected with it made us discard this form of treatment soon; but we must realize that it meant a much more lasting effect on account of the slow absorption. Since we have adopted almost exclusively the intravenous treatment things have changed very much. Intravenous injection means rapid absorption and also rapid elimination, and under this new style we have been forced to adopt a more intensive treatment. Two years ago Dr. Pollitzer presented his ideas in Washington, and since then I have frequently carried out his plan. In every fresh case we give three injections on three successive days, and such treatment, I think, very frequently means an abortion of the disease; but no sane and safe practitioner will rely on the hope of accomplishing abortion by three injections. We continue by mercurial treatment and later on repeat the arsphenamin treatment. The chief point, however, is the individualization in every case. I must join with Dr. Fordyce in his gentle criticism of Dr. Heidingsfeld's paper, that he has not stated with sufficient clearness the nature of the cases on which he bases his results.

DR. BERNHARD ERDMAN, Indianapolis: I would like to speak of a very interesting fact, as Dr. Fordyce stated that they were having some difficulty with jaundice following arsphenamin injection. I recently saw an individual who has had his infection for fifteen years, but with no clinical evidence of syphilis. The Wassermann test, made after Dr. Fordyce's recommendation, gave a sharp positive reaction. I did not see the patient again for three months, when he came in, saying that he felt well but was still impressed with the fact that he should have some treatment. I went over the man as carefully as possible. There was no examination of the eye grounds, but the urine was negative. That afternoon he was given 0.9 gm. of the novarsenobenzol brand of arsphenamin in 10 c.c. of water. This was on Saturday afternoon. About 10 o'clock Sunday morning they telephoned to me that the patient had a restless night and was hiccuping. The man weighed about 230 pounds. This hiccuping began within less than twenty-four hours after the injection. In spite of everything I could do, and I followed the suggestions of other men who were called to see the man, the hiccuping persisted for fourteen days. During this interval the patient received chloretone, cocain, musk, opiates and antispasmodics without any relief at all. The renal excretion was cut down to 12 ounces in twenty-four hours; the urine contained albumin, casts and some red cells. He was taken to the hospital and given common salt by proctoclysis as well as tap water with glucose. He gradually recovered with a loss in weight of 40 pounds. I sometimes think that perhaps we make a mistake in giving such large doses before trying out the tolerance of the patient.

DR. ARTHUR W. STILLIANS, Chicago: I did not hear any mention of mercury in connection with the arsphenamin treatment and would like to be further informed on that point. There is a great difference in the intermittent use of mercury and the intermittent use of arsphenamin. The intermittent use of mercury is a well-established treatment that has seldom given us the experience of nervous recurrence. In my opinion, and I think it is the opinion of many men, the intermittent use of arsphenamin, the giving of a single dose with a considerable intermission, has resulted in a largely increased number of nervous recurrences. That should be borne in mind in connection with this treatment.

DR. WALTER J. HEIMANN, New York: I think throughout this entire discussion and in the conception of the paper we

are suffering from a lack of definiteness in terms. We have talked about intensive treatment, but the paper deals with sustained treatment. Dr. Fordyce calls attention to the fact that the paper does not point out in what stage Dr. Heidingsfeld got his results. I think in this connection there has been a hiatus in the paper which is otherwise plausible. The results reported by the author are remarkable, considering that the evidence of the world negates them.

Spirochetes may acquire a tolerance not only to arsenic but to any other drug. This fact was observed clinically many years ago in connection with mercury therapy, when we began to give interrupted instead of continuous treatment. Thus there is nothing new in learning that spirochetes become arsenic fast as they become mercury fast.

By intensive treatment is meant that in the early stages of the disease we give antisyphilitic remedies massively and abundantly with the idea of abortion. Late syphilis cannot be aborted. We know that one injection of arsphenamin does not and cannot cure syphilis, either in its active or latent stages. So we have to fall back on our own experience to contradict Dr. Heidingsfeld's findings. We find patients who have had two injections several years ago still with clinical and serologic manifestations of syphilis. Neither do I agree with Dr. Sutton, who makes the choice, between arsphenamin and mercury, that one is better than the other. We do not treat syphilis with one drug, but with all the medicaments at our disposal. We do not adhere to a thesis, but use judgment. In concluding the discussion I wish Dr. Heidingsfeld would bring out more definitely what he meant by "intensive," whether there is anything new in his administration of mercury or iodid, whether he has noticed any difference in the early and late syphilis, and whether he has made controls not only with the blood Wassermann, but with the spinal fluid.

DR. HENRY R. VARNEY, Detroit: Dr. Heimann has summed things up very well, and while we have all changed our treatment of syphilis since arsphenamin has come to us, we are still free and open minded in regard to further changes. I have difficulty in getting patients to take enough treatment. I believe a large percentage are undertreated rather than overtreated. In discussing intensive treatment I believe we are at some variance regarding intensity. I would not like to rely on one dose of arsphenamin in primary syphilis. I think we should agree on one treatment for this stage. The early days of the initial lesion is the most important period in the treatment of syphilis, and in this we are agreed. Later on in the disease when patients show other manifestations of structure involvement the personal equation enters into the care and treatment of the disease. We see patients with syphilis who were in the Civil War and have never had any syphilitic treatment. I saw one such patient recently who said to me, "Why take treatment even if I have syphilis? I am perfectly well at 70," conveying the clinical evidence that many patients with syphilis live to an advanced age in average health without any syphilitic treatment.

Periods of rest are almost as important as periods of treatment. Change in the form of medication following a period of rest is productive of a more prompt result than a return to the same medication administered in the same manner. Alternating from arsphenamin to mercury and from mercury to arsphenamin is more beneficial than prolonged medication with only one drug.

It is extremely important to keep in mind that the first attack on the disease, whether it be arsphenamin or mercury, is the golden opportunity which comes to the physician and patient but once. The same effect is never produced by the second attack or medication. We recall the effect of our first cocktail or our first cigar, which has never been duplicated by the great number that followed. Therefore, the physician who has the opportunity to administer the first medication to the syphilitic has an opportunity for the control of that disease no other will have, it matters not the form of medication or the period of time elapsing between treatments. I, therefore, am a firm believer in the vigorous administration of the initial treatment, whether it be in the initial stages of the disease or in its later manifestations.

DR. M. L. HEIDINGSFELD, Cincinnati: Inasmuch as the views herewith set forth are at variance with those of generally

accepted practice, I anticipated much skepticism and possibly harsh criticism. What is herewith set forth is either correct or incorrect. If correct, the sooner it is known the better. The last word in regard to syphilitic therapy has not been said, and there is still much to be said, pro and con, before a definite decision will be reached. The chief criticism which has been offered is that the investigation does not go into sufficient detail, that it is not definitely stated at what stage each given case was treated. I feel assured that the work has been carried out in sufficient detail, and with sufficient personal scrutiny to make the results speak for themselves. To tabulate and correlate 1,133 cases of syphilis out of a dermatologic practice covering eight years, carefully enumerating serologic examinations, arsphenamin administrations, clinical progress or lack of progress and the ultimate results, is a sufficiently stupendous undertaking in and of itself without the addition of unnecessary and unimportant detail. In my syphilitic studies I have always felt that cases in private practice are the only ones dependable for investigation purposes. My work will bear the closest scrutiny. I, also, as well as Dr. Fordyce, have noted relapses of a malignant nature in dispensary and hospital practice, not only with one administration, but with many administrations of arsphenamin. These are the individuals who drink and dissipate and who by their personal conduct and excesses invite the worst of results in spite of every form of personal attention. Possibly I have been unfortunate in the caption of the paper. What the paper intends to set forth is the deleterious and untoward results from long sustained arsphenamin treatment. In other words, the system probably acquires tolerance for frequently repeated arsphenamin, the same as has been demonstrated for mercurials and other antispecific remedies, and that this tolerance is lost if the remedy is not repeated within an interval of at least four to six months. I can see excellent reasons for giving intense arsphenamin treatment, namely, two or three full doses within an interval of five to seven days, as advocated by Pollitzer, before an immunity has had time to establish itself. Theoretically, such a method of treatment would come more nearly fulfilling Erlich's idea of a "dosis sterilisans magna." Whether or not treatment of this kind will give better, indifferent or more unfavorable clinical results, time and a long series of carefully observed cases alone will tell. I contend, however, that definite judgment must be attended by study and observation of cases as outlined by this paper. I do not believe in the administration of a fractional dosage of arsphenamin. Fractional dosage merely helps to establish an early immunity. If arsphenamin is administered, it should be in full dosage, 6 decigrams, commensurate to 160 or 180 pounds body weight. I have not spoken about spinal puncture, inasmuch as I did not want to inject that greatly mooted feature into the paper. I do not practice it as a routine measure for reasons which I do not care at this moment to discuss. The formula for decoction Zittman presented in this paper was carefully copied from a German pharmacopeia with the assistance of a careful, painstaking pharmacist. There is no mercury in that formula. I do not doubt but what there are many modifications of this formula, some with mercury, some without.

My general impression for the past two or three years has been that interrupted administrations of arsphenamin, guided by careful serologic examinations, gave me uniformly good clinical results, far better than in cases that had been treated otherwise. When the results were tabulated, they were so much better than I had anticipated as to cause me some personal embarrassment. I searched for a possible error, and found none. I leave the results to speak for themselves.

Death Rate Increases.—The death rate for Philadelphia for 1917 was 17.0243 as compared with 16.1572 for 1916. The weather conditions, lack of coal and nourishing food helped to advance the total, and although the city was visited by no epidemic of infantile paralysis, the death rate among infants and very young children was higher than in 1916. The total number of deaths in 1917 were 29,546, as compared with 27,621 in 1916. This high total has occurred in spite of the maintenance of a large corps of city nurses and physicians in congested sections.

TREATMENT OF ACUTE POLIOMYELITIS WITH IMMUNE HORSE SERUM

FURTHER STUDIES *

E. C. ROSENOW, M.D.

ROCHESTER, MINN.

The demonstration that the somewhat peculiar streptococcus, isolated in poliomyelitis from time to time by various observers, has elective affinity for the central nervous system of young rabbits and guinea-pigs, producing symptoms and lesions resembling poliomyelitis in man,¹ indicated that this organism was no longer to be regarded as a mere secondary invader, but of real etiologic importance.

The possibility of developing a curative serum for poliomyelitis with this organism was first suggested in the experiments by Rosenow, Towne and Wheeler,² in which monkeys were protected against injections of virulent virus, and experiments in the immunization of horses were instituted. These fundamental observations stimulated a reinvestigation of the etiology of poliomyelitis and of its treatment.³

The serum from a horse (Horse 1), injected with freshly isolated strains from experimental poliomyelitis in monkeys, was found to protect monkeys against inoculation of virus⁴ (corroborated recently by Nuzum and Willy⁵), to have definite curative effects in monkeys after the onset of paralysis, and apparently a powerful curative action in poliomyelitis in man. In a preliminary report⁶ on the treatment of forty-four cases, these statements appear:

All of the sixteen patients treated before paralysis had begun recovered without paralysis. . . . The apparent good effects from the injection of serum are often striking. The headache, nervousness, restlessness and tremor often disappear promptly. The temperature and pulse rate are lowered. A beginning paralysis often disappears in an astonishingly short time. A rapidly progressing paralysis is often arrested and improvement is unusually rapid. The postparalytic pains do not appear or are comparatively mild.

Nuzum and Willy⁷ have since reported similar apparently striking benefits in a large series of cases following the use of an immune horse serum prepared in a similar manner.

The further results given in the detailed report⁸ on the treatment of fifty-eight cases indicates that the

* From the Mayo Foundation

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1. Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, Preliminary Note, *THE JOURNAL A. M. A.*, Oct. 21, 1916, pp. 1202-1205. Rosenow, E. C.; Towne, E. B., and von Hess, C. L.: The Elective Localization of Streptococci from Epidemic Poliomyelitis, *Jour. Infect. Dis.*, 1918, **22**, 313-344.

2. Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: Observations on Immunity of Monkeys to Experimental Poliomyelitis, *THE JOURNAL A. M. A.*, Jan. 27, 1917, pp. 280-282.

3. The reader is referred to a series of papers by the writer and his associates that appeared in the April number of the *Journal of Infectious Diseases*, 1918, **22**, 281-426. In these papers, contributions by other observers are discussed.

4. Rosenow, E. C.: The Production of an Antipoliomyelitis Serum in Horses, *THE JOURNAL A. M. A.*, July 28, 1917, pp. 261-265.

5. Nuzum, J. W., and Willy, R. G.: Further Studies of an Antipoliomyelitis Serum: Its Protective and Curative Properties in Experimental Poliomyelitis in Monkeys, *Jour. Infect. Dis.*, 1918, **22**, 258-270.

6. Rosenow, E. C.: The Treatment of Epidemic Poliomyelitis with Immune Horse Serum: Preliminary Report, *THE JOURNAL A. M. A.*, Sept. 29, 1917, pp. 1074-1075.

7. Nuzum, J. W., and Willy, R. G.: Specific Serum Therapy of Epidemic Poliomyelitis, *THE JOURNAL A. M. A.*, Oct. 13, 1917, pp. 1247-1254.

8. Rosenow, E. C.: Report on the Treatment of Fifty-Eight Cases of Epidemic Poliomyelitis with Immune Horse Serum, *Jour. Infect. Dis.*, 1918, **22**, 379-426.

serum has definite curative action in epidemic poliomyelitis. The series included one case of sporadic poliomyelitis in which equally good effects were noted.

It is my purpose to report in detail in this paper the results obtained in a number of cases of sporadic poliomyelitis, to record experiments on the use of the serum in experimental poliomyelitis in the rabbit, and to emphasize the importance of early diagnosis of this disease.

The serum used in the cases here reported, as in the series of cases of epidemic poliomyelitis, was injected intravenously and not intraspinally, as it had been found that intravenous injections were necessary to protect monkeys against intracerebral inoculations of virus.⁴ Intraspinal injections of horse serum, as has been shown by Flexner and Amoss,⁹ increase markedly the susceptibility of monkeys to poliomyelitis, so much so as to render them susceptible to intravenous injections of virus. The largely negative results, as reported by Amoss and Eberson,¹⁰ on the therapeutic power of my serum in monkeys, would appear to be due to the fact that they gave exclusively intraspinal injections instead of intravenous injections. To facilitate slow injection (1 c.c. per minute) the serum was diluted with an equal quantity of salt solution, but was not activated with guinea-pig complement.

REPORT OF CASES

CASES IN WHICH THERE WAS SLIGHT PARALYSIS AT THE TIME OF SERUM TREATMENT

CASE 1 (1042).—E. T. P., a boy, aged 19 months, a patient of Dr. C. T. Granger, Rochester, Minn., seen, Dec. 23, 1917, had been fussy for a few days, owing, it was believed, to teething, since two teeth were in the process of eruption. For two weeks the patient's two sisters had had colds, running of the nose and cough, but they were apparently free from fever. During the previous night the child had been restless; he slept at intervals, but frequently awakened. There was no noticeable fever. He had had two loose, foul-smelling stools the day previously, but there was no vomiting. During the night a weakness of the muscles of the neck was noticed, the child being scarcely able to hold up his head. At 10 a. m. he was found lying on a couch with the head retracted, eyes partly open and with frequent twitchings of the right arm and legs. On being aroused he showed a decided mental apathy, marked tremor and ataxia, and rigidity at the neck. The face was symmetrical. The tongue protruded slightly to the left. He was able to stand, and to hold the head erect, but was unable to get up unassisted, and in sitting down repeatedly fell to the floor quite limp. The left knee jerk was normal, the right was exaggerated, and the reflexes of the upper extremities were normal. The temperature was 100.4. When a spinal puncture was made, the weakness of the legs and muscles of the back became very noticeable. The spinal fluid spurted, and 10 c.c. were withdrawn; but owing to the presence of traumatic blood, a cell count and globulin test could not be made. A differential cell count, made of a stained specimen of the sediment, showed 70 per cent. mononuclear cells. Ten c.c. of serum were injected. The child slept quietly for three hours after the serum was given, and with less

twitching of the muscles. At 5 p. m. the temperature was 100. He looked brighter, sat up, and stood without tremor. Retraction and rigidity of the neck was less marked, but still evident. He was able to get up from a lying position unassisted, and walked readily, but was still somewhat weak and unsteady. The tongue protruded in the median line. There was no weakness of the arms. The knee jerks had become normal and equal.

December 24, 1 p. m., the child looked brighter, and tremor and tremulousness had disappeared. He had slept well during the night. He sat up unassisted, and stood and walked without support, but there was still some weakness of the muscles of the back, noticeable when he was sitting down. The temperature was normal, the face symmetrical, the tongue protruded in the median line, and the retraction and rigidity of the neck were absent. The knee jerks were normal. Eight c.c. of serum were injected.

December 25, no weakness could be made out. The child appeared well. Recovery was complete.

CASE 2 (2008).—L. R. B., a boy, aged 2 years, a patient of Dr. G. T. Joyce, Rochester, Minn., April 3, 1918, at about 2 o'clock in the afternoon, was acting peculiarly; he was fussy, and it was discovered that he was unable to walk on account of weakness in the legs. He had had diarrhea the day previously, with four or five watery stools of extremely foul odor. There was no apparent fever, but a cough developed during the morning, as a result, presumably, of exposure to whooping cough three weeks and ten days previously. At 9:30 p. m.

the child was entirely unable to bear weight on the legs, and in repeated efforts to do so the legs gave way at the knees; the left leg was weaker than the right. There was no swelling of the joints, and no complaint of pain. The child was well nourished. The left knee jerk was barely obtainable, the right only slightly diminished. The spinal fluid was under increased pressure, was clear, and 6 c.c. were withdrawn. The cell count was 21, the globulin test was strongly positive, flocculation occurring almost immediately. Twelve c.c. of serum were injected.

April 4, 8:30 a. m., after the child had slept all night without restlessness, turning over in bed normally a number of times during the night, there was no tremor, he looked well and could walk without support, but some weakness of the legs was still evident. Knee jerks were normal. The injection of serum was repeated. At 9 p. m. the child walked readily without assistance, and without apparent weakness. The reflexes were normal, and he appeared well in every respect. Recovery was complete.

CASE SHOWING ADVANCED PROGRESSING PARALYSIS AT THE TIME OF SERUM TREATMENT

CASE 3 (1078).—C. A., a boy, aged 2 years, a patient of Dr. G. T. Joyce, Rochester, Minn., Feb. 24, 1918, was weak, poorly nourished, pale, and had had several attacks of severe anemia. He had been fussy, cross, feverish and irritable for two days. He had not walked normally and had fallen easily, once from the doorstep, the day previously. He vomited repeatedly during the morning and was feverish, but had no diarrhea. Mumps was epidemic in the neighborhood; the mother had it three weeks previously, and the fever and illness of the child were thought to be due to mumps because there was a swelling in the region of the left parotid. At 6 o'clock he had severe convulsive seizures with marked spasms of the right side of the face, the right eye and the right arm, but also spasms and twitchings of the muscles of the left side. The right arm became completely helpless within one hour. At 10:30 p. m. there was moderate swelling in the region of the left parotid, a complete flaccid paralysis of the right arm, which dropped limply to the side when lifted, and inability to close the right



Fig. 1.—Rabbit 1477, showing marked weakness of fore extremities forty-eight hours after the intravenous injection of the culture from the tonsil in Case 1 after one animal passage.

9. Flexner, Simon, and Amoss, H. L.: The Relation of the Meninges and Choroid Plexus to Poliomyelitic Infection, *Jour. Exper. Med.*, 1917, **25**, 525-531.

10. Amoss, H. L., and Eberson, F.: Therapeutic Experience with Rosenow's Poliomyelitic Serum, *Jour. Exper. Med.*, 1918, **27**, 309-317.

eye. The right side of the face was drawn markedly, especially when the child cried. There was weakness of the muscles of the right side of the neck, the head tending to fall forward and to the left. He could just stand, but was unable to get up alone. There was moderate retraction and rigidity of the neck, and weakness of the right leg, and the right foot was rotated outward. Attempts at flexion of the head caused severe pain. The knee jerks were exaggerated; the reflexes in the right forearm were barely obtainable, and the triceps and biceps reflexes were absent. The temperature was 97, and the pulse was rapid. The child took no interest in his surroundings and cried apathetically when handled; but as soon as left alone he went back into a semicomatose sleep. The spinal fluid was under increased pressure. Eight c.c. of slightly turbid fluid were withdrawn. The cell count was 550, and the globulin test strongly positive. The Wassermann test of the spinal fluid proved negative. Twelve c.c. of serum were injected.

February, 25, 9 a. m., after a quiet night, the child closed the right eye readily and appeared brighter, but complained of pain in the left foot. The face was less drawn. The reflexes were stronger and the biceps and triceps reflexes were easily obtainable. The strength in the right arm was decidedly greater; he could lift it from the bed in turning over, and offered decided resistance when it was moved. Ten c.c. of serum were injected. At 8 p. m. the temperature was 98. The child had been restless for several hours after the serum was given, moving the right arm markedly four times during the afternoon. He slept naturally with face symmetrical, and with both eyes closed. The swelling of the left parotid was more marked, he appeared brighter, and took an interest in his surroundings. The face was less drawn when he cried and the head was held erect. There was no rigidity of the neck, the arm and forearm were moved, and the fingers were flexed quite vigorously on repeated tests. The knee jerks, and the reflexes of the right arm and forearm were normal. Ten c.c. of serum were given.

February 26, 9 a. m., it was reported that the child had slept well, and eaten breakfast with relish. The swelling in the left cheek had diminished, the face was symmetrical when at rest and only slightly asymmetrical when he cried. The right arm was moved with considerable power. Ten c.c. of serum were injected. At 8 p. m. the right arm was decidedly stronger.

February 27, 8 a. m., the condition was about the same as the night before. At 8 p. m., the child was about the same, but had been more fussy and cross during the afternoon.

February 28, 9 a. m., there was no improvement in the condition. At 9 p. m. the condition had not improved. The child complained of pain in the right leg during the afternoon, and was unable to walk unassisted. Ten c.c. of serum were given.

March 1, 9 a. m., the child was able to walk and get up on his feet unassisted; he appeared brighter, the face was less drawn, the eyes closed completely, and power in the right arm was decidedly greater. Ten c.c. of serum were given. At 8 p. m. there was decided improvement in the power of the right arm; the reflexes were normal.

March 2, 8 a. m., the child walked without apparent weakness in the legs. The face was symmetrical. The strength in the shoulder group of muscles on the right side was decidedly improved; the reflexes were normal.

March 10, 8 p. m., the child appeared well. The power in the right arm was quite marked; he grasped fingers with vigor, but used the hand little. He walked without limp. The face was symmetrical, with no swelling of the left parotid

gland. He broke his right leg, which was placed in a cast, and further observations were temporarily interfered with.

June 3, the child looked puny and poorly nourished. The face was symmetrical. He moved the right arm in every direction, but the extensors of the fingers were still weak. There was slight dragging of the right foot, but he walked without apparent weakness in the leg or back. The reflexes were normal.

CASE SHOWING MARKED PARALYSIS TEN DAYS AFTER ONSET

CASE 4 (1024).—N. F., a boy, aged 2 years, a patient of Dr. Morris Bachman, Lake Park, Iowa, and of the Mayo Clinic, had been taken sick two weeks previously with a high fever which lasted four days. Nov. 3, 1917, there was a slight soreness of the throat, and stiffness of the neck; there was no vomiting or diarrhea, but marked constipation. On the fourth day the child developed marked weakness in the muscles of the legs and back, and on the seventh day, weakness of the right arm. On examination pus was expressed from the left tonsil, which was larger than the right, and an enlarged peritonsillar gland was found on the left side, but none on the right. The child showed a marked disinclination to walk, and complained of pains in the legs. He was still very restless and irritable, and awakened at night, calling out in his sleep. Power in the legs had increased definitely, but there was marked weakness in the right leg, the right arm and the mus-

cles of the back. The right knee jerk was barely obtainable and the left was normal. The child could move the right arm in all directions, but with impaired power. At 10 a. m. a spinal puncture revealed spinal fluid under moderate pressure, and 5 c.c. were withdrawn. The cell count was 16, the globulin test markedly positive. Twelve c.c. of serum were injected.

November 4, he had slept for five hours without waking, following the injection of serum, but had a restless night.

November 5, he slept soundly through the night without waking, for the first time since he became ill. He looked brighter and was much

less fussy, the disinclination to walk had disappeared, and he no longer complained of pain in the right leg. He was able to roll over in bed and with the right foot could kick a hand held above the bed, neither of which he could do the day previously.

December 18, the child was perfectly well, walking and running without recognizable limp. The reflexes were normal.

CASE OF DOUBTFUL DIAGNOSIS

CASE 5 (1056).—O. I. J., a girl, aged 2 years, a patient of Dr. George Stevens, Byron, Minn., ten days previously had gone to bed perfectly well, and the following morning a slight limp was noted in the right leg, which persisted. Jan. 15, 1918, there was pain in the region of the right knee and the outer aspect of the right leg was complained of. The temperature was 100. A cough had developed, due to a cold; the mother also had a cold. There was a doubtful tendency to toedrop on the right side. The child appeared quite well. The reflexes were normal; there were no twitchings, retraction or rigidity of the neck and no pain in the back on flexion. The tonsils were large, and the crypts were filled with numerous quite hard brownish-gray plugs which could be easily expressed. There were no palpable glands in the neck. Spinal puncture revealed fluid under normal pressure, and 4 c.c. of clear fluid were withdrawn which was negative for cells and globulin test. Twelve and five-tenths c.c. of serum were injected.

January 16, there was no change in the condition.

January 18, the child limped a little. Recovery was complete.



Fig. 2.—Rabbit shown in Figure 1 five hours after serum treatment.

CASE OF TUBERCULOUS MENINGITIS

CASE 6 (1095).—M. O., a girl, aged 8 years, a patient of Dr. G. O. Fortney, Zumbrota, Minn., and of the Mayo Clinic, seen, March 17, 1918, had complained of pain in the right hip, in the fall of 1917, especially at night, and soon developed a limp and pain on walking, which gradually progressed until February, 1918, when she was placed in a cast. One week previously she complained of constant headache, pain in the back, and photophobia. There was loss of appetite and vomiting of everything taken. The morning temperature was 101; the afternoon temperature was 99, and the pulse was slow.

March 19, the spinal fluid was clear, the cell count 178, and the globulin test positive.

March 20, cultures from the spinal fluid in glucose broth showed pure culture of short-chained streptococcus. The patient was stuporous and apathetic, and was unable to open her eyes more than 1 cm., the upper lids dropping, the right more than the left. There was undoubted weakness in the muscles of the right side of the face, manifested as the patient showed her teeth. There was no nystagmus. The tongue was tremulous, but protruded, in the median line. The triceps and biceps reflexes on both sides were absent. Knee jerks were present. There was decided rigidity of the neck. Grasping power in both hands was slight, but she could move her arms in all directions. At 2 p. m., owing to the finding of the streptococcus in the spinal fluid, and the beginning of paralysis in the muscles of the face and upper extremities, 25 c.c. of serum were injected intravenously. At 3:20 p. m. she had a decided chill, the pulse was 120 and there were 2 degrees of rise in temperature, but no other change.

March 21, the general condition remained about the same; the left eyelid drooped decidedly, and the weakness in the arms had grown more marked. The blood agar plate of the culture obtained from the spinal fluid showed countless numbers of indifferent colonies of streptococci, which were not agglutinated by poliomyelitis serum. A second culture of the spinal fluid proved negative.

March 22, the patient was stuporous. There was ptosis of the left eyelid; both pupils were dilated, and did not react to light. She did not move the right arm, and still evinced dislike to being touched or examined. The rigidity of the neck was more marked, and there was slight opisthotonos. Death occurred at 10:25 p. m. The findings at necropsy were typical of tuberculous meningitis.

SUMMARY OF CASES

The two patients (Cases 1 and 2) that were treated before marked paralysis had occurred showed the most striking benefit, as did those in the epidemic form of the disease, both recovering completely within forty-eight hours. The result in the child with mumps (Case 3), who was markedly under size, anemic and poorly nourished, who had convulsions followed by an extensive weakness on the right side of the body, and complete paralysis of the right arm, and a high cell count in the spinal fluid, was less striking, but unmistakable improvement followed each injection. The patient (Case 4) in whom the serum was given ten days after the onset of paralysis, likewise appeared benefited. In Case 5, in which the diagnosis was very doubtful, and in Case 6, which proved to be tuberculous meningitis, the results, as was to be expected, were indifferent.

The primary culture from the pus from the tonsil of Case 1 was injected into one rabbit, which died

with marked invasion of the central nervous system, and from which a pure culture of the characteristic streptococcus was isolated.

In the earlier work on elective localization it was the rule to inject the streptococcus from poliomyelitis soon after its isolation. In order to determine whether the peculiar localizing power could be maintained through many subcultures, and thus rule out all possibility of carrying over "virus," subcultures in glucose brain broth were made from every three to eight hours, and the nineteenth culture generation was injected intravenously in rabbits. All but three of ten rabbits developed paralysis or showed elective localization.

The symptoms in the rabbit following injection of these strains are usually marked and progress rapidly, the animals dying in convulsions or from paralysis of the muscles of respiration. The amount of infiltration in the nervous system is mild as compared with that in man and in the monkey.

These conditions were thought favorable to test the efficacy of the serum, and a series of rabbits which showed paralysis were treated with it. The rabbits seemingly derived marked benefit. Injections of normal horse serum had no apparent effect.



Fig. 3.—Rabbit 1481, showing marked weakness of all extremities nine days after the first and two days after the second injection of the same strain after two animal passages.

REPORTS OF TWO ILLUSTRATIVE EXPERIMENTS

EXPERIMENT 1. — Rabbit 1477, weighing 1,009 gm. was injected intravenously, Jan. 8, 1918, with 7 c.c. of glucose brain broth culture, in the nineteenth subculture after one animal passage.

January 10, 3 p. m., the animal was found in the cage apparently quite well, but there was continuous fine tremor of the muscles of the whole body, frequently twitching and mild clonic spasms of the muscles of the neck. It was extremely hyperesthetic, and the head was slightly retracted at times. When it

was placed on a smooth surface, undoubted weakness of the anterior extremities was noted, particularly in the adductors (Fig. 1). Respirations were rapid, and there was marked salivation. The temperature was 104.8. At 3:20 p. m., the weakness in the anterior extremities was more marked; the tremor and spasms were less marked in the anterior extremities, but extended to the hind extremities, and the paralysis was rapidly increasing. The animal was entirely unable to bear its weight on the front extremities and had difficulty in getting its hind legs under the body. Tremor was markedly increased when it was lifted from the cage. At 3:45 p. m., 1 c.c. of serum from Horse 1, with an equal quantity of salt solution, was injected intravenously. At 4:20 p. m., there was less weakness, and tremor and spasms were limited to the muscles of the head. The front legs were undoubtedly stronger and did not spread out as much in walking on a smooth surface. Salivation was less marked. The temperature was 105. The injection of serum was repeated. At 4:45 p. m., the tremor was limited to the muscles of the jaw and neck; the fore extremities were stronger, and there was much less tremor when it was lifted from the basket. The fore legs spread slightly; the weakness in the hind legs was less marked. Salivation was absent. At 5:15 p. m., the picture had entirely changed; the animal was eating carrot and walked without difficulty and without evidence of weakness. Tremor was entirely absent, and the respirations were diminished. At 6 p. m., it appeared quite well. Salivation and tremor were entirely absent. There was slight twitching of the muscles of

the front legs when it was lifted from the basket. It walked normally on a smooth surface. The respirations were nearly normal. The temperature was 103.6. At 7 p. m., it appeared well, the respirations were normal, and salivation and tremor were absent even when it was lifted from the basket. It walked without manifest weakness. There was no retraction of the head. The temperature was 101.8. At 7:30 p. m., it appeared well, and jumped from a platform 2 feet high without evidence of weakness in the extremities while a moving picture was being taken. At 9 p. m., the animal ate carrot with relish (Fig. 2) and jumped out of the basket and ran about on the floor normally, without tremor. There was no hyperesthesia.

January 11, 6:45 a. m., the animal had escaped from the basket and was found running about on the floor apparently perfectly well with no sign of weakness anywhere. It was hungry and ate carrot ravenously. It was observed all day and appeared well, with no sign of return of symptoms.

January 12, 7:30 a. m., the animal appeared well. At 12 m. a decided tremor of the head and fore extremities was noted when it was lifted from the basket, but no weakness of the extremities was evident. At 2:20 p. m., the tremor had become decidedly more marked. The serum injection was repeated. At 6 p. m., it appeared well; there was no tremor on handling, and no weakness. At 9 p. m., the condition was unchanged.

January 19, the animal was perfectly well and active, with no sign of weakness anywhere. It remained perfectly well until May 2, when it died from snuffles, which was epidemic in the laboratory at that time.

EXPERIMENT 2. — Rabbit 1481, weighing 1,060 gm., was injected, Jan. 11, 1918, the same as Rabbit 1477.

January 12, the animal appeared well.

January 17, the animal appeared well and was injected intravenously with a six-hour culture in glucose brain broth of the same strain after two animal passages.

January 18, there was undoubted weakness of the left fore leg, which went into spasm in the extended position when the animal was lifted by the ears. Both forelegs spread out widely when it was placed on a smooth surface, the left more marked than the right. There was no tremor.

January 19, there was marked extensor and adductor weakness of the forelegs, especially the left, and slight tremor of the anterior part of the body but no retraction of the head.

January 20, 11 a. m., the animal was scarcely able to extend the front paws. Both legs tended to spread out widely in an attempt to stand on a smooth surface. The anterior part of the body trembled markedly in the attempt to walk, but there was no apparent weakness in the hind legs. There was marked loss in weight. At 1 p. m., weakness was more marked in the anterior extremities. At 5:30 p. m., the condition was worse, the animal being just able to bear weight on the front extremities. There was tremor and a tendency to spasm of the hind legs, with some difficulty in maintaining balance, and evidence of weakness in the muscles of the hind extremities. At 6:30 p. m., the paralysis was rapidly growing worse, the animal was unable to get its hind legs under it after they were extended, and it was entirely unable to bear weight on the front or hind extremities when on a smooth surface. The respirations were shallow, irregular and almost entirely abdominal. The ears were cold and drooped markedly (Fig. 3). The temperature was 100.8. One c.c. of serum of Horse 1, and 1 c.c. of salt solution were injected intravenously. After the injection the animal was placed in a cage, utterly unable to walk or stand. At 7:30 p. m., it was found in the opposite corner of the cage, 2½ feet from the place where it was left an hour previously. It stood with the chest from the floor of the cage, and was just able to walk. The temperature was 101.

There was a tendency to spasm of the hind legs when it was lifted from the cage. The injection of serum was repeated. At 8 p. m., it was found hopping about in the cage, and it ate greens with relish. The respirations had become regular, and expansions of the chest had become greater. At 9 p. m., it was hopping about in the cage and ate greens and oats. On being placed on a smooth surface it was able to stand erect without the paws slipping from under it, and it walked about with little weakness except the extensor weakness of the left paw. The power of the muscles in the ears had returned. The respirations were normal, and there was no tremor. The temperature was 102. The injection of serum was repeated.

January 21, 7:15 a. m., it appeared well, ate carrot with a relish, and hopped about the cage quite normally. When it was placed on a smooth surface, no weakness could be demonstrated (Fig. 4). There was sufficient strength to raise the weight of the body in its attempts to get on the top of a microscope case. It ate normally, its ears no longer drooped, the respirations were normal, and the temperature was 101. The animal appeared perfectly well until January 25, when it was found dead. There were no lesions of the central nervous system, cultures of the brain and cord were negative, and the liver showed marked coccidiosis.

CONCLUSIONS

The results in acute sporadic poliomyelitis, as in the epidemic form of the disease, and in experimental

poliomyelitis in the rabbit, are so strikingly favorable as to leave little doubt regarding the value of this treatment. Therefore, the importance of recognizing poliomyelitis early is evident, as it never has been heretofore.

It cannot be too strongly emphasized that this disease has a quite characteristic syndrome, as has been emphasized by Draper,¹¹ Peabody¹² and others, which should lead to its tentative diagnosis,

and to the immediate making of spinal puncture for conclusive diagnostic tests. If a patient has symptoms which suggest involvement of the central nervous system, and shows an increased amount of spinal fluid, an increased number of cells with mononuclears predominating, and a positive globulin test, the serum should be administered immediately. If further study should prove the symptoms due to some cause other than poliomyelitis, no harm will have been done, while if the treatment is delayed, irreparable harm may occur.

It is realized that a large number of patients must be treated before final conclusions can be drawn. Since the sporadic form appears also to yield to the treatment, there should be a supply of the serum in the hands of many.

A large amount of serum, believed to be as effective as that used thus far, is on hand, and will be sent gratis to any one who has an opportunity to use it, and who will furnish records of cases.



Fig. 4.—Rabbit shown in Figure 3 fourteen hours after serum treatment.

11. Draper, George: *Acute Poliomyelitis*, Philadelphia, P. Blakiston's Son & Co., 1917.

12. Peabody, F. W.: *A Report of the Harvard Infantile Paralysis Commission on the Diagnosis and Treatment of Acute Cases of the Disease During 1916*, Boston Med. and Surg. Jour., 1917, **176**, 637-642.

ABSTRACT OF DISCUSSION

DR. P. S. ROY, Washington, D. C.: I wish Dr Rosenow would tell us what change has taken place in nerve tissues which respond so quickly to treatment. It is almost analogous to the changes in polyneuritis or beriberi in pigeons. If you pour yeast vitamins down that pigeon's throat it will get well in a few hours. It is very interesting to know what change takes place in nerve cells which are completely restored to action in three hours.

DR. E. C. ROSENOW, Rochester, Minn.: There is much evidence to believe that loss of muscle power in poliomyelitis does not necessarily mean the death of the motor cells in the anterior horns. The paralysis may, in part, be the result of inhibition of physiologic function due, early, to the toxic effect of the micro-organism causing the disease, and late, to lack of oxygen or nutrition from infiltration. The fact that paralysis which starts to disappear soon after the acute attack is more prone to disappear entirely than when improvement begins late, indicates that this is true. The very prompt restoration of function which is observed following the injection of my antipoliomyelitis horse serum containing neutralizing substances is thus to be expected. In the case of the rabbit, the paralysis, and even death from respiratory failure appear to be due in many instances to inhibition of physiologic function of the ganglion cells in the anterior horns. The amount of infiltration is relatively slight, hence the immediate striking beneficial effects noted in this species following injection of the neutralizing serum.

AN OPERATION FOR STABILIZING THE FOOT AND ANKLE IN POLIOMYELITIS

A FURTHER REPORT *

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In cases of poliomyelitis with paralyzed foot muscles, the foot is usually equinus, equinovarus or valgus.



Fig. 1 (Case 1).—Right talipes equinus varus and left talipes valgus.

In the treatment of such cases, operative measures would not be considered until a long time had elapsed after the acute attack and until all remedial measures had been exhausted. There comes a time, however,

when something has to be done with deformity, and when tenotomies and brace wearing are not very satisfactory. The brace wearing is never kept up very long with any degree of efficiency, and after a while parents become tired and careless and give up all mechanical treatment.



Fig. 2 (Case 1).—Patient standing on the feet after correction.

At the meeting of the American Orthopedic Association in Philadelphia, Dr. G. G. Davis impressed on us the importance of in some way getting these children into such a condition that they could walk fairly well without apparatus of any kind. It was to accomplish some such result that the operation in question was devised. It was described¹ in 1917, and again² in 1918. The results seem to be so satisfactory and so permanent that I shall describe the technic once more. Perhaps this is best done by reporting the first case in detail:

CASE 1.—E. F., a boy, had an acute attack of poliomyelitis at 11 months of age. An operation was performed in August, 1917, when the patient was 7 years of age. Figures 1 and 2 show the right equinovarus and left valgus deformity. The position of the feet had first been corrected by tenotomies and held in such position for four weeks. On the right foot the fascia transplant operation consisted of first removing a piece of fascia lata from 2 to 2½ inches wide the whole length of the thigh. An incision was then made nearly the whole length of the leg. A second incision was made through the tough fascia which surrounds the tendons. These tendons were then dissected out and separated clear down to the annular ligament. In this case the tendons separated were the common extensor and the peroneus longus. The fascia covering the common extensor was split its whole length on the side nearest the crest of the tibia. The fascia lata was then stitched around the tendons at the lowest possible point in such a manner as to form a cuff. The dissected surface was placed next to the tendons and muscle. After this cuff of fascia was securely fastened the foot was held in an over-corrected position, while the upper end of the strip of fascia lata was firmly attached to the split tendon fascia at the upper end of the tibia or leg. Then, at the lower end, again the strip of fascia lata was split to allow for a separate cuff to be arranged around the tendon of the peroneus longus, and the upper end was thoroughly attached in the same manner as described above. Then the sides or edges of the fascia trans-

* Read before the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Peckham, F. E.: Paper read before the American Orthopedic Association, May, 1917.

2. Peckham, F. E.: Rhode Island Med. Jour., 1918, 2, 35.

plant were stitched firmly to the edges of the split tendon fascia all the way up and down the leg, and incidentally to the muscle bellies as well. Through all this time the foot was held firmly in the overcorrected position. When this part of the operation was completed the skin incision was closed with silkworm-gut.

So firm is the anchorage in such an operation that the foot remains in the corrected position without any mechanical assistance; consequently no plaster of Paris is necessary. A strip of adhesive plaster is applied, however, beginning at the top on the inside of the leg, passing down under the anterior part of the foot and up on the outside of the leg. This steadies the foot sufficiently and is all the fixation I now use. The patient is usually kept in the hospital in bed for six weeks, then sent home and asked to report in two weeks. I have applied braces for six or eight weeks while they are beginning to walk again, but I feel pretty sure that even this is unnecessary.

This operation has been useful, and to the parents very satisfactory, because their children not only walk, but are walking without braces of any kind.

249 Thayer Street.

ABSTRACT OF DISCUSSION

DR. WALTER G. STERN, Cleveland: I had an experience similar to that which Dr. Peckham has had, in doing the Gallie operation. We found that we did not get enough surface for perfect fixation. I think it is more simple to do the operation devised by Putti, that is, putting the severed tendon through a hole in the bone and sewing it firmly. With the extreme anchorage of Dr. Peckham's operation the results—as we have heard from this paper—must be quite satisfactory and permanent.

DR. FRANK E. PECKHAM, Providence, R. I.: I can only say that in doing the Gallie operation, and also the Putti, I did not get absolute anchorage. Each one has to figure out what he can do best.



Fig. 3 (Case 2).—Right foot held at right angle by muscular effort. Left foot hanging on account of paralysis.



Fig. 4 (Case 2).—Lateral view of hanging foot.



Fig. 5 (Case 2).—Patient standing on foot. This patient was operated on in August, 1917, and during the past winter went skating.

The left or valgus foot was treated as will be described in Case 2:

CASE 2.—I. M., a girl, had an attack of poliomyelitis at the age of 1 year and 3 months, and the operation was performed in August, 1917, when the patient was 8 years and 11 months of age. This was a talipes valgus in which the tibialis anticus and posticus were the paralyzed muscles. Figures 3 and 4 show how the toe drops. An operation similar to the one described in the foregoing was performed, except that the two inner tibial muscles were the ones anchored.

The correction in position is shown in Figure 5. When the mother brought the child for observation this spring she said that the little girl had been skating on it all winter. This would seem to demonstrate functional ability.

The advantage of the operation is that there is a long anchorage, nearly the whole length of the leg, from which so far there has been no giving way. These children walk without any apparatus, and practically do a heel and toe walk because with the foot held they strike on the heel. Then the remaining good muscle, whether it is the tibialis anticus or the common extensor, steadies the foot while the Achilles tendon pulls up the heel.

Workmen's Health Insurance.—The *American Labor Legislation Review* for the first quarter of 1918 summarizes the legislation enacted in 1917 providing for official studies of workmen's health insurance. Commissions were appointed in several states to report to the legislatures in 1919: in California, to report on social insurance; in Connecticut, on health insurance, old age pensions, free employment bureaus, hours of labor, minimum wage, and nine other topics relating to agriculture and business; in Illinois, on sickness and accidents of employees and their families not covered by workmen's compensation, etc.; in Massachusetts, on the alleviation of poverty due to sickness, the provision of medical care for wage earners, the health of wage earners and conditions of work, and existing insurance system; in New Hampshire, on health insurance and workmen's compensation; in New Jersey, on the operation of pension, annuity and insurance systems; in Ohio, on sickness, causes, influence of working and living conditions, etc., prevention of sickness, health insurance and old age insurance; in Pennsylvania, on sickness and accidents of employees and their families not covered by workmen's compensation loss resulting from sickness to individuals and the public, adequacy of present methods of treatment and care on meeting financial loss, influence of working conditions on health, and sickness prevention; in Wisconsin, to report on insurance against sickness and occupational disease.

DIAGNOSIS OF URETERAL CALCULI AND TECHNIC OF REMOVAL WITHOUT OPERATION*

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AND

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CHARLOTTE, N. C.

The purpose of this paper is to describe our technic of removing ureteral calculi without operation. The plan was mentioned in 1915 by one of us,¹ but the technic was not fully described, as a sufficient number of cases had not been treated by the method to justify us in making any special claims for it. After the lapse of three years, and after having treated thirty-one cases in this way, we are now prepared to assert that practically every recently impacted ureteral calculus can be removed by this plan if treatment is begun before the secretory power of the kidney is inhibited.

We will not enumerate the clinical symptoms, since they are so typical that their rehearsal would be superfluous, but will proceed to discuss our plan of treatment and briefly report a series of cases.

The points of election for ureteral stone impaction are: first, at the junction of the ureter with the kidney pelvis; second, at the pelvic brim, and third, just above the ureteral entrance into the bladder, as shown in the accompanying illustration.

The plan of treatment is dependent on, first, the location and size of the stone; second, the length of time impaction has persisted, and third, the amount of damage done the secretory power of the kidneys by back pressure or infection or both. If the obstruction has been complete, without infection, for a period of three months, the secretory power of the kidneys is destroyed, and the removal of the stones by our method is impracticable. If infection and disintegration have taken place, the condition is surgical, and its discussion is out of the province of this paper.

This method to us was original, as we have seen nothing in the literature recommending the use of cocain for the removal of ureteral stones previous to that time. Since then a great deal has been written about the use of local anesthesia, electrically heated catheters, special ureteral dilators, fulguration, etc. Our results have been so uniformly good with cocain, procain and oil that we have preferred perfecting our technic in this plan of treatment.

It occurred to one of us (A. J. C.) while endeavoring to remove a ureteral calculus from the ureter of

a patient, Feb. 2, 1915, that the pain might be relieved and the muscular fibers of the ureter relaxed by injecting a solution of cocain at the site of the impacted stone. Accordingly 2 c.c. of a 2 per cent. solution of cocain were injected. In two or three minutes' time the spasm was so relaxed that the catheter easily passed beyond the stone. Ten c.c. of sterile olive oil were injected and the catheter removed. Cystoscopy, on the following day, demonstrated the presence of the stone in the bladder. We were thus encouraged to continue its use, and have worked out the following technic:

A No. 5 bismuth catheter is passed into the ureter until it meets resistance. A roentgenogram is taken to ascertain further the location and size of the stone. (If urine is obtained through the catheter, it shows that the obstruction is incomplete and that the kidney is functioning.) Two c.c. of a 2 per cent. solution of cocain are then slowly injected at the site of impaction. In three or four minutes the catheter is passed beyond

the stone and 10 c.c. of sterile oil are injected. If we fail to get the catheter beyond the stone, the oil is injected with considerable force against it in an effort to dislodge it as well as to lubricate and dilate the ureter below the stone. The patient is kept well under the influence of morphin, put to bed and instructed to drink water freely to stimulate the functional activity of the kidneys and in this way assist in expelling the stone. Hexamethylenamin should be given in large quantities.

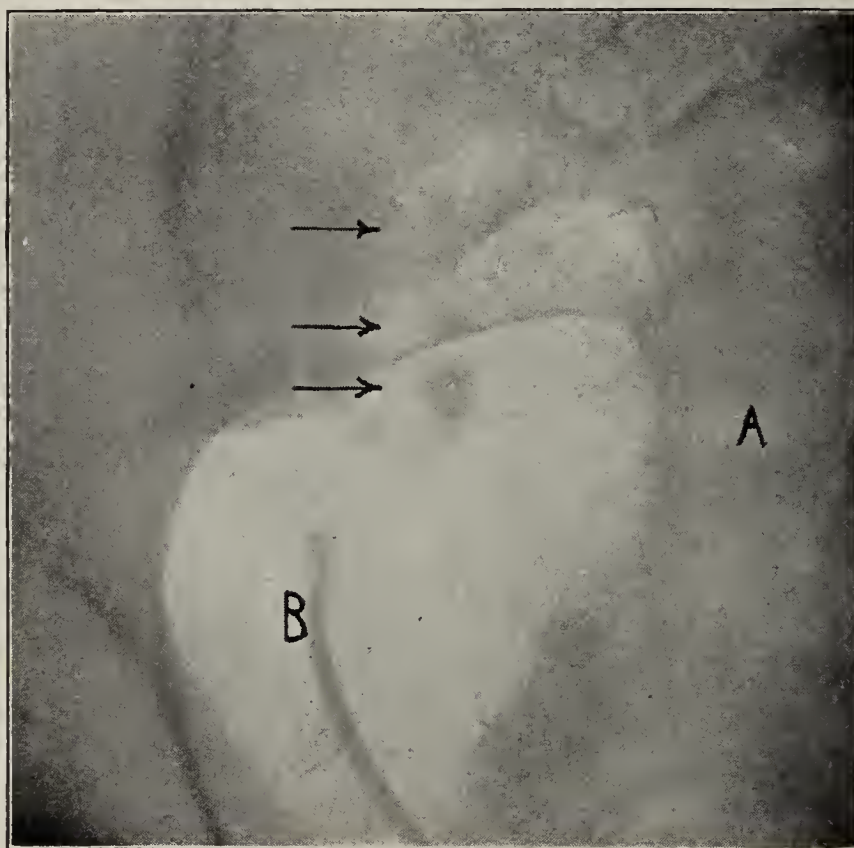
This technic is repeated every second or third day, its frequency depending on the patient's tolerance of instrumentation. The size of the ureteral catheter should be increased

at each treatment to dilate the ureter. We frequently use sizes up to 14 F. A stone too large to be removed in this way is surgical and should be so handled. It is astonishing, however, to see what a large stone can be removed by this plan.

Of our last thirty-one consecutive patients with ureteral calculi, we have operated on but two, and these were patients who came to our clinic just after we had instituted this method. We now believe we should have succeeded in removing these without operation had we persisted in the treatment.

The calculus was demonstrated cystoscopically in each of these cases or recovered by the patient's voiding through gauze. Absence of the obstruction was further demonstrated by the unobstructed passage of the ureteral catheter and permanent relief from the symptoms.

Roentgenoscopy was negative in twelve of these cases. This shows that we cannot depend on roentgenography exclusively to make the diagnosis of ureteral calculi. Of these patients, four received one; two,



Three impacted stones removed without operation: A, spinal column; B, catheter in ureter; arrows point to impacted ureteral stones.

*From the Crowell Urological Clinic.

1. Crowell, A. J.: Importance of Thorough Examination in Urologic Cases, *THE JOURNAL A. M. A.*, Oct. 23, 1915, p. 1434.

two; six, three; four, four; two, five; two, six, and one, eight treatments before the stones were recovered. Most of the cases were referred, were chronic in character, and required a greater number of treatments than the more recently impacted ones.

It has been variously estimated that from 40 to 60 per cent. of ureteral calculi will pass spontaneously if the patient is kept under the influence of morphin and left alone. We believe that practically all recently impacted stones can be removed by our plan if the treatment is properly carried out and persisted in sufficiently long.

Clinical Notes, Suggestions, and New Instruments

A POCKET-CARD FOR THE EASY CALCULATION OF MILK-MIXTURES *

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The evident need of a simplification of the procedures required for the prescribing of milk-formulas of known strengths in infant feeding has led to the devising of numerous ready methods. One which, emanating from Germany, has had a decided vogue in parts of this country during the last few years has been denominated the method of the "simple dilution" of whole milk. It probably owes its origin to Heubner, and has much in its favor. It should be at once understood, however, that, contrary to a widespread opinion, it in no sense does away with the calculation of percentages, since it was intended to be employed in conjunction with the estimation of the caloric value of the milk-mixture used; and this, of course, cannot be done unless the percentage composition of the food is known. In fact, it is an impossibility to prepare a milk-formula in a way which offers the best chance of its agreeing with the infant, without a knowledge of the action on the economy of the several different ingredients of the milk, and a recognition of the quantity of fat, sugar and protein which the food contains. The all too frequent attempt encountered in many quarters to use "simple dilutions" without this knowledge is a retrogression to the ignorance under which the physicians of fifty years ago were obliged to labor.

It is further to be observed that the confining of ourselves to simple dilutions of whole milk, while suitable for the feeding of many infants with disturbed digestion, deprives the healthy infants of the amount of fat which they are capable of digesting and ought to have, while on the other hand it maintains an inevitable fixed ratio of fat to protein, which is by no means always desirable. The dilution method is simple and admirable; but we can extend greatly the range of our possible choice of mixtures by using dilutions of certain of the layers of milk: in some cases whole milk; in others milk with a portion of the lower part of the jar removed; in others with a part of the cream layer removed. The process of prescribing the formula, as well as of the preparation of the food, is as easy by one method as by either of the others. These facts are, of course, well understood, but seem prone to be forgotten or ignored by those whose mental vision is concentrated on some single favorite feeding method.

With the object in view of making the preparation of the infant's food as comprehensible and as simple as possible for students, I have for years followed in teaching the procedures now to be described. Recently I have had prepared a printed pocket-card for distribution to the members of

my class; and it is a description of the method of using this card which is my object here.

Placed to the left on the front of the card (Fig. 1) is a table of the percentage strengths of fat, sugar and protein of different layers of the quart of milk. The figures given are based on published investigations by a number of writers, as well as on a large number of new analyses made at my request. They may fairly be considered average ones. The table is not entirely accurate, and is not, indeed, intended to be. It is necessary only that it be approximate, since it is not so much initial accuracy which is required as the ability readily to increase or decrease the various percentages as necessity demands. For instance, the actual protein content of whole milk is nearer 3.5 or 3.6 per cent. than it is 4 per cent. The sugar percentage should be 4.5 instead of 4. It long ago impressed me, however, that a slight distortion of the figures would result in the production of certain gradually changing ratios of the fat, on the one hand, to the sugar and protein on the other, which would lighten greatly the labor of any calculating required. In what a simple sequence the ratios run, how easily remembered they are, and what a range of choice they present is shown by an inspection of the table. The error resulting from the intentional distortion referred to is insignificant. For instance, in a mixture containing, according to the table, 2 per cent. of fat and 1 per cent. of protein, the actual protein percentage is nearer 0.9 per cent., and that of sugar 1.12 per cent.—differences which are entirely negligible. It is only when mixtures containing high

Table Giving Approximate Percentage-
Strengths of Different Layers of Milk

	Per cent. Fat	Per cent. Protein and Sugar	Ratio
Upper 2 oz. ....	.24	4	6 to 1
" 4 " ....	.20	4	5 to 1
" 6 " ....	.16	4	4 to 1
" 8 " ....	.12	4	3 to 1
" 10 " ....	.10	4	2.5 to 1
" 16 " ....	.8	4	2 to 1
" 20 " ....	.6	4	1.5 to 1
" 24 " ....	.5	4	1.25 to 1
" 32 " { whole " milk }	4	4	1 to 1
Lower 30 " ....	.3	4	.75 to 1
" 28 " ....	.2	4	.50 to 1
" 16 " ....	.1	4	.25 to 1
" 8 " ....	.05	4	0 to 1

To Find the Amount of Any Layer of Milk to be Used
to Give Percentages Desired

Equation:
$$\frac{\text{Total amount of food} \times \text{Percentage of fat desired}}{\text{Fat-strength of layer of milk used}} = \text{Amount of this milk in the mixture.}$$

(1) Select from the "Layers of Milk" Table the milk which possesses the desired ratio of fat to protein.
(2) Substitute in the equation.
(3) As the sugar-percentage has been reduced equally with that of the protein, add sufficient sugar to raise to the desired percentage.
EXAMPLE: 20-oz. mixture desired. Percentages desired = Fat 3, Sugar 6, Protein 1. Use upper 8 oz. (fat 12%, protein 4%, viz: 3 : 1). Then $\frac{20 \times 3}{12} = 5$ oz. of upper 8 oz., with 15 oz. of water in the 20-oz. mixture. The protein necessarily becomes 1%, and the sugar likewise. The mixture already containing 1% of sugar, add 5% of 20 oz., i. e., 1 oz. of sugar to increase this to the 6% desired.

To Determine the Percentages Present in Any Milk-Mixture Already in Use

$$\frac{\text{Quantity of substance used (milk, cream, or skimmed milk)} \times \text{Its percentage-strength}}{\text{Total Quantity of Food}} = \text{Percentage of element (F., S. or P.) in the mixture.}$$

EXAMPLE: The mother has mixed: Upper 8 oz.; 6 oz.—Lower 8 oz.; 3 oz.—Milk-sugar 3 level tablespoonfuls.—Water 27 oz. Total quantity = 36 oz. The upper 8 oz. contains 12% fat (see Table). Both top and bottom milk contain 4% protein and sugar. Three tablespoonfuls sugar = approximately 1 oz. The fat of the lower 8 oz. may be ignored. Then $\frac{6 \times 12}{36} = 3$ = Fat percentage from the top-milk. $\frac{3 \times 0}{36} = 0$ = Fat-percentage from the bottom milk. $\frac{9 \times 4}{36} = 1$ = Protein and sugar percentages from combined top and bottom milk. The 1 oz. additional sugar divided by 36 = approximately 3% sugar added. There being already 1% sugar derived from the milk, the total sugar = 4%.

Fig. 1.—Front of card.

percentages of protein are employed that the error becomes greater; and then, even with a calculated 3 per cent. protein, it is still less than 0.5 per cent. So, too, the fatter layers of milk, such as those containing 16 or 24 per cent. of fat, possess somewhat less protein than is present in whole milk; but so little of these is usually added to the mixture that the error is entirely trivial. Finally, no allowance is made for the small amount of fat in the lower layers of milk; but this, too, becomes negligible in practice. A short inspection of the table shows how easy it is of application. Thus a milk-formula containing fat, 2 per cent., and protein, 2 per cent., is made by mixing equal parts of whole milk and water, since the ratio of the fat to the protein is 1 : 1. A formula calling for fat, 3 per cent., and protein, 2 per cent., is constructed by mixing equal parts of water and of the upper 20 ounces of the quart, with a ratio, according to the table, of 1½ : 1. A low fat formula, such as one containing fat, 1 per cent., and protein, 2 per cent., is made by diluting a portion of the lower 28 ounces of the quart with an equal amount of water. When fat-free milk is desired, the lower 8 ounces can be used, which contain so small a percentage of fat that, especially when diluted, it can be regarded for practical purposes as fat free.

For some individuals it is more convenient to be able to construct a milk-mixture by means of an equation, and by

* Read by title at the meeting of the American Pediatric Society, May, 1918.

these the directions on the upper right-hand portion of the card can be used. One great advantage is to be pointed out here, namely, that only one calculation is required for both the fat and the protein, since after we have once selected the percentages of these desired, and chosen the layer of milk which possesses the ratio which these figures represent, as seen in the table, the calculation which gives us the fat necessarily gives us the protein also. Further, that the percentages of protein and sugar obtained by the calculation are the same; that is, if the food has 1 per cent. of protein it has also 1 per cent. of sugar, and the addition of the extra amount of sugar needed is easy.

At the bedside the mother tells us the composition of the infant's food in use in the gross quantities employed by her of milk, cream, sugar, water and the like; and it is necessary in our attempt to discover the faults present that we should be able easily to determine the strength of the mixture in fat, sugar and protein, respectively. The method detailed on the lower portion of the card enables us to do this very readily and quickly.

There are students, however—and practitioners, too—to whom any calculation of the simplest sort is a burden. For the benefit of these I have prepared the table printed on the reverse side of the card (Fig. 2). This enables one at a glance to prescribe practically any percentages likely to be used in which nothing but milk, water and sugar are employed. In the columns to the right of this table are given the caloric

and in that event the caloric value is reduced far too greatly. A few examinations which I have made gave approximately: top 8 ounces, 10 per cent. fat; top 16 ounces, 6 per cent., and lower 8 ounces, 1.5 per cent., but these are not to be depended on as average figures. This condition is due to the well known effect of pasteurizing in preventing a satisfactory and uniform rising of the cream. Whenever possible when layer milk is to be employed, it should be procured in the jar unpasteurized, as pure as can be obtained, the mixture prepared, and this then pasteurized in the individual feeding bottles.

From the card has been omitted with full intention any tabulated rules for feeding milk-mixtures varying in strength according to the age. My belief is that such rules, though convenient, are unnecessary; and indeed very frequently harmful by teaching the physician to depend on printed age rules rather than on the personal observation of the individual case. It may produce the same effect in taking away his power to think for himself that comes from following the directions for age which uniformly accompany the proprietary foods on the market. In instructing students I emphasize always the great importance of beginning with a formula much weaker in protein and especially in fat than the actual needs of the infant demand; and then, after tolerance for the artificial food has been established, of increasing the strength of the mixture to the extent to meet the infant's needs, as shown by the gain in weight and the general good condition of health. To go beyond this in quantity or strength of food merely

because rules for age say it should be done is a sure way of inviting disaster. The method I have mentioned is, I believe, all that is required by the observing and intelligent man; and the unintelligent cannot be really helped by printed rules in which the age is made the chief guide.

USE OLD INNER TUBES FOR ICE BAGS

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In line of conservation, I have for some time past substituted for the ice bag and coil varied lengths of old or discarded inner auto tubes. Parts of these tubes, cut crosswise in lengths varying from a few inches to 2 or more feet, filled with cracked ice and the ends tied with tape, make an ideal ice pack or coil which can be accommodated to any region of the body and, indeed, is to be preferred to the old ice bag, which quickly gets out of order and is expensive. Any small or even large leaks or "blow-outs" can be

closed with adhesive plaster. For the extremities, such a coil is especially valuable in completely encircling the part.

Parts cut lengthwise and sterilized can, in an emergency and in the absence of other rubber tissue, be utilized for drains and impervious coverings, and a long length held in front of the ear may be used in ear douching to protect the clothing in place of an ear funnel.

Possibly this has been suggested before; but aside from the real value, conservation alone will in these "parlous" times excuse its suggestion.

Early Vital Statistics.—While the greatest strides in the advance of vital statistics as a science have been made in recent years, their origin may be traced to centuries before Christ. Indeed, Herodotus tells us of a census of Egypt taken about 3050 B. C. for the purpose of making arrangements for the construction of the pyramids. Elsewhere, this same author refers to a second census, taken about 1400 B. C. in Egypt by Rameses II, for the purpose of reapportioning all the land of Egypt among his subjects. The Bible tells us that Moses counted the tribes of Israel to determine their fighting strength, and that David, about 1018 B. C., took a census for the same purpose. There is a record of a census taken in China about 1200 B. C., when data of the provinces were collected by Uking.—S. W. Wynne, *Michigan Monthly Bulletin of Vital Statistics*.

Ready Method for Selecting
Amounts to be Employed in Making Various 20-Oz. Milk-Mixtures, and the Caloric Values Resulting

Percentages desired of			Lower 8 oz.	Lower 16 oz.	Lower 28 oz.	Whole Milk	Upper 24 oz.	Upper 20 oz.	Upper 16 oz.	Upper 10 oz.	Upper 8 oz.	Water oz.	Sugar oz.	Caloric Value of Mixture	Calories per oz.
Fat	Sugar	Prot'n													
0.5	5	1	..	..	5	..	..	..	..	..	..	15	0.8	175	8.75
0.5	6	2	..	10	..	..	..	..	..	..	..	10	0.8	225	11.25
1	6	1	..	..	..	5	..	..	..	..	..	15	1	225	11.25
1	6	1.5	2.5	..	..	5	..	..	..	..	..	12.5	0.9	237.5	11.88
1	6	2	..	..	10	..	..	..	..	..	..	10	0.8	250	12.5
1.5	6	1	..	..	..	..	..	5	..	..	..	15	1	250	12.5
1.5	6	1.5	..	..	..	7.5	..	..	..	..	..	12.5	0.9	262.5	13.13
2	6	1.5	2.5	..	..	..	..	5	..	..	..	12.5	0.9	287.5	14.38
2	6	2	..	..	..	10	..	..	..	..	..	10	0.8	300	15
2.5	6	1.5	2.5	..	..	..	..	..	5	..	..	12.5	0.9	312.5	15.63
2.5	6	2	..	..	..	..	10	..	..	..	..	10	0.8	325	16.25
2.5	6	2.5	..	..	..	12.5	..	..	..	..	..	7.5	0.7	337.5	16.88
3	6	1	..	..	..	..	..	..	..	5	..	15	1	325	16.25
3	6	1.5	2.5	..	..	..	..	..	..	5	..	12.5	0.9	337.5	16.88
3	6	2	..	..	..	..	..	10	..	..	..	10	0.8	350	17.5
3	6	3	..	..	..	15	..	..	..	..	..	5	0.4	375	18.75
4	4	4	..	..	..	20	..	..	..	..	..	0	..	400	20

Fig. 2.—Back of card.

values of the 20 ounce mixture, on which, as a matter of convenience, all the calculations are based, as well as the caloric value of each fluidounce of the formula.

In the employment of weak cereal decoctions as diluents, it is customary to ignore the carbohydrate content present. Those who desire to use a cereal water as a diluent and to calculate the amount of carbohydrate derived from this may do so readily by making a decoction of, say, 1 per cent. strength in carbohydrate (about 1 level tablespoonful of barley flour to the pint); adding the percentage of carbohydrate derived from the amount of this used to that coming from the sugar in the milk, and then finally adding sufficient sugar to the mixture to bring the total up to the desired carbohydrate percentage. In ordinary practice with weak cereal diluents this is, however, a refinement not often required.

It should be noted that the commercial pasteurizing of milk interferes greatly with the making of milk-mixtures from the different layers. Indeed, it is practically impossible to produce a food of a fat content sufficiently low for many cases, and the feeding of an infant with fat intolerance is almost an impossibility. My attention was drawn to this fact by my failures with what I had supposed was food of a low fat content, and the failures explained by the discovery that the milk had been commercially pasteurized. With such milk we have no certainty of our ability to make a food containing less than 1.5 per cent. of fat, even if using only the lower 8 ounces of the quart, unless we dilute this with water,

Military Medicine and Surgery

CASES OF EMPYEMA AT CAMP LEE, VA.

PRELIMINARY REPORT

BY THE EMPYEMA COMMISSION

CAMP LEE, PETERSBURG, VA.

CONTINUOUS MEMBERS

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MISS BESSE E. STOCKING, ARTIST
MISS E. PAULINE JACOBS, SECRETARY

(Concluded from page 373)

CLINICAL OBSERVATIONS ON THE BACTERIOLOGY OF STREPTOCOCCUS EMPYEMA

The pleural exudates from the cases at Camp Lee were examined both in smears and plate cultures prepared with plain agar to which 10 per cent. of defibrinated human blood had been added.

In the fluids obtained by aspiration, hemolytic streptococci alone were found. These were often extremely abundant, a single loop of the exudate yielding from 100,000 to 200,000 colonies in plate cultures.

Stained smears from these exudates showed that the majority of the leukocytes present had undergone necrosis and were in process of disintegration. In many cases there was no evidence of phagocytosis. In other, but fewer, cases, phagocytosis was very marked; as many as forty cocci, sometimes in threads of considerable length, more often appearing as diplococci, were seen in a single phagocyte. But there were always more free organisms than the number incorporated, and the phagocytosis never appeared to be a decisive feature. When it occurred the organisms within the phagocytes sometimes failed to stain deeply and occasionally were reduced to mere shadows, but rather more frequently it was the phagocyte that gave evidence of retrograde changes. In one case, however, the exudate was found to be sterile after the pleural cavity had been several times aspirated, and it is possible that phagocytosis may have been the determining factor in bringing about this result.

The arrangement of the cocci as seen in smears was sometimes in pairs, but short chains of from four to eight biscuit-shaped diplococci were of more frequent occurrence. Longer threads of eighty or more such individuals were rare, but in cases in which these were present, they were often as abundant as the shorter chains. No definite relation could be observed between the severity of the cases and those differences in the streptococci.

The progress of disinfection was followed in the majority of cases coming under the care of the com-

mission, by means of both smears and cultures from the discharges. When practicable, this was regularly done twice weekly in each case.

The results of these studies are of considerable interest, for they demonstrate that the hemolytic streptococcus may persist for a long time in cavities that are merely allowed to drain without effective antiseptic treatment. In one case this organism was continuously present over a period of nearly six months.

They also emphasize the importance of free drainage. Where this is not provided, antiseptic treatment that would otherwise, in the light of observations in freely draining cases, prove effective has failed to accomplish disinfection.

It appears to be a legitimate conclusion from the experience gained through the systematic bacteriologic control of the treatment that when little or no progressive diminution in the numbers of streptococci follows treatment, there must be conditions in the cavity either impeding drainage or preventing contact of the antiseptic solution with all parts requiring disinfection. The value of this information in deciding on modifications in treatment is obvious.

The hemolytic streptococcus is by no means the first organism to disappear under antiseptic treatment in mixed infections of cavities neglected after operation. Putrefactive organisms and the *Bacillus pyocyaneus* disappear much earlier than the streptococcus, as determined by plate cultures. In general, it was observed that the hemolytic streptococcus was present up to the time that the total number of colonies developing from a loopful of secretion fell below 100. When the secretion from the cavity itself became very scanty, it was often impossible to obtain this standard quantity of representative material for culture. If, at that time, a sample of the secretion from the wall of the sinus was taken, this almost invariably contained a large number of viable organisms; but the hemolytic streptococcus could usually no longer be detected even in this situation.

In the routine of dressing adopted, the sinus was bathed with antiseptic only when the dressings were renewed and a culture from this situation obtained only at the longest interval after irrigation. The presence here of large numbers of organisms is, therefore, to be expected. The observations cited show, however, the importance of disinfecting the sinus when the cavity has reached a satisfactory stage of cleansing. For this purpose, a daily treatment with dichloramin-T appears appropriate; but other means might prove equally effective. Until the lung has fully expanded and the wound closed, both cavity and sinus are favorable sites for reinfection.

The curves in Figure 3 illustrate the progress in four recent cases with operation in which disinfection proceeded favorably.

THE NUTRITIVE REQUIREMENTS OF CASES OF STREPTOCOCCUS EMPYEMA

Among the most profitable undertakings of the commission was a study of the nitrogen output of patients in the early stages of empyema associated with the hemolytic streptococcus. It is a common observation that these patients become emaciated and lose strength with great rapidity, and that generous feeding should be a part of their treatment. The amount of nitrogen lost has not, however, been clearly defined. The studies of this subject at Camp Lee, unfortunately,

were limited in scope by two circumstances: the necessary apparatus for nitrogen determinations was not included in the laboratory equipment of the hospital, and before this could be obtained the number of acute cases under observation fell off and no fresh cases were received.

Notwithstanding these circumstances, fairly satisfactory determinations of total nitrogen in the urine and exudate were made in three representative cases, and the results are given in the report by Capt. R. D. Bell, who conducted this investigation:

The nutrition of several cases was studied in detail by means of their nitrogen balance. The food consumed was accurately weighed and the fuel value and the nitrogen content calculated from the tables of Atwater and Bryant. The urine was collected in twenty-four-hour periods, and its nitrogen content determined by the method of Kjeldahl. The daily excretion of nitrogen into the pleural cavity was

TABLE 1.—NITROGEN INTAKE AND OUTPUT IN CASE 1

Period End- ing a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per Cent. N	Gm. N	Gm. N Day	N Bal- ance	Creat- inin	Crea- tin
4/28	1,408	9.7	1,000	16.4	...	0.747	...	...	- 8.7		
4/29	1,758	11.9	2,050	31.7	...	...	...	...	-21.8		
4/30	1,160	9.0	1,925	19.9	540	0.741	4.0	2.0	-12.9		
5/ 1	2,210	14.6	2,250	21.0	...	...	...	...	- 7.2		
5/ 2	3,732	24.0	2,915	16.9	215	0.711	1.5	0.8	+ 6.4		
5/ 3	3,322	23.2	3,030	13.0	...	...	...	...	+ 8.5		
5/ 4	2,955	20.2	3,060	16.2	480	0.691	3.3	1.7	+ 2.3		
5/ 5	3,573	25.3	2,740	19.6	...	...	...	...	+ 4.1		
5/ 6	3,837	22.2	1,500	14.2	360	0.869	3.1	1.6	+ 6.4		
5/ 7	3,108	23.3	1,770	18.1	...	...	...	...	+ 3.9		
5/ 8	3,288	22.2	2,050	18.8	...	...	...	...	+ 2.1		
5/ 9	3,780	26.5	...	...	345	1.158	4.0	1.3			
5/10	3,347	21.7	1,750	19.1	...	...	...	...	+ 1.3		
5/11	3,662	25.6	1,640	19.3	220	1.201	2.6	1.3	+ 5.0		
5/12	2,793	16.9	1,490	17.0	...	...	...	...	- 1.4		
5/13	3,510	25.2	1,600	14.8	...	...	...	...	+ 9.1		
5/14	1,679	11.0	1,590	17.2	...	...	...	...	- 7.5		
5/15	464	3.4	250	3.2	(Operated on 3 p.m. 5/14. These 2 days not properly separate)					- 7.7	
5/16	2,444	16.3	1,560	29.3	...	...	...	...	+ 7.0		
5/17	3,125	21.5	1,310	13.2	...	...	...	...	+ 7.0		
5/18	2,794	18.0	1,310	10.4	...	...	...	...	+ 6.3		
5/19	2,850	19.7	...	...	...	...	...	...
5/20	2,807	18.2	1,700	14.6	...	...	...	...	+ 2.4		
5/21	1,839	11.8	...	...	...	...	...	...
5/22	2,194	13.2	1,710	19.3	...	...	...	...	- 7.4		
5/23	2,503	14.5	1,520	15.8	...	...	...	...	- 2.6	1.631	0.156
5/24	2,577	17.3	2,200	18.4	...	...	...	...	- 2.4	1.857	0.143
5/25	2,518	17.4	1,210	9.7	...	...	...	...	+ 6.4	1.058	0.100
5/26	3,734	25.1	1,240	12.1	...	...	...	...	+11.7	1.112	0.099
5/27	3,156	20.4	1,700	15.5	...	...	...	...	+ 3.6	1.633	0.097
5/28	3,880	25.4	1,790	16.4	...	...	...	...	+ 7.7	1.665	0.000
5/29	3,969	23.4	1,800	14.6	...	...	...	...	+ 7.5	1.634	0.000
5/30	3,972	25.3	1,530	16.0	...	...	...	...	+ 8.3		

obtained by measuring and analyzing the exudate every time the patient was aspirated. After operation, the exudate could not be collected and the daily pleural nitrogen excretion was assumed to be the same as just before operation. Since the daily amount of nitrogen in the exudate was not over 2.5 gm. per day, this assumption involves no serious error.

The nitrogen of the feces is disregarded, and for this reason the nitrogen balances given are slightly too favorable.

In Tables 1, 2 and 3 the nitrogen intake and output of three of these patients are given. Complete twenty-four-hour specimens of urine could not always be obtained, and figures are omitted on such days.

The patients had been kept on a soft diet containing from 1,100 to 1,700 calories, and were losing from 12 to 20 gm. of nitrogen per day. They were placed on the regular hospital diet, supplemented by extra feedings of eggs and milk. No attempt was made to keep them at a constant level of feeding since the

increased accuracy of the figures would not have justified the loss of food to the patient.

Figures 6, 7, 8 and 9 represent the relation of the nitrogen balance to the food intake. The broken line represents nitrogen gain or loss in grams, and the unbroken line represents the food intake in calories.

TABLE 2.—NITROGEN INTAKE AND OUTPUT IN CASE 2

Period End- ing 9 a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per- Cent. N	Gm. N	Gm. N Day	N Bal- ance	Creat- inin	Crea- tin
5/17	2,136	12.8	2,980	21.3	(No exudate obtained by aspiration)					- 8.5	
5/18	3,106	18.4	3,350	19.7						- 1.3	
5/19	3,638	21.1	3,070	15.8						+ 5.3	
5/20	3,751	22.4	4,680	17.5						+ 4.9	
5/21	3,416	19.6	3,700	17.1						+ 2.5	
5/22	3,205	15.8	2,880	18.2						- 2.4	
5/23	3,660	21.2	2,700	16.1						+ 5.1	1.226
5/24	3,737	18.8	3,540	17.6	(Vomited, amt. est. 400 Cal.)					+ 1.2	1.508
5/25	2,697	14.6	2,120	15.0						- 0.4	1.285
5/26	3,220	16.3	2,940	15.5						+ 0.8	1.427
5/27	2,512	13.1	1,700	13.6						- 0.5	1.349
5/28	3,121	17.7	3,330	15.1						+ 2.6	1.542
5/29	2,520	12.8	1,820	11.3						+ 1.5	1.138
5/30	2,675	15.5	2,220	15.9						- 0.5	0.076
5/31	3,037	19.7	2,900	15.3						+ 4.4	
6/ 1	2,643	15.2	2,340	16.9						- 1.7	
6/ 2	2,042	13.6	...	...					
6/ 3	2,666	16.2	1,350	14.3						+ 1.9	
6/ 4	3,450	25.4	2,050	14.6						+10.8	
6/ 5	3,017	17.9	2,200	14.0						+ 3.9	
6/ 6	2,095	12.7	2,650	16.1	(Operated, 50 c.c. pus)					- 3.4	
6/ 7	1,079	6.2	2,270	12.2						- 6.0	
6/ 8	1,600	10.5	...	...					
6/ 9	2,295	11.0	1,180	9.5						+ 1.5	
6/10	3,159	15.8	1,370	10.7						+ 5.1	
6/11	3,968	17.1	1,180	8.5						+ 8.6	
6/12	2,956	17.2	1,350	11.0						+ 6.2	
6/13	3,208	14.8	1,570	11.6						+ 3.2	
6/14	3,356	15.8	1,300	9.4						+ 6.4	
6/15	3,495	18.8	1,040	9.8						+ 9.0	
6/16	3,562	19.3	1,160	10.7						+ 8.6	
6/17	3,630	19.1	980	9.5						+ 9.5	

Nitrogen equilibrium is placed at 3,000 calories. With the scale used (10 gm. of nitrogen and 1,000 calories to one large square), the curves run quite parallel. Wherever the unbroken line is above the broken line more than 3,000 calories would have been required to

TABLE 3.—NITROGEN INTAKE AND OUTPUT IN CASE 3

Period End- ing 9 a.m.	Food		Urine		Exudate						
	Cal.	Gm. N	Vol. C.c.	Gm. N	Vol. C.c.	Per Cent. N	Gm. N	Gm. N Day	N Bal- ance	Creat- inin	Crea- tin
4/28	1,408	9.7	3,030	20.3	...	0.827	...	...	-12.9		
4/29	2,397	16.4	4,300	22.1	...	...	...	...	- 8.0		
4/30	1,745	10.6	4,000	22.2	595	0.790	4.7	2.3	-13.9		
5/ 1	2,061	18.2	3,710	22.7	...	...	...	...	- 6.8		
5/ 2	3,403	21.7	2,990	21.0	415	1.123	4.7	2.3	- 1.6		
5/ 3	3,097	21.8	3,240	17.7	(Operated 11 a.m.)					+ 1.8	
5/ 4	1,260	8.9	...	...					
5/ 5	1,842	13.2	...	...					
5/ 6	2,263	16.1	870	14.0						0.2	+ 0.1
5/ 7	2,040	13.1	...	...					
5/ 8	2,007	10.5	760	10.1						1.9	- 1.6
5/ 9	1,891	10.9	850	11.6						3.0	- 2.7
5/10	3,057	21.1	1,000	10.9						7.9	+ 8.2
5/11	2,760	18.6	...	...					
5/12	2,610	16.1	1,180	11.3						2.5	+ 2.8
5/13	3,297	22.5	1,500	7.4						12.4	+12.6
5/14	3,522	25.4	...	...					
5/15	3,479	26.1	1,120	11.4						12.4	+12.7
5/16	3,466	20.5	1,390	6.2						12.0	+12.3
5/17	2,932	19.21	...	...					
5/18	2,580	16.03	...	...					
5/19	3,129	21.6	...	...					
5/20	3,103	21.2	2,210	16.8						2.1	+ 2.4
5/21	3,170	22.4	...	...						9.2	
5/22	3,219	19.1	1,470	11.4						5.4	+ 5.7
5/23	3,331	19.4	2,480	13.8						3.3	+ 3.6
5/24	2,761	17.2	1,500	10.3						4.6	+ 4.9
5/25	3,760	24.7	1,460	9.2						13.3	+13.5
5/26	4,228	26.7	2,770	11.0						13.4	+13.7
5/27	3,284	22.3	2,060	12.2						7.8	+ 8.1
5/28	3,640	24.6	1,880	12.1						10.2	+10.5
5/29	3,715	23.0	1,310	12.9						7.8	+ 8.1
5/30	3,470	23.5	1,590	14.4						6.8	+ 7.1

keep the patient in equilibrium, and wherever the broken line is above the unbroken line, less than 3,000 calories would have maintained equilibrium. The distance between the lines is a rough measure of the

amount above or below 3,000 calories required to maintain equilibrium.

It will be noticed that in the acute stage of the disease with a high temperature, from 3,000 to 3,300 calories are needed to maintain equilibrium. It will

organism is defective. The involvement of the pleura is probably an extension of the infection from the lungs, often through the medium of a subpleural pulmonary abscess.

3. During the earlier stages of the pleuropneumonic process the pleuritis is probably of far less import than the pulmonary condition and general toxemia.

4. The evacuation of the pleural exudate by operation early in the disease involves greater risks, without compensating benefits, than the removal by aspiration. Much of the relief offered by operation without its attendant dangers can be afforded by aspiration, repeated according to indications. The condition of the patient at this time calls for medical rather than surgical treatment.

5. The results of further immunologic studies may offer a mode of treatment particularly applicable to the early phases of infection with the hemolytic streptococcus. At present there is little or no evidence that available serums are useful.

6. In the early stages of this pleuritic infection the exudate is sero-fibrinous, the amount of serum being often very large. Later, the exudate becomes progressively more purulent and eventually is a frank, creamy pus.

If treatment by aspiration is continued thereafter, this pus may become sterile, as we have observed in one case. But this should be regarded only as

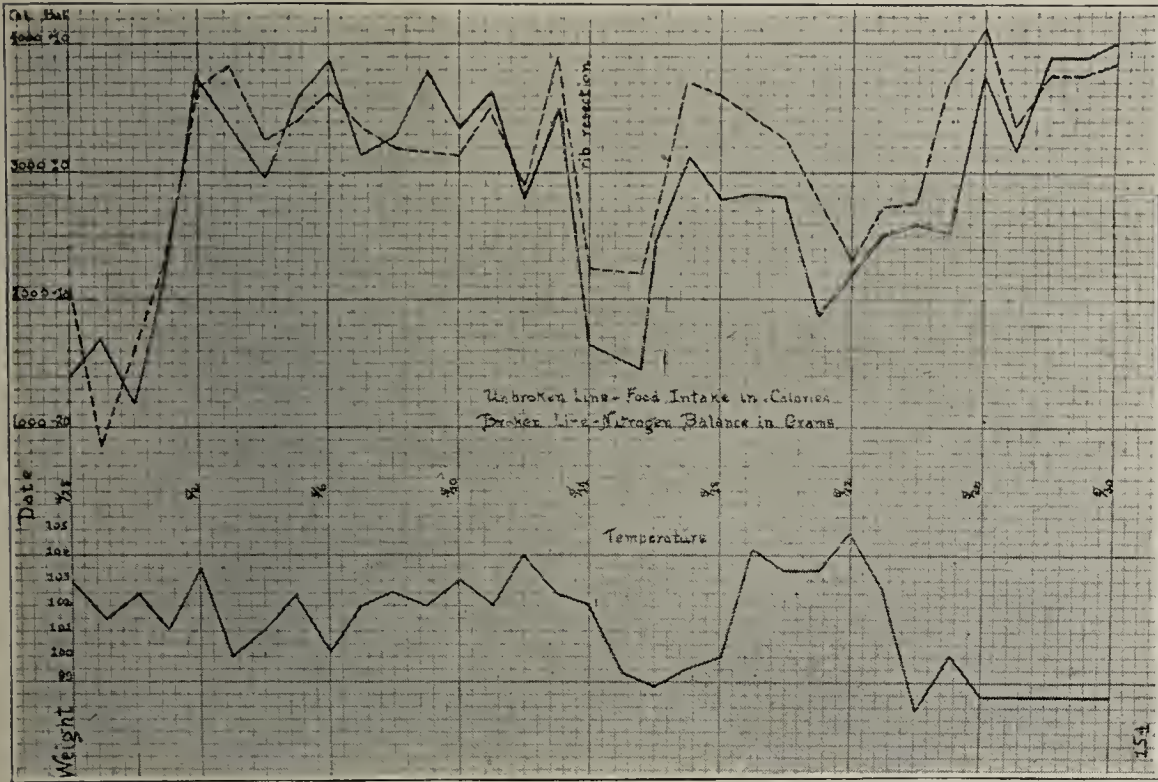


Fig. 6 (Case 1).—Nitrogen conservation following liberal diet.

also be noted that some patients lost weight although they had a constantly positive nitrogen balance. This is probably due to the fact that the nitrogen of the feces was disregarded. Probably from 3,300 to 3,500 calories would have been needed to maintain body weight.

Since these patients can lose in one day of low feeding as much as can be regained in several days of high feeding, it is important that a close watch should be kept on their food intake. It is recommended that they be placed on a standardized diet containing from 3,300 to 3,500 calories as early as possible and kept on this diet until they have reached their normal weight. The fuel value of any food remaining uneaten should be estimated, and extra feedings of eggs, milk, etc., given to make up the total. While the patient is very ill, lactose drinks may be used and, if necessary, glucose by rectum or intravenously. The patient should be weighed on admission and at least once a week thereafter.

Tables 4, 5, 6 and 7 show a few sample diets and the gains in weight that may be made by such feeding. This diet was estimated by the mess officer of the hospital to cost 87 cents a day.

SUMMARY AND CONCLUSIONS

1. An exudative pleuritis is a relatively frequent complication of the bronchopneumonia associated with hemolytic streptococci.
2. The evidence that this complication is an example of selective invasion of serous membranes by this

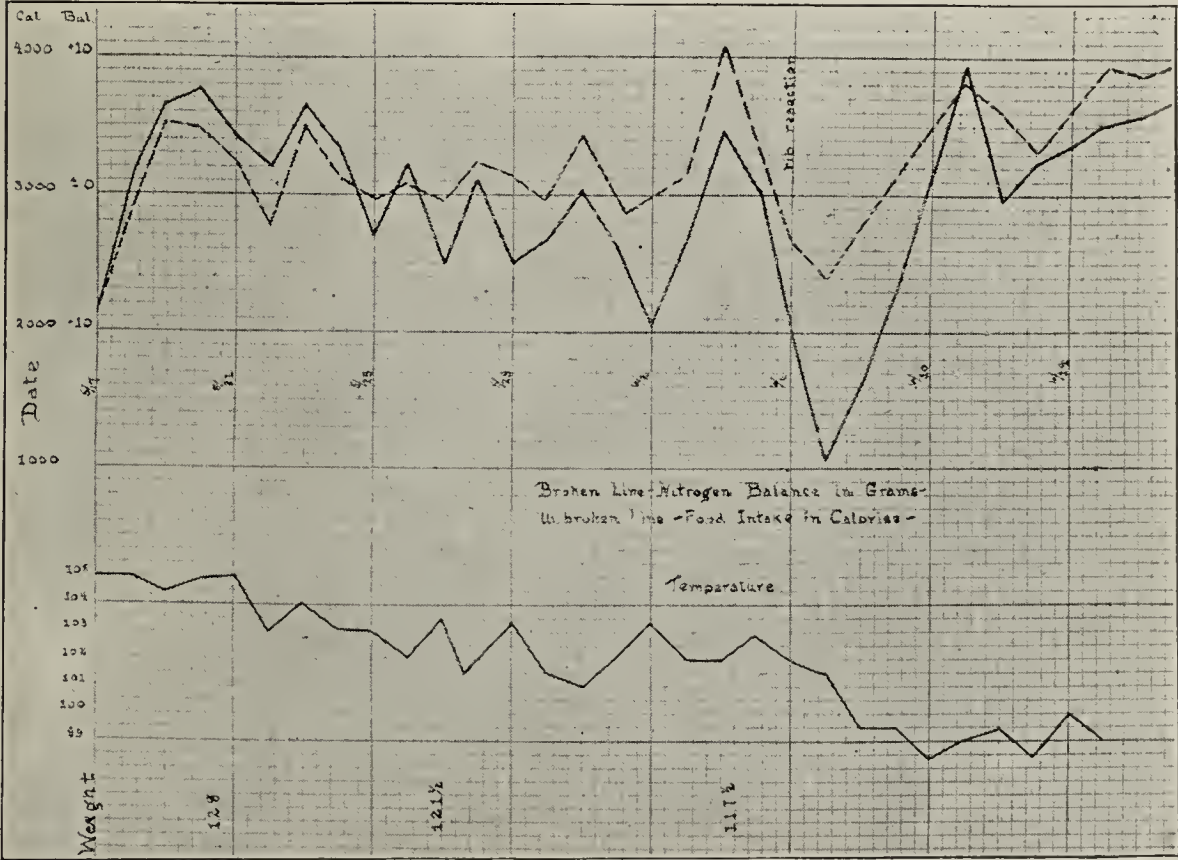


Fig. 7 (Case 2).—Nitrogen conservation following liberal diet.

an unusual occurrence, and for a rapid convalescence an operation for its removal and access to the cavity for drainage and antiseptic treatment is called for. Three of our patients, however, have recovered with repeated aspirations, without the necessity of operation. But in none of these had frank pus formed by the time of last aspiration.

7. During the period in which the forgoing changes in the pleural fluid are taking place, the general condition of the patient usually improves and operative interference is attended with comparatively little risk and much benefit.

TABLE 4.—SAMPLE DIET 1
Ward 10; May 7-8; 9 a. m.; Calories, 3,288; Nitrogen, 22.18; Proteins, 138.6; Fats, 124.6; Carbohydrates, 380.6

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohy- drates
Eggs (3).....	7.0	19.8	18.0	.....
Milk.....	960.0	31.7	38.4	48.0
Sugar.....	26.0	.....	.....	26.0
Lamb chop.....	42.0	9.1	12.5	.....
Potato.....	91.0	2.3	0.1	19.0
Spinach.....	70.0	1.5	2.9	1.8
Green peas.....	60.0	4.6	4.9	10.0
Rice pudding.....	152.0	9.9	7.6	39.2
Toast.....	163.0	18.7	2.6	99.7
Butter.....	17.0	.....	14.4	.....
Ice cream.....	50.0	2.6	5.0	8.8
Vegetable soup.....	.....	14.0	.....	8.4
Lettuce.....	10.0	0.1	.....	0.3
Macaroni.....	150.0	4.5	2.2	23.7
Baked apple.....	.....	0.6	0.6	29.3
Cocoa.....	270.0	11.0	13.8	17.5
Orange.....	100.0	0.8	0.2	11.6
Oatmeal.....	200.0	5.6	1.0	23.0
Banana.....	102.0	0.8	0.4	14.3

TABLE 5.—SAMPLE DIET 2
Ward 10; May 8-9; 9 a. m.; Calories, 3,780; Nitrogen, 26.52; Proteins, 165.8; Fats, 146.6; Carbohydrates, 423.6

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohy- drates
Milk.....	1,500.0	52.5	63.6	79.5
Eggs (5).....	.....	33.0	30.0	.....
Sugar.....	17.0	.....	.....	17.0
Oranges (3).....	400.0	3.2	0.8	46.4
Minced chicken.....	212.0	36.2	23.0	10.0
Potato.....	160.0	2.5	0.1	20.9
Toast.....	242.0	27.8	3.9	148.1
Butter.....	20.0	.....	17.0	.....
Tomato.....	150.0	1.7	0.5	7.0
Cake.....	48.0	3.0	2.2	27.3
Ice cream.....	48.0	2.5	4.8	8.5
Cream of wheat.....	210.0	3.4	0.7	23.8
Prunes.....	100.0	.....	.....	35.1

8. The operation should be preceded by a fluoroscopic examination to fix on the most favorable site for the incision.

9. Local anesthesia suffices and is preferable to a general anesthetic.

10. The drainage of the empyemic cavity after operation should be both complete and continuous.

11. Antiseptic treatment of the cavity should be instituted as promptly and thoroughly as conditions permit.

12. In cases not complicated by bronchial communications with the empyemic cavity, neutral solution of chlorinated soda, 0.5 per cent. (Dakin's solution), may be used effectively in cleansing and disinfecting the cavity. In recent cases with free access to all parts of the cavity, dichloramin-T, 5 per cent. dissolved in chlorcosane may be substituted for Dakin's solution; but if there is a thick fibrinous deposit on the pleural surfaces, this is less readily removed and drainage is more difficult to maintain than when Dakin's solution is employed.

13. In applying chlorin antiseptics (Dakin's solution or a chlorcosane solution of dichloramin-T), the following conditions should receive attention:

- (a) Free drainage.
- (b) Contact of the antiseptic solution with all parts to be disinfected. This is best secured when Dakin's solution is used with from one to four Carrel tubes

variously disposed within the cavity, and an exit tube passing through the thoracic wound to insure drainage.

(c) Adequate quantities of the antiseptic solution must be used, with sufficient frequency of application to maintain its action over the period of time necessary for disinfection. In determining these quantities and suitable intervals between instillations, the following guides are suggested, to be modified in individual cases according to the results obtained and other conditions: When treatment is begun, one half of the estimated capacity of the cavity may be introduced at each instillation, but not to exceed 200 c.c. The interval between instillations may, at the beginning, be one hour. As disinfection distinctly progresses, the interval may be increased.

(d) At the time of renewing dressings, once daily, an opportunity is given for supplementing the drainage of the cavity and improving the contact of the antiseptic by a cleansing irrigation with Dakin's solution.

14. As disinfection proceeded, the following observations have been made:

- (a) The amount of secretion diminished.
- (b) Its purulent character became progressively less marked and ultimately disappeared.
- (c) With the disappearance of the pus, the discharges became viscid, a glairy, translucent material

TABLE 6.—SAMPLE DIET 3
Ward 10; May 9-10; 9 a. m.; Calories, 3,347; Nitrogen, 21.71; Proteins, 135.7; Fats, 121.4; Carbohydrates, 405.4

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohy- drates
Milk.....	810.0	26.7	32.4	40.5
Eggs (3).....	.....	19.8	18.0	.....
Sugar.....	25.0	.....	.....	25.0
Chopped beef.....	80.0	22.1	6.2	.....
Potato.....	70.0	1.7	0.1	14.6
Purée peas.....	70.0	9.8	4.0	26.8
Toast.....	143.0	16.4	2.3	87.5
Butter.....	20.0	.....	17.0	.....
Custard.....	132.0	5.5	8.3	34.3
Apple sauce.....	134.0	0.3	1.1	49.8
Pudding, bread custard.....	102.0	6.5	5.0	25.8
Lemon (1).....	.....	1.0	0.7	8.5
Cocoa.....	570.0	20.9	25.8	32.5
Hominy.....	200.0	4.4	0.4	35.6
Prunes.....	110.0	0.6	0.1	24.5

TABLE 7.—SAMPLE DIET 4
Ward 10; May 10-11; 9 a. m.; Calories, 3,662; Nitrogen, 25.55; Proteins, 159.7; Fats, 147.5; Carbohydrates, 398.8

	Quantity in C.c. or Gm.	Proteins	Fats	Carbohy- drates
Milk.....	1,050.0	34.6	42.0	52.5
Eggs (6).....	.....	39.6	36.0	.....
Lemon (1).....	.....	1.0	0.7	8.5
Sugar.....	28.0	.....	.....	28.0
Orange juice.....	60.0	0.5	0.1	7.0
Oatmeal.....	200.0	5.6	1.0	23.0
Toast.....	255.0	29.3	4.1	156.1
Butter.....	30.0	.....	25.5	.....
Potato.....	82.0	2.0	0.1	17.1
Spinach.....	80.0	1.7	3.3	2.1
Fish.....	70.0	14.0	1.7	.....
Chocolate pudding.....	110.0	5.0	7.9	27.8
Ice cream.....	130.0	6.8	13.1	23.0
Vegetable soup.....	420.0	10.5	.....	18.0
Cocoa.....	120.0	5.0	6.3	8.0
Custard.....	90.0	3.8	5.7	23.4
Peach.....	40.0	0.3	.....	4.3

appearing on the dressings and in the return fluid on irrigation.

(d) This character was, in turn, lost and the total amount of secretion from the cavity became very small. On irrigation, the outflowing return was clear. When this was the case, the cavity itself was substantially sterile. But these indications should not be

accepted as conclusive evidence that the external wound may be closed without risk of recurrence.

15. The progress of disinfection may be followed by bacteriologic examination of the discharges, best by means of poured plates with defibrinated blood agar. In this way an indication may be obtained of imperfect contact of the antiseptic with the whole of

expansion of the lung. A failure of such expansion may be an indication of some undetected process that will eventually lead to a recurrence of the empyema.

19. Direct observations have been inadequate to define the conditions underlying a recurrence of supuration after what has proved to be premature closure of the thorax; but there are several possibilities that serve to warrant caution.

Among these are:

(a) Small lacunae which drain imperfectly into the main cavity and are not reached by antiseptic solutions introduced into the cavity.

(b) An irregular expansion of the lung leading to imperfect apposition of the visceral and parietal surfaces throughout their whole extent, leaving pockets that escape treatment. This irregular expansion might be due to (1) local variations in the thickness or pliability of the granulations; (2) residual fibrinous deposits on some parts of the surfaces; (3) irregular contraction of new-formed interstitial tissue within the lung, or (4) subpleural pulmonary abscesses, perhaps of very small size, or excavations in the pulmonary surface resulting from such abscesses.

(c) A necrosis with infection of portions of a rib.

20. Expansion of the lung can be encouraged and, perhaps, accelerated by various procedures, such as: (1) blowing against resistance; (2) the use of negative pressure and gentle suction devices, and (3) properly controlled exercises which induce not only a more active metabolism but also more active breathing. The influence of such measures can be directly observed, but unless they can be maintained over a period long enough for at least agglutination between the surfaces to take place, it is doubtful whether they materially hasten obliteration of the pleural cavity. Spontaneous expansion of the lung reduces the size of these cavities

the empyemic cavity, as well as the time of disappearance of the hemolytic streptococcus.

16. When the empyemic cavity has become cleansed beyond the point characterized by a viscid secretion from the wound, there is usually evidence of increased freedom for expansion of the lung. This is most marked in cases that have not been allowed to run a too protracted course before antiseptic treatment was instituted. When treatment has been greatly delayed, it is probable that a layer of dense fibrous tissue on the surface of the lung tends to restrict its expansion.

17. The danger of such cicatricial fixation of a compressed lung is an indication for prompt operation and cleansing of the empyemic cavity after the acute stages of the disease have passed.

18. With regard to the operative closure of the thoracic wound, few cases of such closure after cleansing and disinfection have been under observation for a length of time sufficient to give complete confidence that no recurrence will take place. The following observations on the total number of cases at Camp Lee may, however, be of some value in this connection:

(a) External wounds that are allowed to close spontaneously after prolonged drainage, but without cleansing or disinfection with antiseptics, even when the cavity has apparently become obliterated and only a sinus remains through the thoracic wall, are frequently followed by recurrence, an empyemic cavity, often of some size, not infrequently being revealed on subsequent examination, even after the lapse of several weeks of apparent health.

(b) Cavities that have been treated with antiseptic solutions in the manner described until cleansing and disinfection appear satisfactory should be closed, if at all, with great circumspection unless there is a free

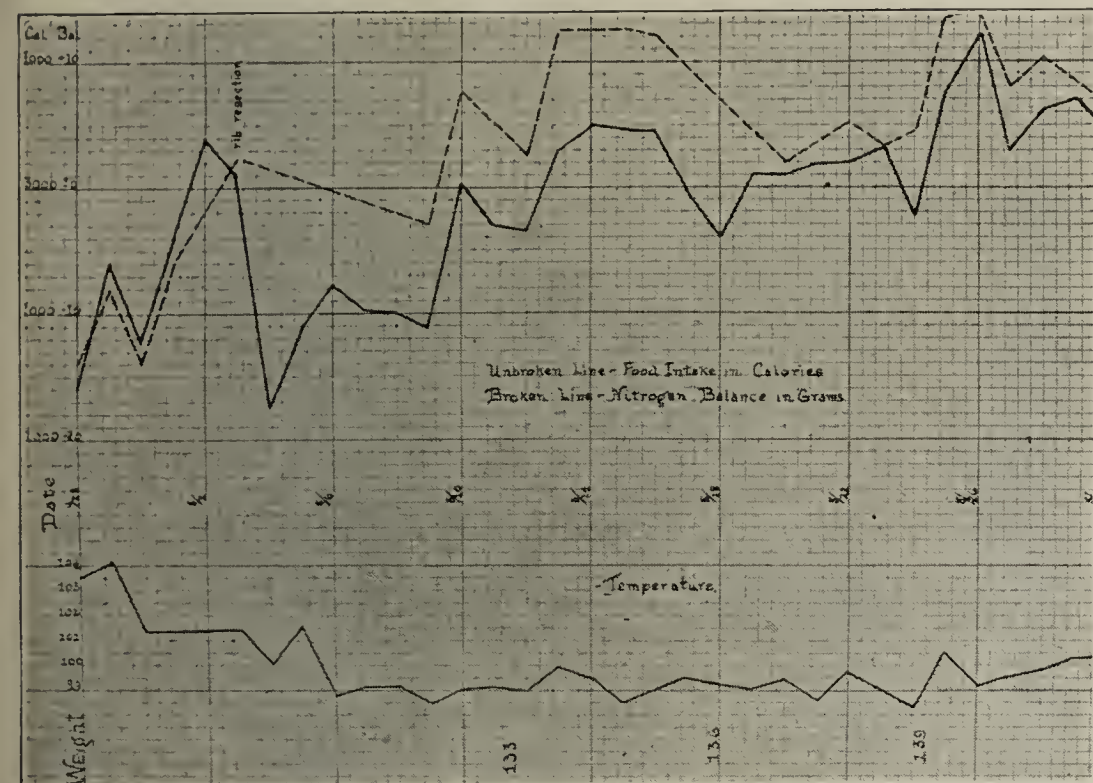


Fig. 8 (Case 3).—Nitrogen conservation.

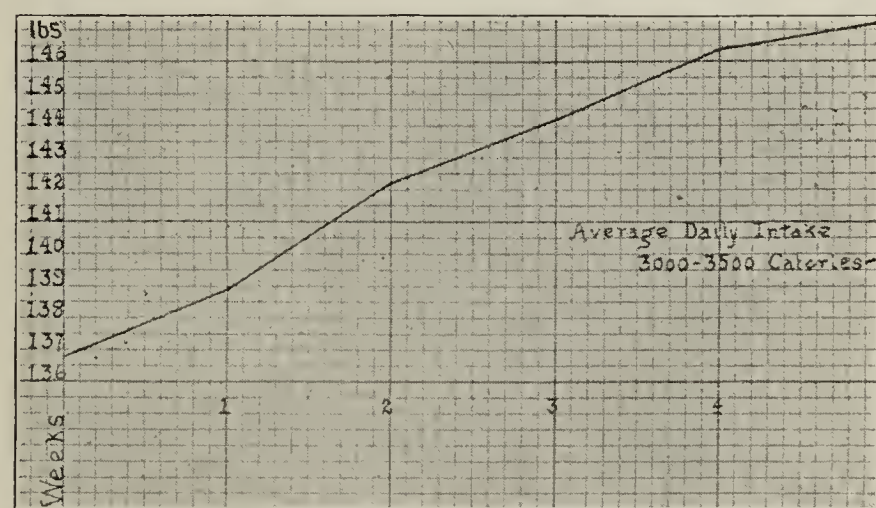


Fig. 9.—Increasing weight following liberal diet during convalescence.

often with surprising rapidity, once cleansing of the surface has been accomplished.

21. Nitrogen excretion is markedly increased during the early acute stages of this streptococcus infection. Emaciation and loss of strength are associated with this augmented protein metabolism. It may, however, be checked by raising the fuel value of the diet to a daily ration of from 3,000 to 3,500 calories. This may be done in practice by adding increased quantities

of milk, eggs, cocoa, etc., to the dietary, or by supplementing this with some readily assimilable carbohydrate as, for example, lactose in a beverage.

22. For the roentgen examination of old cavities with fistulas, we have found thorium nitrate in 10 and 15 per cent. solutions to be of value. Its advantages over pastes of various kinds are its ease of introduction and of withdrawal. A 20 per cent. aqueous solution of potassium iodid appears to give results about equivalent to those secured with the solution of thorium, and is more easily obtained and less expensive. Like thorium nitrate, it is distinctly though mildly irritating.

23. The increased expansion of the lung following the use of Dakin's solution leads to the hope that extensive intrathoracic operations, such as decortication of the lung, may in most cases prove unnecessary. Such procedures should be undertaken only after most prolonged efforts to obtain expansion of the lung have failed, and then only when the surgeon has at his command every facility in the shape of intratracheal anesthesia, assistants and armamentarium.

MEASURES FOR THE PREVENTION AND CONTROL OF RESPIRATORY INFECTIONS IN MILITARY CAMPS*

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The two great surprises of the last year in the Army camps have been, first, the rarity of gastro-intestinal infections, and, secondly, the frequency of respiratory infections, particularly of the streptococcus group.

In former wars, infections of the alimentary tract, such as typhoid and dysentery, were responsible for the great epidemics. In our training camps of today, typhoid and paratyphoid are curiosities and dysentery is an exceptional occurrence. The disappearance of this formidable group of diseases can be attributed in part to the general use of typhoid inoculation and in large measure to the safeguarding of the drinking water from contamination.

During the Spanish-American War the danger arising from polluted water was well known, but careful and comprehensive methods of protection were not carried out. Today an army camp digs its own wells, builds reservoirs, subjects the water to frequent bacteriologic examinations, and in other ways rigidly and scientifically applies the knowledge gained by previous failure. No expense is too lavish, no effort too great, to provide this insurance of soldiers against water-borne infections. And the results abundantly justify the expenditure.

Are we employing equally rational and efficient methods in our efforts to control respiratory infections? Are we not neglecting to apply certain preventive measures that are logically suggested by our knowledge of their etiology and of their modes of dissemination?

MILK AS A CARRIER OF STREPTOCOCCI

Infected milk, cream and ice cream may be playing a rôle in the causation of respiratory infections, espe-

cially those due to the streptococcus, somewhat similar to that of contaminated water in the causation of gastro-intestinal diseases. That virulent streptococci flourish in milk is well known. The epidemics of streptococcus sore throat in recent years in Boston, Chicago, Baltimore and many smaller cities, traced as they were to contaminated milk, fully demonstrate that milk must always be reckoned with as a potential cause of any streptococcus outbreak. Even ice cream may preserve these germs in a virulent form for several weeks. Milk is capable also of carrying the germs of scarlet fever, diphtheria and perhaps of other contagious respiratory diseases.

During last winter a sharp epidemic of septic sore throat at Camp Grant was attributed, with a high degree of probability, to the milk. Following these cases came a wave of scarlet fever. Both of these diseases decreased when the milk was boiled.

The prevalence of streptococcus infection, both primary and secondary, has been remarkable in all the camps. It is not far from the truth to say that the streptococcus has been responsible for more deaths than all other organisms combined. Sore throat, bronchitis, sinusitis, pleurisy, bronchopneumonia and pericarditis, have been the more common manifestations. Of course, the contagion spreads from one person to another, but it is quite possible that a fresh stream of streptococci is constantly flowing into the camp and being disseminated by milk, cream and ice cream. A comprehensive and exhaustive study of this whole subject by competent investigators is imperatively needed at the present time.

In the meantime, however, in view of the constant danger of contamination, all milk and cream products should be pasteurized under direct supervision of the camp authorities. The most satisfactory and reliable means of accomplishing this end is to build and equip a pasteurizing plant in the camp proper, and have the process carried out and supervised by Army men. Such a plant could also manufacture all the ice cream used at messes and canteens.

Thorough pasteurization of milk in its various forms might reasonably be expected greatly to cut down the incidence of streptococcus infections and possibly that of scarlet fever and diphtheria.

ISOLATION OF SOLDIERS BY MEANS OF THE FACE MASK

As previously stated, most of the diseases encountered in the training camps are infections of the respiratory tract such as meningitis, diphtheria, scarlet fever, mumps, measles, German measles, pneumonia, whooping cough, streptococcus tonsillitis, bronchitis and bronchopneumonia. All of these communicable diseases are transmitted from one individual to another by means of the secretions of the nose and throat. Talking, coughing and sneezing force a fine spray of mucus and bacteria into the air which may directly infect another person and which contaminates clothes, bedding and furniture.

Crowding in barracks, at the mess table, and in recreation rooms facilitates the transmission of these infections and explains their rapid spread in Army camps. Crowding in the ambulance, in the receiving office and in the wards is even more favorable to germ transmission, because a large proportion of these soldiers are already affected with some contagion, and they simultaneously expose themselves and their comrades to a secondary infection.

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918

The remedy for crowding is group separation and, as far as possible, individual isolation. The segregation of newly arrived troops for three weeks in detention camps is one of the most vital measures in checking contagion.

The expedients of increasing the space between beds in barracks, of placing the head of one soldier opposite the feet of his neighbor, of stretching tent flaps between beds, and of suspending a curtain down the center of the mess table, are all of proved value. But the most efficient method for securing isolation of the individual is the use of a face mask, made with three or four layers of gauze in the shape of a rectangle measuring 5 by 7 inches.¹ The mask has long been employed by surgeons as a filter for the expired air in the operating room. It has been used successfully at the Durand Hospital by Weaver² for the protection of physicians and nurses engaged in the care of patients with contagious disease.

So far as we can learn, however, the use of the face mask for patients had never been practiced. In a hospital where each patient is confined to a separate room, there is no reason for masking the patients. But in hospital wards where, even with cubicles, patients must mingle and expose one another to respiratory infections, the face masks on theoretical grounds promised protection.

The experiment was started at Camp Grant³ in the latter part of January, 1918, and was so successful that it was instituted as a routine measure in most of the medical wards early in February.

The system is carried out (1) at the regimental infirmary, (2) in the ambulance, (3) in the receiving office, and (4) in the wards. The directions observed are as follows:

1. At the regimental infirmary every patient with contagious disease is masked immediately after the diagnosis is made.

2. Every patient on entering the ambulance, whether infected or clean, is masked. Each ambulance carries a box of clean masks, which is replenished at the receiving ward.

3. At the receiving office the ambulance patients continue to wear their masks. Other patients who walk to the hospital for minor ailments are masked at the door by a noncommissioned officer. All retain the mask in place during the examination and on the trip to the ward, and remove it only when they are in the ward cubicles. Since the initiation of this practice, the occurrence of cross-infection from contact in ambulance and receiving ward, previously quite frequent, has been rarely observed.

4. In all wards for contagious and respiratory diseases (this includes nearly all the medical wards) the mask is worn by patients as well as by physicians, nurses, ward men and visitors. As long as the patient remains within the shelter of the cubicle he need not wear the mask, but he puts it on whenever he leaves the cubicle for any reason. Patients must either have their meals served in bed or while masked

procure their tray of food and carry it to the cubicle. All eating utensils are sterilized after each meal.

Smoking is absolutely prohibited, as it necessitates the removal of the mask.

In view of the danger of transmission from the wash bowls, the plugs are removed, so that only running water is available for washing the face and teeth. Only one person at a time is allowed in the wash room, as the mask is necessarily removed therein. On the other hand, there is no objection to several persons occupying the latrine at the same time. The latrine is kept separated from the wash room in the double wards by locking the communicating door, in the single wards by hanging up sheets between closets and wash basins. To enforce the wash room regulations, a guard, who is usually a convalescent patient, sits outside the door.

Much depends on stimulating a lively interest in the scheme on the part of nurses and ward men. The ward surgeon very easily wins the cooperation of the patients themselves by frequent short talks, explaining the purpose of the masks and pointing out their similarity to the gas masks.

From February 1 to June 1, 1918, the cubicle and mask were in continuous operation. Whenever a case of scarlet fever broke out the ward was placed in quarantine for one week; when measles broke out, the ward was quarantined for two weeks.

In twenty wards exposed to scarlet fever as a secondary infection, only one subsequent case of scarlet fever developed during the week of quarantine.

In eight wards exposed to measles as a secondary infection, not a single case of measles developed during the two weeks of quarantine.

The system may be said to have been efficient in 95 per cent. of the exposures to scarlet fever and in 100 per cent. of the exposures to measles.

If this experience can be taken as a criterion, we soon shall be justified in ignoring the quarantine of the ward in these cross-infections, provided the system of masking and the cubicle is in good working order at the time of their appearance.

ABSTRACT OF DISCUSSION

DR. JAMES S. McLESTER, Birmingham, Ala.: We have used the method suggested by Dr. Capps at Camp Sheridan with satisfactory results. At one time in the measles ward almost every patient had coryza or bronchitis, and bronchopneumonia was developing rapidly. We removed every case of bronchopneumonia as soon as recognized, but that did not stop the spread. Finally, we put all the beds in that ward in cubicles and washed all the patients. Very soon the bronchopneumonia ceased to appear. That was to me a graphic demonstration of the value of the mask and of the cubicle system of isolation. Later on we had a similar experience in an epidemic of so-called grip. This disease spread rapidly through the hospital. Finally we made universal use of the mask and the cubicle and were thus able effectually to control the epidemic.

DR. JOHN A. LICHTY, Pittsburgh: In a large civilian hospital during the past winter our experience was much like that of Major Miller and Major Stone. We had two epidemics of pneumonia in the Mercy Hospital at Pittsburgh. The first epidemic came early in the winter and seems to have occurred mostly in colored men who had come from the South in the summer and who had never lived in the North. They came poorly clad and were improperly housed. They did not use the large wages they received to feed themselves properly. These men had a typical lobar pneumonia. They came into the hospital late, usually on the seventh day; and the mor-

1. Commercial gauze varies greatly in weight and closeness of weave, so that it is important to fix a standard texture and the number of layers required to afford protection. Major Haller, chief of the laboratory at this hospital, is completing bacteriologic experiments for this determination and will publish his results in an early number of *THE JOURNAL*.

2. Weaver, G. H.: The Value of the Face Mask and Other Measures in Prevention of Diphtheria, Meningitis, Pneumonia, etc., *THE JOURNAL A. M. A.*, Jan. 12, 1918, p. 76.

3. Capps, J. A.: A New Adaptation of the Face Mask in Control of Contagious Disease, *THE JOURNAL A. M. A.*, March 30, 1918, p. 910.

tality was very high. We did not have time to group them all or to treat them with the serum after they were grouped because they died so soon after entering the hospital. The other group came in the latter part of the winter when the cold weather began to break up. This was an entirely different class, and it corresponded with the class of pneumonia which seems to have occurred in the camps where there were abscesses of the lungs, empyema, etc., because they were very irregular, they were hard to diagnose, and, no matter whether they came in early or late, the cases were almost invariably fatal.

There should be propaganda work with reference to pneumonia just as there is with cancer. The laity should know what the early symptoms of pneumonia are, or the laity should be as keen about pneumonia as they are about appendicitis. Then, I believe, we can do much more with serum treatment than we have done heretofore.

DR. H. P. GREELEY, Madison, Wis.: This symposium has brought out the fact that pneumonia is, first and foremost, an upper respiratory tract disease. The question which I want to ask is, In what proportion of cases in the epidemics at the cantonments was the upper respiratory tract the seat of an acute inflammation? Dr. Capps has shown conclusively the value of masking in the prevention of pneumonia. Is local treatment of value in the preliminary stage of upper respiratory tract inflammation, the stage of invasion? Can any antiseptic local treatment be employed as a prophylactic?

DR. ALBERT R. TRAPP, Springfield, Ill.: I have often observed infected teeth and tonsils antecedent to pneumonia. These chronic infections increase the susceptibility and decrease the resistance to pneumonia. In treatment it would seem wise to combat these infections. Another thing I should like to have seen taken up is the viscosity of the blood. Wright has spoken of the citrates as diminishing the viscosity of the blood. It would seem that this could be tried out.

DR. CHARLES N. LOVEWELL, Fort Snelling, Minn.: I have had somewhat the same experience at Snelling as you did at the other camps. We are located near the University of Minnesota, and one of the things I have been grateful for since coming into the service is the fact that we were so assigned. The men there have been exceedingly kind to us in confirming some of our work, and because of the help they have given us we have been able to do better work than we otherwise could have done. In our work on pneumonia we have been able to classify the cases according to types. We had a comfortable, satisfactory time with our pneumonias in October, November and December. About the 1st of February troops from Kelly Field were sent to us, and then our troubles began, for with them came a type of pulmonary disease I had seldom seen before. Major Miller spoke about the great variance in the physical findings. It filled me with a great deal of satisfaction and, I declare, I felt better when I realized that others, and men of skill and ability, should be annoyed by the difficulties presented in arriving at correct diagnoses from their physical signs. We found every variety of physical sign disproved at necropsy. We found apparent empyema disproved by the surgeon going in and finding no empyema there. The pleuritis due to streptococci was associated with an exudate of gelatinous material which we have examined at necropsy and found by squeezing to be full of pus, although it would appear to be free from fluid. We have at the present time in our hospital fifteen cases of streptococcic pneumonia followed by empyema. Some of them, over half of them, have been in the hospital since March 1. Among the patients that are not there now, some having been discharged and some having gone to Fort Bayard, we have noted quite a large percentage of cases developing tuberculosis. I have not heard that mentioned here this morning. There is another thing that impressed me very much, and that was the apparently almost simultaneous occurrence of suppurative peritonitis with empyema, simulating appendicitis and pneumonia at the same time. We have made the mistake of operating in one of these cases, in which we found that condition. We have had some patients die of severe toxemia within an hour of their admission to hospital in whose chests we were unable to satisfy ourselves that there was any amount of pus, and in

the abdomen we have found up to 200 to 300 c.c. of fluid, a most distressing condition for anybody who tries to make a diagnosis.

We used the commercial serum at first, although we found later that the serum had little or no agglutinating power against Type I. We gave our patients standardized tincture of digitalis, and in the last series of thirty cases we used the autolyzed pneumococcic antigen prepared by Rosenow, and I believe that, while the epidemic has lost its virulence, the antigen has markedly affected not only our mortality but the incidence of the crisis in the true cases of pneumococcic infections.

DR. EDWARD F. WELLS, Chicago: The paper is of great and timely interest. The principle of protecting other persons from contact with infective organisms thrown into the air by pneumonia patients is clearly beyond question; the details may be adapted to meet the varied requirements, and have been mildly and incidentally mentioned at intervals during the past three or more decades. Recognizing the fact that the pneumococcus, once it obtains lodgment in the nose and throat, remains a permanent potential danger to its host, and that it may be conveyed to others by air which has been contaminated by coughing and sneezing, I have long, and frequently, advocated the placing of signs in public places to the effect that "In coughing or sneezing hold your handkerchief before your mouth and nose." I have no doubts as to the widespread beneficial prophylactic results which would follow the general adoption of this measure, and desire again to recommend its employment.

DR. EDWARD E. G. FRANING, Camp Dodge, Iowa: I was at Camp Dodge from the beginning and saw this whole epidemic. We were going along smoothly until all at once we were thrown into a sort of a convulsion by an epidemic striking us. There was nothing important about pneumonia before this epidemic came on. It seemed that we had said everything about pneumonia, but we found that there was a great deal to say. We are classifying pneumonias. We have divided them into two classes. One is the old-fashioned pneumococcus pneumonia and the other is the streptococcus pneumonia, which causes an interstitial type of disease. I am on the surgical side at Camp Dodge. We had some infections in our hernia work and in some cases of chronic appendicitis. We did everything we could to stop those infections, but we did not succeed. After a short time we were able to put the dirty work in one pavilion and the clean work in another place, and after that we had no more infections, showing that the infection was general throughout the hospital.

We had cultures made of the throats of the twenty surgeons on the service and found that about 18 per cent. had streptococci. The *Streptococcus hemolyticus* was present in probably 15 per cent., and there was one man who had the short-chained streptococcus—the nonhemolytic streptococcus. The point I want to make is that some of you will have those same germs in your own throats, and when an epidemic comes the percentage of these streptococci increases. The streptococcus was found in 60 or 70 per cent. of these sore throats. Any infectious disease will increase the streptococcus flora in the throat, so that it is no wonder that these streptococcus infections increase in the measles cases.

We could do necropsies. We found that those sore throats, the ulcerative throats, were accompanied by very red congested tracheas and bronchial tubes and interstitial pneumonias. A very simple streptococcus pneumonia resolves itself very easily, but at the top of the wave it is more severe, the infection is more virulent, more of the lung is involved.

The worst complication we had was empyema, and it was my misfortune to operate on nearly half the cases. Practically all those empyemas got well until the epidemic struck us, and then the death rate of the empyemas went up, in spite of any operative procedure. At the end of the wave, or when the wave was breaking, the death rate dropped right down, showing that any operation we did in those virulent cases was of no avail. It made no difference what operation you did, when the pneumonia was on the decrease the wave of death rate went down. So that we have to be very careful in deciding on the kind of treatment.

DR. GRANVILLE N. RYAN, Des Moines: It is our experience that you will get a favorable result in using glucose intravenously in the presence of an approaching coma or a dry tongue that is evidence of a dehydrated condition of the general system. It has been our experience that even a 10 per cent. solution of glucose has given very good results. We have added sodium bicarbonate in a 5 per cent. solution not only in pneumonia but in any dehydrated condition of the system or acidosis. I have not used glucose in 25 per cent. solution. In a delirious patient, instead of using opiates, try glucose, either alone or with sodium bicarbonate. You can make many of these patients more comfortable and, besides, these injections have a nutritive value.

ACUTE MASTOIDITIS AS A COMPLICATION OF INFECTIOUS DISEASES

BASED ON A STUDY OF ONE HUNDRED AND TWENTY-THREE CASES IN THE BASE HOSPITAL, CAMP SHELBY, MISS.*

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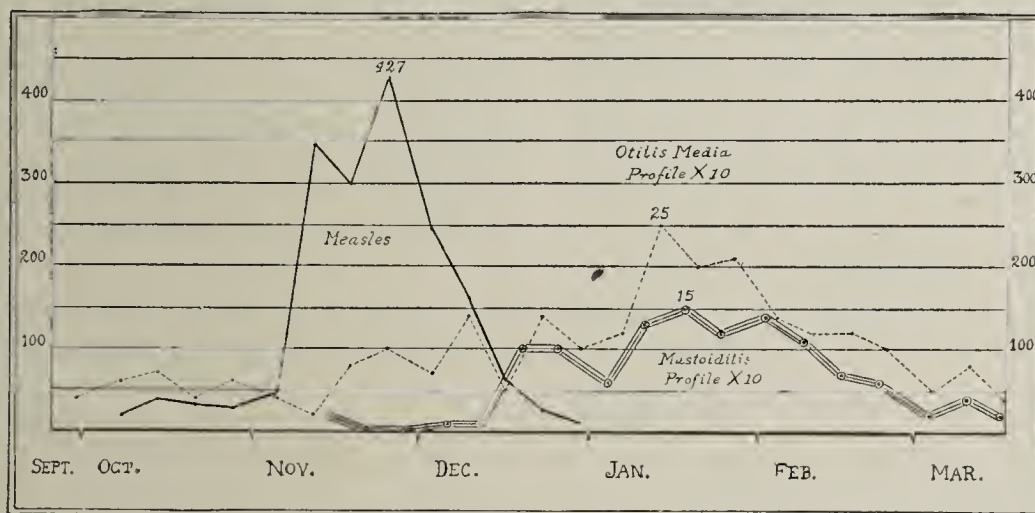
During the past winter the southern Army camps seem to have been invaded by a widespread streptococcus infection, expressing itself somewhat differently here and there; but in its most virulent form, and with highest mortality, in the shape of an involvement of the lung or pleura or both by the *Streptococcus hemolyticus*.

Camp Shelby was no exception to the general rule, but for unexplained reasons, which the epidemiologist must elaborate for us, the infection was not of the severest type, as there occurred only about 300 cases of pneumonia and thirty-five cases of empyema. However, in studying the streptococcus cases as a whole, a striking variation from the general rule is at once apparent, in that, among the empyemas, the hemolytic streptococcus is not the prevailing agent of infection. While there are a few due to this type of streptococcus, by far the larger number, as shown in the study by Captains Todd, Moore and Zingher, are due to a streptococcus of the *S. viridans* group. There have been a considerable number of patients having streptococcus infections of organs other than the lung and pleura, and when one glances over this division another exception is evident, in that there is a large number who suffered invasion of the middle ear and mastoid. It is this group that constituted our peculiar problem. By itself, this cannot be considered as an entity but as a curious phase of the broad streptococcus problem; and as one phase only of that larger question do I propose to deal with it.

In all, 123 soldiers developed acute mastoiditis of one or both sides. Invariably there was a preceding middle ear involvement, though in several cases the invasion of middle ear and mastoid had the appearance of being synchronous, so rapidly did the infection mature.

It was a common occurrence that a patient complained in the night of earache, and the next morning was found to have a reddened, bulging drum, which would be opened at once. Mastoid tenderness was an accompaniment of the middle ear symptoms, and the second morning, the tenderness persisting, and the temperature remaining high, even with free drainage, the roentgenogram would reveal a cloudy mastoid, leukocytes would be high, and at operation within forty-eight or seventy-two hours of the onset of the first symptoms, an extensive involvement of the mastoid with necrosis and thick pus would be found. Others of our cases were slower in onset; there were some in which we felt that we had not attacked the middle ear early or vigorously enough; but so many developed rapidly right under our eyes, despite the promptest care in the shape of paracentesis and roentgen examination of the mastoids, that we could not escape the conclusion that we were dealing with a highly virulent organism which had a definite predilection for these tissues.

Turning now to the relation of this "epidemic" of mastoiditis to preexisting diseases in the camp, our attention is first attracted to the outbreak of measles. The graphic chart shows that the mastoid cases occurred mainly in the period from December 15 to February 1. The curve of the measles epidemic begins in October, reaches its



Curve designed to show measles, otitis media and mastoid admissions to the hospital by weeks. The otitis media purulenta and mastoid scales bear a ratio to the measles scale of 10:1; i. e., to read, substitute the numbers 10, 20, etc., for 100, 200, etc. The numbers at the acme of each curve indicate the largest total admissions for one week.

height in late November, and declines abruptly in January. The curve of the otitis media and mastoid cases follows this rather graphically. The otitis media curve here shown represents 240-odd cases. This number must not be misunderstood to represent the total number of otitis media purulenta cases in camp. It gives merely those cases treated in the wards of the base hospital and does not include either the cases treated by the ear clinic or at the regimental infirmaries, which never entered the hospital, and of which we have there no record. Consequently it does not represent, nor is it intended to represent, anywhere near the total number of otitis media cases from which the mastoid series developed. It is merely put in as exhibiting in a general, but fairly accurate way, the determination of the curve of the entire group of middle ear infections. It must be remembered that December and January were the months of the greatest incidence of all the acute respiratory affections, and these too, as we shall see, played a most important part in the development of mastoiditis.

Table 1 shows the relation of the mastoid cases to the various diseases that preceded them immediately

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

enough to be given credit as etiologic factors. Forty-four followed measles, either directly or within a month after discharge from the hospital, returning with a history of continued cough or cold since the measles attack; eleven followed bronchitis, eleven followed tonsillitis, six complicated mumps directly, seven acute colds, and other patients had pneumonia, scarlet fever, erysipelas, etc., immediately preceding the mastoid infection. In forty-three, owing perhaps to incompleteness of the hospital records, we have nothing but a history of otitis media as the antecedent disease. Nevertheless, it is a fair assumption, I think, that a large number of this group were due to acute colds; but as our histories give no other cause than otitis media purulenta, I have put them in a class by themselves.

We see, then, that measles played a very important part in the mastoid "epidemic," being responsible for 36 per cent. of the cases. As I have just pointed out, probably a greater number were due to respiratory affections than shows here, though we have a definite history of it in only 28 per cent. of cases, regarding the mumps and scarlet fever cases as of the respiratory type. Mumps falls into this category, I believe, because a very considerable number of these patients had a complicating bronchitis, often quite severe, and in several going on to the development of pneumonia.

There were a few cases that developed so rapidly as to make it seem almost that the infection of the

pachymeninges on the left side of the brain from the mid-frontal back to the posterior lobe, from the midsulcus down to the middle fossa, the point of greatest quantity being just above the left mastoid region.

Not only is this case characteristic of the rapidity of onset of a good many of these infections, but it illustrates the promptness with which the surgical staff cooperated with us and got at the cases.

Table 2 shows some of the most interesting features of our problem. First, it gives the bacterial incidence of the epidemic. Of the 123 acute mastoids, eighty-one, or 66 per cent., returned positive cultures. Cultures of the middle ear have been disregarded because of the frequency of contamination, and these eighty-one represent cultures taken from the mastoid pus at

TABLE 2.—RELATION OF ANTECEDENT DISEASES AND THE BACTERIAL INCIDENCE AMONG ONE HUNDRED AND TWENTY-THREE CASES OF ACUTE MASTOIDITIS

Organism	Cases	Deaths		Antecedent Diseases		
			Following		Cases	Deaths
Streptococcus viridans	29	7	Measles..... 5	Measles.....	27	9
			Measles and mumps..... 1	Respiratory diseases.....	12	0
			Otitis media purulenta... 1	Otitis media purulenta...	16	1
Streptococcus hemolyticus	5	3	Measles..... 1	Mumps.....	2	2
			Mumps..... 2	Scarlet fever..	1	0
Streptococcus and staphylococcus	17	1	Measles..... 1	Erysipelas....	1	0
Streptococcus and miscellaneous organisms	8	1	Measles..... 1		59	12
			12			
Staphylococcus aureus	13	0		Measles.....	3	
				Respiratory diseases.....	3	
				Otitis media purulenta...	7	
				Mumps.....	0	
					13	
Miscellaneous organisms	9	0		Measles.....	2	
				Respiratory diseases.....	3	
				Otitis media purulenta...	3	
				Mumps.....	1	
					9	
Culture negative or not taken	42	0		Measles.....	12	
				Respiratory diseases.....	10	
				Otitis media purulenta...	17	
				Mumps.....	3	
					42	
Total.....	123	12			123	

TABLE 1.—ANTECEDENT DISEASES IN ONE HUNDRED AND TWENTY-THREE CASES OF ACUTE MASTOIDITIS			
Measles.....	44	Mumps.....	6
Respiratory diseases.....	28	Scarlet fever.....	1
Otitis media.....	43	Erysipelas.....	1
Total.....			123

mastoid cells was primary, and raised in our minds the question of hematogenous infection. It is hard to believe that this is so, for the pathway from the nasopharynx through middle ear to mastoid is too obvious. I will cite one case which illustrates what I mean, and though an extreme instance, it pictures quite graphically the manner in which many of our cases behaved:

W. S. H. (Reg. No. 5798), aged 25, was admitted, Jan. 22, 1918, to the base hospital with the diagnosis of measles. The disease ran an ordinary course, only moderately severe, and there were only mild bronchitis symptoms. Convalescence was satisfactory

February 2, the patient was out of bed for the first time, and seemed very well.

February 3, he was awakened during the night with pain in the left ear, which kept him awake the remainder of the night.

At 10 a. m. the patient seemed very ill. He was delirious; the temperature was 102; the left ear drum was bulging and tense. Paracentesis was done under light anesthesia, which was necessary on account of the delirium.

At 2:30 p. m., tenderness over the mastoid was still marked. Delirium continued; there was some rigidity of the neck and a moderate Kernig's sign on both sides.

At 3:30 p. m., roentgenoscopy revealed the left mastoid cloudy.

At 4:30 p. m., operation disclosed extensive involvement, with necrosis and thick pus throughout the mastoid cells. The bony wall of the lateral sinus was found already broken down and the sinus bathed in pus. A culture showed the *Streptococcus viridans*.

February 6, the patient died. On removal of the skull cap at necropsy there was seen a thick, purulent mass under the

the time of operation, and give an accurate picture of the causative organism. Considering, then, the eighty-one cases returning positive cultures in a group by themselves, and disregarding for the moment the forty-two cases in which either no culture was made or the culture was negative, we see that the streptococcus is concerned with fifty-nine, or 73 per cent., of the eighty-one. The *Staphylococcus aureus* in pure culture is responsible for thirteen cases, or 16 per cent., and a miscellaneous group of organisms, usually in combination, for the remaining 11 per cent.

Thirty-four of the fifty-nine streptococcus cases were in pure culture. Five were the hemolytic streptococcus, and twenty-nine were proved or probably *S. viridans*. I say probably, because in the early days of the outbreak, with the hospital overwhelmed by the work entailed in its sudden expansion to meet the

measles situation, the laboratory often reported the *S. viridans* cases simply as streptococcus; but they assure me that all these were *S. viridans* cultures, and the analogy with the empyemas, which were worked out later, and have proved to have a large preponderance of *S. viridans* over hemolytic infections, is very striking. I realize that this fact vitiates our statistical study to some extent, and many may be unwilling to accept it as an actual picture of our *S. viridans* infections. There is little doubt in my mind as to the morphology of this group; but in fairness the facts must be stated, that one may be able to accept or reject my conclusions according to one's own judgment.

Captain Zingher, in his report on the bacteriology of the empyema cases occurring at Camp Shelby, thus describes this organism:

The *Streptococcus viridans* isolated from a large number of the cases of empyema occurring in this camp produces on blood plates rather large, moist colonies, resembling somewhat those of the *Streptococcus mucosus*. This appearance of the colonies is most marked at the end of twenty-four hours. At the end of forty-eight hours, these colonies become flat and dry. The size of these colonies is in striking contrast to the small pin point colonies usually produced by the ordinary *Streptococcus viridans*. The blood medium is turned slightly green, especially where the colonies are numerous. There is no evidence of hemolysis. In broth cultures the organism produces a sediment, which consists of very long convoluted chains of cocci. The supernatant fluid is clear. The organism has no capsule and is not soluble in bile. It does not ferment inulin. The morphology of the organism is interesting. When grown on a solid medium the cocci are generally uniform in appearance; the organism shows, however, a tendency to polymorphism, many of the cocci appearing unusually large, oval or rod shaped.

Of the other streptococcus cases, seventeen were due to a mixed infection with *Staphylococcus aureus*, and eight to a mixture with miscellaneous organisms—the pneumococcus, influenza bacillus, etc.

The deaths from mastoid infection numbered twelve, and all occurred in the streptococcus group; seven in the *S. viridans*, three in the hemolytic, and one each in the staphylococcus and miscellaneous subgroups. These patients all died of a complicating streptococcus meningitis, proved by culture from the spinal fluids and at necropsy. Again, eight of the twelve who died had an antecedent measles infection; one had measles only a month prior to readmission for mumps, and developed his acute mastoiditis within a few days after entering the hospital. Of the others, two had mumps, and the twelfth entered with merely a history of otitis media purulenta. This constitutes a striking argument for the severity of the measles-streptococcus complications.

In addition to these data, this table is arranged to show the relation of the antecedent disease to the various bacterial groups. Thus we see among the streptococcus cases that twenty-seven complicated measles, twelve respiratory diseases, sixteen belong to the otitis media purulenta group, and if these are classed with the respiratory infections, it gives this section an equal preponderance with the measles numerically. But in the matter of virulence the latter class is emphatically the leader.

Among the less virulent bacterial groups the balance is overwhelmingly in favor of the otitis media purulenta-respiratory cases: the staphylococcus appearing in three measles patients to ten of the latter cases, while the miscellaneous organisms show two measles to six otitis media purulenta-respiratory cases.

The warning here seems quite evident that when measles is abroad, streptococcus complications are to be expected and conversely, that all complications of measles are likely to be more severe than similar complications of other infections. Measles cannot be classified as a respiratory disease. Rather it is a primary entity by itself, with secondary respiratory manifestations, and must be clearly separated from the large group of primary respiratory infections.

Another fact of interest is shown in Table 2. In other camps the *Streptococcus hemolyticus* has been the dominant organism the past winter, and has largely been a factor in complicating measles. But in our five cases of this type, only one patient had an antecedent measles, while one case followed otitis media purulenta, two followed mumps, and the fifth developed at the height of an erysipelas. In other words, out of our twenty-seven measles-streptococcus cases, only one showed a hemolyzing streptococcus. The proportion of deaths in this group was very high, three out of five.

TABLE 3.—DISTRIBUTION OF STREPTOCOCCUS CASES THROUGHOUT CAMP

Organization	Cases of Mastoiditis	Cases of Empyema	Total
149th Inf.	20	3	23
150th Inf.	21	5	26
151st Inf.	9	5	14
152d Inf.	15	5	20
137th F. A.	15	1	16
138th F. A.	1	0	1
139th F. A.	9	4	13
137th M. G. Bn.	6	1	7
139th M. G. Bn.	3	0	3
76th F. A.	1	1	2
A. R. D.	1	1	2
B. H., M. D.	1	1	2
113th Eng.	5	2	7
113th F. S. Bn.	2	0	2
113th Sup. Tr.	3	0	3
113th Amm. Tr.	4	0	4
129th Ord. Dep.	1	0	1
38th Div. M. P.	1	0	1
38th Div. Hq. Co.	1	0	1

Table 3 shows the distribution of the cases throughout the various regiments in camp to have been fairly general, corresponding rather uniformly in this regard to the pleural-streptococcus infections. No organization seemed to suffer disproportionately.

CONCLUSIONS

Imperfect as this study is in many respects, the following conclusions seem to me justified from the facts and analogies presented:

1. The Army camp in question appears to have suffered this past winter an "epidemic" of acute mastoiditis.
2. This exhibition of mastoid infections is only one expression of the general streptococcus incidence in the camp.
3. The latter streptococcus invasion, in turn, is but a sideshow in the very widespread wave of streptococcus disease throughout southern Army camps.
4. It is peculiar in two points: (a) The dominant organism is the *Streptococcus viridans*, and not a hemolyzing streptococcus, as appeared elsewhere; and (b) its chief expression is in the form of an unusually severe involvement of middle ear and mastoid tissues.
5. Measles played a prominent part in giving the streptococcus a start in its work, and stands by itself as an etiologic factor in the development of the severer types of mastoiditis.

ABSTRACT OF DISCUSSION

DR. ROBERT H. FOWLER, New York: If it were possible for you to enter the "Mastoid Ward" at Camp Shelby as it appeared when I first saw it last December, you might well be surprised. Every patient had his head swathed in the gauze turban which connotes mastoid operation. Several patients had attained special distinction; they had had a double mastoid operation. The cases continued to multiply. The staff was busy day and night through January and February, in the effort to stem the tide of what is fairly described as an epidemic of mastoiditis. Fresh cases were sent to the hospital constantly. One man developed mastoiditis in the ward where he had helped as orderly to dispose of the waste gauze for the otitis patients, and a member of our own medical staff developed mastoiditis of the fulminating type. It is enough to make a thoughtful man ponder when a thing so extraordinary, so unheard-of, is seen. An average of two new patients with mastoiditis were admitted daily over a long period of weeks and there was presented in this series the cumulative evidence of the presence of a virulent organism; an organism that was communicable, and that had a specific tendency to affect such tissue as the mastoid cells.

The best results were obtained under these conditions by doing a prompt paracentesis in the acute otitis cases, and an early mastoid operation when there was purulent mastoiditis, besides taking special precautions against the infection spreading in the hospital.

The curve in the chart representing the number of cases of mastoiditis fell rapidly in the latter part of February to what may be termed a normal level and since that time there have been very few cases. A definite proportion of the patients presented a different type of infection from that seen in civil life, in that it was more communicable and that the mastoiditis was more quickly followed by complications. It seems that once an epidemic has gained headway in the military encampments the causative organism shows increasing and unwonted virulence. Several of the patients developed streptococcus meningitis which failed to respond to surgical treatment, but this did not occur where the cases were seen early in the course of the disease. It is probable that with a more complete understanding of the factors which tend toward such epidemic conditions there will be found valuable means with which to combat them.

DR. ARTHUR A. SMALL, Chicago: It is a remarkable sight to see ward after ward of cases of mastoiditis following measles and streptococcus meningitis. From the standpoint of the medical service the interesting thing was this: Many cases of mastoiditis developed in the pneumonia cases, and those mastoids gave no sign objectively or subjectively of trouble with the mastoid cell but were found postmortem. At the commencement of our service we were undermanned and overcrowded, so that the cases could not be looked at so carefully as they were later, and we also found that otitis media in pneumonia also developed with very little pain and with practically no pain until a rupture occurred, so that now that we are better manned there are standing orders that in all these cases of pneumonia the ears must be examined daily in order to prevent acute suppuration of the middle ear.

Another important feature is the occurrence of meningitis. Patients with mastoiditis would be operated on, a perfectly clean operation being done, and then basilar meningitis would develop three or four weeks after the mastoid cells had been cleaned out thoroughly.

DR. WALTER E. SCOTT, Adel, Iowa: The cases discussed resemble mastoiditis as found in children. Very frequently in children the first evidence of a mastoid trouble is indicated by the ear standing out from the head. Perhaps the otitis media has been overlooked and there has not been any pain to indicate mastoiditis and the first symptom noted is the ear standing out from the head. Such a rapid and virulent form may be due to the fact that there is no acquired immunity, as children have not battled with the streptococcus or the germs in question as have adults. That would indicate that we had in the soldiers either an increased virulence of the streptococcus or a fertile soil due to the measles. Is it not likely

that the middle ear and the mastoid cells contain bacteria normally, as do the nose and mouth, especially in exceedingly dry weather such as we had this winter, and that these infections and infections of all mucous membranes are more apt to take place? Again, I might simply mention the fact that the eruption of measles occurs on a mucous membrane as well as on the skin, and that the predilection of these structures may be due to the fact that the lining of the mastoid cells are related to the mucous membrane structures.

DR. JOHN B. POTTS, Omaha: I was in Camp Shelby during the latter part of this epidemic. You will remember that the chart here showed the decline had become quite marked at that time. Most of the cases I saw developed with marked suddenness and a lot of pain. I mention this to draw another distinction between the cases in the other camps and the *Streptococcus viridans* cases at Camp Shelby. At this time, by a systematic method of having all suspicious cases reported at once, and in addition making thorough inspection of all the wards in the hospital daily we were able to see all cases developing there early. Paracentesis was done very early. A reddened slightly bulging drum was an indication for paracentesis. In many of the cases not only fluid but gas was present. My opinion of the basilar meningitis cases that occurred in Camp Shelby is that we had a septicemia either coincident with mastoiditis or else secondary to mastoiditis. The early conservative mastoidectomy done was the rational treatment and the means of saving many lives.

DR. ABRAHAM ZINGHER, Camp Shelby, Miss.: During the past six weeks I had an opportunity to study these streptococcus cases, and I was able to isolate the same type of organism not only from empyema cases but also from infected mastoids and surgical wounds. There were local infections in which I was able to isolate a similar strain of *Streptococcus viridans*, which differed considerably in its cultural characteristics from the type usually seen in cases of subacute endocarditis and in cultures taken from the tonsils. On blood plates the organism produced at the end of 24 hours large, irregular, moist colonies, which became flat and dry at the end of 48 hours. The colonies at first resembled closely those of the *Streptococcus mucosus*. Clinically the organism did not seem to have the same virulence as the hemolytic streptococcus, which caused such a high mortality from pneumonia and empyema in many of the camps last winter. At Camp Shelby the mortality from empyema was comparatively low, only 10 per cent., showing that the organism producing a majority of these infections had relatively only a mild virulence. There seemed to be a general distribution of this type of *Streptococcus viridans* throughout the camp, giving rise to middle ear infections, mastoids, pneumonias, empyemas and wound infections. One case which I have particularly in mind was that of an amputation of the leg. The patient died. A blood culture taken before death showed the same type of *Streptococcus viridans*, which was also isolated from the suppurating amputation wound. At the necropsy we found an extensive infection of the serous membranes of the chest, both pleurae and the pericardium being filled with pus. There was also a substernal abscess. There were no evidences, however, of a pneumonic process. The pus from the pleurae and pericardium showed the same type of *Streptococcus viridans* as was isolated from the blood culture.

DR. GEORGE H. LATHROPE, Morristown, N. J.: I am glad Major Small brought out the question of the extension into the meninges. The pathway that infection will take from the throat into the meninges is not yet found. The pathway from the throat into the middle ear is probably a direct extension from the throat by way of the eustachian tube into the middle ear and then into the mastoid. I should question very much, though I don't know how it is going to be proved one way or the other, the idea which Dr. Scott brought forward that the infective organisms lie in the mastoid in a quiescent condition. From what I have seen of infections following an acute throat trouble I am inclined to think they usually come on fairly suddenly and in a definite sequence. From that I should argue that when organisms get into the mastoid they start up trouble or die out at once. The question of hematogenous infection of the meninges is one which we have

always to bear in mind; or hematogenous infections anywhere. We are too apt to make all infections direct extensions through neighboring tissues, and I don't believe that is always the case by any means. We had two or three cases, one in particular which I recall of basilar meningitis, when we could find nothing but an infection of the ethmoid cells, and there was not, as in some of the mastoid cases, any particular expression of the meningitis in the neighborhood of those ethmoid cells.

PHARMACOLOGY IN THE WAR*

TORALD SOLLMANN, M.D.

CLEVELAND

It is the problem of the war for a country to meet and to defeat not only the human enemy, but the forces of nature. Severe necessity arises in many forms, in many new garbs. That, however, brings out one of the compensations of the war: Necessity is the mother of invention, of conservation, of efficiency. The happy-go-lucky ways of peace no longer suffice. Every form of human endeavor is forced to the supreme effort.

Let us see what part the subjects of pharmacology and therapeutics have played and can play in the struggle. What in particular our own country has done and can do in this field.

The very opening of the war emphasized the problems of infections. The brilliant successes of serum therapy have robbed infections of much of their terror; but there was still far too much that remained unsolved. There was still a large scope for improvement in antiseptics. Everyone is familiar with the notable advances in this direction made by the Carrel technic and the Dakin hypochlorite and chloramin compounds. Both inventors are closely identified with our country. Other promising antiseptics have also been introduced, and may lead to further achievements in the conquest of infections. I need only to refer to the acridin dyes, and to the new mercury compounds introduced by Schamberg. The invention of new local antiseptics may also lead to further developments in the field of systemic chemotherapy.

Tetanus has been conquered by the prophylactic inoculations. In the early days of the war, however, these were not always feasible; and who knows when similar emergencies may again arise? In such cases, the terrors of the disease were enormously mitigated, and according to the German reports at least, lives were undoubtedly saved, by the use of the magnesium injections. Their efficiency was essentially discovered and made safe by an American physician, Dr. S. J. Meltzer.

Almost equal in importance to the problem of infections was the problem of prompt and safe anesthesia. There will, perhaps, always be differences of opinion as to the relative value of the various anesthetics. There can be no doubt, however, that for certain purposes at least, nitrous oxid has peculiar advantages. Its extensive acceptance by the allied armies is largely owing to American influence.

There is still room for many improvements in anesthesia; and there is no doubt that pharmacology can

contribute materially, not only to the invention of new anesthetics, but to their judicious selection and efficient administration, for the various purposes.

I have chosen these examples rather at random from others that might be named, to illustrate the task of pharmacology to meet old problems, modified quantitatively rather than qualitatively by the established conditions of warfare.

The later introduction of flame and gas warfare raised a large number of pharmacologic problems. The popularization of the wax treatment of burns emphasized the abuses engendered by secrecy in medication. It was found that the complex and secret foreign preparation was in no sense superior to a suitable grade of simple paraffin. It could also be shown that practically nothing could be expected from the addition of antiseptics and other agents to solid paraffin films. While negative results are not as desirable as positive results, they should serve to prevent useless clinical experimentation, and thus permit the direction of investigative energy into more useful channels.

Gas warfare has created a new field for applied pharmacology. The chapter of volatile irritants was suddenly raised from a minor to a major importance. The loose generalities that had been current would not have furnished the detailed knowledge necessary for the vital problems of military defense and offense.

Another very important group of problems was created by the shortage of many drugs, due to the increased demand for certain remedial agents under war conditions; the use of basic materials in munition manufacture; and especially the general interference with trade.

The uncompromising realism of the war suddenly awoke us to the fact that internationalism was as yet a dream. In this dream, most nations had overdone the principle of the division of labor, so that they had become dependent on others for the supply of many of their vital needs, and thus had sacrificed the essentials of independence to the fetish of economy.

Through the principle of internationalism, the business of introducing and manufacturing new chemotherapeutic agents had become largely a German industry. When we were shut off from this industry by the war, the first effect was a general sense of helplessness. Soon, however, this was replaced by the reaction of effort. There was created a great opportunity, as a challenge to the nation to ascertain its real needs, and to supply its deficiencies from its own resources.

Until sources of supply could be found or devised, it was necessary to do without many of the drugs to which we had become accustomed.

This may not be as great a misfortune as many would have supposed. The demand for many drugs was an artificial one, fostered by commercial enterprise, as had often been pointed out. What years of preaching could not accomplish in the way of testing out a restricted materia medica was accomplished by necessity at one stroke. As was to be expected, the results show that many of the drugs could be spared without great disadvantage, and some with actual advantage. Nearly every physician has found it necessary to "give up" some of the drugs that he prescribed before the war; and nearly every one must have noticed that the return to the older standard drugs was, in many cases, not detrimental to the patients. It is to be hoped that this lesson will be

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* From the Pharmacologic Laboratory of the Western Reserve University School of Medicine.

heeded, and that the war will have weeded out many of the products of commercialized over-enthusiasm. It behooves us to take care that this advantage is not lost by the introduction of equally or more worthless or unnecessary imitations and substitutes.

Great as was the need and the value of abridging the needless over-drugging, it was equally needful to supply those drugs of real value which were unobtainable because of the war, such as the organic arsenicals, and a proper selection of local anesthetics.

Here, our difficulties were due mainly to our own laws. The reason why this country could not be self-sufficient in these products was largely because the manufacturers of the drugs had been granted a monopoly, which placed us entirely at their mercy. This was due to the retention of patent laws and procedures adapted to conditions very different from those that now obtain. In this respect no other country had been so short-sighted or bound by tradition. As soon as Congress awoke to the seriousness of the situation and removed the fetters of its own making, the manufacturers had no great difficulty in supplying the legitimate needs of the country.

This advantage has been gained by emergency legislation of a temporary character. It is to be hoped that this legislation will be replaced by a carefully planned, permanent scheme of protection, so that these benefits may not be ended with the war.

VENEREAL DISEASE CONTROL IN THE ARMY*

WILLIAM F. SNOW, M.D.

Major, M. R. C., U. S. Army

AND

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Venereal diseases, according to Surgeon-General Gorgas,¹ are the greatest cause of disability in the Army and present the most serious communicable disease problem of the war. In meeting this large problem, the Army is aiming to get maximum results by applying basic epidemiologic principles through sound administrative measures and controlling its methods by the statistical study of results.

EPIDEMIOLOGY

Compared with most other communicable diseases, the venereal diseases are well understood. Their causative organisms have been discovered, and the methods of transfer of infection are thoroughly known.

The three principal venereal diseases, syphilis, gonorrhea (including all gonococcus infections) and chancroid, are spread essentially by contact. The commonest manner of transfer is through sexual intercourse, and all the other ways of spread may well be regarded as incidental or secondary to transfer through promiscuous sex relations. As long as venereal diseases are prevalent there will be many infections through other methods than sex contact, for example, the transmission of syphilis from the mother to the unborn child, the spread of syphilis through kissing

or by the use of common drinking or eating utensils, the gonorrheal infection of the eyes of the child in the birth canal, the infection of eyes by fingers soiled with gonorrheal discharges, and the infection of children with gonorrhea through contact with soiled objects in the household.

The problem of control is simplified by the fact that these diseases do not exist in the lower animals and are not carried by them. Neither is the transfer of infection by inanimate objects common, as the causative organisms tend to die out rapidly away from the human body.

Another important fact in the epidemiology of venereal diseases has a very direct bearing on methods of control. These diseases are spread principally by disease carriers, persons who appear to be well and regard themselves as healthy, but who are nevertheless capable of transmitting infection.

CONTROL

The methods of control of venereal diseases are essentially the same as those of other preventable diseases limited to human beings and spread by contact. We cannot include in these methods, as in some diseases, the artificial immunization of individuals, because no successful methods have been discovered.

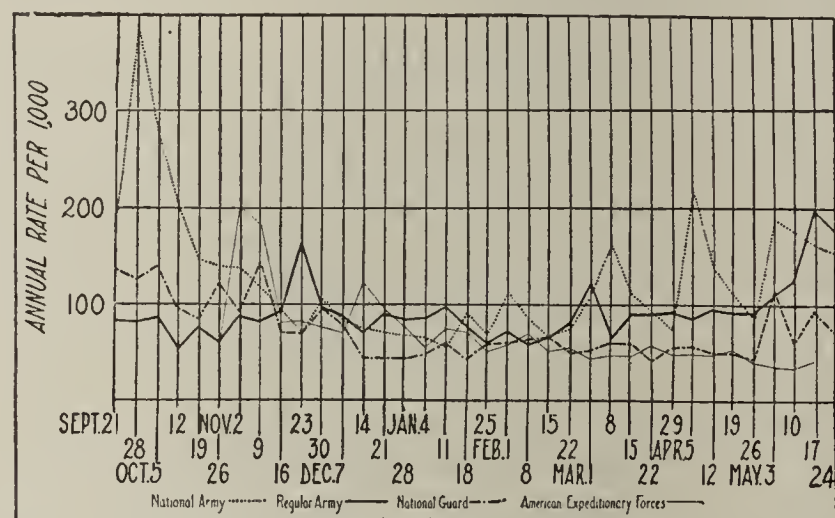


Fig. 1.—Annual venereal disease rates per thousand men in the National Army, Regular Army, National Guard and Expeditionary Forces by weeks for the period from Sept. 21, 1917, to May 24, 1918, inclusive.

We have at hand, however, methods that are capable of reducing venereal diseases to an almost insignificant amount. These methods are the prevention of infective contacts, through various measures, later to be described, and the early treatment of persons who have been exposed in spite of these measures. The method of the treatment of persons after a known or suspected exposure is illustrated by the dropping of silver nitrate into the eyes of the new-born child to insure against gonorrheal infection, and by the early, or prophylactic, treatment of soldiers after a known or possible exposure to venereal infection.

Control of venereal diseases has been totally inadequate in civilian life because public health authorities, with few exceptions, have until recently felt little responsibility for the control of these diseases, which, taken together, have no rival, not even tuberculosis, in their importance as a public health problem. They are highly prevalent, very destructive, and most preventable.

THE SIZE OF THE ARMY'S PROBLEM

In the Army, venereal diseases exceed all of the other more serious communicable diseases in the total

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Gorgas, W. C.: The Venereal Diseases and the War, Soc. Hyg., 1918, 4, 3, 39.

number of cases and the total disability caused. Figure 1, shows the annual venereal disease rate per thousand men, by weeks, in the National Army, the National Guard, the Regular Army and the Expeditionary Forces. In Figure 2, the annual venereal disease rates per thousand for the several armies are presented by months. While showing the prevalence of venereal disease in the Army, these two charts give little information regarding the results of control measures in and around Army camps. The fluctuations depend principally on the number of new troops brought into the Army from the civilian population with its high prevalence of venereal diseases. The shape of the curves is largely determined by the number of added troops examined for the first time within the several weeks or months.

There has been much unintentional misinterpretation of the venereal disease figures of the Army, owing to failure to understand the method through which the annual rate for a given week or month is obtained. All cases discovered and recorded for the first time in a given week are multiplied by 52, as an annual rate is desired instead of a weekly rate, and divided by the total number of men in thousands, to obtain the rate per thousand. Thus, if one man in a group of a thousand men was found to have venereal disease in a given week, the annual venereal disease rate for that week would be 52 per thousand, and it would be a grave error to quote the figures in such a way as to give the impression that fifty-two infected men had been discovered in the thousand men in one week.

In Figure 3 is shown the relative prevalence of venereal diseases to others of the more important communicable diseases in the Army, and it will be noted that venereal diseases, as a group, are the most prevalent of these diseases.

The burden of venereal disease is suggested also by Figure 4, which shows the percentage distribution of the more important communicable diseases in the Army and also of injuries, computed on the basis of all diseases and injuries reported. Again venereal diseases, taken as a group, head the list.

For measuring the results of venereal disease control work in the Army and in extracantonment areas, the figures of total cases recorded are of little value, as the many cases brought in by newly drafted men mask the relatively small number in which the infection was contracted after the men were in uniform. In Figure 5 are shown the annual rates per thousand men for cases contracted before and after enlistment in five National Army camps, one National Guard camp, and one department of the Army (Camps Lee, Sherman, Upton, Meade, Custer and Kearney and the Western Department). Complete figures for the full period covered are not at present available for other camps or departments, but these figures are probably representative.

The annual rate for early, or prophylactic, treatments also is shown in Figure 5. The annual prophylactic rate, when divided by 52, gives the average number of men applying for prophylactic treatment in a given week in a thousand men. When it is kept in mind that some men will apply for many treatments in the course of a year, it is evident that many men are completely avoiding exposure, and escaping venereal disease for that reason. The curve for the last few months suggests that the educational program is producing increasing results.

The amount of venereal disease contracted by the men after putting on the uniform is astonishingly small, while the amount of chronic venereal disease brought to the Army from civil life is a serious burden. The recent Army experience with venereal disease contradicts the popular impression that the boys and young men are under such influence and protection at home that they are in little danger of being exposed to venereal disease, but that in the Army they are exposed to extreme temptation and are most certain to succumb.

In fairness to the civilian population, it must be pointed out that the disease brought into the Army is the accumulated uncured disease of the newly enlisted men. These cases, some of them of years' standing, are compared in the chart with the cases freshly contracted in the Army. Accurate estimate cannot be made of the amount of venereal disease which would have been contracted if the soldiers had remained civilians, but the contrast between the old and new cases shown in the chart is so great that it seems safe to conclude that in civil life the men would have contracted much more venereal disease and would have secured many fewer cures through treatment. In any event, only a small part of the cases are contracted

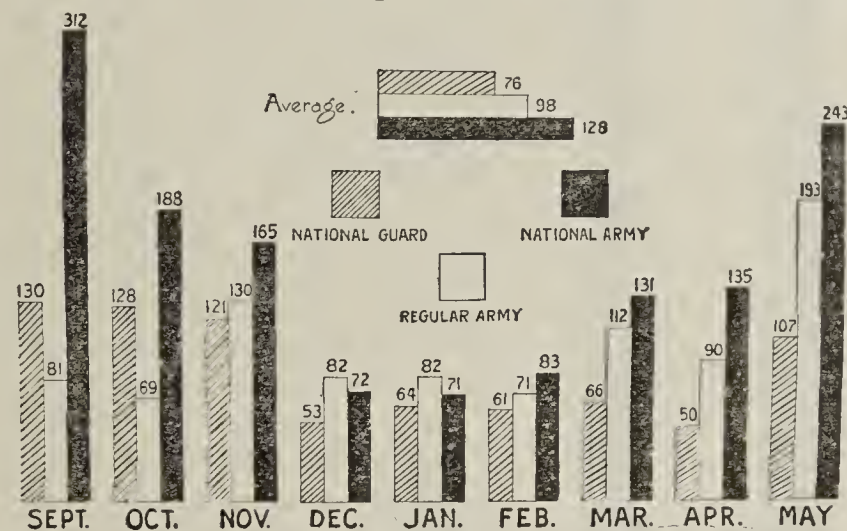


Fig. 2.—Annual venereal disease rates per thousand men in the National Guard, National Army and Regular Army by months, for the period from September, 1917, to May, 1918, inclusive and the average rates for the same period.

under Army conditions of good discipline, protection against exploitation, education, and early, or prophylactic, treatment.

Figure 6 is a cartoon prepared for use with popular exhibits. It is intended to awaken the public to its responsibility for the Army's disability from venereal disease. Less than one sixth of the venereal disease burden of the Army, according to the data in Figure 5, can be reduced by the control and protection of the soldier. The remainder can be prevented only in the communities from which the future soldiers will come. It is the aim of the Army to help create a popular demand for venereal disease control by public health officials, with the assistance of law enforcement and educational agencies.

In Figure 7 are shown data available for a short period for five National Army camps, Camps Dix, Lee, Upton, Meade and Pike. These figures show even a lower proportion of cases contracted after enlistment, about one nineteenth of the total number. The chart gives the figures separately for syphilis, gonorrhea and chancroid, thus permitting a comparison of the relative prevalence of these diseases.

In Figure 8 are shown rates for Camp Lee for venereal disease contracted before and after enlist-

ment, segregated according to colored and white troops. The relative number of white and black troops newly brought into camp each week is not shown, and therefore a close comparison between the curves is not justified; but the chart illustrates the relatively large amount of venereal disease brought by colored troops into some of our camps. Any plan for venereal disease control which neglects the problem in the colored population is shortsighted and will fail to get maximum results.

At Camp Lee, by direction of the Surgeon-General, a psychologic study was made of the white men isolated for venereal disease. At the time of this study, 12 per cent. of the negroes and 2 per cent. of the white men in the camp had venereal disease. Among these white men, 34 per cent. were unable to read or write English with sufficient facility to take the tests. In the camp as a whole, only 18 per cent. were unable to

do this. The white men able to take the psychologic tests obtained a median score approximately 75 per cent. as high as that for the camp as a whole. Moreover, less

than half as many of the diseased white men, in proportion to total numbers, obtained high scores, as did the white men in the camp as a whole. A low grade mentality seems to increase the probability of getting a venereal disease and keeping it. A successful campaign against venereal disease must reach persons of this class and diminish the number of infections among them and increase and improve their medical treatment.

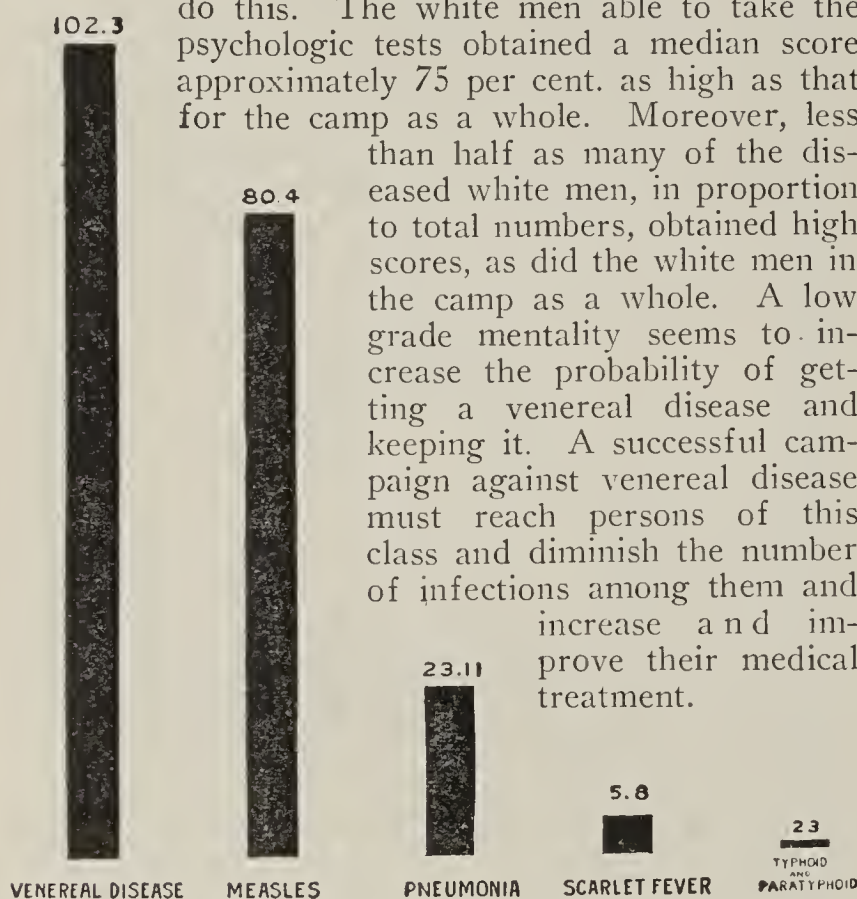


Fig. 3.—Comparison of the annual rates per thousand men for all troops in the United States between Sept. 21, 1917, and May 31, 1918, of certain of the more important communicable diseases.

VENEREAL DISEASE IN THE CIVIL POPULATION

Complete records of the number of drafted men having venereal diseases would furnish a most valuable index of the prevalence of these diseases in men of the draft age in the civil population. Such figures are not at present available, but the report of the Provost Marshal-General to the Secretary of War on the first draft showed that 4.27 per cent. of the rejections in a group of 10,000 men were due to venereal diseases.² From one of the National Army camps, Camp Lewis, figures were submitted showing that 3.04 per cent. of the men sent to camp were found to have venereal disease on examination on arrival at camp.

CONTROL MEASURES AMONG THE SOLDIERS

Before the present war, the principal emphasis in the prevention of venereal disease in the Army was placed on the instruction of the soldier against exposure and in the administration of the early, or prophylactic, treatment to those who had exposed themselves

in spite of instruction. The Army had little success in persuading civilian communities near Army posts to protect soldiers against exploitation through commercialized prostitution and the sale of liquor. Conditions near Army camps were prone to be made worse than elsewhere by uncontrolled exploiters who sought the soldiers' money. In the present war, all are interested in the soldier's welfare, and most communities respond patriotically to any definite request of the Army for correction of conditions that would tend to demoralize or disable the fighting man. With the best possible assistance by civilians, much work would still have to be done with the soldier himself.

Within the camp the soldier is instructed to avoid exposure to venereal disease. This is done through company commanders' talks, special lectures, moving pictures, stereomotorgraph exhibits, and pamphlets. The Army film "Fit to Fight" is a moving picture drama, which is proving most effective. The soldier is given not only a strong appeal to keep himself morally clean and physically fit, but he is also further restrained from sex indulgence by information about the venereal diseases and the disability that they cause. As an additional safeguard, the men are instructed to report for the early, or prophylactic, treatment in case they should expose themselves in spite of the advice and information given them. They are told of the Army regulation requiring that every soldier exposing himself must report at the Army prophylactic station, or be subject to court martial. The soldier is also instructed that he will lose his pay while disabled from venereal disease, and will be confined to camp as long as he is infectious. Even the instructions about prophylaxis seem to reduce the number of exposures to venereal disease by impressing the soldier with the serious consequences which may follow the patronizing of prostitutes.

The early, or prophylactic, treatment is given in the camps and also at Army prophylactic stations maintained in cities visited frequently by soldiers. The prophylactic treatment record serves as a valuable index of the success or failure of the law enforcement measures in making prostitution inaccessible. The prophylactic treatment consists of the cleansing of the parts and the injection of a 2 per cent. protargol solution, or approved equivalent, and the external application of 30 per cent. calomel ointment.

It is in the soldier's playtime that he gets into trouble. Telling him what to avoid is not enough. The War Department Commission on Training Camp Activities has realized this fully. It is supplying facilities for athletics, theatricals and other forms of recreation, so that the soldier can have a good time through clean sport and harmless amusement. This work is going on within the camp and also in the nearby communities.

At least twice a month every soldier is inspected for venereal disease and other infections. If found infected, he is put under treatment, so that he can be rendered noninfectious and returned to duty as soon as possible. As a protection to the civilian community, he is restrained to the camp as long as he could transmit venereal disease. He loses his pay while disabled, and he is also tried by court martial and punished if he violates the order requiring the taking of the early, or prophylactic, treatment.

In many camps the soldier who has venereal disease is questioned as to the source of his infection, and,

2. Report of the Provost Marshal-General to the Secretary of War on the First Draft Under the Selective Service Act, 1917, Government Printing Office, 1918.

when practicable, the information is turned over to the civilian health authorities to be used as a clue in discovering venereal disease patients who need isolation and treatment. When the soldier is unable to give the correct name or an identifying description of the prostitute, the building in which the infection took place is often stated. This information helps the health authorities and law enforcement officials to detect the most dangerous venereal disease carriers, and the lodging houses and hotels that cater to them. It assists the authorities to find those carriers whose activity and

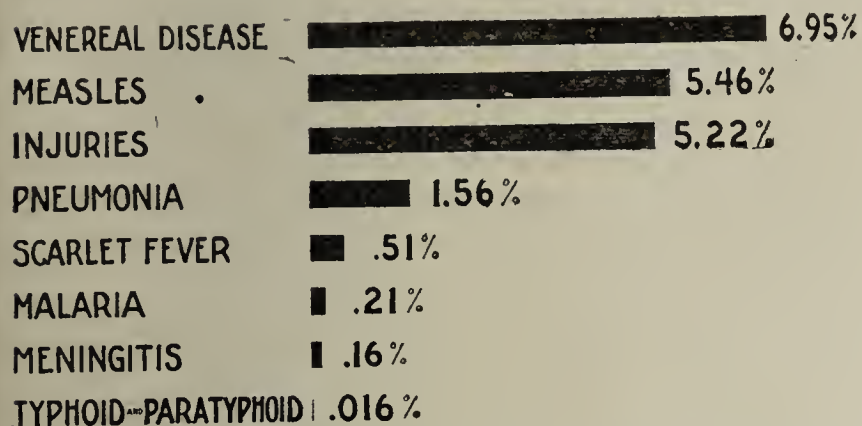


Fig. 4.—Percentage distribution of injuries and certain of the more important communicable diseases based on the total number of diseases and injuries reported, for all troops in the United States from Sept. 21, 1917, to May 31, 1918.

infectiousness are such that they are actually infecting soldiers and probably civilians—sometimes in large numbers. From the standpoint of epidemiology this method is highly important. It is similar to the finding of the most dangerous typhoid carriers by investigating outbreaks of typhoid fever caused by them, and tracing the infection back to its source. The method is selective, as it tends to pick out those infectious persons who are exposing the most people and are clever enough to be escaping the law enforcement and health authorities.

CONTROL WORK AMONG CIVILIANS

Infection of the soldier with venereal disease always involves the civilian. The greater part of the infections in our Army were contracted before the men enlisted, and the civilian alone can correct the conditions responsible. The lesser part were contracted by the soldier from civilians after enlistment, and this problem can be solved only through the cooperation of both civilian and Army agencies.

When the war began, the importance of work for the protection of the enlisted man in civilian communities near the camps was fully realized, but the importance to the Army of protecting the future soldier in his home town was not yet apparent. The War Department Commission on Training Camp Activities undertook a most active campaign to diminish the temptation of soldiers. Emphasis was placed on the repression of prostitution and bootlegging in extracantonment zones and nearby cities. The work has been of greatest assistance in the control of venereal disease in the Army and should be given much of the credit for the low rate of infection with venereal disease after enlistment.

At the present time, twenty-six commissioned officers of the Sanitary Corps of the Army are engaged in the Law Enforcement Division of the War Department Commission on Training Camp Activities, in combating venereal diseases, by means of stimulating the enforcement of municipal, state and federal laws

having to do with the suppression of prostitution and of liquor selling to soldiers. In this way more than eighty red light districts have been abolished, including thirty-four outside the prescribed 5 mile zones around camps and at distances varying from 7 to 100 miles from the camps. More than 200 cities and towns of the various states have cooperated in the abolishment of districts, the more drastic enforcement of present laws, and the enactment of new legislation, especially that designed to enable the authorities to cooperate effectively with the Surgeon-Generals of the Army and Navy in protecting soldiers and sailors against venereal diseases.

There is also carried on by the Law Enforcement Division most important work with women and girls, conducted by a large number of protective workers, and also work by the Section on Reformatories and Detention homes, aimed at the provision of facilities for the isolation and treatment of women and girls having venereal disease.

In the work among women who have become infected through prostitution, effort is made to return them to society not only well in body, but trained for self-support through legitimate occupation. Some are feeble-minded or incorrigible for other reasons, and for them prolonged or permanent custodial care is sought. This work is handicapped by the limited capacity of the state institutions available for the segregation of these persons so highly dangerous to the public health.

Many male venereal disease carriers pass through the courts and are lodged in prisons and jails. The men arrested for sex offenses come under the same laws and regulations as the women, and in most states may be examined and isolated if infected. A much larger group of infected men are sent to prisons and jails for other offenses, and were formerly permitted to serve their terms and go out uncured to spread syphilis and gonorrhea. Prison officials throughout the country are being interested in their opportunity

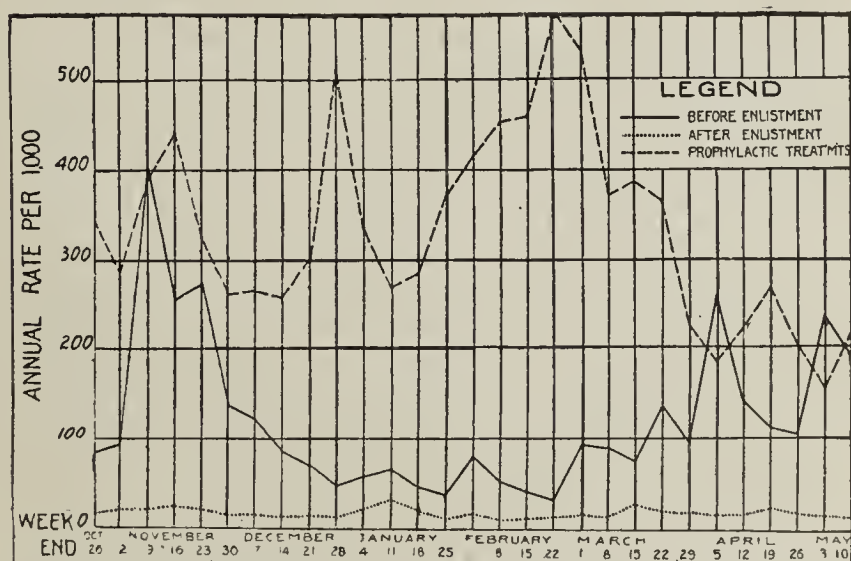


Fig. 5.—Annual venereal disease rates and prophylactic treatment rates per thousand men by weeks for Camps Sherman, Lee, Upton, Meade, Custer, Kearney, and the Western Department, from Oct. 26, 1917, to May 10, 1918, inclusive, showing the amount of venereal disease contracted before and after enlistment.

to clear up a vast number of venereal disease carriers, male and female, by proper treatment within the prisons. A great stimulus to this work was given by a recent letter of the United States Attorney-General to all United States attorneys instructing them to see that all persons arrested under federal laws for certain offenses are examined for venereal disease by the local health authorities, if they will do so, and other-

wise through special arrangement. If the diseased person is sent to prison, the prison authorities are to be notified so that treatment will be given, and if the patient is discharged before he or she is noninfectious, the health authorities are to be notified in due season,

Venereal Disease is the Greatest Single Cause of Disability in the Army

Over $\frac{5}{6}$ of this burden was brought into the Army



$\frac{1}{6}$ was contracted after enlistment



Fig. 6.—Cartoon based on the statistics presented in Figure 5, which showed that over five sixths of the venereal disease cases in six camps and one department were contracted before enlistment.

so that they can institute quarantine and administer further treatment as a protection to the public.

While the Law Enforcement Division is a powerful health agency, as it represses prostitution, which is the most prolific source of venereal disease, its work must be supplemented by educational and public health activities of other kinds in civilian communities.

The Training Camp Commission is carrying on educational work among men, particularly those in the industrial centers, and among women and girls. A great deal of literature is going out, and popular lectures are being given. This instruction is bound to have its effect in fewer exposures to venereal disease and more cures among the infected.

COOPERATION BY PUBLIC HEALTH AGENCIES³

In the control of venereal diseases, we have essentially a public health problem, and the state and municipal health authorities can do a great deal to diminish their prevalence. The Surgeon-Generals of the Army, the Navy and the Public Health Service have approved a set of suggestions for state board of health regulations which are meeting general favor and are helping to establish a uniform American plan for venereal

disease control. These suggestions were based largely on measures already in force in certain states and cities. They recognize that venereal disease carriers, male and female, must be controlled and cured, and that prostitution must be repressed if venereal disease is to be reduced to a minimum. They provide for the reporting of cases by office number and the quarantine of patients when necessary to protect the public health.

The Army, Navy and Public Health Service are receiving the cooperation of many agencies in venereal disease control among civilians. The Red Cross is maintaining twenty-four venereal disease clinics in extracantonment zones, and the Public Health Service is furnishing the medical personnel. States and cities are organizing venereal disease control work, often under a separate bureau or division with special funds.

In thirty-four states and one territory, venereal diseases are already required to be reported. In the following twenty-six states and one territory, according to reports received by the Surgeon-General of the Army up to June 20, the report is made by physician's office record number: Alabama, Arizona, Arkansas, California, Connecticut, Georgia, Hawaii, Illinois, Iowa, Kansas, Kentucky, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Washington, Wisconsin and Virginia.

In the following eight states, the report is made by name: Colorado, Florida, Indiana, Maryland, New Jersey, Ohio, West Virginia and Vermont.

In the following twenty-three states and one territory, these diseases may be quarantined by the health authorities when necessary to protect the public health: Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Hawaii, Illinois, Indiana, Iowa, Kansas, Louisiana, Massachusetts, Minnesota, Mississippi, New Jersey, New Mexico, New York, Ohio, South Carolina, South Dakota, Texas, Washington and Virginia.

In the following eleven states there are separate bureaus or divisions of venereal diseases under the state board of health: Arkansas, California, Colorado, Illinois, Indiana, Louisiana, Massachusetts, Michigan, Minnesota, New York and Ohio.

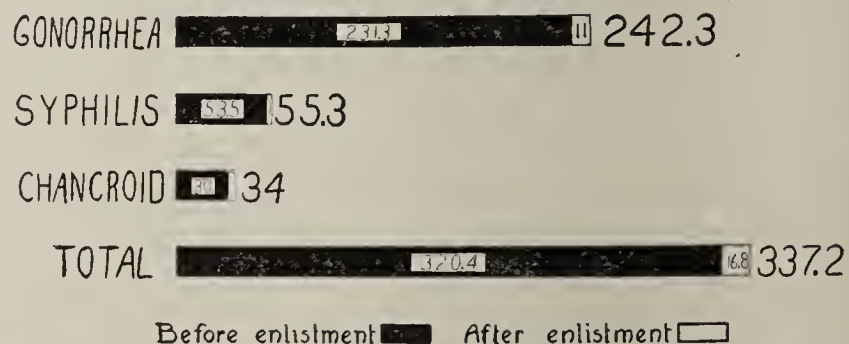


Fig. 7.—Annual rates per thousand men, before and after enlistment, in five National Army camps, Dix, Lee, Upton, Meade and Pike, for gonorrhea, syphilis, chancroid and total venereal disease, based on thirty-seven special weekly reports from March 29 to May 24, inclusive.

In the following fourteen states and one territory in which venereal diseases are reported by office number, the name of the patient is reported if he fails to continue treatment or to observe precautions to prevent spreading disease: Arizona, Arkansas, California, Illinois, Hawaii, Louisiana, Massachusetts, Michigan, Minnesota, Mississippi, New Mexico, South Carolina, Texas, Washington and Virginia.

The American Social Hygiene Association and other nonofficial social hygiene organizations are assist-

3. As this article goes to press the federal measures for assisting the states in combating venereal diseases under the provisions of Chapter XV of the Army Appropriations Act (1918) are being drawn. An appropriation of \$4,100,000 is provided for medical, law enforcement and educational work in addition to approximately \$3,000,000 for the continuance of the activities of the commissions on training camp activities.

ing actively in the educational work which is securing the public support necessary for success. Educational work is being carried on and venereal disease clinics are being established by various institutions and associations, as well as by health departments.

Venereal disease prevention has been greatly stimulated by the action of the United States Public Health Service in assigning officers in uniform to organize and direct bureaus of venereal diseases for state boards of health requesting this assistance. Definite arrange-

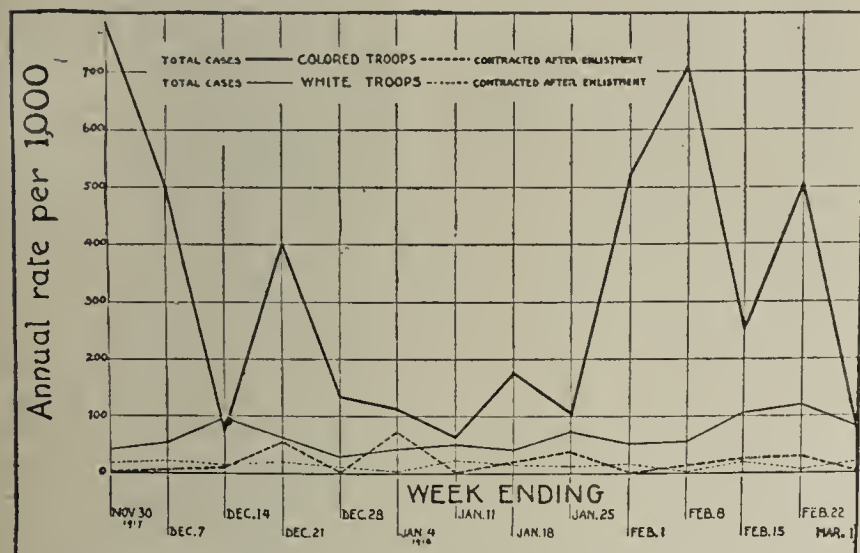


Fig. 8.—Annual venereal disease rates per thousand men, by weeks, in Camp Lee, for colored and white troops, before and after enlistment, from Nov. 30, 1917, to March 1, 1918.

ments for such assignments have been made with twenty-three states. In two additional states, North Carolina and Kansas, the Army is assigning medical officers to this work.

Venereal diseases are at last being recognized by health departments as important public health problems. Their work will be successful if it is well administered and also based on epidemiologic investigations. If venereal disease becomes prevalent in a camp of soldiers or a civilian community, investigation should be made to ascertain the exact source and underlying conditions of that particular large number of cases. Conclusions without investigation have over and over again placed the source of infection hundreds of miles away from the true focus, and have resulted in serious errors as to the time of exposure.

It is clear that the largest results in venereal disease control in the Army will come through the work in the civilian population. This work requires the cooperation not only of federal, state and municipal health authorities, but also of the medical profession as a whole. Moreover, the support of the general public, fostered by a wise publicity, is necessary before greatest results will be achieved.

RESULTS OF CIVILIAN EFFORTS

A striking example of the result of control measures has been reported by the extracantonment officer stationed at San Francisco, and is shown in Figure 9. The upper curve shows the monthly annual rate per thousand men for prophylactic treatments in a large number of troops in and near the city. The lower curve represents the annual venereal disease rate per thousand for the same months. Infections contracted before enlistment were excluded. A number of the cases of venereal diseases, varying from 2 per cent. of the total in February to 21 per cent. in January, were also excluded because the Army records of sources of

infection showed that the exposures were not related to San Francisco. Moreover, the venereal disease cases were charted more nearly according to date of infection by advancing the dates one week.

The fall in the number of prophylactic treatments and cases of venereal disease among the soldiers was coincident with active measures by the city health department for the examination of persons arrested for sex offenses and their quarantine and treatment, if infected, regardless of whether they were convicted or acquitted by the courts. Law enforcement, which was lax at the beginning of the period covered by the chart, was greatly strengthened during the first month, but was temporarily somewhat weakened in February, 1918. The decided fall in the number of prophylactic treatments and the drop in the number of new cases of venereal disease showed that there were decidedly fewer exposures. The organization of educational and recreational work among the soldiers was probably another factor in the result.

The experience of San Francisco showed plainly that large results could be obtained when law enforcement and the isolation and treatment of dangerous carriers are carried on side by side, each supplementing the other.

CONCLUSIONS

1. Venereal diseases are the greatest single cause of disability in the Army.

2. Most of the cases of venereal diseases among the United States soldiers, over five sixths of the total in units from which the figures have been obtained, were contracted by the men before enlistment.

3. Exposure of the soldier to venereal diseases is being successfully reduced by education, wholesome recreation, the enforcement of laws against prostitution and alcohol, and the discovery and control of venereal disease carriers.

4. These measures are applicable to civilian communities outside the extracantonment areas, and should be generally applied for the protection of the health of the future soldier and of the general public.

5. Venereal disease control should be under the general direction of the public health authorities, but they should receive the cooperation of educational and law enforcement agencies, and should not hesitate to employ lawyers and other men and women trained in nonmedical lines, just as engineers are called on to remove the causes underlying water-borne typhoid.

6. In the Army, venereal disease is still further reduced by compulsory early, or prophylactic, treatment of men exposed in spite of the measures aimed at preventing such exposure.

7. The reduction of venereal diseases, as a group, forms the greatest public health problem of today and

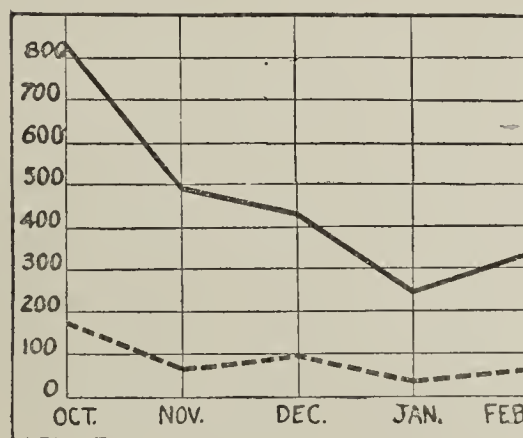


Fig. 9.—Annual venereal disease and prophylactic treatment rates for troops in and around San Francisco, not including cases contracted before enlistment and others obviously not related to San Francisco, showing results of public health measures and law enforcement. Solid line, prophylactic treatments; broken line, new cases of venereal disease.

the one which gives the most promise of solution in the immediate future. Efficient measures of prevention are known and are being demonstrated, and need only to be more widely applied.

ABSTRACT OF DISCUSSION

COL. V. C. VAUGHAN, Washington, D. C.: I do not see how any one can listen to this paper and learn these facts without concluding that it is ineffective to secure protection for our soldiers against venereal diseases without control of these diseases among civilians. When the Michigan National Guard was assembled a little more than a year ago in Detroit and was quartered in the armory, the buildings just across the street were occupied in part by prostitutes, and soldiers were openly solicited by them. When the Michigan National Guard, after this, was examined for transfer to the U. S. Army, it was found that a large percentage of them were infected with venereal diseases. A most unsatisfactory condition existed in Philadelphia and continued until the Secretary of the Navy actually took control of police affairs. Similar conditions have existed in Newport and Providence, R. I. The Army medical officer can control his soldiers in camp, and, to a certain extent, he can control them outside of camp. For instance, the commanding officer at camp has absolute control of his soldiers in the camp. If there is a house of prostitution in an adjacent village the commanding officer can put a guard around that house and prevent any soldier from going into it. He cannot, however, prevent any party coming out of the house, nor can he prevent any one except soldiers from going in. It is true that in certain camps the commanding officer has taken matters in his own hands and made raids on houses of prostitution. This was done at Spartanburg, S. C. I understand that it was done by the city of Spartanburg making soldiers local policemen and conferring on them the necessary authority. If it is desirable to protect the young men in the Army from venereal diseases, why should not the young men who are civilians, and, in all probability are soon to become soldiers, be protected from the same disease? Of all the camps in the United States, Pike led during the six winter months in pneumonia and in venereal diseases. Pike is located in Arkansas. There are boys at Pike from Michigan, Illinois, Iowa and other states. It seems to me that it is quite important for the fathers and mothers of those boys that they should have the same protection against venereal diseases at Pike that other sons have at Grant, Custer and Dodge. The same efficiency in the administration of all camps should be exercised. Section 13 of the draft law seems to make vigorous provision for protection of the soldiers against venereal disease in a zone about the camp. There are about seventy camps in the United States, not counting any camp with a population less than 10,000, and the zone around the camps is the United States, and federal authorities must take charge of these matters. There is only one thing to do, and that is to federalize for the time of the war the various health services of this country. What is true of venereal diseases is, in a somewhat different way, but fully to the same extent, true of other diseases. If it is proper to protect the boy in the Army from typhoid fever by vaccination, why should it not be proper to protect the boy in civilian life, the prospective soldier of the future, from the same disease by the same manner?

DR. P. S. SCHENCK, Norfolk, Va.: At the request of the National Council of Defense, Norfolk was asked to do something toward the control of the venereal situation. The health department induced the city council of Norfolk to pass a series of ordinances which required that every person arrested for any cause shall go through a physical examination. These persons are in charge of the department of health until they are released. This necessitated the employment of several physicians to carry out the work. As a matter of control, I have adopted a card check system. When the person is arrested and taken into the police court, before any disposition whatever is made of the case he is subjected to a physical and bacteriologic examination. This applies to both males and females. If for any reason the first or preliminary

examination is unsatisfactory, the person draws what we call a yellow card, which reads that a bacteriologic and physical examination is being made and he or she is to be held until the examination is completed. That card is attached to the mittimus, which goes over to the city jail hospital with the person, and no disposition of that case can be made by the police authorities as long as the yellow card is attached to the mittimus. When that examination is carried further, if we find that he is infected, the sheriff is given a red card. The red card is attached, in place of the yellow card, to the mittimus, and that red card will keep him in the jail hospital until it is substituted by a white card. He is put under active treatment by the physicians. We have also inaugurated a venereal clinic which is open every day in the year, but as long as that red card, which shows that that man or that woman is infected, is attached to the mittimus in the jail hospital he stays there. After a certain length of time, not less than sixty days—there is no re-examination made on a person under thirty days—if we find in the case of gonorrhea that we get two negative results taken from smears made from three different specimens and find from the bacteriologic examination that there appears to be no gonococci, a white card is given to the sheriff, and he or she is released. This card only states that we did not find the gonococci. We have in the course of erection a venereal hospital in which we propose to put these cases. We are also erecting on our city farm a home in which, after these young girls are released, we shall hold them until some disposition can be made of the case other than turning them back into the city. In the past six or seven weeks, since this has been put into effect, we have arrested approximately 800 persons, and 400 of them were infected. In the female population the girls run all the way from 11 years of age up to 56. We have had any number of 12-year-old girls. We were confronted with this situation, and it was very demoralizing to the department at first to find that we were taking young girls 12 years of age and 13 and 14, and for want of better facilities for handling them we were holding them in the jail hospital, where they were daily associating with the veteran prostitute, the drug addict and the alcohol habitué, and in order to correct that I induced our council to give us the money to build a hospital for these younger persons and remove them from that vicious environment.

SURGEON J. O. COBB, U. S. P. H. S., Chicago: I am working on the venereal propaganda in the states of Indiana, Illinois, Michigan, Wisconsin and Minnesota in conjunction with state and local health officers. I speak to you as an optimist, though you are going to hear the pessimistic side of it. The states haven't the money, the municipalities haven't the money, and it will be a hard proposition to inaugurate a nation-wide propaganda that will stand on both feet. The state of Illinois has \$6,000. In this state, at first, Dr. Drake was not very enthusiastic, but he got out and went to work in the municipalities, and now he is as enthusiastic as can be. Over in Michigan they have all of a million dollars that they can use. Naturally, Michigan is not afraid to tackle the problem. In Indiana they haven't anything. We have got to go to each town in Indiana and beg them for money and ask them to pass ordinances. They have not even the machinery for handling the question. In Wisconsin they have \$7,500 and the legislature meets two years hence. They have not any machinery up there that is really worth while. Minnesota has \$35,000, and they are getting under way. Now, that story is pretty nearly true of the United States. California has \$30,000. Los Angeles appropriated \$20,000 and San Francisco, I think, \$40,000, and so it goes. The point is just this: Now is the time to strike. All these municipalities will come across, I am convinced. I was a pessimist myself when I started out, about the money side of it, but down in Indiana the towns are going to come forward and pass ordinances that are good ordinances, and they are going to start the machinery to make this a permanent movement, and that is what it ought to be. Colonel Vaughan has said that the country ought to be militarized for the venereal propaganda for the period of the war. We naturally think that is what it ought to be. The municipalities will do anything that the

Army asks to have done. Therefore, I think the movement is going to succeed.

In Indiana and Illinois and other places small bodies of troops are brought together to be sent to the camps. The venereal curve jumps right up there because these young men are having a last fling at civil life. It is astonishing what we find in these surveys. This sexual insanity of young girls and even of older women, mentioned by the gentleman from Norfolk, seems to be widespread, and is a serious problem. I wish also to call attention to the psychologic problem as affecting physicians.

Many doctors are pessimistic on the venereal question, and they are going to refuse to report certain private cases. Venereal ordinances must be of such a nature that there is no excuse for any physician not to report. Now, here is a fault in Illinois. These reports should be made to the state health office only, and never to the local health office, unless the patient fails or refuses to carry out his obligation. I am now convinced, just recently, that venereal cases should be reported by name. I will tell you why. Six of the states require the name, all the others require the name or number. In Chicago you can report by number, but you must give the address. The smaller towns report by number. Here is the objection to that, because that will go in to some local clerk and there might arise distrust on the part of the physician and patient. Indiana, to avoid that, has said that the physician must report directly to the state health officer. The report goes on a card index, and the state board will return all the records, if desired, when the case has been cured.

I have talked with a number of doctors, and some of them have said they would go to jail before they would report some of their cases. The Indiana regulation leaves no excuse for the doctor to refuse to report, as the report goes to the state and not to the local health officer. Now, then, in case this patient does not follow the instructions, then the doctor who had charge of that case must report it to the state health officer, and the state health officer will notify the local health officer to look him up, and then he is no longer entitled to secrecy. In the matter of quarantining houses of prostitution, Illinois has the best regulations. Where there is a house under suspicion, and still there is lack of convicting evidence, Dr. Drake deals with such cases effectively by means of a big red card, on which is printed in black letters, "Suspected Venereal Disease." This red card, for such cases, should be adopted by every state in the Union.

DR. C. ST. CLAIR DRAKE, Springfield, Ill.: Illinois was among the first states in the Union (I believe California preceded it) in attempting to control venereal disease. Our rules and regulations were promulgated in October and became effective Nov. 1, 1917. Experience of some seven months indicated that a revision of the rules was necessary. On May 1, 1918, we promulgated new rules and regulations which, I believe, cover every phase of the venereal disease problem. Possibly, and to some extent in some of the rules; we go a bit too far. There is one particular thing that I would like to enlighten you on now, and that is our method of controlling the venereally infected prostitute. We have in our service plain-clothes investigators; two of them are men. These men are put into communities where we suspect the prevalence of prostitutes. On the strength of their reports raids are made upon the premises in which prostitution is practiced. Those raids are conducted with the assistance of the Attorney General of the state, because we find it very difficult in many instances to secure the cooperation of local officials. Most of the local officials are very reluctant in admitting that there is any prostitution in their town. When the arrested parties are taken to jail they are immediately subjected to a medical examination. Specimens for examination are sent to the state laboratory. Reports are returned very promptly to the local authorities. The judge then calls the case up and advises the prisoners of the findings in their cases and commits those who have been found to be infected to hospitals for detention and treatment, with the instruction to return the infected individuals to the court when cured. Under arrangements of that kind we have in hospitals in the state of Illinois at the present time some eighty-five to ninety infected prostitutes under treatment. One of the chief advantages of that particular method

is that it places the expense of hospitalization and medical treatment on the county in which the prostitution existed, and it amounts to a very considerable sum, and tends to make the county authorities very reluctant about tolerating conditions of that kind in their county. We find that when they realize the expense that is to be imposed on them they are very keen to eliminate prostitution. We impose this expense on the county authorities under our pauper law, and practically every state in the Union has a law similar to the Illinois law, which provides that the indigent and sick found within the county shall be afforded necessary medical attention at the expense of the county; so what we are doing in Illinois in that regard can be done practically in every state in the Union. Dr. Cobb has referred to the placarding of premises. We have a provision in our rules that when an infected individual or a person suspected of having a venereal infection is resident on premises used for immoral purposes and will not consent to removal to a hospital where she may be retained for treatment, that the premises shall be placarded. In several instances it has been necessary to placard the premises and in all but one instance the placard has been up not more than two or three minutes. It is a very effective way of forcing patients to the hospital. We have taken rather extraordinary precautions to prevent the blackmailing of patients by quacks and unscrupulous practitioners of medicine. As to druggists, probably 60 per cent. of the venereally infected people obtain their treatment at drug stores. We require that druggists shall make a daily report of persons applying to them for treatment for venereal disease. In some cities, particularly at Rock Island, the druggists have responded very well; in fact, the druggists are reporting many more cases in Rock Island than are the physicians. There is a real need of standardization of these requirements, so that every state will have exactly the same requirements and so that the druggists in border-line cities, where the rules are being rigidly enforced, will not suffer at the hands of the druggists in other cities where rules are not being enforced. We are not having very much difficulty with the physicians in the state of Illinois. Wherever we get an opportunity to explain the provisions of the rules to the physicians they see that the rules are distinctly to their advantage, and we have no difficulty at all, after having the opportunity to explain in getting them to report their cases, and in a great number of instances in increasing numbers they are reporting their cases by name.

Bureau of Child Hygiene.—A report on infant mortality in Baltimore since 1829 and recommending a bureau of child hygiene to save the babies has been submitted to the mayor and Dr. John D. Blake, commissioner of health, by Dr. William T. Howard, assistant commissioner of health. The plan contemplates the abolition of the division of fumigation for diphtheria, scarlet fever and tuberculosis, and the transference of the money now expended in this work to the proposed bureau. Dr. Howard's recommendation includes the following new activities in connection with the bureau:

Supervision of the health department of midwives, with the right to conduct examinations for licenses to practice in Baltimore, and the power to withdraw licenses for proved incompetence.

Establishment of an additional maternity clinic, under supervision of the supervisors of city charities or the health department, or both, to be equipped for prenatal instruction of mothers and for infant welfare work.

Expansion of the prenatal and maternity work of the stations supported by the Mothers' Relief.

The development of at least one additional day nursery for colored babies in connection with the proposed maternity station.

Establishment of a day nursery at the Broadway Recreation Pier during the summer for babies of mothers who work in canneries, especially, but not exclusively.

Expansion of the work of the pediatric clinics of the University and Maryland general dispensaries.

An increase of at least one third of the present number of nurses engaged in prenatal and infant welfare work, through either the health department or the Babies' Milk Fund Association of Baltimore.

Passage of an ordinance compelling physicians in attendance or the head of the family, or persons in charge of institutions, to notify the health department within twenty-four hours of onset of the occurrence of cholera infantum and summer complaint and symptoms of pneumonia in children of less than 5 years of age; also an ordinance giving the health department the right to investigate and supervise, when it is deemed necessary, the hygienic and nursing care, including the feeding, of such children.

Establishment as soon as possible of a health center in the north-western section of the city.

Dr. Howard shows that of 11,364 deaths in Baltimore last year, 1,783, or 15.69 per cent., were in babies of less than 1 year of age. The total number of deaths of babies of less than 5 years old was 2,446, or 21.53 per cent. of the whole.

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SATURDAY, AUGUST 10, 1918

THE INTERALLIED FOOD SITUATION

In a speech recently delivered by the United States food administrator, Mr. Herbert C. Hoover,¹ in London, he asserted essentially that the Allied food administrators are charged with the duty of managing the dietary supplies of 220,000,000 people in Europe and North America pitted against the Central Powers. This is something more than a problem of commerce and transportation or a test of modern agriculture; it is destined to be an enormous experiment in practical nutrition. It cannot fail to be of unusual interest to the medical profession to learn the broader aspects of the plans by which it is proposed to feed these vast numbers of human beings. Fortunately, as was recently pointed out in *THE JOURNAL*,² the Allied countries have entrusted the study of the food resources and food needs as well as the nutritional conditions in the respective nations to an interallied commission, so as to secure a physiologically reliable and sociologically acceptable outcome in correlated action by the highest authorities. In this way it is hoped to place the provisioning of the Allied countries on a sound scientific basis.

The establishment of the food requirements of man has been attended with much uncertainty and not a little debate. It is one thing to determine, even with admitted accuracy, what the minimal or sustenance diet of an individual may be, and quite another matter to decide where the optimal allowance lies. "Laugh and grow fat" may be a physiologic truth; but it gives little assistance to the dietitian who must provide for a large company of persons. Nor can the desire to attain a high degree of national vitality be satisfied by the mere calculation of calories. The modern well balanced regimen must provide not only for the exigencies of work and growth and the varying demands of age and sex, but also for the more subtle essentials that students of nutrition have only recently come to appreciate more fully.³

How have the interallied scientists met the situation as advisers to the nation? Such details as have been made public give an intimation of the best judgment of competent physiologists of recognized reputation. In the agreement reached as to the minimal food requirements of the average man, it was laid down⁴ that "for a man weighing 70 kg., or 154 pounds, doing average work during eight hours a day, the food as purchased should have an energy value of 3,300 calories per day, but that a reduction of 10 per cent. could be supported for some time without injury to health." Bearing in mind that these figures are rated as minimal rather than optimal needs, and recognizing that the present period is one of enormously decreased food production and great loss of supplies, it must be admitted by every one who has followed recent studies on nutrition that the advised allowance is conservatively liberal. It will work no hardship on any one.

In view of the unlike views regarding the need of meat, a minimal ration of this food has not been adopted by the interallied conference. The recent voluntary reduction in meat consumption in the United States bears out the contention that the proteins of meat can be replaced by other proteins of animal origin, such as those contained in milk, cheese and eggs, as well as by proteins of vegetable origin. The conference even sanctioned the statement that no absolute physiologic need for meat exists. According to the published accounts it was considered desirable, however, to fix a minimal ration for fat at 75 gm.—about 2 $\frac{5}{8}$ ounces per average man per day. This quota is to be made up from fats partly of vegetable origin and partly from animal sources. The commission expressed the opinion that if the amount of fat of vegetable origin was found to be insufficient it might be necessary to maintain a certain stock of animals to make good the deficit. Another item of physiologic import concerns the milling problem. It was advised that a uniform extraction of 85 per cent. should be adopted in all the Allied countries. This figure is slightly higher than the familiar extraction of patent flour in the United States, where it may apply only in case of scarcity.

These proposals are likely to win the approval of those most competent to determine the limits of physiologic safety in human nutrition; at least they have the stamp of a sane war time advice. With the added assurance of the food administrator that this nation is more than likely to be able to "deliver the goods" in the coming year, we may willingly and cheerfully continue our personal sacrifices in consumption, confident that we shall help to maintain the health, comfort and courage of the Allied nations by eating at the common table with them.

1. Reported in the public press dispatches of July 24, 1918.

2. Science and the Food Administration in War, editorial, *THE JOURNAL A. M. A.*, Aug. 3, 1918, p. 378.

3. Newer Features of Adequate Diets, editorial, *THE JOURNAL A. M. A.*, June 9, 1917, p. 1700; War Diet and Metabolism, Oct. 6, 1917, p. 1173; War Time Difficulties in Practical Dietetics, June 29, 1918, p. 2028.

4. The essential facts, reprinted from the *British Medical Journal*, are taken from *Science*, July 19, 1918, p. 60.

DISCOVERIES AND DISCOVERERS

In spite of the wonderful achievements of modern science, it seems impossible to get the public to think in scientific terms. This is doubtless due to a fundamental weakness in our educational system. The tendency still is to think in terms of the eighteenth century rather than of the twentieth. Many times THE JOURNAL has been chided, even by its friends, for failing to take seriously preposterous claims made for alleged discoveries in medicine by well-meaning but self-deluded enthusiasts or by shrewd and conscienceless charlatans. Far too often the attitude is that any alleged discovery in medicine, no matter how bizarre or how humanly improbable, should be taken up in all seriousness and subjected to the tests of modern laboratory methods. It was only a few years ago that a quack of unsavory antecedents brought forth an alleged cure for consumption—a disease that for years has been the subject of study by the best brains in the world—and a medical college spent thousands of dollars “investigating” the “cure,” thereby giving it a standing that it would never have received otherwise and incidentally obtaining for the school an amount of publicity that may or may not have been desired. As THE JOURNAL said at the time, it would have been just as pertinent for a body of astronomers to determine by scientific methods whether or not the moon is really made of green cheese.

The point we would make is that the strides made by modern science have practically eliminated the possibility of men without training or special knowledge evolving any epoch-making discovery. In this connection an editorial in the *Scientific American* of recent date, dealing with the mechanical sciences rather than the medical, is well worth quoting in part. The editorial discussed the “Garabed” incident. “Garabed,” as our readers know, was a name given to a device which one Garabed T. K. Giragossian claimed to have developed and which, so far as could be learned from the generalities in which Mr. Giragossian indulged, would take energy out of the cosmos and transfer it directly into mechanical motion. Mr. Giragossian would give no details regarding his “engine,” but was so able to hypnotize Congress into a belief that he had something worth looking into that it passed a joint resolution calling for the appointment of five scientists to pass on the claims for Garabed. The investigation proved, as might have been expected, that the thing was unsound in principle and nonoperative as a device.

The methods by which Garabed was brought before the public savored strongly of those used by quacks in the medical world, the one difference being that Giragossian was apparently perfectly sincere and unequivocally honest. The point that we bring out, however, and which, as we have said before, was so

well expressed by the *Scientific American*, is the utter futility of wasting the time of scientific men on alleged inventions or discoveries by men without training who substitute secrecy and glittering generalities for facts and accomplishments. Quoting the *Scientific American*:

Scientific discovery, once an open field for all comers, is today becoming more and more a matter calling for the most intensive special qualifications. As the body of human knowledge broadens and deepens, it becomes increasingly difficult to make any material addition to it. Any one undertaking such a task must of necessity bring to it a long and careful training, acquired either in the refined atmosphere of the laboratory, or in the rougher school of close contact with the operation of apparatus constructed by those who have already qualified. In particular, he must possess a carefully developed power of making accurate observations and drawing correct conclusions. It is rather the habit to point to men like Edison and Maxim in refutation of these necessities; but they are not to be so refuted. These men are examples, raised to the *n*th power, of the great inventor who has qualified in the University of Hard Knocks and Long Experience.

On these grounds, when a man comes before us in the self-assigned rôle of a great inventor, it is incumbent upon him to answer, not necessarily the bald question “Who are you?” but certainly the more searching one, “What are your qualifications to undertake this work?” Only by his answer can we decide whether he possesses a competence deserving of attention, or is but a dilettante playing with fire. Yet this obligation was one which Mr. Giragossian, far from meeting, did not even appear to comprehend. To every effort to ascertain his qualifications he replied in the same terms, that he was an honest man, and could prove it by letters from his technically nondescript collection of friends and sponsors. The very fact that more than personal integrity is necessary in a man who would unravel the secrets of the creation of energy appears to have escaped his comprehension.

The fundamentals thus stated apply with equal force to the sphere of medical discovery. At the time when medicine was pure empiricism it was not only possible but also probable that the medicinal value of certain products or combinations of products might be stumbled on by those untrained and unskilled. That time has passed. Today, while it is not impossible, it is so improbable that there is no justification in taking up the time of scientific men in investigating alleged discoveries by men who are utterly lacking in the fundamental qualifications needed for the study of the complex problems of human pathology.

TOBACCO SMOKE AND TUBERCULOSIS

However obvious the contention that statistics never lie may seem in critical analysis, there can be no question about the danger of error that all too frequently lies in the way in which such figures are interpreted. A recent statistical inquiry bearing on the health and habits of literally hundreds of thousands of young men and presumably applicable to an increasing number of young women has been published by authority of the Surgeon-General of the Army and is certain to be widely quoted when once its true import is appreciated. An expert of the War Department Tuberculosis Board has attempted to ascertain the effect of the inhalation of cigaret smoke

on the lungs, a question that has aroused more than one thoughtful person in view of the seemingly inordinate increase of smoking that has developed as the years go on. Major Webb¹ has found from observations on several thousand soldiers that comparatively few nonsmokers (only 27 per cent.) have ronchi or sibilant râles; most smokers, on the other hand, do exhibit these signs of chronic bronchial irritation, and cigaret smoke inhalers almost invariably show them. It is thus clear, to quote a reviewer² of this report, that individuals who are habitually subjecting their respiratory tract to the far from soothing influence of cigaret smoke would be more likely to exhibit its effects, that is, inflammation, than those whose gaseous intake is confined to the more or less undefiled atmospheric air of town and country. Indeed, this is what might have been anticipated.

Major Webb's report goes a step farther, however. It is recorded that of a comparatively large body of young men the proportion discharged from active army service because of active tuberculosis was no higher among those who show evidence of the production of ronchi than among the nonsmokers with quiet chests. Webb interprets the data as suggesting that the inhalation of the smoke of cigarets does not aid in the outbreak of pulmonary tuberculosis.

The finding that men with bronchi in a state of chronic inflammation do not develop tuberculosis in larger numbers than men with what might be called more normal bronchi will seem to many to be at variance with the older belief that inflammations of the respiratory tract predispose to the disease. Krause,³ who has attempted a more critical discussion of the meaning of the army statistics, points out, however, that in the light of present-day studies of inflammation, this state of the tissues, if it does anything, probably plays a part in resisting bacterial invasion. To quote Krause, inflammation is the visible expression of an animal organism's capacity to react to irritation whether the latter is mechanical, chemical or thermal; whether it is set up by organized or unorganized material; by inert or living substances, by grains of sand or bacterial parasites. If this is true, Krause continues, we must give up our ideas that inflamed tissues are especially favorable soil for bacterial invasion. They are the very reverse; they are points of unusual resistance.

It does not follow, however, that if inflammation does not lay a tissue more open to infection, dormant tubercles are equally protected thereby. On the contrary, hyperemia and congestion may help to disintegrate the mass and thus to assist in metastasis. In other words, "inflammation can have two very differ-

ent effects, depending on whether it is concerned with implantation of bacilli or an action on a focus already present." It will doubtless make some difference whether the inflammatory reaction is mild or severe, and whether or not there are dormant tubercles in the tissues involved. All of these varied factors, as well as the possible constitutional effects of tobacco as such, must be taken into consideration before final pronouncements are made on a subject of such serious moment to our American youth.

THE NUTRITION OF BACTERIA

There is an enlightening frankness in the presidential address of Professor Rettger¹ of Yale University, before the American Society of Bacteriologists, wherein it is stated that "we are as yet in the dark regarding the real food requirements of bacteria." The widespread preaching that these lowly organisms are the scavengers that utilize practically all sorts of organic matter as food gives little indication of the rapidly growing evidence of the specific peculiarities of bacterial nutrition—of the suggestion that "the problem of dietetics in bacteriology is as real as in animal physiology." Rettger reminds us once more that the processes involved in the pancreatic digestion of protein are in a large measure reproduced by the proteolytic enzymes of organisms of the *Bacillus subtilis* and *Proteus vulgaris* types, certainly by the organisms of putrefaction. A new interpretation may be brought to the well known fact that bacterial enzymes are able to bring about the rapid cleavage of true proteins with the production of essentially the same decomposition products as those that are formed in ordinary alimentary digestion, namely, proteoses, peptones and various amino-acids.

The contention that bacteria are unable to derive nourishment directly from native proteins has been referred to in THE JOURNAL² as a striking contribution of recent microbiologic studies. Rettger, to whom fundamental investigations in this field are attributable, does not hesitate now to assert that in a medium in which there is no source of nitrogen other than proteins, bacteria will thrive no better than in a chemically pure saline solution. Even proteoses and peptones "are like stone to the bacterial cell." A preliminary cleavage of the protein by a digestive process appears to be indispensable.

In this respect, therefore, the bacterial cell closely resembles the animal cell. The correct pabulum for each of them appears to be represented by disintegration products of a simple type—amino-acids, for example, in the case of proteins—derived from available foods. Furthermore, according to indications that

1. Webb, G. B.: The Effect of the Inhalation of Cigarette Smoke on the Lungs: A Clinical Study, *Am. Rev. of Tuberc.*, 1918, **2**, 25. This paper has also been published in the *Military Surgeon*.

2. Krause, A. K.: *Bull. Johns Hopkins Hosp.*, 1918, **29**, 106.

3. Krause, A. K.: Tobacco Smoke and Pulmonary Tuberculosis, *Am. Rev. Tuberc.*, 1918, **2**, 99.

1. Rettger, L. F.: The Science of Bacteriology and Its Relation to Other Sciences, *Jour. Bacteriol.*, 1918, **3**, 103.

2. The Resistance of Pure Proteins to Bacterial Decomposition, editorial, *THE JOURNAL A. M. A.*, July 17, 1915, p. 257; *Newer Aspects of Bacterial Metabolism*, Nov. 11, 1916, p. 1448.

have recently been reviewed in *THE JOURNAL*,³ it is not unlikely that bacteria require "promoters" of growth comparable with the vitamins that are now believed to play an important rôle in the nutrition of the higher animals. At any rate, the extracts of animal organs, as well as those of certain plant tissues, exhibit valuable nutrient potencies for bacteria which it is as yet impossible to supply in any synthetic medium of known composition. When these diverse nutritive factors of bacterial life and growth are better understood, the current systems of medium making and culture study, admittedly still crude in their general plan, will doubtless be the subject of profound and intelligent revision. Already the problem of the reaction of the medium in which bacteria grow, as expressed in its hydrogen ion concentration, is being considered from new angles which refined methods of measurement alone have made possible.

THE DIGESTIBILITY OF NUT OILS

In the food restrictions that have inevitably arisen among the fighting nations of Europe, the decrease in the amount of fat available for dietary purposes was early felt as a real hardship. This seems to have been particularly true in Germany, where the daily allowance of fat has at times undoubtedly fallen to surprisingly low figures. Kellogg and Taylor,⁴ who have made an illuminating study of the food problem in relation to this country and to the war, have thus presented the possible reasons for the almost universal desire for fat: A diet low in fat does not lend itself to our normal types of cooking. Foods prepared without fat are not naturally cooked and do not suit the taste. A diet low in fat is rapidly digested, and as the sense of satiation in alimentation is in part connected with the duration of the process of digestion, fat-free foods do not give the normal satisfaction. Those two factors, the use of fat in cooked food and the acceleration of the process of digestion in the absence of fat, account for the dissatisfaction felt in Germany at present with the low fat intake. This is in part a matter of habit; the low fat intake in Germany today is as high as the normal fat intake, weight for weight, in Japan. Indigestion may ensue in any person who continuously follows a diet that does not give digestive and physiologic satisfaction.

In view of these circumstances, it was quite natural that when the need arose of saving fats, which are used not only as food, but also as lubricants and as sources of soaps and of the important glycerin entering into certain indispensable war explosives, there was an active search for every available source. At one time it seemed as if the supply of milk fat and of butter might be seriously impaired in this country

as it was abroad. Fortunately, there is now less occasion for anxiety on this point, since the intactness of our dairy herds has been satisfactorily maintained, so that milk products are comparatively abundant. Meanwhile, many little valued or unknown fats have come into more or less prominence. Thus one hears of oil of theobroma (cacao butter) and the oils of the peanut, coconut, sesame and cottonseed, as well as the more familiar olive. Furthermore, there are the various mixtures of fats, some of them oils rendered harder by hydrogenation, which make up the oleo and nut margarins of commerce.

"In the days of the ancient Romans," says Mrs. Rose in a readable essay on everyday foods in war time, "vegetable oils were prized for food, and butter was used for cosmetics. In America today we are asking what is to become of us if we cannot have butter to eat! Such are the fashions in food." War-time necessities frequently bid us to disregard gastronomic tradition and to content ourselves with the "next best" in matters of food. The recent study of vitamins has shown that certain fats, notably those of milk, eggs, liver and other animal tissues, are the carriers of growth-promoting properties which must not be overlooked. Prudence tells us, therefore, to include some of the fat-soluble vitamin in the diet, particularly in the case of growing children. Necessity may make us go a step farther and add other fats to the dietary. Before any innovation is attempted, it ought to be definitely ascertained, so far as this is possible, whether there is any danger connected with the proposed practice.

A series of studies at the United States Department of Agriculture⁵ has indicated that lard, beef fat, mutton fat (kidney fats), butter, cream, chicken, goose, fish and egg-yolk fats, oil of theobroma, and olive, cottonseed, peanut, coconut and sesame oils are well utilized by the human body and may be used in amounts exceeding those of the ordinary diet, without causing any laxative effects. In the experiments, all of the fats were separated from the materials in which they naturally occur. Most of them are thus used in the ordinary diet, though with a few (egg fat and fish fat, for example) this is not the case. A more recent investigation by Holmes in the Office of Home Economics at Washington brings comparable data regarding a further group of fats obtained from some of the common nuts. These oils cannot be purchased in any considerable quantities and are little used in this country as such. Nevertheless, considerable quantities are consumed annually as a constituent of the nuts in which they occur. From 43 to 100 or more grams (1½ to 3½ ounces) of the oils were supplied by the diets tested. The oils were found to be well digested, the coefficients of digestibility being

3. Bacteria and Vitamins, Current Comment, *THE JOURNAL A. M. A.*, Nov. 3, 1917, p. 1531; April 20, 1918, p. 1164.

4. Kellogg, V. L., and Taylor, A. E.: *The Food Problem*, New York, 1917, p. 118.

5. Langworthy, C. F., and Holmes, A. D.: Digestibility of Some Animal Fats, Bull. 310, U. S. Dept. Agric.; Digestibility of Some Vegetable Fats, Bull. 505; Studies on the Digestibility of Some Animal Fats, Bull. 507.

97.1 per cent. for almond oil, 97.5 for black walnut oil, 96.3 for English walnut oil, 99.3 for hickorynut oil, and 96.8 for pecan oil. The nut oils, which are liquid at ordinary temperatures, have practically the same digestibility as the common vegetable oils (cottonseed, peanut, olive, sesame and coconut oils), which are also liquid at ordinary temperatures. When it is further borne in mind that the nut oils did not exert any unusual influence on the digestibility of the foods eaten with them, we may admit the contention of the government expert that these fat products may be used freely for food purposes whenever they are available. And "fat is fuel for fighters."

Current Comment

THE MEDICAL PROFESSION AND THE WAR

More than 25,000 physicians have accepted commissions in the Medical Department of the Army, and at least 2,000 more are in process of being commissioned. Adding to this number those in the Navy, we can estimate that over 29,000 physicians have volunteered and are now either in active service or subject to immediate orders. The 5,000 asked for last May have been supplied; another 5,000 will be called for immediately, and probably still another 5,000 later on. It is now generally believed that the present plan is to raise an army of 5,000,000 men as soon as possible. This means at least 35,000, if not 40,000 medical officers. The way in which our profession has already responded to the call of the Surgeon-General demonstrates both the patriotism and the proverbial unselfishness of the average medical man. No doubt the same spirit would supply the 40,000. But this voluntary method of furnishing the Army with medical officers is as unfair and as unsatisfactory as would be the same method of supplying the necessary personnel for the fighting force.

* * *

The physician who is prompted by a purely altruistic spirit, the one who is always willing to make sacrifices for his country, the one who is willing to give up a position attained through years of endeavor for the good of the common cause—these are the men who have been coming forward from the first, and who will continue to come forward. The man who wants to utilize the opportunity to make money, the man who would capitalize the sacrifices of a confrère, the indolent—these find it possible to explain—to themselves—why they do not volunteer. There are, of course, those whom the Surgeon-General's Office will not commission because it knows of justifiable exempting circumstances. There are those whose entrance into the service would be a distinct loss to their communities and, in the final analysis, to the government.

* * *

The democratic method—the correct method—to raise an army is compulsory selective service. THE

JOURNAL, however, has always opposed—and would continue to oppose—a compulsory draft of physicians alone. Such a procedure would be against the spirit of the Constitution of the United States: it has been, is, and would be in the future, uncalled for and an insult to the profession. But a compulsory selective service of all men, which would include physicians, is ideal. It is for this reason that THE JOURNAL rejoices in the fact that Congress is finally seriously considering raising the draft age to 45 years. There will be opposition, of course, and it is possible that the maximum age will be reduced below 45. It is to be hoped not.

* * *

If the new draft bill becomes a law, it will help to solve the problems that now face those who are interested in the health conditions of the country. There never has been any doubt that the number of physicians necessary for the Army would be forthcoming. There is the other side, however, and that is that the voluntary system is likely to deplete certain communities. It has already seriously affected certain hospitals and medical colleges. Sanitarians, health officers and other officials who were doing important work in civilian life have entered military service, thus leaving vacant very important public health positions. The Provost Marshal-General's Office is bemoaning the fact that a large number of medical men connected with the local, district and advisory boards are giving up this work to enter military service. With the compulsory selective service age increased to 45, there remains only the question of devising methods of procedure to utilize the medical man power thus made available to the best interests of the military forces and of the civilian population. Because of this, THE JOURNAL welcomes the conscription of the active man power of the entire nation, a method which is not only democratic, but has proved itself eminently fair and equitable to all concerned.

THE SUGAR RATION

For the first time our population is confronted by the prospect of a definite sugar ration. While it is true that there is no general compulsory mechanism outside of a certain amount of control through the trade, and the fact that our citizens are to be put on their honor by the Food Administration, to all intents and purposes a definite ration has been established. Two pounds per person per month is certainly an ample supply from a physiologic standpoint. It will be interesting to observe whether there are any effects on the American people from the decreased sugar consumption. There is no doubt that we have long been using sugar in a luxurious way, and that there are many persons who have a sugar habit that approximates in its craving the alcohol and tobacco habits. It has been said that excessive sugar consumption by individuals is an evidence of low moral resistance. The most pressing problem in connection with sugar before the Food Administration today is to see that there is a sufficient amount of it for the preservation of our fruits. This can be done only by decreased home use and by reduction in the manufacture of soft drinks

and candy. The excessive amount of sweets used by our population, particularly during the summer season, has certainly not been advantageous to the general public health. Children in particular will profit by this sugar shortage. With the approaching harvest, which promises to relieve the existing shortages in various forms of food that have given us and our allies so much concern during the past year, there will be a tendency toward relaxation in food conservation. This would be most unfortunate at the present time, when it is vital to build up large reserve stocks of food against future poor harvests and in order to get the opportunity to put through the great offensive with which the war must be won. The constant reminder that the sugar supply is short will be evidenced by the rationing and the absence of the open sugar bowl from the table. This will be of value in calling our attention to the continued need of service and sacrifice in regard to food. The imagination of the American people has been caught by the fact that their individual savings gathered together and shipped across to the Allies have played a decisive part in the war in the last few months. Most of these savings were made in the presence of a surplus of food. It will be interesting to notice the reaction of our people in the case of sugar, in which the supply of America is to be decidedly short during the next few months. Judging from the past, they will welcome the opportunity to do their part to see that there is an equitable distribution of the essential foods between ourselves and our allies.

MEDICAL MOBILIZATION IN THIS COUNTRY AND IN GREAT BRITAIN

The procedure adopted by Great Britain, outlined under Medical Mobilization and the War in this issue,¹ reflects honor on the medical profession since it leaves the profession to work out its problems entirely alone. This is an honor which is undoubtedly merited because of the patriotism and the unselfishness which have always actuated the large majority of physicians. It is an honor which we are sure subsequent events will show to have been justified. Just how the medical profession of the United States will be affected by the proposed legislation for raising the selective service age is not yet known. The bills as introduced into Congress do not make any specific provisions that would cover the medical profession. There is no method under our present selective service law by which physicians are specifically recognized in any way. Obviously the fact that the new draft law takes in the manhood of the country up to 45 years of age means that either the law or the regulations will provide for the classification of industries, occupations and professions so that the man power of the country can be utilized to the best advantage for the winning of the war. The methods of utilizing the medical profession by our British allies takes care of the needs of the civilian as well as of the military population. Our own selective service law permits the inducting of a physician into the Army on the same basis as any other

man. He is drafted not as a physician but as a civilian, and enters the Army as a private soldier in the ranks. Later he may be assigned to the Medical Department and, if qualified in every way, may finally obtain a commission in the Medical Department. Certainly in the future some method should be adopted by which this roundabout way can be avoided. In Great Britain the problem is worked out by the medical profession itself. There is no method under our present selective service by which this can be done, and we have no body similar to the Central Medical Committee and the Local Medical War Committees of Great Britain. These were created by the profession itself, with the cooperation of the British Medical Association, the Royal Colleges of England, etc., the insurance panels and the Medical Department of the Army being represented. As we have stated elsewhere, however, the details of the procedure will depend largely on the text of the law, and presumably will be worked out by the Offices of the Surgeon-General and Provost Marshal-General, through regulations.

SCIENCE AND HUMAN VIVISECTION

In Boston there is published an antivivisection journal by the freak name of *Living Tissue*. In its July number we find an editorial on the louse and trench fever. Referring to the experiments on human beings, the editor says: "This unanimity of survival [of the men experimented on] does not diminish the heroism with which they faced the doctors' syringes and unknown horrors. . . . There can be no disposition anywhere to detract from the heroism and sacrifice of these young men." Not a word of reprobation of human vivisection, either of the experiments on them or on those earlier heroes who were the means of discovering the relation of the mosquito to yellow fever. "Silence gives consent." But the editor, being a lawyer, knows all about yellow fever. He says, "It is entirely probable and reasonable that yellow fever would have been eradicated by sanitation in the Panama Canal Zone *without the elimination of the mosquito*." And this is the stuff with which he feeds his readers.

POLLEN AND HAY-FEVER

Ever since "hay-fever" began to be regarded as a manifestation of an anaphylaxis-like hypersusceptibility of certain persons to the pollen of some plants, it has become important to recognize the specific product responsible for the attack that the sensitive subjects experience. Indeed, in all present-day consideration of the clinical significance of anaphylaxis, it is essential to detect the source of the allergic substance so that it can be removed, avoided or perhaps combated by a suitable immunization procedure. It is asserted that the hay-fever prevalent in Europe is dependent chiefly on a protein substance found in the pollen of most grasses, while that of America, which occurs chiefly in the autumn, is caused by the proteins of the pollen cells of the *Ambrosiaceae* and *Solidaginac*—plants that are generally distributed on the North American continent and bloom in August and Sep-

tember. The disease occurring in China is caused by another plant, the *Ligustrum vulgare*.¹ Attention has been called by a California botanist² to the observation that in the region of the United States west of the Rocky Mountains hay-fever may be produced by an almost entirely different flora from that which causes it in the Eastern States and in Europe, and that the exact species involved must be determined in each case before treatment for immunity is undertaken. This statement is the outcome of the discovery, among other features, that the spring type of hay-fever, which is very troublesome in the Sacramento Valley, is attributable to a walnut tree pollen. In the city of Colusa it was noted that the native California black walnut (*Juglans californica* var. *Hindsii* Jepson) was much used as a street tree, that the abundant pollen sifted down over the city just at the time when the disease was most prevalent, and that the disease disappeared soon after the close of the flowering period. It was also learned that when patients left the region temporarily to escape the disease they were free from the symptoms, except when passing through towns where the black walnut grew. Finally, the botanical characters of the pollen were exactly those which one would expect in a hay-fever plant. Since this evidence all pointed to the walnut as probably the chief offender, samples of the pollen were gathered and biologic tests were made with positive results. Similar observations were made elsewhere in the same region. Hall states that the treatment of numerous hay-fever subjects in the Sacramento and neighboring valleys to render them immune to hay-fever is now under way, and that the serums prepared from the black walnut pollen are the ones most used. It is expected that by this means the spring type of the malady can be largely eliminated in those districts. A more direct method would be to remove the trees, or, better yet, to graft the tops over to English walnut, which rarely, if ever, causes hay-fever. The assumption that tree pollens play only a minor rôle, if any, as causative factors in hay-fever must now, if we follow Hall, be abandoned. Perhaps more attention should be directed promptly to some of the Eastern forms.

THE DESIRABILITY OF MAKING PNEUMONIA A NOTIFIABLE DISEASE

It is today more clearly recognized than ever before that there is an advantage in having all serious communicable diseases reported to the health authorities. For some time past, pneumonia has constituted one of the few exceptions to the general practice. In spite of the obvious difficulties in the way of requiring the early reporting of this disease, the effort would seem worth making, at any rate in all favorably situated communities. Owing to the interest in pneumonia in connection with its occurrence in the army camps, the present would appear an especially propitious time for putting pneumonia on the list with the other reportable diseases. Several sound arguments may be

advanced in support of this proposal. The occasional occurrence of epidemics of pneumonia as sharply delineated as outbreaks of diphtheria or typhoid has long been known, but in recent years the nature of such epidemics has not often been subjected to investigation by modern methods. If all pneumonia cases were notifiable, material for epidemiologic study would become available and might reveal important relations. Again, observations by Stillman¹ and others have shown that pneumonia contacts are likely to harbor the same pneumococcus type as that found in the patient: if the case is due to Type I infection, the Type I and not Type II is likely to be found in the contacts. The bearing of this fact both on the mode of treatment and on the prevention of spread is obviously important. In instances in which pneumococcus typing is carried out, the occurrence of additional cases in the patient's environment may possess great epidemiologic significance. The experiences of last winter and spring in the army camps emphasize the desirability of keeping cases of pneumonia under surveillance. Apart from the evident necessity for distinguishing between various types of infection and modes of communication, there is the question of the wisdom of instituting at least a moderate system of isolation of pneumonia patients. Cole and MacCallum,² after studying pneumonia at the base hospital at San Antonio, Texas, concluded that a very large number of patients suffering from acute lobar pneumonia have hemolytic streptococci in their throats, and that "when infection is once started in a ward in which the patients are closely associated, the streptococci become widely distributed; they probably gain in virulence with repeated transfer through the human subject, and serious and widespread infection results." It cannot be said that a disease so widespread and so much influenced by predisposing factors as pneumonia is easy to control from the public health standpoint, and doubtless too much should not be expected from the notification of cases. At the same time, knowledge of the localization of previous cases, of their connection with other diseases, and of their relation to season, age, sex and industrial employment may afford some clue to methods for preventing the spread of the infection. Only experience can show whether isolation of patients, the use of face masks by attendants, more general hospitalization, and other possible protective measures will really prove efficacious in reducing the prevalence of pneumonia in civilian communities. In what way can information be obtained other than by putting promptly on record where and when cases of pneumonia develop?

1. Stillman: Jour. Exper. Med., 1917, 26, 513.

2. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., April 20, 1918, p. 1146.

Meat and Habit.—The flavor of meat is such that it lends itself to the easy preparation of a palatable meal, but this flavor could undoubtedly be as well obtained if the present consumption of meat were cut in two. It is a question of habit; but with the present reduced supply of meat one must adopt new habits. It would be highly desirable if the grain now fed to fatten beef were given to maintain herds of milch cows.—Lusk, Food in War Time.

1. Zinsser, Hans: Infection and Resistance, New York, 1914, p. 434.

2. Hall, H. M.: Walnut Pollen as a Cause of Hay-Fever, Science, 1918, 47, 516.

Medical Mobilization and the War

Number of Physicians Under 45 Years of Age

The records in our Biographical Department show that there are 75,498 physicians under 45 years of age licensed to practice medicine in the United States.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES FOR THE WEEK ENDED JULY 26, 1918

Compiled from Weekly Telegraphic Reports Received in the Office of the Surgeon-General

	This Week	Last Week
1. ANNUAL ADMISSION RATE PER 1,000 (disease only):		
All Troops	993.8	1,084.5
Divisional Camps	948.8	1,044.9
Cantonments	1,006.4	1,264.9
Departmental and Other Troops	889.5	913.6
2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:		
All Troops	37.45	39.6
Divisional Camps	36.27	41.49
Cantonments	41.68	43.33
Departmental and Other Troops	33.27	34.7
3. ANNUAL DEATH RATE PER 1,000 (disease only):		
All Troops	2.12	2.9
Divisional Camps	1.25	2.33
Cantonments	2.90	3.61
Departmental and Other Troops	1.68	2.47

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending July 26, 1918	Departmental and Other Troops, Week Ending July 26, 1918	Divisional Camps, Week Ending July 26, 1918	Cantonments, Week Ending July 26, 1918	Expeditionary Forces, Week Ending July 18, 1918
Pneumonia	9.29	5.23	8.8	12.12	9.28
Dysentery	0.95	1.40	1.07	0.5	0.61
Malaria	5.69	2.33	9.7	6.81	0.66
Venereal	182.1	148.0	114.7	243.5	27.2
Paratyphoid	0.03	0.0	0.0	0.08	0.0
Typhoid	0.70	0.37	0.71	1.0	0.15
Measles	26.4	10.3	23.1	42.3	2.08
Meningitis	0.45	0.46	0.36	0.5	0.86
Scarlet fever	0.45	0.84	0.0	0.3	0.86

BRITISH DELEGATES TO ANNUAL SESSION PUBLISH REPORT

The London Times for July 15 contains the following letter from the official delegates of Great Britain to the annual session of the American Medical Association:

Sir:—Some months ago the American Medical Association forwarded to the British government a request that it should send representatives to attend their annual Medical Congress at Chicago. In response to this invitation, a mission was dispatched by the Ministry of Information. The mission has just returned to England.

The members gave addresses at all the principal meetings, and took an active part in the discussions. They also spoke at large public gatherings at twelve other towns in America and one in Canada, to audiences varying from 500 to 5,000, comprising members of the medical profession and important business and professional men.

The American recruiting authorities availed themselves of the opportunity to send representatives, who accompanied the mission, and appealed to the members of the medical profession to join the army. There were then 22,000 medical officers in the American Army, and during our visit 5,000 other medical volunteers came forward, until by June 22 the lists closed completely filled.

The mission visited the chief manufacturing establishments, which are devoting all their energy to the construction of ships of war of all sorts, merchant ships, acroplanes and munitions. They also saw huge plants which had grown into splendid efficiency since the entrance of America into the war.

From these wide and varied sources the mission gathered the conviction that the American people have been thoroughly aroused, and are in entire agreement with Great Britain and her Allies. The business community have formed a clear

conception of the magnitude of the task before them, and they are employing their unlimited resources of men and material to prepare for the coming ordeal.

At each public meeting the mission was asked to convey a message from the people of America to the people of Great Britain and her Allies to the effect that they are to be of good cheer; that America is with them whole-heartedly, and that she has thrown herself into the conflict with all her strength, with the firm determination to fight till victory is complete.

From the extreme cordiality of their reception by all classes of the community the commission feel justified in believing that bonds of sympathy between the nations have been materially strengthened by their visit.

JAMES MACKENZIE,
W. ARBUTHNOT LANE,
HERBERT A. BRUCE.

MILITARY MEDICAL CONSCRIPTION IN GREAT BRITAIN

Now that we are about to make practically the entire active man power of the United States subject to the order of the government it is of especial interest to note how Great Britain, following the passage of its most recent military service act, has dealt with the medical profession. That service act makes every man born in Great Britain who was not more than 51 years of age on April 18, 1918, liable to military service, but it extends the liability for physicians to 56 years of age, in both cases subject to physical fitness on medical examination. The Ministry of National Service, similar in organization to our selective service boards, may intimate to any man that he may be more usefully employed for the good of the nation in carrying on his occupation in a civilian capacity. It has, however, the power to tell him where he can most usefully carry on his occupation, and if he refuses without good cause, he may be inducted into the ranks of the army to serve in any capacity which the government thinks fit. In order to arrive at a just decision the person called up may apply to the board for a certificate of exemption based on either personal grounds: that he would suffer serious domestic or financial hardship, that he is ill or infirm, or that he has a conscientious objection to combatant service, or on the general grounds that it is inexpedient to the national interest that he should be taken from the work which he is doing. It is, of course, conceivable that a man might apply for exemption under both clauses. In the cases of medical men who apply for exemption the appeals would be heard before the tribunals constituted by the Central War Committee and the Scottish Medical Service Emergency Committee, or before the Committee of Reference. These tribunals may grant absolute, conditional or temporary exemption on the grounds of personal hardship, ill health or conscientious objection, but in the case of physicians, when the ground of exemption is occupation, only conditional exemption will be granted, the condition being that the physician, if not required for military service, shall give his services to the civilian community in such manner as the Ministry of National Service deems best.

A circular¹ sent out by the Central Medical War Committee to local medical war committees gives the actual procedure which will be carried out. This committee first ascertains the areas from which doctors should be spared. A notification will then be sent to medical men in the areas selected who will previously have been examined medically by special National Service medical boards. This notification will be accompanied by an intimation that they may exercise their right to apply for exemption. The physicians will also receive a "certificate of protection" which will render its possessor not liable to the attentions of the recruiting officer. The "certificate of protection" will entitle the physician to exemption until offered a commission, but in the meantime places him subject to the condition that he will undertake such professional work as may be offered to him. In other words, he is liable for any civilian professional work, but not liable until further hearing for military work. Thus acting on information supplied by the local committee, the central committee will secure the names of all medical men in any given district who are available for medical work either in the commissioned personnel of the Army or in a civilian capacity. From this list the local committee will select those who they think can be most easily spared. Those so selected, if not satisfied, may have a hearing before the central pro-

1. Medical Practitioners under the Military Service Act, Editorial, British Medical Journal, June 22, 1918, p. 701.

fessional committee acting as an advisory body to the Ministry of National Service, but not as a statutory tribunal. A statutory hearing can be held only in case a practitioner refuses the "certificate of protection" and makes formal application to the tribunal for exemption within fourteen days after receiving notice from the ministry. The British Medical Journal Comments:

"It is hoped that the method of procedure worked out by the Central Medical War Committee, in consultation with the medical department of the Ministry of National Service, will result in providing, with the least amount of inconvenience to the profession, a reserve of doctors known to be available either for military or civilian work; this reserve will be drawn upon if and when required. But the Ministry of National Service has stated that the probability is that most of the practitioners made liable under the new Military Service Act will in fact never be required to do anything but their own professional work in their own locality, and that where substitution is necessary the arrangements would in the majority of cases be local only, and would not entail the removal of the substitute from his own practice."

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

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To Camp Dodge, Des Moines, Ia., for duty, from Fort Benjamin Harrison, Capt. JAMES H. BURNS.
To Camp Upton, L. I., N. Y., for duty, from Fort Hamilton, Lieuts. RANSOM S. ROBERTSON; from Fort Hancock, GEORGE E. G. NORTON; from Fort Howard, BERNARD O. THOMAS; from Fort Tilden, CHARLES F. McCARTY.
To Fort Douglas, Utah, for duty, from Camp Lewis, Lieut.-Col. EUGENE G. NORTHINGTON.
To Fort McPherson, Ga., for duty, from Fort Sam Houston, Major WILLIAM F. RICE.
To Fort Oglethorpe for instruction, Lieuts. JAMES F. COX, ORAMEL E. HANEY, ALVIN H. STANHOPE, HAROLD W. STANWOOD, E. C. A. STETSON, ARDENNE A. STOTT.
To Hoboken, N. J., for duty, from Camp Grant, Lieut.-Col. SAMUEL J. KOPETSKY.
To Syracuse, N. Y., as company surgeon, from Camp Grant, Major CHARLES R. CASTLEN.
To Williamsbridge, N. Y., for duty, from Hoboken, Lieut.-Col. WILLIAM L. SHEEP.
The following order has been revoked: *To Fort Dupont*, Delaware, for duty, from New York, Lieut.-Col. MARLBOROUGH C. WYETH.

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To Fort Riley for instruction, Lieut. ADONIS SMITH, Hope.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. JOHN C. SIMPSON, Hamberg.
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Illinois

To *Camp Alfred Vail*, Little Silver, N. J., for duty, from Fort Oglethorpe, Lieuts. DONALD E. MACGREGOR, JOHN T. O'CONNELL, Jr., Chicago.

To *Camp Beauregard*, Alexandria, La., base hospital, Lieut. BENJAMIN E. FILLIS, Hubbard Woods. For duty, from Fort Riley, Capt. DANIEL B. HAYDEN, Lieuts. FREDERICK W. SLOBE, Chicago; HUGH I. CONN, Metcalf; from Jackson Barracks, Lieut. NEIL E. FUNK, Chicago. To examine the command for nervous and mental diseases, from Fort Screven, Lieut. WALTER C. COOK, Peoria.

To *Camp Colt*, Gettysburg, Pa., for duty, from Fort Oglethorpe, Lieut. HENRY SHACOFF, Chicago.

To *Camp Crane*, Allentown, Pa., base hospital, from Camp Pike, Capt. RAYMOND C. GILLOGLY, Newman; Lieut. CECIL J. JOHNSTON, Canton.

To *Camp Grant*, Rockford, Ill., base hospital, Capt. GEORGE MCINTYRE, Chicago.

To *Camp Custer*, Battle Creek, Michigan, as assistant to division surgeon, from Fort Riley, Capt. EDWARD M. MIKKELSEN, Winnetka. Base hospital, Capt. EARL L. HENDRICKS, Lanark.

To *Camp Dix*, Wrightstown, N. J., base hospital, Lieut. HARRY L. SCHULTZ, Decatur. For duty, from Fort Oglethorpe, Lieuts. REUBEN C. HANCHETT, CLAUDE A. LINK, Chicago.

To *Camp Kearney*, Linda Vista, Calif., base hospital, from Fort Riley, Major JAMES F. PERCY, Galesburg.

To *Camp Logan*, Houston, Texas, base hospital, from Walter Reed General Hospital, Capt. CLARENCE W. GEYER, Aurora.

To *Camp MacArthur*, Waco, Texas, base hospital, Lieut. JAMES L. HAMMOND, Wilmette.

To *Camp Meade*, Admiral, Md., base hospital, from Camp MacArthur, Lieut. PHILIP ROSENBLUM, Chicago.

To *Camp Pike*, Little Rock, Ark., base hospital, Capt. GEORGE W. BOOT, Evanston.

To *Camp Sevier*, Greenville, S. C., base hospital, from Camp Jackson, Capt. THOMAS E. CHERRY, Cowden.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, from Fort Riley, Capt. CHARLES R. LOCKWOOD, Kankakee.

To *Camp Sheridan*, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieuts. JOHN H. MOORE, ITALO F. VOLINI, Chicago. To examine the command for nervous and mental diseases, from Jackson Barracks, Capt. WILSON K. DYER, Kankakee.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, Lieuts. LEMUEL B. SHORT, East St. Louis; RICHARD F. HERNDON, Springfield; from Fort Oglethorpe, Lieut. GLADSTONE C. CONLIN, Springfield. For duty, Capt. ROBERT H. BUCK, WILLIAM S. RYAN, CHARLES E. SHARP, Chicago; Lieut. WILLIAM R. FLETCHER, Joliet; from Fort Riley, Capt. WALTER L. HOUGHLAND, Peoria; from Fort Sheridan, Lieut. CHARLES E. RISELING, Murphysboro.

To *Camp Travis*, Fort Sam Houston, Texas, as camp psychiatrist, Capt. WILLIAM O. KROHN, Chicago. Base hospital, Capt. ERNEST S. MOORE, Chicago. For duty, Lieut. VINCENT J. O'CONNOR, Ottawa.

To *Camp Upton*, L. I., N. Y., base hospital, Lieuts. JOHN F. W. ROST, Minier; HOMER E. VAN EPPS, Sterling.

To *Canal Zone* for duty, from Camp Grant, Lieut. WILLIAM H. GEHL, Chicago.

To *Fort Oglethorpe* for instruction, Capt. PHILIP C. W. JOHANNES, LEROY P. KUHN, HENRY SCOTT, Chicago; ARTHUR R. RIKLI, Naperville; FRANK O. RINGNELL, Rock Island; BENJAMIN F. HOCKMAN, Sumner; Lieuts. JUSTUS C. GARARD, GOLDER L. McWHORTER, CLIFFORD S. POWELL, Chicago; GUY L. MCKINNEY, East Alton; ALBERT J. WEIRICK, Marseilles; ROSCOE W. MCKINLEY, Monmouth; George H. WILSON, Mount Carmel; WALTER J. PRICE, Peoria; HORNER F. MOORE, ARTHUR PEARMAN, Rockford; CHARLES W. SEEVER, Sheldon; GEORGE T. MEACHAM, Taylorville; JOHN A. McGEE, Virginia; from Fort Riley, Lieuts. RICHARD F. GREENING, JOSEPH MOLES, SYLVIO A. SCIARETTA, Chicago.

To *Fort Riley* for instruction, Capt. TREVALE C. COGGESHALL, Henry; EUGENE P. SULLIVAN, Morrison; GEORGE H. COLLTRALL, Savanna.

To *Garden City*, L. I., N. Y., for duty, from Fort Riley, Lieut. WILLIAM RUPP, Chicago; from San Antonio, Lieuts. FRANCIS V. CARBERRY, Chicago; HARRY E. BROWN, Peoria.

To *Hoboken*, N. J., base hospital, from Camp Devens, Capt. ANSON LER, NICKERSON, Nomenca; from Camp Meade, Lieut. LOUIS SAVITSKY, Cicero.

To *Jefferson Barracks*, Mo., for duty, from New Haven, Lieut. EMERY H. DUFOUR, Chicago.

To *Mincola*, L. I., N. Y., Signal Corps Aviation School, for duty, from South San Antonio, Capt. EUGENE CARY, Chicago.

To *Morrison*, Va., for duty, from Fort Oglethorpe, Lieut. FRANK L. FORTIELKA, Chicago; from Fort Riley, Lieut. FREDERICK W. SLOBE, Chicago.

To *New Haven*, Conn., for duty, Capt. ARTHUR C. KLEUTGEN, WALTER H. WATTERSON, Chicago.

To *Newport News*, Va., for duty, from Pittsburg, Lieut. ERNEST J. WORTHINGTON, Olney.

To *Richmond*, Va., Richmond and West Hampton Colleges, for duty, from Camp Custer, Capt. ALBERT B. KEYES, Chicago.

To *Rockefeller Institute* for instruction in bacteriology, and on completion to *Army Medical School* for duty, Lieut. LOUIS R. KRATZE, Chicago.

To *Syracuse*, N. Y., for duty, from Camp A. A. Humphreys, Lieut. LEON E. DALLWIG, Chicago.

To *Williamsbridge*, N. Y., for duty, from Camp Cody, Major WILLIAM FULLER, Chicago.

To *report to the commanding general*, Central Department, for assignment to duty, Capt. OTTO T. HANSON, Chicago.

Indiana

To *Camp Dix*, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. GEORGE H. VAN KIRK, Kentland; Lieut. OLIVER M. JOHNSTON, Kokomo.

To *Camp Dodge*, Des Moines, Iowa, base hospital, from Fort Oglethorpe, Lieut. SAM W. HOOKE, Noblesville. For duty, from Fort Benjamin Harrison, Lieut. CHARLES J. COOK, Indianapolis; from Fort Snelling, Capt. ROSS B. BRETZ, Evansville.

To *Camp Gordon*, Atlanta, Ga., base hospital, Capt. CHARLES BOSENBURY, South Bend; Lieut. LAW E. SOMERS, Craigville. For duty, Lieuts. ROSS A. COOPER, Carmel; MARVIN F. FISHER, Le Fontaine.

To *Camp Lee*, Petersburg, Va., base hospital, from Camp Hancock, Lieut. JOHN W. THOMSON, Garrett. For duty, Lieut. WALTER P. ROBINSON, Boonville.

To *Camp MacArthur*, Waco, Texas, base hospital, Lieut. CARL V. DAVISSON, West Lafayette.

To *Camp Upton*, L. I., N. Y., base hospital, Capt. ROLLO J. PEIRCE, Richmond.

To *Cape May*, N. J., for duty, Lieut. FREDERICK C. POTTER, Indianapolis.

To *Fort Oglethorpe* for instruction, Capt. JAMES W. BENHAM, Columbus; HERBERT A. RAY, MAURICE I. ROSENTHAL, Fort Wayne; DULANIA S. WIGGINS, New Castle; CHARLES C. DUBOIS, Warsaw; Lieuts. PERRY L. FERRY, Akron; ORRIS O. MELTON, Hammond.

To *Fort Ontario*, N. Y., base hospital, from Plattsburg Barracks, Major THOMAS B. C. KEENE, Indianapolis.

To *Fort Riley* for instruction, Capt. VERNON C. PATTON, ROLAND A. WILTSHIRE, Morristown; ROBERT A. CUSHMAN, Princeton; MARC F. HUNN, Shipshowanam; Lieuts. EARL J. CRIPE, Atwood; LEON E. WETSELL, Bloomington; ROBERT W. HAWKINS, Brazil; PAUL C. GRAHAM, Columbus; EDMUND C. GRAY, Greensburg; FRANCIS H. RILEY, Linnsburg; WALTER S. GIVEN, MARTIN E. PATTON, Indianapolis; HERMAN S. BOWLES, Muncie; SILVA I. GREEN, St. Bernier; CLAUDE S. BLACK, Warren; CLARENCE E. BOYD, West Baden; VIERL C. GRIFFIS, Williamsburg.

To *Mineola*, L. I., N. Y., for instruction, from Austin, Texas, Lieut. BYRON J. PETERS, Kokomo.

To *New Haven*, Conn., for duty, Capt. MALCOLM L. SAMMS, Batesville.

To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Upton*, L. I., N. Y., base hospital, Lieut. HARRY E. GOWLAND, Valparaiso.

Iowa

To *Camp Crane*, Allentown, Pa., base hospital, from Fort Riley, Lieut. CHAS. E. BLOCK, Davenport.

To *Camp Dodge*, Des Moines, Ia., base hospital, Capt. CHARLES S. JAMES, Centerville; Lieut. CHANNING G. SMITH, Granger. For duty, from Fort Riley, Lieuts. ALBERT J. CHARLTON, Lowden; from Fort Sheridan, Lieut. EDWARD A. COUPER, Britt.

To *Camp Gordon*, Atlanta, Ga., base hospital, Lieut. WALTER W. MURPHY, Lewis.

To *Camp Grant*, Rockford, Ill., base hospital, Lieut. HARVEY RANSOM, Des Moines.

To *Camp Lee*, Petersburg, Va., base hospital, from Camp Greene, Lieut. FRED W. NIEHAUS, McClelland. For duty, from Fort Oglethorpe, Lieut. GEORGE S. BAWDEN, Davenport.

To *Camp MacArthur*, Waco, Texas, base hospital, Capt. EVAN S. EVANS, Grinnell; Lieuts. GEORGE BRAUNLICH, Davenport; ALBERT D. SMITH, Mason City; WINFIELD M. WHITE, Sioux City. For duty, Lieut. LELAND O. CAREY, Des Moines; from Fort Riley, Lieut. LAURELL LAV. LUGAR, Corydon.

To *Camp McClellan*, Anniston, Ala., base hospital, from Camp Wadsworth, Capt. MEREDITH B. MURRAY, Macedonia.

To *Camp Meade*, Admiral, Md., base hospital, from Camp Lee, Lieut. ERWIN J. GOTTSCH, Le Mars.

To *Camp Sevier*, Greenville, S. C., base hospital, from Camp Sherman, Capt. RANSOM D. BERNARD, Clarion.

To *Camp Sheridan*, Montgomery, Ala., to examine the troops for tuberculosis, from Camp Joseph E. Johnston, Capt. EDWIN S. GILLESPIE, Wenona.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, Capt. GEORGE W. KOCH, Sioux City.

To *Fort Oglethorpe* for instruction, Lieut. LLOYD T. REED, Gravity; from Fort Riley, Lieut. AUDLEY E. NELSON, Sidney.

To *Fort Riley* for instruction, Capt. HENRY J. TALBOY, Onawa; Lieuts. CHARLES M. HAZARD, Arlington; HARRY R. SECOY, Sioux City; HUGH S. DETCHON, Victor; MERRITT N. GERNSEY, Waverly.

Kansas

To *Camp Abraham Eustis*, Lee Hall, Va., camp hospital, from Camp Lee, Capt. JOHN F. RUDOLPH, Belle Plaine.

To *Camp Beauregard*, Alexandria, La., for duty, from Fort Riley, Lieut. JOHN R. CAMPBELL, Coats.

To *Camp Crane*, Allentown, Pa., base hospital, from Fort Riley, Capt. HARRY L. CHAMBERS, Lawrence; HERBERT ATKINS, Pratt.

To *Camp Dodge*, Des Moines, Iowa, for duty, from Fort Leavenworth, Lieut. WILLIAM H. GREIDER, Topeka.

To *Camp Gordon*, Atlanta, Ga., base hospital, Capt. ROBERT B. STEWART, Topeka.

To *Camp Lewis*, American Lake, Wash., as assistant to division surgeon, from Fort Riley, Lieut. CHESTER O. SHEPARD, Independence.

To *Fort Logan H. Roots*, Ark., base hospital, Lieut. FRED G. POULTRE, Horton.

To *Fort Oglethorpe* for instruction, Lieut. CHESTER H. SMITH, Pittsburg.

To *Fort Riley*, base hospital, from Fort Oglethorpe, Lieut. JOSEPH C. SHAW, Holton. For instruction, Capt. CLARENCE E. BOUNDREAU, Eldorado; GEORGE C. MAHAFFY, Ottawa; Lieuts. NOBLE E. NAYLOR, Centropolis; EARL G. PADFIELD, Salina.

To *Fort Worth*, Texas, for duty, from Fort Sam Houston, Lieut. ORVILLE O. MOORE, Topeka.

To *New York City*, Neurological Institute, for instruction, Lieut. ALDEN L. CRITTENDEN, Wichita.

Kentucky

To *Camp A. A. Humphreys*, Accotink, Va., for duty, from Fort Oglethorpe, Capt. EDWARD C. BARLOW, Georgetown.

To *Camp Custer*, Battle Creek, Mich., for duty, from Camp Lewis, Lieut. STANLEY E. STROUBE, Edgerton.

To *Camp Gordon*, Atlanta, Ga., for duty, from Camp Sevier, Lieut. JAMES M. STAUGHTON, Covington.

To *Camp Grant*, Rockford, Ill., base hospital, from Camp Sherman, Lieut. CHARLES E. VIDT, Russell.

To *Camp Greene*, Charlotte, N. C., base hospital, Capt. JOHN T. BROWN, Paris.

To *Camp Lee*, Petersburg, Va., for duty, from Camp Sevier, Lieut. RICHARD R. SNOWDEN, Ravenna.

To *Camp Sevier*, Greenville, S. C., base hospital, from Walter Reed General Hospital, Major JOSEPH G. SHERRILL, Louisville.

To *Camp Zachary Taylor*, Louisville, Ky., for duty, from Camp Gordon, Lieut. JOHN W. DYER, Louisville.

To *Canal Zone*, for duty, from Southern Department, Capt. JETHRA HANCOCK, Louisville.

To Fort Benjamin Harrison, base hospital, Capt. JAMES A. ORR, Paris.

To Fort Oglethorpe for instruction, Capt. HENRY C. OSBORN, Blaine; JASPER F. BRYANT, Corbin; JOHN H. HOHNSTEDT, Fort Thomas; AUSTIN BELL, Hopkinsville; SAMUEL L. POTTINGER, Louisville; DAVID J. WILLIAMS, Richmond; Lieuts. HENRY Y. SLATON, Greenville; HARRY G. HERRING, JOHN S. MCGINNIS, Lexington; JAMES R. COTTELL, Louisville; BURTON A. WASHBURN, Paducah; CHARLES B. BARD, Water Valley; ISAAC H. BROWNE, HOWARD LYON, Winchester.

Louisiana

To Camp Lee, Petersburg, Va., base hospital, Lieut. THOMAS LATI-CLAIS, New Orleans.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Lieut. JOEL A. WILKINSON, Homer.

To Fort McHenry, Md., base hospital, Lieuts. HAROLD J. GONDOLF, New Orleans; from Camp Jackson, JOSEPH C. MENENDEZ, New Orleans.

To Fort Oglethorpe for instruction, Lieut. PAUL T. THIBODEAUX, Donaldsonville.

To Newport News, Va., for duty, from Colgate Creek, Lieut. ERAS-
TUS L. MILLER, Longville.

Maine

To Fort Oglethorpe for instruction, Lieuts. HERBERT L. LOM-
BARD, Bridgton; LESTER H. TRUFANT, Norway.

To New Haven, Conn., for duty, Capt. CARL R. O'BRIEN, Bangor.

Maryland

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Mac-
Arthur, Capt. RASTUS R. NORRIS, Crisfield.

To Lakewood, N. J., for duty, from Camp Wheeler, Lieut. JOHN T.
KING, Jr., Baltimore.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. MORLEY
D. MCNEAL, Baltimore.

To Camp Jackson, Columbia, S. C., for duty, Lieut. BRYANT E.
HARRELL, Baltimore.

To Camp Meade, Admiral, Md., base hospital, Capt. STANDISH
MCGLEARY, Baltimore.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut.
BERTRAM J. SANGER, Baltimore.

To Camp Upton, L. I., N. Y., for duty, from Fort Howard, Capt.
FIRMADGE K. NICHOLS, Baltimore; from Rochester, N. Y., Lieut.
SAMUEL J. PRICE, Queenstown.

To Cape May, N. J., for temporary duty, Capt. LEE COHEN, Balti-
more.

To Fort Oglethorpe for instruction, Capt. HARRY W. GADDES,
HENRY J. WALTON, Baltimore; Lieuts. HARRIS C. BARROWS,
Augusta; WALTER T. ANDERSON, JOHN H. BAIRD, LEO BRADY,
WALTER L. DENY, THEODORE S. MOISE, CARL C. NOHE,
JOSEPH P. SHEARER, HENRY H. STANSBURY, Baltimore;
EARNEST L. SCHAIBLE, Cary; GEORGE B. LYNCH, Hillsdale.

To Lakewood, N. J., for duty, Lieuts. WILLIAM L. BROSIUS, Jr.,
CLAUDE V. MCMEEN, Baltimore; from Fort Oglethorpe, Lieut.
HARRY L. ROGERS, Baltimore.

To Otisville, N. Y., for duty, from New Haven, Lieut. WILLIAM
B. DAVIDSON, ALBERT EISENBERG, Baltimore.

To Syracuse, N. Y., for duty, from Camp Meade, Capt. HENRY N.
SISCO, Baltimore.

To Washington, D. C., for duty in the Surgeon-General's Office,
Major JOHN HOWLAND, Baltimore.

Massachusetts

To Boston, Mass., Harvard Graduate School of Medicine, for instruc-
tion, and on completion to his proper station, Capt. ERNEST B.
YOUNG, Boston.

To Camp Abraham Eustis, Lee Hall, Va., Camp Hospital, from Camp
Meade, Lieut. EZEKIEL PRATT, Arlington.

To Camp Devens, Ayer, Mass., base hospital, Capt. CHARLES S.
CAPELLE, ROBERT H. VOSS, Boston; EDWARD J. HUSSEY, Holy-
oke; ROBERT G. LORING, Lincoln; JOHN T. MCGILLICUDDY,
Worcester; Lieuts. EDWARD J. BREARTON, Boston; FREDERICK
E. WITHEE, Highlands. For duty, from Army Medical School, Lieut.
CHARLES W. PEABODY, Boston.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. DANIEL C.
DENNETT, Winchester; Lieuts. THOMAS J. NORTON, Pittsfield;
FRANK J. QUIST, Worcester.

To Camp Dodge, Des Moines, Iowa, base hospital, from the Sur-
geon-General's office, Major ALEXANDER S. BEGG, Boston.

To Camp Gordon, Atlanta, Ga., for duty, Lieut. WALTER J. DONO-
VAN, Springfield, from Camp Sevier, Capt. WILLIAM C. SHEEHY,
New Bedford.

To Camp Lee, Petersburg, Va., base hospital, Capt. FREEMAN H.
HIBBON, Brookline.

To Camp Meade, Admiral, Md., base hospital, from Williamsbridge,
Lieut. THOMAS W. WICKHAM, Boston.

To Camp Sheridan, Montgomery, Ala., as camp psychiatrist, from
Camp Sherman, Capt. HENRY L. STICK, Baldwinville.

To Camp Upton, L. I., N. Y., base hospital, Capt. RICHARD HIN-
CHEY, Waltham.

To Fort Oglethorpe for duty, from New York, Lieut. WHITMAN K.
COFFIN, West Medford. For instruction, Capt. WILLIAM G.
TURNER, Fall River; FRED H. ALLEN, Holyoke; WILMARTH Y.
SEYMOUR, State Farm; Lieuts. HERBERT G. ROCKWELL,
Amherst; LAWRENCE C. SWAN, Beverly; LOUIS GORDON, Bos-
ton; JOSEPH L. MARA, Brockton; MARSHALL L. ALLING,
Lowell; CHARLES L. HOITT, Lynn; FRANKLIN P. LOWRY, New-
ton; MICHAEL E. COONEY, Northampton; HARRIS S. POMEROY,
Peabody.

To Metuchen, N. J., for duty, Capt. THOMAS COX, Fall River.

To New Haven, Conn., for duty, Capt. HENRY F. R. WATTS,
Roxbury. To Yale Army Laboratory School, for instruction Lieut.
DAVID S. DOOMAN, South Ashfield. For temporary duty, from Camp
A. A. Humphreys, Lieut. FRANK B. BERRY, Cambridge.

To Rockefeller Institute, for instruction in bacteriology, and on
completion to Army Medical School for duty, Lieut. LEON C. HAVENS,
Cambridge. For instruction in the treatment of infected wounds, and
on completion to Camp Meade, Admiral, Md., base hospital, Lieut.
GEORGE F. H. BOWERS, Worcester. On completion to Camp Sevier,
Greenville, S. C., base hospital, Lieut. MATTHEW P. MAHONEY,
Lowell. On completion to Camp Upton, L. I., N. Y., base hospital,
Capt. DANIEL J. HURLEY, Charlestown. On completion to Camp
Wadsworth, Spartanburg, S. C., base hospital, Lieut. CARL A. SCHIL-
LANDER, Springfield.

To Syracuse, N. Y., for duty, Capt. CHARLES B. STEVENS,
Worcester; from Camp Devens, Lieut. EDWARD A. ADAMS, Newton.

To Walter Reed General Hospital, Takoma Park, D. C., for duty,
Lieut. ADOLPHUS D. ROOD, Whitman.

To Washington, D. C., for duty in the Surgeon-General's Office,
Capt. HARRY A. BARNES, Boston; from Camp Devens, Major
WALTER B. LANCASTER, Boston; from Walter Reed General Hos-
pital, Capt. FRANK B. GRANGER, Boston.

To Williamsbridge, N. Y., for duty, Capt. GEORGE L. GABLER,
Holyoke; Lieut. HENRY J. LUPIEN, Brockton.

Michigan

To Camp Beauregard, Alexandria, La., for duty, from Fort Ogle-
thorpe, Lieut. IRA D. MCCOY, Cass City.

To Camp Devens, Ayer, Mass., base hospital, from Rockefeller Insti-
tute, Major ROY B. CANFIELD, Ann Arbor; Lieut. GLENN B. CAR-
PENTER, Detroit.

To Camp Meade, Admiral, Md., base hospital, from Camp Custer,
Lieut. DAUNE W. CRANKSHAW, Lawrence.

To Fort Oglethorpe for instruction, Capt. CONRAD GEORGE, JR.,
Ann Arbor; WALTER T. PARKER, Corunna; CLARENCE E. SIMP-
SON, Detroit; Lieuts. FRED M. ROHOW, Bessemer; ARTHUR M.
THOMPSON, Grand Rapids; WILLIAM C. GIBSON, Petosky;
GEORGE M. KESL, Port Huron.

To Fort Riley and Fort Leavenworth, Kan., Scott Field, Bellevue,
Ill., Fort Reno and Fort Sill, Okla., and Call Field, Wichita Falls,
Texas, for duty, Lieut. WILLIAM R. CHYNOWETH, Battle Creek.

To Hoboken, N. J., for duty, from Camp Upton, Lieut. LEO J.
DRETZKA, Detroit.

To Metuchen, N. J., for duty, Capt. WALTER H. BOSTWICK,
Algonac; Lieut. GUY C. CONKLE, Boyne Falls.

To Rockefeller Institute for instruction in the treatment of infected
wounds, from New York City, Major ROY B. CANFIELD, Ann Arbor.

To report by wire to the commanding general, Central Department,
for assignment to duty, Capt. ARTHUR D. HOLMES, Detroit.

To the inactive list, from Hoboken, Major UDO J. WILE, Ann
Arbor.

Minnesota

To Camp Cody, Deming, N. M., for duty, from Fort Sam Houston,
Lieut. ALBERT M. LARSON, Jasper.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Snelling,
Lieut. THOMAS F. RODWELL, White Earth.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Grant,
Capt. CHARLES R. BALL, St. Paul.

To Camp Lee, Petersburg, Va., base hospital, from Fort Riley,
Major JOHN C. SESSIONS, Minneapolis. For duty, Lieut. CHARLES
H. JOHNSON, Spring Valley.

To Camp MacArthur, Waco, Texas, for duty, from Fort Riley,
Capt. PAUL E. KENYON, Wadena.

To Camp Sherman, Chillicothe, Ohio, for duty, Lieut. ROBERT O.
URBAN, Minneapolis; from Fort Riley, Lieut. GILBERT HEN-
DERICKSON, Lewiston.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Fort Sill,
Lieut. HENRY I. TWISS, St. Paul.

To Fort Oglethorpe for instruction, Lieut. SELMER M. JOHNSON,
Buhl.

To Fort Riley for instruction, Capt. JAMES L. MILLER, Brecken-
ridge; Lieuts. MORTON P. MORSE, LeRoy; AUSTIN VAN B.
DENMAN, Mankato; FERDINAND G. BENN, Minneapolis; JOSEPH
FINBERG, SHERMAN S. HESSELGRAVE, St. Paul.

Mississippi

To Buffalo, N. Y., Broadway Auditorium, for duty, from Fort Ogle-
thorpe, Lieut. ROBERT GOING, Vicksburg.

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt.
THOMAS J. HOUSTON, Meridian.

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. WENDALL
H. WILLIAMS, Tunica.

To Camp Grant, Rockford, Ill., base hospital, from New York City,
Major JOHN W. BARKSDALE, Winona.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe,
Lieut. MONTIEZUMA PORTER, Water Valley.

To Camp Jackson, Columbia, S. C., for duty, Lieut. JULIAN T.
BAILEY, Meridian.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Sheri-
dan, Lieut. MAURY H. MCRAE, Corinth.

To Camp Sheridan, Montgomery, Ala., to examine the command for
nervous and mental diseases, from Jackson Barracks, Lieut. THOMAS
G. CLEVELAND, Meridian.

To Camp Wheeler, Macon, Ga., base hospital, Capt. EUGENE G.
DENSON, Meridian.

To Fort Oglethorpe for instruction, Capt. ROBERT M. BUTLER,
Jackson; WALTER P. GRAY, Waynesboro; Lieuts. OSCAR O. JONES,
Booneville; JAMES I. WOODWARD, Picayune; BIRD H. HIGDON,
Sunflower.

Missouri

To Camp Cody, Deming, N. M., base hospital, Lieut. ERNEST B.
RIDER, Kansas City. For temporary duty, from St. Louis, Major
EUGENE L. OPIE, St. Louis.

To Camp Crane, Allentown, Pa., for duty, from Fort McHenry,
Major WILLIAM E. LEIGHTON, St. Louis.

To Camp Dix, Wrightstown, N. J., as orthopedic surgeon, from
Lakewood, Lieut. GREENE D. MCCALL, Fulton. For duty, from Fort
Oglethorpe, Lieut. GERHARD KAEMMERLING, Joplin.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. FRANCIS J.
PFEFFER, St. Louis; from Army Medical School, Capt. McDOWELL
BOTTS, Mexico. For duty, Lieut. HENRY W. MEISCH, Man-
chester.

To Camp Grant, Rockford, Ill., base hospital, Lieut. ELZA L.
JOHNSTON, Waverly.

To Camp Jackson, Columbus, S. C., base hospital, from Fort Ogle-
thorpe, Capt. FRANK L. BIGSBY, Kirksville. For duty, Lieut. COM-
MODORE E. BENNETT, Joplin.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, from
Camp Jackson, Lieut. CLARE J. CLAPSADDLE, St. Louis.

To Camp Las Casas, San Juan, P. R., base hospital, from Fort Sill,
Lieut. JAMES L. DOWNING, Oak Grove.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wads-
worth, Lieut. MADISON J. PULLIAM, St. Louis.

To Camp Meade, Admiral, Md., base hospital, from Walter Reed
General Hospital, Capt. WALTER C. G. KIRCHNER, St. Louis.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. CHARLES
A. LEAVY, St. Louis.

To *Camp Travis*, Fort Sam Houston, Texas, for duty, Capt. CHARLES H. ALTHEIDE, St. Louis.

To *Fort Oglethorpe* for instruction, Capt. CYRUS D. CANTRELL, FRITZ J. MOENNIGHOFF, Kansas City; WILSON J. FERGUSON, Sedalia; JOHN McH. DEAN, GEORGE A. MELLIES, St. Louis; Lieuts. CHARLES H. NEWCOMB, Clinton; ROSS H. UNDERWOOD, Kansas City; JOHN D. MOULDER, Linn Creek; EDWARD S. MURPHY, St. Louis; from Fort Riley, Lieut. WILLIAM B. INMAN, St. Louis.

To *Fort Riley* for instruction, Major MAX A. GOLDSTEIN, St. Louis; Capt. VINCIL B. JANES, Cameron; EZEKIEL M. BARTLETT, Clarksville; JOHN FLOYD KOOGLER, Kansas City; WILLIAM E. WALKER, La Monte; WILLIAM E. RUDD, Salem; FRANK R. MORLEY, Sedalia; EDWIN C. HILL, Smithville; HERMAN A. HANSEN, St. Louis; Lieuts. CHARLES H. McHAFFIO, Ash Grove; LESLIE B. MILLER, Kansas City; JOSEPH W. MILLS, Owensville; EDWARD F. HIGDON, St. Joseph.

To *Mincola, L. I., N. Y.*, for duty, from Houston, Capt. THEODORE S. BLAKESLEY, Kansas City.

To *Morrison, Va.*, for duty, from Fort Riley, Lieut. FLOYD B. RICKETTS, Leslie.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction in bacteriology, Lieut. ELBERT V. KRING, St. Louis.

To *Newport News, Va.*, for duty, from Fort Monroe, Lieut. ALOIS E. TUREK, St. Louis.

To *New York City*, Neurological Institute, for instruction, Lieuts. CHARLES B. HYNDMAN, St. Louis.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Zachary Taylor, Lieut. PATRICK McGENNIS, St. Louis.

To *Rockefeller Institute* for instruction in bacteriology, and on completion to *Army School* for duty, Lieut. OSCAR F. BRADFORD, Columbia. For instruction in the treatment of infected wounds, and on completion to *Camp Dix*, Wrightstown, N. J., base hospital, Capt. WALTER U. KENNEDY, St. Louis.

To *St. Louis, Mo.*, Signal Corps Aviation School, for duty, Lieut. JESSE J. BURDICK, St. Louis.

To *Syracuse, N. Y.*, for duty, from Camp Dodge, Lieut. GEORGE H. MORELAND, Kansas City.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. WILLIAM P. DYSART, Columbia; Lieut. ARTHUR J. DECKER, Gray Ridge.

Montana

To *Camp Lewis*, American Lake, Washington, base hospital, Capt. EDGAR F. DODDS, Missoula.

To *Fort Logan H. Roots*, Ark., base hospital, Lieut. HUGH A. MACMILLAN, Dillon.

To *Fort Oglethorpe* for instruction, from Fort Riley, Lieut. CHARLES A. GARDNER, Columbus.

Nebraska

To *Camp Crane*, Allentown, Pa., base hospital, from Camp Pike, Capt. WILBER K. RILEY, Wisner.

To *Camp Lee*, Petersburg, Va., for duty, Capt. SETH E. RAGAN, Seward.

To *Camp Sevier*, Greenville, S. C., base hospital, from Walter Reed General Hospital, Capt. JAMES S. TAYLOR, Steele City.

To *Fort Oglethorpe* for instruction, Majors SAMUEL R. HOPKINS, Hastings; ALVA S. PINTO, Omaha; Capt. GROVE H. RATHBUN, Fremont; Lieut. ERNEST G. KIECK, Springfield.

To *Fort Riley* for instruction, Capt. HARVEY L. STARKEY, Wood River; Lieuts. LEE A. N. DELANNEY, Belgrad; THOMAS J. VANDERHOEF, Rising City.

To *Mincola, L. I., N. Y.*, for duty, from Lonoke, Ark., Capt. CLAUDE T. UREN, Omaha.

To *New Haven, Conn.*, for duty, Capt. LOUIS S. B. ROBINSON, Lincoln.

To *Syracuse, N. Y.*, for duty, from Camp Dodge, Capt. JOSEPH A. HENSKE, Omaha.

New Hampshire

To *Camp Dodge*, Des Moines, Iowa, for duty, from Camp Perry, Capt. JOHN B. WARDEN, Whitefield.

To *Camp Sevier*, Greenville, S. C., base hospital, from Jefferson Barracks, Lieut. WALTER L. BARBOUR, Colebrook.

To *Camp Pike*, Little Rock, Ark., for duty, from Fort Snelling, Major AMOS C. STRAW, Manchester.

To *Fort Oglethorpe* for instruction, Lieut. EZRA A. JONES, Manchester.

New Jersey

To *Camp Abraham Eustis*, Lee Hall, Va., for duty, Lieut. FREDERICK H. MORRISON, Newton.

To *Camp Crane*, Allentown, Pa., for duty, from Fort Oglethorpe, Capt. JOHN A. HOLLAND, Montclair.

To *Camp Grant*, Rockford, Ill., base hospital, from Camp Wheeler, Capt. ALBERT N. JACOB, Sparta.

To *Camp Jackson*, Columbia, S. C., for duty, Capt. SAMUEL H. SULOUFF, Jersey City.

To *Camp Kearney*, Linda Vista, Calif., with the board examining the command for tuberculosis, from Fort Riley, Major RICHARD BEW, Atlantic City.

To *Camp Lee*, Petersburg, Va., for duty, Capt. WILLIAM S. FOSTER, Newark.

To *Fort Logan H. Roots*, Ark., base hospital, Capt. FRANK F. McDEDE, Paterson.

To *Fort Oglethorpe* for instruction, Capt. JOSEPH L. FEWSMITH, ALBERT S. HARDEN, Newark; RAYMOND DEW. BAKER, Summit; Lieuts. JOHN B. BOYD, Farmingdale; THOMAS H. LEGGETT, Jr., Plainfield; WILLIAM G. McCORMACK, Whippany.

To *South Baltimore, Md.*, for duty, from Fort Monroe, Lieut. PAUL O'BRIEN, East Rutherford.

To *Syracuse, N. Y.*, for duty, from Fort Ontario, Major ARTHUR E. THOMPSON, East Orange; Capt. MAXWELL G. KEELER, Weewauken.

New Mexico

To *Fort Riley* for instruction, Lieuts. MARCELLUS McCREARY, Magdalena; JAMES R. DAVIS, Silver City.

To *Mincola, L. I., N. Y.*, for duty, from Fort Sill, Capt. GEORGE D. CARTER, Mesilla Park.

New York

To *Camp A. A. Humphreys*, Accotink, Va., base hospital, Capt. GRANT C. MEDILL, Ogdensburg. With the board examining troops

for cardiovascular diseases, Lieut. ARTHUR E. NEERGAARD, New York; from Lakewood, Lieut. DANIEL SCHULTHEIS, New York.

To *Camp Abraham Eustis*, Lee Hall, Va., camp hospital, from Camp Lee, Capt. ERWIN G. MACFARLAND, Clinton; from Camp Meade, Lieut. L. EVERLOF, Brooklyn.

To *Camp Beauregard*, Alexandria, La., as orthopedic surgeon, from Hoboken, Lieut. LOUIS F. CRASSON, Brooklyn.

To *Camp Cody*, Deming, N. M., for duty, from San Benito, Lieut. WILLIAM H. CHAPMAN, Brooklyn.

To *Camp Colt*, Gettysburg, Pa., for duty, from Fort DuPont, Lieut. MERLE O. HOWARD, New York.

To *Camp Crane*, Allentown, Pa., base hospital, from Fort Riley, Major BRUCE G. PHILLIPS, Capt. MATTHEW L. CARR, New York; Lieut. ROY I. MARSHALL, Rome. For duty, from Fort Oglethorpe, Lieut. HERMAN E. GAK, South Onondaga.

To *Camp Custer*, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, Capt. JULIUS E. HAIGHT, Beacon.

To *Camp Dix*, Wrightstown, N. J., base hospital, Lieuts. EDWARD R. WARE, JOHN J. YOUNG, New York; from Rockefeller Institute, Capt. FRANK G. SCHAIBLE, New York.

To *Camp Gordon*, Atlanta, Ga., base hospital, Capt. HERBERT E. SPERRY, Rochester. For duty, Lieuts. ARTHUR C. GLOVER, Buffalo; WALTER B. HILLMAN, Greece; from duty as a private, Lieut. JOSEPH A. RAPPEPORT, Brooklyn.

To *Camp Grant*, Rockford, Ill., base hospital, from Army Medical School, Lieut. WILLIAM L. McCANTY, Buffalo. For duty, from Camp Jackson, Capt. PHILIP S. POTTER, Syracuse.

To *Camp Greene*, Charlotte, N. C., base hospital, Lieut. MEYER R. LEVINE, Brooklyn.

To *Camp Jackson*, Columbia, S. C., for duty, Lieut. JAMES E. SHORT, Buffalo.

To *Camp Lee*, Petersburg, Va., base hospital, Capt. TASKER HOWARD, Brooklyn.

To *Camp Logan*, Houston, Texas, base hospital, from Fort Oglethorpe, Lieuts. JULIUS M. BLANK, Brooklyn; ABRAHAM LEBENDIG, Rochester.

To *Camp MacArthur*, Waco, Texas, base hospital, from Fort Oglethorpe, Lieut. FLOYD F. BREESE, Elmira.

To *Camp McClellan*, Anniston, Ala., base hospital, from Camp Wadsworth, Lieut. ROBERT F. McDONALD, New York; from New York, Capt. ARTHUR F. HOLDING, New York. For duty, from Fort Oglethorpe, Lieut. SIDNEY P. LEVEY, New York.

To *Camp Meade*, Admiral, Md., base hospital, Lieut. JOSEPH GRABENSTEIN, Syracuse.

To *Camp Sevier*, Greenville, S. C., base hospital, from Camp Custer, Capt. WILLIAM B. REID, Rome.

To *Camp Sheridan*, Montgomery, Ala., base hospital, from Camp Devens, Major LEWIS T. GRIFFITH, New York.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, Lieut. RICHARD W. MORIARTY, New York; from Camp Custer, Capt. JULIUS E. HAIGHT, Beacon.

To *Camp Upton*, L. I., N. Y., for duty, from Fort Totten, Capt. FLOYD W. HUNTER, Fort Totten. To examine the command for nervous and mental diseases, from Camp Devens, Capt. GEORGE A. SHARP, Beacon; from duty as a private, Lieut. ABRAHAM T. GOLDSTEIN, Syracuse.

To *Camp Wadsworth*, Spartanburg, S. C., base hospital, Capt. CHARLES E. PERKINS, New York. For duty, from Eastern Department, Capt. CLARENCE A. READ, New Rochelle; Lieut. BENJAMIN Brodie, New York.

To *Canal Zone* for duty, Capt. EDGAR T. RAY, New York; from Camp Sevier, Lieut. LEO EDELMAN, New York.

To *Fort Des Moines*, Ia., base hospital, from Fort Oglethorpe, Lieut. HARRY WRONKER, Rochester.

To *Fort Leavenworth*, Kan., for temporary duty, Major HERMAN M. ADLER, Keene Valley.

To *Fort McHenry*, Md., for duty, from Williamsbridge, Capt. HERBERT R. CHARLTON, Bronxville; WALTER S. WOODRUFF, Mount Vernon.

To *Fort Oglethorpe* for instruction, Capt. FRANCIS E. O'BRIEN, Auburn; WILLIAM NEUSS, Brooklyn; CHAUNCEY W. GROVE, Geneva; SAMUEL T. HUBBARD, New York; GARROTT VAN DER V. JOHNSON, Schenectady; WILLIAM N. MALONEY, Three Mile Bay; Lieuts. JULIUS B. BOEHM, JOHN H. BURKE, BENJAMIN M. EIS, SAMUEL WEISS, Brooklyn; RAYMOND G. LAPORT, Buffalo; HALLEY W. HAMMOND, Franklinville; CLARENCE L. FESSENDEN, Fulton; GUILFORD S. DUDLEY, HENRY C. FALK, HAROLD GLUCK, SAMUEL KULKIN, HARRY S. MARCLAY, GASTANO J. MECCA, New York; FRANKLIN A. KNOPE, Rochester; WALTER V. FLEMING, Syracuse; from Williamsbridge, Lieut. FREDERICK C. KELLER, New York.

To *Fort Worth*, Texas, for duty, from Fort Sill, Capt. PHILIP E. ROSSITER, Brooklyn.

To *Lakewood*, N. J., for duty, from Camp Sheridan, Major GEORGE P. COOPERNAIL, Bedford.

To *Long Island City*, L. I., N. Y., for duty, from Fort Oglethorpe, Capt. A. L. BENEDICT, Buffalo.

To *Metuchen*, N. J., for duty, Capt. JOHN B. LEDLIE, Saratoga Springs; from Fort Oglethorpe, Lieuts. EDWARD A. TWIST, Long Island City; AARON WEINBERG, New York.

To *Mincola, L. I., N. Y.*, Signal Corps Aviation School, for duty, from Fairfield, Capt. EDWIN S. INGERSOLL, Rochester. For instruction, from Detroit, Capt. SAMUEL A. MUMFORD, Ithaca.

To *New Haven, Conn.*, for duty, Capt. FREDERICK A. JOHNSON, Lieut. BERNARD C. BULLEN, New York; Lieuts. JAMES A. BRADBROOK, East Williamson; EDWARD H. GANLEY, New York. Yale Army Laboratory, for instruction, Lieut. CHARLES H. HOCHMAN, New York. For instruction in bacteriology, Capt. WILLIAM A. GROAT, Syracuse; Lieuts. ABRAHAM SCHULTZ, Brooklyn; STANLEY T. FORTUNE, New York.

To *Newport News, Va.*, for duty, from Camp A. A. Humphreys, Lieut. DAVID PASHMAN, Brooklyn.

To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Devens*, Ayer, Mass., base hospital, Lieut. ELMER A. CLARKE, Buffalo. On completion to *Camp Dix*, Wrightstown, N. J., base hospital, Capt. HARRY S. CAMPBELL, Otto. On completion to *Walter Reed General Hospital*, Tacoma Park, D. C., for duty, Lieut. CHARLES C. STEINHAUSER, Rochester.

To *Otisville*, N. Y., for duty, from New Haven, Lieut. JAMES H. STYGALL, New Bridge.

To *Syracuse*, N. Y., for duty, Lieuts. JOSEPH M. L. BRUNO, Brooklyn; BURKE C. HAMILTON, Goshen; from Camp Jackson, Lieuts. MAXWELL M. BOOXBAUM, HARRY F. GOCKLEY, New York; from Camp Meade, Capt. ELISHA W. BROWN, Mount Kisco.

To *Walter Reed General Hospital*, Takoma Park, D. C., for duty, Capt. DAVID M. BLOOM, New York. For observation and treatment, from Philadelphia, Capt. CHARLES E. E. PANNACI, Gloversville.
To *Williamsbridge*, N. Y., for duty, from Camp Custer, Lieut. EDWARD J. HYLAND, Jamaica.

North Carolina

To *Camp Lee*, Petersburg, Va., base hospital, from Fort McPherson, Major CHARLES S. LAWRENCE, Winston-Salem.
To *Camp Sheridan*, Montgomery, Ala., for duty, from duty as an enlisted man, Lieut. NORMAN G. WILLIAMS, Franklin.
To *Fort Oglethorpe* for instruction, Lieuts. WILLIAM D. ROGERS, Warrentown; GEORGE E. BOWDOIN, Wilmington; from Sheffield, Ala., Lieut. JOHN M. EARNHARDT, Rockwell.
To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Lee*, Petersburg, Va., base hospital, from Camp Greene, Lieut. HENRY W. TIDMARSH, Randleman.

North Dakota

To *Camp Meade*, Admiral, Md., base hospital, from Fort Oglethorpe, Lieut. ALEXANDER B. MACNAB, Beach.
To *Fort Oglethorpe* for duty, from New York, Lieut. CHARLES R. TOMPKINS, Oberon.

Ohio

To *Camp Colt*, Gettysburg, Pa., for duty, from Camp Laurel, Lieut. FRANCIS E. REED, Wren.
To *Camp Crane*, Allentown, Pa., base hospital, from Camp Pike, Major NORMAN P. MCGAY, Cleveland.
To *Camp Devens*, Ayer, Mass., base hospital, Lieut. ALONZO B. BROWER, Dayton.
To *Camp Dix*, Wrightstown, N. J., base hospital, Capt. DANIEL C. HOUSER, Urbana; Lieut. MARCUS E. WILSON, Cincinnati.
To *Camp Dodge*, Des Moines, Ia., for duty, from Camp Perry, Lieut. GEORGE W. MANNING, Kelley's Island; from Fort Benjamin Harrison, Lieut. JOHN A. GRAFFT, Hamilton; from Fort Sheridan, Capt. JOSEPH S. RARDIN, Portsmouth.
To *Camp Hancock*, Augusta, Ga., base hospital, Lieut. HOWARD BENUS, Cincinnati.
To *Camp Joseph E. Johnston*, Jacksonville, Fla., base hospital, from Army Medical School, Lieut. CLARKE C. PATTON, Ashland.
To *Camp Las Casas*, San Juan, P. R., for duty, from Camp Lee, Lieut. ROBERT A. THORNTON, Columbus.
To *Camp Lee*, Petersburg, Va., for duty, Lieut. GEORGE B. TOPMOELLER, Clifton; from Fort Oglethorpe, Lieuts. FRANK L. SALISBURY, Dayton; BURT A. MARQUARD, Dover.
To *Camp McClellan*, Anniston, Ala., base hospital, from Camp Wadsworth, Capt. SYLVESTER J. GOODMAN, Columbus; Lieut. GEORGE A. HAVEMANN, New Bremen.
To *Camp Meade*, Admiral, Md., base hospital, from Camp Lee, Lieut. CLYDE B. TERWILLEGAR, Milford.
To *Camp Pike*, Little Rock, Ark., for duty, from Fort Sheridan, Capt. DELPHUS B. VIRTUE, Iberia; JAMES A. MCGREW, New Athens; from Fort Wayne, Capt. LEROY B. HUMPHREY, Akron; Lieut. FRANK B. GREGG, Wellington.
To *Camp Sevier*, Greenville, S. C., for duty, from Fort Oglethorpe, Major CHARLES H. MACFARLAND, Cleveland.
To *Camp Wadsworth*, Spartanburg, S. C., base hospital, Lieut. WILLIAM J. GRAF, Cincinnati. For duty, from Eastern Department, Lieut. HENRY B. RAMAN, Cincinnati.
To *Fort Oglethorpe* for duty, from New York, Capt. JOHN D. OSMOND, Cleveland. For instruction, Capt. WALTER C. CROUCH, Cleveland; EDWARD L. LEONARD, Fulton; HARRY W. BLAIR, Mount Vernon; Lieuts. RUSSELL B. CRAWFORD, Ashland; EDMOND C. KONRAD, Cleveland; EDWARD R. WERNER, Dayton; ROBERT W. NOSKER, Orient; WILLIAM F. DEMUTH, Port Washington; JOSEPH H. RHINEHART, Springfield; EARL R. MELLETT, JOSEPH J. SWEENEY, Toledo; JOHN K. HAMILTON, Youngstown.
To *New Haven, Conn.*, Yale Army Laboratory School, for instruction in bacteriology, Lieut. VICTOR B. HALBERT, Sylvania.
To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Dix*, Wrightstown, N. J., base hospital, Capt. CHARLES DEC. HOY, Columbus. Neurological Institute, for instruction, Capt. FERN J. BIDWELL, Toledo.
To *Syracuse, N. Y.*, for duty, Capt. HALBERT B. BLAKEY, Columbus.

Oklahoma

To *Camp Crane*, Allentown, Pa., base hospital, from Fort Riley, Lieut. ALONZO P. GEARHART, Blackwell.
To *Camp Fremont*, Palo Alto, Calif., base hospital, Capt. JOHN S. PINE, Oklahoma City.
To *Camp MacArthur*, Waco, Texas, base hospital, Lieut. CHARLES N. BERRY, Norman.
To *Camp McClellan*, Anniston, Ala., base hospital, from Fort Logan H. Roots, Lieut. JOEL S. HOOPER, Tulsa.
To *Camp Travis*, Fort Sam Houston, Texas, for duty, Capt. CURTIS R. DAY, Oklahoma City; Lieut. JOHN I. DERR, Waurika.
To *Canal Zone* for duty, Lieut. CLARENCE H. FIELD, Oklahoma City.
To *Fort Oglethorpe* for instruction, Capt. BENTON LOVELADY, Guthrie; Lieut. HENRY BLENDER, Okcne.
To *Fort Riley* for instruction, Lieuts. EMORY W. KING, Bristow; CHARLES E. PARKER, Dustin; WILLIAM L. HALL, Freedom; ELLIS JONES, Kiefer; EMMETT JOHNSON, Kinta; JOHN C. BREEDLOVE, Muldrow; BEDFORD W. RUSSELL, Strong City; RALPH R. GREEN, Tulsa; ORA O. DAWSON, Wayne; LEWIS A. STUCK, Yale.
To *Fort Snelling*, Minn., as orthopedic surgeon, from Camp Grant, Capt. FENTON M. SANGER, Oklahoma City.
To *Hoboken, N. J.*, base hospital, from Fort Oglethorpe, Lieut. ARTHUR F. HOBBS, Hinton.
To *Hot Springs*, Ark., for observation and treatment, from Fort Riley, Lieut. WILLIAM A. L. COSSEY, Prague.
To *Metuchen, N. J.*, for duty, from Fort Oglethorpe, Lieut. WILL C. WAIT, McAlester.
To *Mount Clemens*, Mich., Signal Corps Aviation School, for duty, from Camp Kelly, Lieut. TAZWELL D. ROWLAND, Shawnee.
To *New Haven, Conn.*, Yale Laboratory School, for instruction in bacteriology, Lieut. HENRY T. BALLATINO, Muskogee.
To *Rockefeller Institute* for instruction in bacteriology and on completion to *Army Medical School* for duty, Lieut. ORVILLE J. WALKER, Oklahoma City.

Honorably discharged, Lieut. WOODWARD R. MITCHELL, Verdun.
Resignation of Capt. GUY B. VAN SANDT, Wewoka, accepted.

Oregon

To *Fort Oglethorpe* for instruction, from Fort Riley, Lieut. OREL A. WELSH, Oregon City.
To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, from Fort Leavenworth, Lieut. FRANK R. MENNE, Portland.

Pennsylvania

To *Camp Beauregard*, Alexandria, La., base hospital, Lieut. HARRY C. WINSLOW, Meadville.
To *Camp Crane*, Allentown, Pa., base hospital, from Fort Riley, Lieuts. GEORGE M. PURVEE, ARTHUR R. WOODS, Philadelphia.
To *Camp Dix*, Wrightstown, N. J., base hospital, Capt. CHARLES A. STILLWAGEN, GEORGE W. STIMSON, Pittsburgh; Lieuts. LELAND C. RUMMAGE, Sweet Valley; LEWIS S. DUNN, Chester. For duty, from Fort Oglethorpe, Capt. LU VAN LEER BROWN, Castle Shannon.
To *Camp Gordon*, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. AUSTIN F. KLUTZ, Philadelphia.
To *Camp Grant*, Rockford, Ill., base hospital, from Camp Lee, Major LAWRENCE LITCHFIELD, Pittsburgh.
To *Camp Jackson*, Columbia, S. C., base hospital, from Army Medical School, Lieut. GUY S. VOGAN, Pittsburgh.
To *Camp Lee*, Petersburg, Va., for duty, Lieut. ROGER S. PARRY, Washington.
To *Camp Meade*, Admiral, Md., base hospital, Capt. SAMUEL A. RULON, JR., Phoenixville.
To *Camp Sevier*, Greenville, S. C., base hospital, from Camp Custer, Lieut. JOHN L. LAVIN, Swoyersville.
To *Camp Sheridan*, Montgomery, Ala., base hospital, from Fort Oglethorpe, Lieut. JAMES R. MORROW, Mount Vernon.
To *Camp Upton*, L. I., N. Y., for duty, Lieut. JOSEPH F. COMERFORD, Plymouth, from Bristol, Lieut. HAROLD A. GHERING, Edinboro; from Camp Holabird Colgate, Lieut. HOWARD S. BUSLER, Philadelphia.
To *Camp Wadsworth*, Spartanburg, S. C., base hospital, from Camp Dodge, Capt. JAMES W. BODLEY, Philadelphia. For duty, from Fort Oglethorpe, Capt. ROY E. SLEEPY, Library.
To *Camp Wheeler*, Macon, Ga., base hospital, Capt. HARRY B. PATTERSON, Pittsburgh.
To *Canal Zone* for duty, from Lakewood, Lieut. DAVID S. GRIM, Reading.
To *Elizabeth, N. J.*, for duty, from West Point, Miss., Capt. RAY N. LEWIS, Apollo.
To *Fort Benjamin Harrison*, base hospital, from New York, Lieut. CHARLES K. SHANOR, Sewickley.
To *Fort McHenry*, Md., for temporary duty, from Camp Meade, Capt. GEORGE H. CROSS, Chester.
To *Fort Oglethorpe* for duty, from New York, Capt. JAMES WARD, Lucermine; Lieut. CHARLES A. FITZGERALD, Clarion. For instruction, Capt. GEORGE M. BOYD, HAROLD M. WHITEWAY, Philadelphia; WILLIAM H. GLYNN, Pittsburgh; Lieuts. FRANK L. MORROW, Braddock; ESTEN L. HAZLETT, Canonsburg; ELIJAH M. ELSWORTH, Dorranceton; WILLIAM E. KRIESS, Evans City; WILLIAM S. BRYSON, Hopewell Township; GEORGE S. HENSLEY, Mahoney City; THOMAS B. HERRON, Monesson; CHARLES SCHABINGER, Philadelphia; HARRY NEVINS, Pittsburgh; EVANS M. FREE, Stewartstown; EDWARD B. COOPER, Sunbury; HARRY L. BAER, Sutersville; GEORGE H. GRIFFIN, Uniontown.
To *Hoboken, N. J.*, base hospital, from Camp Crane, Lieuts. HARRY F. GARMAN, Barnesboro; ROBERT HAMILTON, Smethport.
To *Metuchen, N. J.*, with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. WILLIAM D. STROUD, Philadelphia.
To *Mincola, L. I., N. Y.*, Signal Corps Aviation School, for duty, from Fort Sill, Major ROBERT S. MCCOMBS, Capt. JOHN P. GALLAGHER, Philadelphia.
To *Morrison, Va.*, for duty, from Fort Oglethorpe, Lieuts. LOUIS MACKLER, Philadelphia; PAUL G. ATKINSON, Pittsburgh.
To *New Haven, Conn.*, for duty, Capt. JONATHAN C. FOLTZ, Philadelphia; CLARENCE M. MALONE, Shamokin. For instruction, from Fort Leavenworth, Lieuts. OMER R. ETTER, Philadelphia; NORBERT D. GANNON, Pittsburgh. To *Yale Laboratory School*, for instruction in bacteriology, Lieut. WILLIAM M. DANIELS, Lancaster.
To *Newport News, Va.*, for duty, from Fort Sam Houston, Lieut. ERNEST J. ATEN, Pittsburgh.
To *New York City*, Bellevue Hospital, for instruction, and on completion to *Camp Dix*, Wrightstown, N. J., base hospital, Capt. SAMUEL W. MILLER, Lancaster. On completion to *Camp Jackson*, Columbia, S. C., base hospital, Lieut. FRANCIS J. CONAHON, Morea.
To *Orangeburg, S. C.*, to make physical examinations and give medical attention to drafted men, and on completion to his proper station, Lieut. SAMUEL W. REEVES, Fawn Grove.
To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Walter Reed General Hospital*, Takoma Park, D. C., for duty, Lieut. WILLIAM B. SWARTLEY, Philadelphia.
To *Syracuse, N. Y.*, for duty, Lieut. CHARLES C. SPANGLER, York; from Camp Jackson, Lieut. EDWARD I. WOLFE, Jr., Kingston.
To *Walter Reed General Hospital*, Takoma Park, D. C., for duty, from Camp A. A. Humphreys, Lieut. EDGAR B. SLOTERBECK, Monessen.
To *Washington, D. C.*, St. Elizabeth's Hospital, for training, from Fort Oglethorpe, Capt. GEORGE W. SMELTZ, Markleton; from Fort Thomas, Lieut. HORACE L. CORNCROSS, Philadelphia.
To *Williamsburg, N. Y.*, for duty, Lieut. LEROY W. FREDERICK, Philadelphia; from Camp Sheridan, Lieut. JOHN C. TABLE, Freeland.

Porto Rico

To *Camp Las Casas*, San Juan, P. R., base hospital, Lieut. HILARIO CASO, Santurce. For duty, Lieuts. RAMON B. BERDECIA, Barranquitas; MANUEL L. DEL VALLE, Humacao.

Rhode Island

To *Camp Dix*, Wrightstown, N. J., base hospital, from Rockefeller Institute, Capt. HERMAN C. PITTS, Providence.

South Carolina

To *Camp Wadsworth*, Spartanburg, S. C., base hospital, Capt. ROBERT C. BROWN, Lancaster. For duty, from Eastern Department, Lieut. WARREN H. BURGESS, Sumter.

To Fort Oglethorpe for instruction, Lieut. JOHN K. WICKER, Newberry.

To Fort Sill, Okla., base hospital, from Fort Sam Houston, Major CHARLES O'H. LAUGHINGHOUSE, Greenville.

To New York City, Neurological Institute, for instruction, Capt. BAXTER S. MOORE, Chester.

South Dakota

To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Lieut. ROBERT A. CRAWFORD, Chamberlain.

To Fort Oglethorpe for instruction, Capts. JACOB G. CHICHESTER, Redfield; JOHN F. McKIE, Wessington.

To Fort Riley for instruction, Capt. EDWARD L. PERKINS, Sioux Falls.

The following order has been revoked: To Fort Sill, Okla., base hospital, Capt. BYRON A. BOBB, Mitchell.

Tennessee

To Camp Cody, Deming, N. M., for duty, from Fort Sam Houston, Lieut. GREEN W. McCONATHY, Eads.

To Camp Sevier, Greenville, S. C., for duty, from Camp Beauregard, Capt. EDWARD D. NEWELL, Chattanooga.

To Camp Upton, L. I., N. Y., for duty, from Camp Meigs, Lieut. WILLIAM V. PRUETT, Brownsville.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Capt. JAMES C. FLY, Lyles.

To Fort Oglethorpe for instruction, Lieuts. CHARLES C. CARR, Cumberland Gap; JACOB H. IDOL, Tate.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. CHARLES P. EDWARDS, Kingsport.

To New Haven, Conn., for duty, Lieut. WILLIAM O. BAIRD, Memphis.

Texas

To Camp Cody, Deming, N. M., for duty, from Douglas, Lieut. ARCHER B. WORSHAM, Brashcar; from Fort Sam Houston, Capt. WILLIAM H. HARGIS, San Antonio.

To Camp Fremont, Palo Alto, Calif., Lieut. THOMAS J. CAGLE, Crosbyton.

To Camp Lee, Petersburg, Va., base hospital, Lieut. ANDREW M. HUFFMAN, Polytechnic.

To Camp Logan, Houston, Texas, base hospital, Capt. CHARLES W. TAYLOR, San Antonio; Lieuts. WALTER D. BROWN, Beaumont; JESSE L. MITCHELL, San Antonio.

To Camp MacArthur, Waco, Texas, base hospital, Capt. WILLIAM S. PEDIGO, Strawn; Lieut. OSCAR S. McMULLEN, Victoria. For duty, Capt. MURFF F. BLEDSOE, Port Arthur; Lieut. GEORGE D. PARKER, Houston; from Camp Travis, Lieut. WILLIAM F. SPILLER, Galveston.

To Camp Meade, Admiral, Md., base hospital, Capt. LESTER C. G. BUCHANAN, Big Springs; from Camp Lee, Lieut. JOHN C. THOMAS, Taylor.

To Camp Travis, Fort Sam Houston, Texas, for duty, Capt. JAMES C. CHEATHAM, Wolfe City.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Bowie, Lieut. FRANK G. SANDERS, Fort Worth. For duty, from Camp A. A. Humphreys, Lieut. OLIVER H. TIMMINS, San Antonio.

To Dayton, Ohio, for duty, from Camp Kelly, Capt. D. LEON SANDERS, Wells Point.

To Fort Oglethorpe for instruction, Lieut. ROBERT W. BOUNDS, Shalawater.

To Fort Riley for instruction, Capts. CLAUDE P. JONES, Bay City; WILL P. ROGERS, El Paso; CHARLES W. GRIFFITH, La Porte; CYLDE H. CRAWFORD, Pidcoke; Lieuts. SAMUEL A. WOOLSEY, Austin; RUBEN F. MARTIN, JAMES M. MILLER, San Antonio.

To Fort Worth, Texas, for duty, from Leon Springs, Lieut. JOHN B. BAUGUSS, White Wright.

To Mineola, L. I., N. Y., for duty, from San Antonio, Capt. WILSON M. BASSETT, San Antonio. To Signal Corps Aviation School, for duty, from Montgomery, Capt. ROBERT A. TRUMBULL, Dallas.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Leavenworth, Lieut. GEORGE C. KINDLEY, Dallas.

To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School for duty, Lieut. EARLE ACKER, Pasadena.

To Syracuse, N. Y., for duty, from Camp Meade, Capt. EDWIN B. KENNER, Galveston.

To Waverly, N. C., for duty, from Camp Travis, Lieut. CARROL L. MOORE, Houston.

Utah

To Camp Zachary Taylor, Louisville, Ky., base hospital, from Fort Douglas, Capt. HARRY N. MAYO, Salt Lake City.

To Mineola, L. I., N. Y., for duty, from Dallas, Capt. ROBERT R. HAMPTON, Salt Lake City.

Vermont

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. JOHN W. STEWART, Barre.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Eastern Department, Lieut. PATRICK J. MCKENZIE, Burlington.

To Fort Oglethorpe for instruction, Capts. THOMAS S. BROWN, Burlington; JOHN P. GIFFORD, Randolph; Lieuts. WILLIAM H. HURLEY, Northfield; GEORGE B. HUNTER, West Battleboro.

Virginia

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp MacArthur, Lieut. JAMES A. MERIWETHER, Holcombs Rock.

To Fort Oglethorpe for instruction, Capts. LAWRENCE E. FLANNAGAN, Charlottesville; ASA W. GRAVES, Lacey Spring; Lieut. RUSSELL J. SHULL, Winchester.

To Otisville, N. Y., for duty, from New Haven, Lieut. JAMES J. BARFIELD, Catawba Sanatorium.

To Washington, D. C., Howard University, for duty, from Fort Oglethorpe, Lieut. BURL BASSETTE, Hampton.

Washington

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. JOSIAH S. DAVIES, Tacoma.

To Fort Riley for instruction, Capt. CHARLES S. HOOD, Ferndale; Lieut. CARL G. RAHAL, Roslyn.

To Mineola, L. I., N. Y., for duty, from San Diego, Capt. RICHARD W. PERRY, Seattle.

To Syracuse, N. Y., for duty, Capt. JOHN A. ALLEN, Medical Lake.

West Virginia

To Camp Bowie, Fort Worth, Texas, base hospital, from Rockefeller Institute, Lieut. FRANK C. HODGES, Huntington.

To Camp Lee, Petersburg, Va., base hospital, Lieut. HARRY E. WHALEY, Hansford.

To Fort Oglethorpe for instruction, Capts. MARTIN V. B. GODBEY, Charleston; JAMES W. McDONALD, Fairmont; EUGENE B. WRIGHT, Richmond; Lieut. OLIVER H. GRIFFITH, Parkersburg.

To Syracuse, N. Y., for duty, from Camp Gordon, Lieut. CHARLES P. S. FORD, Hansford.

The following order has been revoked: To Camp Beauregard, Alexandria, La., for duty, from Fort Oglethorpe, Lieut. JOHN E. MILLER, Widen.

Wisconsin

To Camp Dodge, Des Moines, Iowa, for duty, from Fort Leavenworth, Capt. JOHN R. EASTMAN, Kenosha.

To Camp Grant, Rockford, Ill., base hospital, Capt. ALFRED W. GRAY, Milwaukee; Lieut. JOHN C. ZUERCHER, La Crosse.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Oglethorpe, Capt. GENTZ PERRY, Amery.

To Camp Meade, Admiral, Md., base hospital, from Camp Crane, Lieut. CHARLES B. RYDELL, Superior.

To Camp Pike, Little Rock, Ark., for duty, from Fort Sheridan, Capt. CHARLES E. LAUNDER, Viroqua.

To Fort Des Moines, Iowa, base hospital, from New York, Lieut. EARLE F. McGRATH, Appleton.

To Fort Oglethorpe for instruction, Capts. VICTOR F. MARSHALL, Appleton; HERBERT A. ROBINSON, Kenosha; WILLIAM S. DARLING; Lieuts. WALTER G. DARLING, GEORGE F. KENNEY, STANLEY J. SEEGER, Milwaukee.

To Fort Riley for instruction, Capt. FRANK W. McKEE, Richland Center; Lieuts. JOSEPH A. KEITHLEY, Palmyra; SAMUEL C. McCORKLE, West Alis.

To Fort Worth, Texas, for duty, from Fort Sill, Capt. RICHARD S. WILSON, Milwaukee.

To New Haven, Conn., for duty, Capt. LEWIS W. DUDLEY, Milwaukee.

To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School for duty, Lieut. BEVERLY M. HALL, Milwaukee.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Kearney, Major JOHN R. McDILL, Milwaukee.

Wyoming

To Fort Oglethorpe for instruction, Capt. WILLIAM A. STEFFEN, Sheridan.

To Fort Riley for instruction, Lieut. CHESTER A. CONYERS, Buffalo.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Campaign Against Venereal Disease.—W. C. Blasingame, a member of the faculty of the Alabama Polytechnic Institute, Auburn, has been employed by the state board of health as field representative to the state campaign for the prevention and control of venereal diseases. He will enlist the aid of teachers, speakers and the general public, and will point out the dangers in both civil and military life of these diseases.

Personal.—Dr. William W. Dinsmore, state prison inspector, Montgomery, announces his resignation to take effect September 1, in order to become assistant medical director of the Traveler's Insurance Company, Hartford, Conn.—Dr. Glenn Andrews, Montgomery, who has been a member of the state board of health, has been recommended by the governor as state prison inspector.—Dr. Harry C. Crelly, formerly pest house physician for Birmingham, has been appointed municipal surgeon.

Divorce of Local from State Health System Voted Down.—At the meeting of the Jefferson County Medical Society at Birmingham, July 8, a resolution was introduced by Dr. Edward P. Riggs, Birmingham, proposing a complete divorce of the official health connection between the state and local governments and the state and county medical societies. This plan was referred to the board of censors, who reported to the society, July 15, recommending that the present system of electing the state and county health officers by the state and county societies be maintained. The report was adopted by practically a unanimous vote.

DISTRICT OF COLUMBIA

Personal.—Dr. William C. Fowler assumed office as health officer of the District, August 1, succeeding Dr. William C. Woodward, who resigned to accept the position of commis-

sioner of health of Boston.—The Georgetown University Medical School announces the following faculty changes: Dr. Clarence R. Dufour, who resigned as clinical professor of diseases of eye and ear has been appointed emeritus professor in these specialties; Dr. Isaac S. Stone, professor of gynecology, who resigned after twenty-six years of service, has been succeeded by Dr. J. Thomas Kelly, and Drs. James M. Moser and John A. Foote have been appointed assistant professors of pediatrics.

GEORGIA

Reporting of Contagious and Infectious Diseases.—The legislature of Georgia passed a law authorizing a state board of health in 1903, and this law contains a section providing, "That it shall be the duty of the local boards of health, and of physicians in localities where there are no health authorities, to report to the state board of health promptly on the discovery thereof the existence of any of the following diseases, to wit: Asiatic cholera, yellow fever, scarlet fever, smallpox, diphtheria, typhus or typhoid fever, and of such other contagious or infectious diseases as the state board of health from time to time may specify." Several diseases have since been added and the following is a complete list: actinomycosis, acute infectious conjunctivitis, ankylostomiasis (hookworm), anthrax, cerebrospinal meningitis, chickenpox, cholera, dengue, diphtheria, dysentery (amebic), dysentery (bacillary), favus, german measles, glanders, gonorrhea, leprosy, malaria, measles, mumps, yellow fever, paratyphoid fever, plague, pneumonia (acute lobar), poliomyelitis, rabies, Rocky Mountain spotted or tick fever, scarlet fever, septic sore throat, smallpox, syphilis, tetanus, trachoma, trichinosis, tuberculosis (pulmonary), tuberculosis (other than pulmonary), typhoid fever, typhus fever and whooping cough. Since the beginning of this year the state board of health has been making a serious effort to have this part of the law enforced. The secretary of the board has recently sent out return postcards to every physician in Georgia, on which reports are being made. Dr. Thomas F. Abercrombie, Atlanta, secretary of the board, has been appointed collaborating epidemiologist of the United States Public Health Service. The board is also cooperating with the United States Public Health Service, by establishing free clinics for venereal diseases in each congressional district and by investigation of epidemics in the state by Dr. Josephus J. P. Bowdoin, Adairsville, epidemiologist for the board, and acting assistant surgeon, U. S. P. H. S. The legislature has manifested marked interest in the work of the board and gives promise of more liberal financial assistance.

ILLINOIS

Typhoid Fever.—The typhoid fever epidemic in Moline is unabated and fourteen new cases, making 109 in all, have been reported with two deaths.—An epidemic of typhoid fever in Danville is declared by the state board of health to have been traced to two sources of milk supply of the city.

Illegal Practitioners Prosecuted.—The Department of Registration and Education of Illinois has secured a conviction against F. Zegsda in the Municipal Court of Chicago, and suit was filed against Jeb Maddox, East St. Louis, for practicing medicine without a license. Zegsda was fined \$100 and costs.

Farewell Dinner to Reserve Corps Men.—The association of Misercord of the Heber Memorial Hospital, Pana, gave a dinner at the hospital, July 25, in honor of the physicians who have been called into United States Service. The guests of honor were Drs. Roscoe C. Danford, Walter Burgess, and Frederick J. Eberspacher. Dr. John F. H. Deal, Springfield, was toastmaster.

License Suspended.—The Department of Registration and Education of Illinois has suspended the license of Dr. H. E. Ronalds, Mattoon, until the cases now pending against him for performing criminal abortions are finally adjudicated by the courts. On the finding of the court in these cases will depend the future action of the department in the matter of the revocation of the license of Dr. Ronalds.

Chicago

Child Welfare Department Moves.—The work of the Child Welfare Department of the Women's Committee, Council of National Defense, Illinois Division and that of the Elizabeth McCormick Memorial Fund have been transferred to the fifth floor of the Tower Building, 6 North Michigan Avenue.

Correction.—The notice which appeared recently in the daily press, that Dr. William M. Harsha had been appointed

superintendent of the Municipal Tuberculosis Sanitarium, was incorrect. Dr. Harsha has been appointed a member of the board of medical directors of the Municipal Tuberculosis Sanitarium of Chicago.

INDIANA

Venereal Campaign in Fort Wayne.—An active campaign against venereal diseases was opened in Fort Wayne, July 30, by Dr. John N. Hurty, state health commissioner, Senior Surgeon Julius O. Cobb, U. S. P. H. S., Acting Assistant Surgeon Edward C. Helwig, U. S. P. H. S., and Captain William F. King, M. C., Ind. N. G.

KENTUCKY

Venereal Disease Regulation.—Under Chapter 63 of the Kentucky Statutes the state board of health is empowered to formulate and enforce rules for the control of infectious and contagious diseases. The common council of Louisville, March 28, passed an ordinance including venereal diseases in this classification. A woman was arrested for soliciting soldiers on the street, and confined to jail. On motion before the court for her release, arguments were heard to test the validity of the ordinance, and Judge Lincoln decided that the rules and regulations were within the legislative power, that they were properly adopted and promulgated and that the detention of the prisoner for a reasonable length of time is lawful. It is now possible, under this ordinance, to confine in the county jail all prostitutes and other persons suffering from venereal disease in an infective state, until they can be treated.

MARYLAND

Johns Hopkins Unit Overseas.—The Johns Hopkins Unit, which was in training at Allentown, Pa., for several months and which left some time ago for overseas, has arrived in Italy after remaining a short time in France.

More Wards at Fort McHenry.—A new group of hospital buildings connected by a series of corridors is under construction at U. S. A. General Hospital No. 2. Quarters are now prepared for 1,000 patients, and when the horseshoe of buildings is finished there will be accommodations for 2,500.

Johns Hopkins Faculty Member Dies.—E. W. Sanford, Ph.D., Yale University, New Haven, Conn., 1917, assistant in anatomy, zoology, embryology, and entomology in Johns Hopkins University Medical School, aged 25, died at his home in Centerville, Conn., July 23, from septicemia, caused by accidentally inoculating himself in the course of his experiments.

Personal.—Col. John M. T. Finney, chief surgical consultant of the American Expeditionary Forces, has recently arrived in Baltimore, bound for Washington on an important secret mission connected with his work overseas. The length of Colonel Finney's stay in this country is as yet undetermined, but it is probable that he will return to France as soon as he has completed his mission at Washington.

Improvements at Quarantine.—Plans for extensive improvements at Quarantine are under consideration by the United States Public Health Service. They include a modern hospital building and a fumigating plant, which the health department of Baltimore recommended several years ago. The landing may be overhauled and better facilities provided for the boarding and inspection of vessels. It is understood that the city will continue to lease the station to the government until Congress makes an appropriation covering the purchase price of \$175,000.

MICHIGAN

Personal.—Dr. Lafon Jones, formerly of Sebewaing, began work as full-time city physician of Flint, July 22.—Dr. Vinton J. Rickerd, Charlotte, is reported to be seriously ill with septicemia as the result of a pin prick.

Violators of Medical Laws.—The Michigan State Board of Registration in Medicine has recently taken action in regard to violators of the medical practice laws as follows:

Dr. Walter Moffat, Grand Rapids, was convicted in the Superior Court, Grand Rapids, Michigan, May 23, 1917, under the provisions of Section 3, subdivision 6, clause (a), of Act. No. 368 of the Public Acts of Michigan, 1913, "The procuring, aiding or abetting in procuring a criminal abortion." License No. 3909, dated March 22, 1900, cancelled by Michigan State Board of Registration, Jan. 23, 1918. Subsequent to cancellation of license, Dr. Moffat was arrested for practicing without a license, given a suspended sentence, and he left Michigan for the west.

"Professor" Winney, Grand Rapids, was arrested May, 1917, for practicing medicine without a license, pleaded guilty and was given a suspended sentence.

Dr. William Gayle French, Detroit.—Two warrants issued against him, one for immoral advertising and the other for obtaining money under false pretenses. Warrants were not served owing to the fact that he left for parts unknown before service could be effected.

Dr. Irving E. Sanders, 65 West Fort St., Detroit, was convicted in the Circuit Court for the County of Lenawee, Jan. 8, 1917, on the charge of grossly unprofessional conduct, he having been habitually addicted to the use of narcotic drugs. His license No. 3146, dated March 22, 1900, was revoked by the Michigan State Board of Registration in Medicine, July 20, 1918.

MINNESOTA

Training School Established.—The Sisters of St. Joseph's Hospital, Brainerd, have established a nurses' training school to be affiliated with St. Mary's Hospital, Duluth.

State Society to Meet.—The annual meeting of the Minnesota State Medical Association will be held in Duluth, August 28 to 30. One of the features of the three-day meeting will be a tribute to the men of the society who are in the military service.

NEW YORK

Two New York Towns Publish Milk Reports.—Nyack and South Nyack have a plan whereby monthly bacteriologic reports on the milk supply are published in the local papers, and supplemented by suggestions to householders on the care of milk after it has reached the home.

Personal.—Dr. Elliot I. Dorn, who has been resident physician and roentgenologist at the New York City Municipal Sanatorium at Otisville, has been appointed superintendent of the Pleasant Valley Sanatorium, the new Steuben County tuberculosis hospital.

Montgomery Preventorium Open.—The preventorium on the grounds of the Montgomery County Sanatorium was opened early in July and will remain open for about two months. It accommodates about forty children. Plans are being worked out to make this a permanent part of the activities of this institution.

Bacillary Dysentery in Poughkeepsie.—A few cases of bacillary dysentery are again reported in Poughkeepsie, where the disease has been epidemic for the past two summers. In each instance it has been found that the patient is a member of a family in which the disease appeared last summer. Two persons who were ill with the disease last year have been found to be carriers.

New York State Association of Public Health Laboratories Elects New Officers.—This organization has elected the following officers for the coming year: president, Dr. Warren B. Stone, Schenectady; vice-president, Dr. Joseph S. Lawrence, Albany, and secretary and treasurer, Dr. Howard I. Davenport, Auburn. This organization has decided to meet henceforth in conjunction with the state medical society.

Lake George Health District.—By an act of the legislature the shores of Lake George have been converted into one health district which is to be in charge of one full-time health officer at an adequate salary. Hitherto it has been possible for one municipality in this district to nullify to a large extent any attempt to improve sanitary conditions on the part of its neighbors. The new plan will insure sanitary control of the entire lake shore which will greatly add to the value of this locality as a health resort. It is believed that the results obtained in this district will justify the creation of similar districts elsewhere in the state. Dr. Minna M. Rohn, Cleveland, has been appointed sanitary supervisor of the new district.

Addition to Fox Hills War Hospital.—An additional forty-bed ward has recently been added to the big Clearing Hospital at Fox Hills, Staten Island, known as General Hospital No. 10. This structure was completed within ten hours and thirty-eight minutes from the time of starting work, though at that time the post holes were not dug and the lumber was not cut to size. The new pavilion is 156 feet long, 24 feet wide and has a porch along the entire length on one side. More than 1,000 men were employed during the day and the building was complete by night, including the lighting, water system and heating system, and even the fire extinguishers were hung in place. The construction division of the Army is prepared for similar work in all camps and cantonments, should the necessity for increased hospital facilities arise.

Venereal Diseases Bureau Established.—On July 1 a Bureau of Venereal Diseases was established in the New York State

Department of Health in accordance with the provisions of a new law (Chap. 342) passed by the Legislature of 1918. By this law the Bureau is authorized to buy, manufacture and dispense remedies for the treatment of venereal diseases, to examine specimens submitted to it, to make all necessary tests, to provide and distribute literature on the suppression and cure of these diseases and to use such other means as seem desirable for the instruction of the public. The personnel of the bureau consists of a chief, a consultant, an organizer and inspector of clinics, and dispensaries, a lecturer on social diseases, and a public health nurse. The first duty and service of all these officers is recognized to be educational. Their special duties are suggested in their titles. The plan is first to arouse public interest in these diseases, their modes of spreading, their effects on the individuals and on the community and finally in methods for their control and suppression. For this purpose each member of the Bureau is available either for organization work or public addresses. For mother's clubs, Y. W. C. A. and other female organizations the public health nurse may be used. A set of lantern slides has been prepared to help make these addresses more interesting. The second step will be to assist in the establishment of clinics and dispensaries for the treatment of indigent cases. On methods of treatment the consultant will be glad to advise with the proper authorities at any time. On the cost and type of dispensary to establish, the organizer of dispensaries will be able to furnish valuable suggestions from his personal experience. The follow up methods that will be necessary can be organized by the public health nurse. The third step will be to furnish arsphenamin (salvarsan) for treatment of indigent cases. There is a small appropriation which will become available later for this purpose. The State Laboratory is doing experimental work on this substance and hopes soon to be able to furnish it as needed. The necessary steps will be taken at once to put the new act in force. In addition a number of amendments to the Sanitary Code relating to venereal diseases go into effect August 1. Later the entire state will be divided into sections and each section made a unit for carrying on the work.

New York City

Hospital Changes Name.—The German Hospital of Manhattan has changed its name to the Lenox Hill Hospital.

New Members of Regents Board.—Drs. Franklin W. Barrows and William G. Bissell, both of Buffalo, were named as members of the New York State Board of Regents, July 22, and Dr. Jay G. Roberts was appointed a member of the board of dental examiners.

Society to Continue to Operate Hospital.—The Wyoming County Medical Society at its monthly meeting held at Fairview, Silver Lake, July 18, decided to continue to operate the Warsaw Hospital. Dr. Ross W. Thompson, resident physician of the hospital, has entered the military service.

Outings for Sick Soldiers and Sailors.—Dr. John A. Harriss, Deputy Police Commissioner of New York City, has placed his large steam yacht at the disposal of the Mayor's Committee on National Defense to be used in giving convalescent soldiers and sailors in the city hospitals day outings on the waters in the vicinity of the city. The yacht made its first trip July 30.

Cause of Epidemic Discovered.—Surg. John W. Kerr, U. S. P. H. S., and Drs. William B. May, Albany; Bruno L. Schuster, Albany, and Henry R. Lawrence, Atlantic City, N. J., of the state medical department, who have been investigating an epidemic among the employees of the Elba Canning Factory, have concluded that two diseases coexisted, the one typhoid fever and the other an intestinal infection. Practically all these patients have now recovered.

Training Nurses' Aids.—The heads of several hospitals in this city have on their own initiative begun training nurses' aids in the belief that, though the plans of the Army Medical Staff do not call for such aids, the absolute necessity for them will become greater and greater as more American troops are engaged in fighting. Hospital aids may be trained in six months and are then capable of doing 60 per cent. of the work trained nurses have been doing. Dr. Sigmund Goldwater, in advocating this plan, says that hospital aids have been the salvation of the British hospital service.

NORTH CAROLINA

Sanatorium Doubled in Capacity.—It is reported that the War Department has decided to double the size and capacity of its tuberculosis sanatorium at Azelea, near Asheville.

Personal.—Dr. Lewis B. McBrayer, Sanatorium, has been appointed secretary of the Medical Society of the State of North Carolina to succeed Dr. Benjamin K. Hays, who has resigned to enter the military service.—Dr. William Thomas Rainey, Badin, was seriously injured in an automobile accident last month.

District Society Meeting.—The semiannual meeting of the Eighth District Medical Society was held at North Wilkesboro under the presidency of Dr. William P. Horton, North Wilkesboro. Dr. John A. Williams, Greensboro, was elected president, and Dr. William M. Jones, Greensboro, secretary. Greensboro was selected as the next place of meeting.

License Revoked.—It is announced that the license permitting Dr. Joseph W. Summers, Charlotte, to practice in the state was rescinded permanently by the state board at its session in Raleigh, July 10. Dr. Summers was convicted of manslaughter for malpractice on a young woman about two years ago, but later was pardoned by the governor who barred him from practicing medicine for three years.

PENNSYLVANIA

New State Dispensaries Open.—Five additional state dispensaries were opened last week at York, Lancaster, Williamsport, Wilkes-Barre and Altoona, for the treatment of venereal diseases. The dispensaries are in connection with the state tuberculosis service and the clinics are held in the same buildings.

Lehigh Valley Physicians Meet.—At the semiannual meeting of the Lehigh Valley Medical Society, held at Kitting House, Delaware Water Gap, July 25, the principal address was delivered by Dr. Ernest LaPlace, Philadelphia, on "Focal Infections." The following officers were elected: president, Dr. Noah W. Reichard, Bangor; vice president, Dr. Frederick A. Fetherolf, Allentown; secretary, Dr. William H. Kunsman, Nesquehoning; and treasurer, Dr. David H. Keller, Pen Argyl.

Personal.—Dr. Edward H. Harris, Snow Shoe, is under treatment at the Bellefonte Hospital, on account of crushing injuries of the chest received in an automobile collision a few days ago.—Drs. Simon S. and C. S. Williams Koser, Williamsport, have been selected by the trustees of the Masonic Homes, Elizabethtown, to take charge of the Philadelphia Memorial Hospital on the grounds of the home.—Dr. John W. Bruner, Bloomsburg, was seriously injured in an automobile accident, recently.

Philadelphia

Tablet for War Hero.—A memorial tablet to Capt. Frederick David Clair, M. R. C., U. S. Army, formerly of this city, who was killed in action, May 10, was unveiled at the Jewish Seaside Home for Invalids, Atlantic City, N. J.

Head of Army Nursing School.—Miss C. Milne, head of the training school for nurses at the Presbyterian Hospital for twenty-three years, has been appointed superintendent of the army school of nurses at Camp Dix, in connection with the present campaign for student nurses. Miss Annie Wray, formerly superintendent of the Polyclinic Hospital and instructor of nurses at the Philadelphia General Hospital, has been appointed assistant. The first thirty students already enrolled will be received immediately for a three-year course.

Byberry Farm to Be Federal Hospital.—The Surgeon-General has formally accepted the offer made by the city of Philadelphia of the use of five incomplete buildings, formerly a group of structures intended for the city insane at Byberry, to be used as a government hospital for wounded soldiers and sailors brought from overseas during the war. This will be one of the large general and special reconstruction hospitals being established throughout the country. Soldiers recruited from this locality will be returned to this hospital when convalescing from injuries and disease, as experience has proved that the injured make more speedy recovery when treated in or near their home towns. In connection with the reconstruction work among the injured, a survey is now being made of all the industries in this state, with a view of ascertaining how many crippled soldiers can be employed at gainful occupations.

VIRGINIA

Venereal Clinic.—The United States government has established, in connection with the health department of Richmond, a free clinic for the treatment of venereal disease at the Medical College of Virginia. Dr. Thomas L. Driscoll, Richmond, has been placed in charge of the clinic which is to be open from 5 to 9 p. m.

Personal.—Dr. Thomas W. Edmunds, Danville, has been appointed a member of the state board of health to succeed Dr. Lewis E. Harvie, deceased.—Dr. R. Sumter Griffith has been elected mayor of Basic City.—Dr. Moses D. Hoge, Richmond, has been elected a member of the state school board to succeed Dr. James M. Hutcheson, who has resigned to enter the military service.—Dr. William F. Drewry, Petersburg, who has been seriously ill with septicemia, is reported to be much improved.—Dr. Ennion G. Williams, Richmond, state health commissioner of Virginia, and president of the Medical Society of Virginia, has been appointed assistant surgeon, U. S. N. R. F.—Dr. A. B. Cooke, United States Consul at Patras, Greece, and family have arrived in Norfolk.

CANADA

Hospital News.—The governors of the Mountain Hospital, Hamilton, Ont., have been asked by the military authorities of Canada for further accommodation for twenty returned soldiers. It is likely that the government will finance a new wing for the purpose.—As the result of the appointment of a French-Canadian doctor to the Water Street Hospital, Ottawa, friction has occurred, and one medical member of the staff has resigned. There are two English doctors on the staff of eight, the other six being French-Canadians. Another English doctor was said to be in line for the appointment.

Infant Mortality in Montreal.—Dr. William A. L. Styles, secretary of the Baby Welfare Committee, Montreal, recently demanded that an investigation be held into the causes of Montreal's heavy infant mortality. In reply, Dr. Boucher, the medical officer of health, quotes figures to prove that the death rate in infant mortality is steadily declining in that city. In 1914 there were, from January 1 to July 13, 2,352 deaths of children under five years of age; 1915, 2,425; 1916, 1,883; 1917, 2,231; 1918, 1,820. Of the 241 deaths in Montreal during the week ending July 27, 128 were children under five years of age. Other statistics given are: in 1906 the deaths in infants numbered 271 per 1,000 births; in 1917, 178 per 1,000 births.

Personal.—Lieutenant-Colonel Hardy, in command of the Toronto Military Base Hospital, is mentioned for the command of the new military hospital of 2,200 beds in Rosedale, Toronto.—Lieut.-Col. Harold C. Parsons, Toronto, lately returned from England, is enjoying a holiday with Lieut.-Col. D. J. Gibbs Wishart, at the latter's summer residence, Go-Home Bay, Muskoka.—Capt. Harvey Gordon Young, St. Mary's, Ont., formerly an intern in the Toronto General Hospital, has been mentioned in despatches. He received the Distinguished Service Order several months ago for exceptional gallantry.—Capt. Chester C. Richardson, Windsor, Ont., has returned from overseas service.—Major William J. Clark, Toronto, returned from the Ontario Military Hospital, England, is now on the casualty board, Toronto.

GENERAL

Correction.—The report of the death of Passed Asst. Surg. Paul Tonnel Dessez, U. S. Navy, which was announced in THE JOURNAL, July 13, was incorrect, owing to an error in the cablegram announcing the awards of the Distinguished Service Cross for bravery, in which Dr. Dessez was erroneously included in the posthumous list.

Colored Physicians to Meet.—The twentieth annual meeting of the National Medical Association will be held in Richmond, Va., August 27 to 29. The program includes important discussions on medicine, surgery, dentistry and pharmacy. Clinics and demonstrations and scientific sessions will be held at the Virginia Union University. Dr. James H. Blackwell is chairman of the committee of arrangements.

Bequests and Donations.—The following bequests and donations have recently been announced:

Children's Homeopathic Hospital and Women's Homeopathic Association of Pennsylvania, Philadelphia, \$25,000 by the will of Mrs. Sarah A. C. Lloyd.

Samaritan Hospital, Philadelphia, \$2,500, and a continued bequest of \$5,000 to the Home of the Merciful Savior for Crippled Children, Philadelphia, and the Hospital for Consumptives, Chestnut Hill, by the will of Mrs. Carra P. Miles.

Obstetricians and Gynecologists to Meet.—The thirty-first annual meeting of the American Association of Obstetricians and Gynecologists will be held at the Hotel Statler, Detroit, September 16 to 18, under the presidency of Dr. Albert Goldspohn, Chicago. Dr. James E. Davis, Detroit, is chairman of the committee of arrangements. All sessions will be held in the Statler Hotel with the exception of the first eve-

ning session which will be held in the Wayne County Medical Building.

Sioux Valley Physicians Meet.—The annual meeting of the Sioux Valley Medical Association was held in Sioux Falls, S. D., July 24, and the following officers were elected: president, Dr. Joseph G. Parsons, Sioux Falls, S. D.; vice presidents, Drs. Alfred E. Spalding, Luverne, Minn., Daniel T. Quigley, Omaha; secretary, Dr. George S. Browning, Sioux City, Iowa, and treasurer, Dr. H. G. J. Koobs, Scotland, S. C. It was decided to hold the next meeting of the association at Sioux City, Iowa, in January, 1919.

FOREIGN

Course of Lectures on Soldiers' Malingering.—The military authorities of the Milan district recently organized a course of lectures on what they called autolesionism, in charge of Bondi, professor of legal medicine at Siena. The lectures were given by six of the higher army medical officers.

Red Cross Official Killed by Enemy Shell.—The *Policlinico* pays tribute to Lieutenant McKey, in charge of an advanced Red Cross station on the Piave front, who was killed by an enemy shell. It is said that he is the first officer of the American Red Cross to give his life for the cause of the Allies.

Rank for Italian Medical Officers.—The *Riforma Medica* states that until recently the higher army medical posts were the *tenente generale medico*, who served as chief inspector of the entire medical service, and three positions as *maggior generale medico*, who served also as inspectors. A recent decree institutes the rank of brigadier-general, and provides for seven medical brigadier-generals, with age limit of 62, and pay of 9,000 lire, about \$1,800.

Compulsory Vaccination of All Government Employees.—The *Presse médicale* states that a decree emanating from the minister of the interior renders compulsory vaccination or revaccination of every person, regardless of age, belonging to the permanent, temporary or auxiliary personnel of the state administration and all services connected therewith, unless within ten days they can produce a medical certificate stating that they have been successfully vaccinated against smallpox within less than five years. The penalties for infraction are also fixed by law.

Blinded Soldiers.—The *Nederlandsch Tijdschrift* mentions a report of Professor Silex, a Berlin ophthalmologist, to the effect that he has trained 250 blinded soldiers to be self-supporting, and has found that many of them are able to fill positions after the completion of their training which no one would have supposed a blind man could fill. Among the blinded men were two lawyers, four musicians, two teachers, six merchants and one physician. Positions in factories are now held by eighty-eight; thirty-six are typists or correspondents; thirty-three are doing agricultural work, and seven are telephone operators.

German Children Sent to the Netherlands.—The *Nederlandsch Tijdschrift* states that 20,000 children were sent from Germany to the Netherlands for a longer or shorter stay during 1917. The plan of children's outings of this kind worked so well that a society has now been formed for the Netherlands children, to distribute them in Netherlands families in the country for similar outings. Dr. Dekker of s'Gravenhage is the leading spirit of the movement, backed by the Association to Arrest the Spread of Tuberculosis. The minister of the interior has appropriated 50,000 florins for the work, and committees are being formed in every district, with a central commission in charge of the whole.

The Campaign Against Tuberculosis in Italy.—The *Policlinico* expatiates on the valuable information that is now being accumulated in Italy as all men under 40 have been subjected to medical examination with a view to military service. The authorities are thus having placed in their hands a complete census of all the male tuberculous subjects throughout Italy. They are studying how to use this for an actual service of defense against the spread of tuberculosis—not to ostracize the tuberculous, but to combat the spread of the disease as much as possible. The aim is not to limit the survey to men but to seek out tuberculous girls and women likewise. Hitherto there has been no supervision of the well-to-do tuberculous, and they have never been under authoritative control. But all this is changed, and the names and addresses of all the tuberculous men in the country are now catalogued. It is hoped by this means to be better prepared to meet the menace of the wider spread of tuberculosis which

seems impending not only as the inevitable consequence of the war, but as the effect of carelessness on the part of individuals who, without much sacrifice, could avoid infecting others.

Message from French Physicians to the American Red Cross and American People.—The Union des syndicats médicaux of France—representing 10,000 physicians—recently sent the following message of appreciation and gratitude to the president of the American Red Cross in France and through him to the people of America:

"Le Conseil d'administration de l'Union des syndicats médicaux de France,

"Après avoir, au nom des dix mille médecins qu'il représente, écrit au président de la Croix-Rouge américaine en France afin de lui exprimer sa reconnaissance émue pour tout le bien qu'elle est venue accomplir avec une inlassable générosité et un dévouement admirable dans notre pays,

"Envoie au peuple américain et à son noble représentant l'assurance de sa profonde admiration et de sa vive reconnaissance.

"Il a l'intime conviction que la confraternité d'armes des deux grandes Républiques et leur union indissoluble, dans l'avenir, seront la sauvegarde des idées de paix, de droit, de justice et de progrès." (Published in the *Presse médicale*, July 8, p. 455.)

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

State Antituberculosis Dispensary Opened at Buenos Aires.—The first national dispensary for diseases of the chest has been opened at Buenos Aires, fully equipped for consultation, diagnosis and welfare work for the tuberculous in general. Food is distributed to the tuberculous poor, and the whole institution is said to be well equipped in every respect. It was planned and is managed by Dr. E. R. Coni, who has been a leader in Argentina for many years in matters of hygiene and prophylaxis. He hopes to have a dispensary of the kind in different parts of the city, and outlines a plan for fifteen others, locating them in districts where the tuberculosis mortality is highest. The one already installed is in the San Cristobal district which has a population of over 70,000 and a tuberculosis mortality of 8.7 per ten thousand inhabitants. In the larger centers he estimates that there should be a dispensary of the kind for each hundred thousand inhabitants. His experience in the four dispensaries that have been maintained by the Liga Argentina contra la Tuberculosis has shown that it is difficult to find good quarters for such dispensaries both on account of the buildings not being adapted for the purpose, and because owners refuse to rent for a dispensary of the kind, or ask exorbitant rents. Consequently the league found it advisable to erect its own buildings for its second dispensary, and the same plan has been followed at Rosario, which now has a model building and dispensary at work. But the funds available did not permit the league and will not permit the state to erect more buildings for the purpose.

BUENOS AIRES LETTER

BUENOS AIRES, June 19, 1918.

Tumult in Cordoba University

The movement for reform in the management of the universities of Argentina—which are all state institutions—was described in a previous letter, page 297. An unexpected turn has been taken as, according to the new arrangement, the faculties met and elected Dr. A. Nores of the medical faculty to be rector of the university. The students regarded this election as the result of a reactionary confabulation, and that it would annul all the progress and the reforms which had been inaugurated. On account of this, before the election could be formally concluded, the students invaded the hall in which the representative board meeting was being held, and great tumult resulted. The students declared a strike, and appealed from the election to the national government. The students at the University of Buenos Aires also called a sympathetic strike for four days, attendance at class to be suspended for this four days period.

The Campaign Against Tuberculosis

The national government has just inaugurated in the mountains near Cordoba, at Biale Massé, a state sanatorium for climatic treatment of tuberculosis. The sanatorium can shelter 1,200. A preventorium dispensary, called the Dr. J. A. Ortiz y Herrera dispensary, has been opened at Cosquin,

Sierra de Cordoba, and Buenos Aires has also a new dispensary for the purpose, a model of its kind, in charge of Dr. E. R. Coni.

Prizes Awarded by the University

The prize offered by the medical faculty for 1917 for the best thesis presented, has been awarded to Dr. A. Gutierrez for his work "Topographic Anatomy of the Peritoneum." The Wilde prize for the best thesis on forensic medicine was bestowed on Dr. O. Loudet, author of "Passion in Crime." The prize for the best work of the year 1915-1916 was awarded to Dr. P. C. Escalada for his work on "Curie Therapy."

Resignation of New Chief of Public Health Service

Dr. A. Alfaro has resigned the presidency of the Departamento Nacional de Higiene for the reason that the government did not decide to adopt the plan he had advised as to the reorganization of the personnel, and the plans of prophylaxis which he had outlined.

Epidemics of Typhoid

Typhoid fever appears in epidemic form every year in a considerable part of the country. Last year the accidental infection of one of the sources of the water supply caused a water-borne epidemic of typhoid at Lomas, Banfield and Temperley, close to Buenos Aires. The investigations of the public health service have demonstrated that the first and second layers of water are contaminated, judging from their content in colon bacilli. The last meeting of the Sociedad de Higiene, Microbiología y Patología discussed the matter, and it was reported that paratyphoid A and B bacilli had likewise been encountered.

Normal Beef Serum in Treatment of Anthrax

Treatment of anthrax with normal beef serum continues to give excellent results. At the Hospital Muñiz about 250 cases have been treated with it, the mortality keeping below 2 per cent. The demand for anti-anthrax serum at the bacteriologic institute of the national public health service has been so great that the animals have had to be bled white to provide the serum asked for.

Rapid Immunization of Horses Producing Antitoxins

At the bacteriologic institute of the public health service, Kraus and Sordelli have succeeded in obtaining from the animals used for the purpose antidiphtheria and antitetanus serum in from one to two months. The diphtheria antitoxin is produced by injecting in rapid sequence and in rather large doses the toxin, exactly neutralized. The antitetanus serum is prepared with toxoids. The same method as used for diphtheria has given excellent results in the production of snake venom antiserum.

PARIS LETTER

PARIS, July 6, 1918.

Personal

Dr. Paul Carnot, formerly associate professor in the Faculté de médecine de Paris, has been made professor of therapeutics in place of Dr. Marfan, who has been called to the newly created chair of hygiene and the clinic of diseases of childhood.

June 18, the Academy of Medicine elected two members. Dr. Hartmann, professor of clinical surgery in the Faculté de médecine de Paris, was elected a member of the section on surgical pathology, and Dr. Thibierge, physician to the hôpital Saint-Louis and secretary general of the Société de médecine légale de France, was elected a member of the section on public hygiene and legal medicine.

Determination of Time of Failure of Nerve Suture

Dr. Louis Mourier, sous-secrétaire d'Etat du Service de Santé militaire, has asked the Société de chirurgie de Paris the following question: In cases of nerve suture, what is approximately, for each important nerve, the time considered necessary to conclude that the intervention has proved ineffectual? The society appointed a committee to consider that problem. The spokesman for the committee, Dr. Albert Mouchet, reported that in the present state of our knowledge it is impossible to give a definite answer to the question propounded. Two types of cases are encountered following nerve suture: (1) one type in which no sign of return of either motor or sensory function is noted; (2) the type of case in which the presence of certain signs (motor, sensory, electric) permits of prognosticating the return of function, either par-

tial or complete. In the cases of the first type, there is no need to consider separately each of the principal nerves in order to determine the time of incurability. In general, a bad prognosis should not be made until at least two years have elapsed since the time of suture. In the second class, it is impossible to set any time when the case may be said to be incurable.

Intravenous Administration of Hexamethylenamin

At a recent meeting of the Société médicale des hôpitaux de Paris, Dr. Loeper discussed the intravenous administration of hexamethylenamin. The solution used contains 0.25 gram of hexamethylenamin to the cubic centimeter of cold sterilized water. Dr. Loeper and Dr. Grosdidier have used these injections in four groups of cases: typhoid, bronchopneumonia and pneumonia, diseases of the kidneys, and of the liver. The results are said to have been infinitely superior to those obtained from hypodermic or oral administration of the drug. The action has always been threefold: antipyretic, sedative and diuretic.

In collaboration with Dr. C. Wagner, Dr. Loeper has been able to confirm this triple action, and they have also found that the intravenous use of hexamethylenamin can be applied advantageously in certain cases of pulmonary and visceral tuberculosis. They have noted a favorable effect on the fever, the toxemia and sepsis, and that its antipyretic action, while slow, is progressive, that it has sedative effects, and that depression is never caused, and, furthermore, it seems to reduce the toxic phenomena.

Saline Solutions in the Treatment of Gastro-Intestinal Atony

At a recent session of the Académie de médecine, Prof. Georges Hayem enumerated the excellent results he has had from the use of saline solutions in the treatment of gastro-intestinal disturbances. He gave two new formulas of saline solutions, taken from the analysis of the waters of Châtelguyon. One of these formulas contains 2.50 grams each of sodium chlorid and chlorid of magnesium crystals, and 2 grams of bicarbonate of soda per 1 liter of water. In the second formula the bicarbonate of soda is replaced by sulphate of soda, 3 to 5 grams. Hayem has used these solutions in the treatment of myasthenic dilatation of the stomach with or without marked muscular atrophy and absence of any mechanical obstacle to evacuation. In these cases, one generally observes a hypopeptic type and glandular atrophy more or less advanced. In a large number of these patients there is also present intestinal atrophy, which is favorably affected by the first of these solutions. If constipation persists, then the second solution may be used to good advantage.

Antimalaria Measures

The Lannelongue Institute of social hygiene, which, in spite of the war, has begun its work of social experimentation and sanitary education under the direction of Senator Paul Strauss, president, and Dr. Roux, vice president, has responded to the desire expressed by M. Brissac, director of the Assistance et de l'Hygiène publiques au ministère de l'intérieur, by organizing a series of practical conferences on the campaign against the mosquito and malaria. Thirty-five chefs de services sanitaires, professors, etc., have been sent to Paris by the prefects to attend these conferences held by two specialists, Drs. Mesnil and Roubaud of the Institut Pasteur, in the laboratories of that institution. These conferences will be terminated by a visit of research to the habitat of mosquito larvae and an examination of practical methods of extermination.

Disposition of Suspected Cases of Tuberculosis

Dr. Louis Mourier, sous-secrétaire militaire, has decreed that hereafter every soldier with known tuberculosis should not be kept at the posts or in general hospitals. They should be sent without delay to a sanatorium, except those presenting advanced lesions—cavities—who are to be treated in the isolation wards of hospitals not specializing.

All patients in whom pulmonary bacillosis is seriously suspected should be hospitalized in the *services de triage* after consultation with the medical chief of the medical sectors. The doubtful cases, of which many are not tuberculosis and the men are able to render service, will be subjected to observation by the physicians of the *dépôts*. Depending on their general conditions, these men will be kept at rest or employed with discrimination in the open air or in work compatible with the results of the medical observation to which they are subjected.

The American Red Cross

The American Red Cross, through its agent at Berne, Mr. Charles P. Dennett, has given to the Swiss Red Cross the

sum of 500,000 francs in recognition of the humanitarian work done by the Swiss on behalf of the interned allied soldiers, the civil repatriates and the *évadés* passing through Switzerland, and for the medical care and the welfare work which benefited the French, English, Italians, Serbs and others.

Mm. Ambroise Rendu and Poiry, vice presidents of the municipal council of Paris, extended the thanks of Paris to Mr. Beaty, president of the American Red Cross in France, for valuable assistance given to the *petits Parisiens à la campagne*, the work of providing country outings for Paris children.

In Memory of Pozzi

The city of Bergerac (department of the Dordogne), the native city of Professor Pozzi, has decided to name one of its principal streets in memory of the noted surgeon who died recently.

LONDON LETTER

LONDON, July 8, 1918.

Inter-Allied Food Commission

The arrival of experts representing the allies to consider the food problem was announced in a previous letter. It has been decided that the minimal food requirements of "the average man" (weighing 154 pounds) doing average work during eight hours a day represent an energy value of 3,300 calories daily. In case it should become impossible to supply this requisite amount of food, a reduction of 10 per cent. on the foregoing figure can be supported for some time without injury to health. The commission agreed to accept Lusk's figures as to the proportion of this amount to be assigned to women and to children of different ages. The following conclusions have been agreed on: 1. To state the weights of the various foods produced in each Allied country in metric tons. 2. It is not desirable to fix a minimal meat ration in view of the fact that no absolute physiologic need exists for meat, since the proteins of meat can be replaced by proteins of animal origin, such as those contained in milk, cheese and eggs, as well as by proteins of vegetable origin. The commission, on the other hand, resolved to fix a desirable minimal ration of fat—75 gm. per average man per day. The ration will be made up of (a) fats of vegetable origin and (b) fats of animal origin. If the amount of fats of vegetable origin are insufficient for this purpose, it may be necessary to maintain a certain stock of animals to furnish this fat. 3. The commission established the "man value," that is, the number of average men equivalent to the population of each of the Allied countries. This "man value" is taken as the basis for calculating the exact amount of food which must be provided for the adequate nourishment of the total population of each country. 4. The commission considered the estimates in tons of the home productions of the soil furnished by each Allied country for the year 1918-1919. These statistics will serve as a basis for determining the amount of food available for men and for animals, respectively, in each country. 5. Each delegation, in calculating the amount of calories available for men, should assign to men the maximal possible proportion of all cereals, except oats. 6. A uniform average milling extraction of 85 per cent. for wheat should be adopted throughout the Allied countries. This extraction may vary from 80 per cent. in summer to 90 per cent. in winter, and it can apply to the United States only as regards their internal consumption, and then only in case of scarcity. 7. The methods of reserving the maximal possible proportion of the cereal production for the use of man may vary in each country. Man should always take precedence over animals in the allocation of food. If this principle be accepted in the fixing of prices, it is the prices of animal products which should be limited, rather than those of such vegetable products of the soil as may serve equally well for feeding men and animals. Thus the production of veal, pork and poultry at the expense of food available for man should be discouraged, and this is best achieved by fixing a price for those animal products which will make it unprofitable for the producer to feed them on cereals. 8. The commission reserved for its next meeting the task of examining the figures which will enable it to determine the caloric value of the home production of each of the Allied countries. The determination of this figure, compared with the needs in calories of the population of each country will enable the commission to deduce the amount of imports necessary for the maintenance of the population or the exportable surplus, as the case may be. 9. In all the Allied countries, any propaganda, having for its object the encouragement of food production and of economy in the use of food, should be organized and directed by men of science well acquainted with the subject.

The Antituberculosis Campaign

Dr. F. N. Kay, Menzies, principal assistant health officer of the London County Council, speaking on the antituberculosis campaign in London, said that in England and Wales the disease killed 60,000 persons a year, and in London alone, 10,000 persons. The number of deaths, however, was less than half the number in the sixties. That was due not only to improved sanitation and nutrition, education regarding the infectious nature of the disease, and an improved milk supply, but also to the movement in London for the provision of special dispensaries and institutional treatment. In July, 1914, when the campaign was started, there were thirty beds in hospitals and sanatoriums for the treatment of children, and no beds for adults. The total accommodation at present was for about 1,000, namely, 800 for children and 200 for adults. Owing to the difficulty of providing fresh buildings, hundreds of discharged soldiers were waiting for treatment in sanatoriums. With regard to the future, considerable development was likely to take place in the provision of farm and garden colonies. There was also likely to be a great development in the segregation of advanced cases, and more open-air schools for children. Lastly, there was likely to be enormously improved conditions of houses and the removal of insanitary areas.

Improved Health of Trinitrotoluene Workers

The attention of the Minister of Munitions has been drawn to the great reduction that has recently occurred in the number of cases of poisoning among trinitrotoluene workers. In the six months, October, 1916, to March, 1917, there were 169 cases of serious illness, whereas in the corresponding six months of 1917-1918 there were forty-two cases; in April of this year, four cases, and in May, only one case. This result is due to close medical supervision of the workers, with improved methods of working, and the substitution of mechanical processes wherever possible. The minister, therefore, has decided that the factory medical officers, acting within their power under Rule 8 of the trinitrotoluene regulations, may permit continuous employment of persons on trinitrotoluene work. The effect of this will be a halving of the number of workers coming into actual contact with this explosive.

Baby Week

During the past week, meetings for the promotion of the health of babies, and lectures have been held all over the country. In London a mothercraft exhibition was opened by the dowager Lady Londonderry, and an address was given by Mr. Hayes Fisher, president of the Local Government Board. He had no doubt that we and our Allies would emerge triumphant from this war, but we must take care that we were well supplied with a healthy population for the future, and that the racial cradle gained a substantial victory over the racial coffin. Unless we did so, the waste places of the earth would not be peopled by our race, but by another race with a different language and ideals, a people lower in the ranks of civilization and Christianity. The birth rate everywhere was falling very heavily year by year, but we could comfort ourselves with this, that if we were producing fewer babies Germany was producing fewer still. Comparing the number of babies born in London in 1917 with the number born in Berlin (the population of London then being $4\frac{1}{2}$ millions, and that of Berlin a little over 2 millions), he said that London, although its birth rate was falling, produced four babies for one baby produced in Berlin. While Hamburg had the advantage over Liverpool in having a quarter of a million more population, in 1917 Liverpool produced two babies for every baby produced in Hamburg. Taking the whole of the principal English and German towns, he noted that, while our birth rate had fallen during the war, their birth rate had fallen much more. Infant mortality in the great towns of England in 1917 was 104 per thousand live births, and in England and Wales, 97. In Germany it was something about 30 per cent. greater than in England and Wales. In 1916 the infant mortality throughout England and Wales for all the urban areas was 95; in Germany it was 133. They must encourage all local authorities to set up maternity and infant centers. He never grudged money that was spent on looking after the health of the children, for children, after all, were the greatest asset of the nation. He was waiting for the passage of the maternity and child welfare bill which would enable local authorities to obtain grants from the government equal to those they made for the hospital treatment of children up to 5 years of age. Crèches and day nurseries would be set up.

The Influenza Pandemic

As stated in my last letter, the influenza pandemic which has prevailed in most of the countries of Europe is widespread in this country. But it is not of a severe type. The deaths in one week were only ninety-six. At Middlesbrough, eleven seamen have died on one ship and four on another from pneumonia following influenza. The staffs of many businesses have been seriously depleted, and schools have had to be closed. The medical profession has been affected in two ways. The amount of work to be done has enormously increased, and at the same time several of its members have been struck down. In consequence of the shortage already existing from the war, it has proved impossible in many cases to supply a locum tenens. Some evidence has been brought forward that the present epidemic, while clinically identical with influenza, is not that disease but is due to a different organism. Investigation of the exudate from the upper air passages have been made by some Canadian medical officers and described in the *Lancet*. The influenza bacillus was never found, but there was always present a gram-positive organism which they consider to be the cause. Of course it has long been recognized that attacks of so-called influenza are often due to organisms other than the influenza bacillus.

Marriages

LIEUT. SIMON LEWIS WRONKER, M. R. C., U. S. Army, Rochester, N. Y., on duty at the detention camp, Camp Sherman, Chillicothe, Ohio, to Miss Lillian Selma Leight of New York City, at Rochester, N. Y., July 21.

LIEUT. SIDNEY BALDWIN BELLINGER, M. R. C., U. S. Army, Council Bluffs, Iowa, on duty at Camp Greenleaf, Fort Oglethorpe, Ga., to Miss Ava C. Glenn of Council Bluffs, Iowa, July 19.

LIEUT. RAYMOND THORNTON POTTER, M. R. C., U. S. Army, Ellenville, N. Y., on duty at Fort Sam Houston, Texas, to Miss Margaret R. Smiley of Minnewaska, N. Y., July 23.

CAPT. WILLIAM DAVISON NAPHEYS, M. R. C., U. S. Army, Chicago, on duty with the American Expeditionary Forces, France, to Mrs. Alberta M. Finch of Chicago, recently.

LIEUT. RAYMOND COTTRELL HOOKER, M. R. C., U. S. Army, Richmond, Va., on duty at Camp Dix, N. J., to Miss Esther Maude Cheatham of Chesterfield County, Va., June 12.

LIEUT. WILLIAM LATANE VARN, M. R. C., U. S. Army, Cumberland, Va., on duty at Fort Oglethorpe, Ga., to Miss Eleanor Ford Digges of Richmond, Va., June 16.

CAPT. THOMAS NEWMAN DAVIS, M. R. C., U. S. Army, Lynchburg, Va., on duty at Camp Upton, N. Y., to Miss Mary Ely Lancaster of Richmond, Va., July 6.

ASST. SURG. TALMADGE BRYAN WEATHERLY, U. S. N. R. F., Richmond, Va., on duty at Quantico, Va., to Miss Ruby Clinkscales of Richmond, Va., July 6.

MAJOR FRANK KEENE TRAVERS WARRICK, M. R. C., U. S. Army, to Miss Beulah T. Pattison, both of Richmond, Va., in New York City, June 25.

LIEUT. SAMUEL HAROLD BOYD, M. R. C., U. S. Army, on duty at Camp Merritt, N. J., to Miss Bessie Mae Dutton, both of Philadelphia, July 16.

LIEUT. DEAN BALDWIN COLE, M. R. C., U. S. Army, Chilhowie, Va., to Miss Llewellyn Garland of Richmond, Va., June 29.

LIEUT. EDWARD TURNER AMES, M. R. C., U. S. Army, to Miss Ethel Miller Blanton, both of Richmond, Va., June 29.

LIEUT. EDWIN PAUL KENNEDY, M. R. C., U. S. Army, Cleveland, to Miss Miriam Tyler of Richmond, Va., July 4.

WILLIAM THOMAS RAINEY, Badin, N. C., to Miss Merle Louise Weaver of Greensboro, S. C., June 27.

ODD ECKFELT, Kwangchow, Honan, China, to Miss Alice May Sowerby of Peking, China, May 21.

HOMER AUSTIN STROUP to Miss Anna Jones, both of Artesia, N. M., at Albuquerque, N. M., July 13.

CHARLES HENRY BURKE, Algona, Iowa, to Miss Jeannette Grissel of Davenport, Iowa, July 17.

ALEXANDER C. CIRKLER to Miss Irene Robinson, both of Minneapolis, in Chicago, July 25.

CAREY E. WAMSLEY to Miss Stella Goetze, both of Newport, Ky., July 10.

Deaths

Christopher Tompkins, Richmond, Va.; Medical College of Virginia, Richmond, 1870; aged 70; at one time a Fellow of the American Medical Association; one of the founders and an honorary member of the Medical Society of Virginia; for six terms president of the Southern Medical College Association; deputy coroner of Richmond for two years; for many years secretary and treasurer of the Richmond Academy of Medicine; chief of the Richmond City Dispensary; lecturer on materia medica and therapeutics; assistant surgeon in obstetrics; professor of anatomy from 1880 to 1884; professor of obstetrics from 1884 to 1899, thereafter emeritus professor of obstetrics; and since 1893 dean of the faculty of his alma mater; a distinguished obstetrician; major and surgeon of the Fourth Battalion Artillery, Virginia Volunteers; died suddenly at his home, July 20.

George Edward Fell, Chicago; University of Buffalo, 1882; aged 68; a Fellow of the American Medical Association; who was the first to save human lives by means of mechanical respiration, thirty-one years ago, as the result of experiments on animals which he conducted when professor of physiology in his alma mater; who also conducted the scientific experiments which resulted in 1890 in the construction of the electric chair for use in capital punishment, and whose most recent invention was an apparatus whereby an individual may remain under water a considerable time without danger; one of the founders and at one time president of the American Microscopical Society; a Fellow of the Royal Microscopical Society of England; died at his home, July 29, from dilatation of the heart.

Thomas Neptune Gray, East Orange, N. J.; College of Physicians and Surgeons in the City of New York, 1879; aged 65; a Fellow of the American Medical Association; recording secretary of the Medical Society of New Jersey; president of the New Jersey Academy of Medicine, and vice president of the New Jersey Pediatric Society; one of the founders and once editor of the *East Orange Gazette*; a specialist in tuberculosis, and diseases of children; chief of the bureau of tuberculosis of Newark, N. J.; city physician of East Orange for several years; died at his home, July 22, from cerebral hemorrhage.

Lucien Lofton, Richmond, Va.; Southern Medical College, Atlanta, Ga., 1894; aged 46; a member of the Medical Society of Virginia; formerly president of the Virginia Coroners' Association; secretary of the Virginia Public Health Association, and president of the Seaboard Medical Association of Virginia and North Carolina, and Southside Medical Association; medical inspector of the Richmond Health Department; formerly local surgeon to the Seaboard Air Line, Southern Railway, and Atlantic Coast Line; coroner and health officer of Greensville County; died at his home, July 21, from cerebral hemorrhage.

Medical Inspector Walter Scott Hoen, Lieutenant Commander, U. S. Navy, Washington, D. C.; University of Virginia, Charlottesville, 1902; aged 40; a Fellow of the American Medical Association; who was appointed to the Navy, June 2, 1903, and was on duty with the First Provisional Brigade, United States Marine Corps, at Port au Prince, Haiti; died in that place, recently, from angina pectoris.

Howard A. Brown, Carroll, Iowa; Starling Medical College, Columbus, Ohio, 1875; aged 64; a Fellow of the American Medical Association, and once president of the Fairfield County Medical Society; for several terms a member of the village council and president of the local school board; who underwent operation for appendicitis at the Protestant Hospital, Columbus, June 29, died at his home, July 13.

James Henry Stuart, Boston, New York University, New York City, 1880; aged 67; at one time a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; treasurer of the New England Alumni of New York University; died at his home, July 17, from cerebral hemorrhage.

Enoch Pink Lawrence, Flushing, L. I., N. Y.; New York University, New York, 1880; aged 62; a Fellow of the American Medical Association; consulting physician to Flushing and St. John's hospitals, Long Island City, and physician-in-charge of St. Joseph's Orphanage; died at his home, July 26, from endocarditis.

Walter Anson Lee, Sheridan, Mich.; Keokuk Medical College, College of Physicians and Surgeons, Keokuk, Iowa, 1904; aged 64; at one time a Fellow of the American Medical

Association; a member of the Michigan State Medical Society; died at his home, July 13, from malignant disease.

Joseph Carpenter Clark, Olean, N. Y.; New York University, New York City, 1885; aged 69; formerly a member of the Medical Society of the State of New York; surgeon in charge of the Olean (N. Y.) Hospital since 1889; died, July 22, at the home of his wife's mother in Buffalo.

Bartony T. McClure, McCurtain, Okla.; Memphis (Tenn.) Hospital, Medical College, 1892; aged 44; at one time a Fellow of the American Medical Association; died at his home, July 22, from a gunshot wound of the head, self-inflicted, it is believed, with suicidal intent.

Mary Dugan Ardery, Garden City, Kan.; Keokuk (Iowa) Medical College, 1891; aged 76; formerly a member of the Kansas Medical Society; who retired from practice several years ago on account of paralysis; died at the home of her daughter in Garden City, July 23.

Chesley Lanier Carter, Chatham, Va.; University College of Medicine, Richmond, Va., 1903; aged 40; at one time a Fellow of the American Medical Association; a member of the Medical Society of Virginia; died at his home, July 11, from nephritis.

Thomas S. Hawley, St. Louis; Washington University, St. Louis, 1861; aged 81; at one time a Fellow of the American Medical Association; surgeon of the Eleventh Missouri Volunteer Infantry during the Civil War; died at his home, July 25.

John Monroe Craig, Washington, D. C.; Medical College of Ohio, Cincinnati, 1866; aged 73; for three years president of the Crawford County (Ind.) Medical Society; died in the hospital of the National Soldiers' Home, Washington, D. C., July 23.

David W. Bright, Lewisville, Ark.; Kentucky School of Medicine, Louisville, 1877; aged 63; at one time a Fellow of the American Medical Association; president of the Lafayette County Medical Society in 1913; died at his home, July 22.

Thomas F. Frere, Franklin, La.; Tulane University, New Orleans, 1892; at one time a member of the Louisiana State Medical Association; also a druggist; postmaster of Franklin; died at his home, July 15, from heart disease.

Francis Edwin Whitley, Webster City, Iowa; Rush Medical College, 1881; aged 61; a Fellow of the American Medical Association; died at the home of his daughter at Fort Dodge, Iowa, July 25, from heat prostration.

William Henry Watson, Decatur, Ala.; University of Louisville, Ky., 1894; at one time a Fellow of the American Medical Association; a member of the Medical Association of the State of Alabama; died at his home, July 4.

Samuel Orr Loughridge, Peoria, Ill.; Jefferson Medical College, 1866; College of Physicians and Surgeons in the City of New York, 1870; aged 79; died at the home of his son, at Germantown, Philadelphia, July 21.

Carl Elton Phelps, Los Angeles; University of Southern California, Los Angeles, 1906; aged 40; died at his home, July 15, from the effects of poison, self-administered, it is believed, with suicidal intent.

Charles Walton Sanders, New York City; College of Physicians and Surgeons in the City of New York, 1878; aged 71; a member of the Medical Society of the State of New York; died at his home, July 22.

Alfred Kane Follett, Granville, Ohio; Starling Medical College, Columbus, Ohio, 1882; aged 60; while working on his farm near Granville, July 23, was struck by lightning and instantly killed.

Frederick Rowland Marvin, Albany, N. Y.; College of Physicians and Surgeons in the City of New York, 1870; aged 70; well known as a writer and clergyman; died at his home, July 22.

Ruth A. Young, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1918; aged 32; died in the Woman's College Hospital, July 20, after a surgical operation.

John Huntington, Starbuck, Wash.; University of Oregon, Portland, 1891; aged 67; at one time a member of the Washington State Medical Association; died at his home, July 14.

S. B. Emerson, Port Washington, Ohio; Medical College of Ohio, Cincinnati, 1869; aged 75; died at the home of his sister in Cleveland, July 6, from disease of the intestine.

George Calder, Claysville, Pa.; Eclectic Medical College of Pennsylvania, Philadelphia, 1870; aged 83; died at the home of his daughter in Washington, Pa., July 27.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY, AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

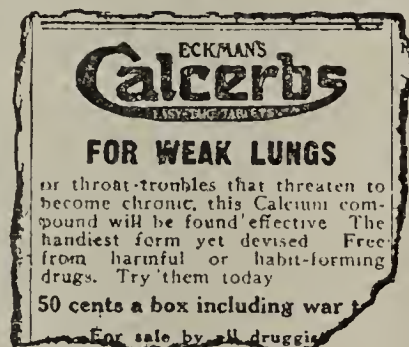
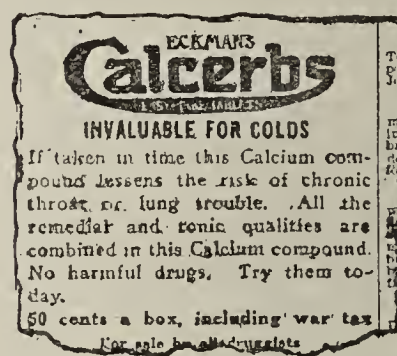
ECKMAN'S CALCERBS

"Eckman's Calcerbs" is put out by the same concern as that which exploits "Eckman's Alterative" and is advertised for the same conditions. "Eckman's Alterative," as some of our readers will remember, was an alleged consumption cure which the A. M. A. chemists found to be essentially a mixture of alcohol, calcium chlorid and cloves, and which was sold under such claims as:

"A medicine made for the cure of tuberculosis. It has cured this disease again and again."

"Cures have been effected . . . where no intelligent care was taken of the patient, where money was scarce; good food and good cooking unusual."

In due time the federal authorities got around to this nostrum, declaring that the curative claims made for it were false, fraudulent and misleading. The government charged that, while Eckman's Alterative was sold as a preventive for pneumonia "in truth and in fact said article of drugs could not be so used" and that while the manufacturers claimed that it would cure tuberculosis "in truth and in fact said article of drugs would not cure tuberculosis or consumption." The courts sustained the government's



Typical advertisements of Eckman's Calcerbs.

contention and condemned the product, whereupon the Eckman concern carried the case up to the Supreme Court of the United States and attacked the constitutionality of the Sherley Amendment of the Food and Drugs Act. The Sherley Amendment prohibits false and fraudulent therapeutic claims. Fortunately, the United States Supreme Court upheld the lower court. In answering the contention of the Eckman concern that Congress had no right to "prevent a person from making statements or claims concerning the virtue of drugs, whether modest or extravagant" the Supreme Court said:

"We find no ground for saying that Congress may not condemn interstate transportation of swindling preparations designed to cheat credulous sufferers and make such preparations, accompanied by false and fraudulent statements, illicit with respect to interstate commerce, as well as, for example, lottery tickets."

So much for the "Alterative." "Calcerbs" are not frankly sold as a "cure for consumption"; yet as an appeal to the consumptive "Calcerbs for weak lungs" is, doubtless, just as alluring and just as potentially dangerous.

"If taken in time this calcium compound lessens the risk of chronic throat or lung trouble."

"All the remedial and tonic qualities are combined in this calcium compound."

The purchaser of Calcerbs learns, from the leaflet that accompanies the preparation, that it is for the treatment of "Coughs and Colds, Asthmatic, Catarrhal and Pulmonary Troubles, Weak Lungs, and as a Tonic." One page of the leaflet consists of what purport to be "Some Interesting Comments on Calcium (Lime) Treatment." The "comments" are quotations from various medical journals regarding the

therapeutic value of calcium salts. Of course no comments of an unfavorable character are quoted.

Because of the number of inquiries regarding Calcerbs the Association's chemical laboratory was asked to analyze this product. The report follows:

LABORATORY REPORT ON CALCERBS

"Three original boxes of 'Calcerbs' were purchased on the open market by the Chemical Laboratory. Within the box of tin, sealed by means of adhesive tape, was a waxed-paper bag, containing forty white-coated tablets. The average weight of each tablet was 0.83 gm. (12.9 grains). Test indicated that the tablets contained approximately 20 per cent. of calcium chlorid, the hygroscopicity of which explains the use of a tightly protected package in order to exclude moisture. The tablets were also found to contain calcium carbonate, an emodin-bearing (laxative) drug such as aloin, with sugar and a flavoring of cloves. No iodids, alkaloids or heavy metals were found."

It is not necessary to tell physicians that "Calcerbs" are just as impotent to cure tuberculosis as is "Eckman's Alterative." As THE JOURNAL has so many times said, the fundamental viciousness of "consumption cures" lies not so much in the valuelessness of their composition as in the fact that their advertisement leads sufferers to abandon or ignore the hygienic and dietetic measures which hold the only hope. That some physicians have recommended calcium salts in pulmonary tuberculosis, based on the unproved supposition that consumption is due to lime deficiency, is no excuse for a "patent medicine" concern putting out calcium chlorid either in liquid or tablet form under thinly veiled claims that will lead the public to infer that the preparations will cure consumption.

KATHARMON

Report of the Council on Pharmacy and Chemistry

Following inquiries, the Council took up "Katharmon" for consideration and authorized publication of the following report.

W. A. PUCKNER, Secretary.

The Katharmon Chemical Company of St. Louis in advertising its Katharmon appeals especially to a profession whose members, should they live up to their ethical code, could not prescribe it.¹ In 1893 (when the publication of "a formula" for proprietary preparations was thought to satisfy the requirements of scientific medicine) an advertisement in THE JOURNAL of the American Medical Association gave the following "formula" for Katharmon:

"Hydrastis Canadensis, Phytolacca Decandra, Acid Salicylic C. P. (from Oil of Wintergreen), Acid Boric C. P., Mentha Arvensis, Thymus Vulgaris, Dist. Ext. Hamamelis Virg. Conc."

In 1907 an advertisement in the *Kansas City Medical Index-Lancet* declared that:

"Katharmon represents in chemical combination the active principles of Hydrastis Canadensis, Gaultheria Procumbens, Hamamelis Virginica, Phytolacca Decandra, Mentha Arvensis, Thymus Vulgaris, with two grains C. P. Boric Acid to each fluid drachm."

Now the advertisements which appear in some medical journals state:

"KATHARMON represents in combination Hydrastis Canadensis, Thymus Vulgaris Mentha Arvensis, Phytolacca Decandra, 10½ grains Acid Borosalicilic, 24 grains Sodium Pyroborate to each fluid ounce of Pure Distilled Extract of Witch Hazel."

A comparison of these so-called formulas shows that they have not only varied from time to time, but that in no instance was a quantitative statement with regard to all the asserted ingredients given.

The Chemical Laboratory of the A. M. A. reports: Katharmon has an alkaline reaction and therefore cannot contain boric acid, salicylic acid or "borosalicilic acid" (the latter is unknown to medical literature except as loosely applied to a simple mixture of boric and salicylic acids). The solution gives tests for sodium, borate, and salicylate and therefore probably contains sodium borate and sodium salicylate. Examined by the methods used for the determination of

hydrastin in goldenseal preparations, a residue giving only a faint test for alkaloid was obtained; if present at all, hydrastis canadensis (goldenseal) is there only in very small amounts.

A circular wrapped with the trade package of Katharmon contained the following, palpably unwarranted, claims:

"INTERNALLY it is very useful in acute indigestion, Gastric Catarrh, Diarrhoea and Cholera Infantum."

". . . it has demonstrated its remarkable curative effects, not only in preventing unhealthy conditions of fresh wounds, but also in correcting the decaying of putrefactive processes peculiar to the body under certain circumstances. It has, further, a remarkable efficacy in surface inflammations, whether produced by accident or disease, and is an indispensable remedy in the affections of the mucous membranes of the nose, mouth, stomach, bowels, vagina, uterus, urethra, bladder and rectum."

Katharmon is in conflict with Rules 1 and 4 of the Council on Pharmacy and Chemistry because of its indefinite and secret composition and the method of advertising it indirectly to the public; it is in conflict with Rules 10, 6 and 8, in that it is an irrational shotgun mixture sold under unwarranted therapeutic claims and under a name nondescriptive of its composition.

Correspondence

"PREOPERATIVE PURGATION"

To the Editor:—The contribution made to this subject by Peet (THE JOURNAL, July 20, 1918, p. 175) and the subsequent editorial (July 27, p. 283) are quite in line with what I have been teaching for some years. When I was working out the principles of the fourth era of surgery, the physiologic era, in which the patient is to be left as largely as possible to his own resources, it became apparent that the purging of a patient in advance of operation had no good philosophy behind it, as a rule. Furthermore, the patient suffered a certain amount of loss of water and resistance as a result of the purgation.

It was observed that patients brought in from the street with some accident bore operative procedure quite as well as ones who had been given the so-called advantage of preliminary treatment. The ergo in the case left me with the deduction that we might better leave the patient in a normal condition as far as possible when making preparation for operation. I have made an exception to the rule in cases wherein patients were habitually constipated, but have given orders simply to make sure of a fair bowel movement without the application of depleting measures. Furthermore, a cup of tea or coffee in advance of the operation sometimes gives the patient a feeling of resistance which does not belong to an empty stomach.

ROBERT T. MORRIS, M.D., New York.

IMPORTANCE OF ATTENTION TO UPPER RESPIRATORY TRACT IN ACUTE OTITIS MEDIA

To the Editor:—In Society Proceedings, THE JOURNAL, July 27, 1918, p. 307, in a report of the Lenox meeting of the American Pediatric Society, there is an abstract of a paper by Dr. Thomas S. Southworth of New York entitled "Are the Present Frequency of Acute Otitis Media and the Subsequent Mastoid Operation in Some Measure a Reproach to Pediatrics?" Accompanying it is an abstract of a discussion by eight well known pediatricians. The paper, with the discussion, is apparently intended to cover, in a general way, the prevention and treatment of acute middle ear inflammation and the prevention of mastoid involvement.

I am pained beyond expression to observe that, so far as these abstracts are concerned, there is not a single instance of the mention of the most important consideration in the care and prevention of these cases, which is careful attention to the upper respiratory tract, with especial reference to nasal and postnasal obstruction and infected and diseased tonsils.

It may be taken for granted, of course, that every one of these nine gentlemen is thoroughly familiar with this fact;

1. ". . . it is equally unethical to prescribe or dispense secret medicines or other secret remedial agents, . . ." Sec. 6, Art. I, Chapter II, *Principles of Medical Ethics*.

but it is strange that not one even mentioned it, according to the general abstracts. I mention the matter merely because I believe this is one of the most important subjects in pediatrics, and I think it would be unfortunate, indeed, if the profession as a whole, in reading a report of this kind, should be unconsciously led into minimizing a point in the care and prevention of these cases which I believe to be paramount.

J. W. JERVEY, M.D., Greenville, S. C.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

MENTAL HYGIENE SOCIETIES AND INSTITUTIONS

To the Editor:—The Division of Mental Defect and Delinquency, State Board of Charities, State of New York, has been anxious to perfect its mailing list and finds that it is unable to locate the name, title and address of the individual or commission at the head of the Problem of Mental Defect in each state in the United States. Does such a list exist, and if so, do you know where we can find it? Any information given us along this line will be greatly appreciated, as we wish to send such individuals or commissions information and other bulletins relative to the problem of the care and treatment of mental defectives and wish our work to be placed where it will be most appreciated.

CHESTER L. CARLISLE, M.D., New York.

Superintendent, Division of Mental Defect and Delinquency.

ANSWER.—In "Mental Hygiene," published by the National Committee for Mental Hygiene, 50 Union Square, New York, in the issue for January, 1918, there is a "Directory of Societies and Committees for Mental Hygiene." In the same journal for January, 1917, in connection with an article by W. E. Fernald, there is a "List of Public Institutions for the Feeble-minded and the Epileptics in the United States."

MAMMALA

To the Editor:—Have you on record the contents of a so-called dry milk, "Mammala," put on the market by the Mammala Company, 120 Liberty Street, New York? On the label the analysis is given as proteids, 24 per cent.; butter fat, 12 per cent.; milk sugar, 54 per cent.; milk salts, 5 per cent., and moisture, 5 per cent.

Can you let me know whether this is approximately correct?

M. HOWARD FUSSELL, M.D., Philadelphia.

ANSWER.—Mammala is a dried milk powder manufactured by the Mammala Corporation. It may be considered as a partly skimmed milk, dried by a patented process, to which lactose (milk sugar) is added to make up for the deficient food units caused by the partial removal of the cream.

The Connecticut Agricultural Station has recently analyzed Mammala, with these results:

	(Basis 12% Solids) Calc.		(Basis 12% Solids) Calc.	
	Declared Ounces Per Cent.	Found Ounces Per Cent.	Declared Ounces Per Cent.	Found Ounces Per Cent.
Net weight	12.33	12.75	12.33	12.75
Protein (N×6.38)	24.00	3.03	25.78	3.22
Fat	12.00	1.51	14.52	1.82
Ash	5.00	0.63	5.75	0.72
Lactose	54.00	6.83	49.90	6.24
Moisture	5.00	88.00	4.05	88.00
Starch	None		None	
Sucrose	None		None	

"The product exceeds the claim in protein, fat and ash. It is somewhat lower than the claim in lactose and moisture.

"Reduced to a basis comparable with cow's milk, 12 per cent. solids, it appears that the protein and ash are normal, the fat low and the milk sugar high. In other words, the claims as regards the composition are substantiated."

GOETSCH TEST FOR HYPERTHYROIDISM

To the Editor:—Can you give me details of a test for hyperthyroidism by the use of epinephrin hypodermically in conjunction with blood pressure? I think it is called by some such name as "Gatz" or "Levy Gatz" test.

HOWARD S. ALLEN, M.D., Woodbury, Conn.

ANSWER.—The test referred to is that called "skin reaction of Goetsch." Eight minims of a 1:1,000 solution of epinephrin are diluted with an equal quantity of sterile water and injected hypodermically into the arm. Immediately there is formed

an area of blanching around the point of injection, and about the margin of this usually a red areola gradually shading off into the surrounding tissue. In about half an hour the center of the white area becomes bluish gray to lavender, and at the end of about one and a half to two hours the red areola takes on the bluish or lavender color, while that in the center disappears. This lavender areola remains for about four hours from the time of injection and is the most characteristic part of the test. Accompanying the local reaction may be increase in pulse rate with palpitation of the heart and an exaggeration of the tremor and nervous symptoms in general.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.
HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.
IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
MASSACHUSETTS: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.

Oklahoma April Examination

Dr. J. J. Williams, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Oklahoma City, April 9-10, 1918. The examination covered 18 subjects and included 130 questions. An average of 70 per cent. was required to pass. Of the 19 candidates examined, 18, including 2 osteopaths, passed, and 1, an osteopath, failed. Sixteen candidates were licensed through reciprocity, and 5 candidates were granted osteopathic reciprocity licenses. Eight candidates, including 1 nongraduate, were granted reregistration licenses. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Northwestern University	(1906)	87	
University of Michigan Homeo. Med. School	(1901)	91	
University of Oklahoma (1918)	86, 87, 87, 87, 88, 88, 88, 89, 89, 90, 90, 91, 93.		
Meharry Medical College	(1917)	84	

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Arkansas Industrial University	(1897)	Arkansas	
University of Arkansas (1905) (1910) (1911) (1915)	(1917)	Arkansas	
Atlanta College of Physicians and Surgeons	(1913)	Georgia	
Kentucky School of Medicine of Louisville	(1893)	Missouri	
	(1894)	Kentucky	
Lincoln Medical College	(1902)	Nebraska	
University of Nebraska	(1916)	Nebraska	
Eclectic Medical Institute	(1898)	Tennessee	
Ohio Medical University	(1901)	Ohio	
University of Nashville	(1909)	Mississippi	
University of Tennessee	(1885)	Kentucky	
Southern Methodist University	(1913)	Texas	

Arkansas May Examination

Dr. T. J. Stout, secretary of the Arkansas Board of Medical Examiners, reports the written examination held at Little Rock, May 14-15, 1918. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Of the 40 candidates examined, 38 passed and 2 failed. Five candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
College of Physicians and Surg., Little Rock	(1909)		1
University of Arkansas	(1906) (1918, 20)		21
Atlanta School of Medicine	(1908)		1
Tulane University	(1915)		1
St. Louis University	(1918)		1
Meharry Medical College	(1918)		5
Memphis Hospital Medical College	(1899) (1903) (1912)		3
University of Tennessee	(1917) (1918, 3)		4
Vanderbilt University	(1890)		1

College	FAILED	Year Grad.	Reciprocity with
University of Arkansas	(1912)		1
Meharry Medical College	(1917)		1

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Tulane University	(1917)		Louisiana
Woman's Medical College of Pennsylvania	(1916)		Penna.
Meharry Medical College	(1917)		Tennessee
Memphis Hospital Medical College	(1913)		Texas
University of Tennessee	(1916)		Mississippi

Book Notices

AUTOINTOXICATION OR INTESTINAL TOXEMIA. By J. H. Kellogg, M.D., LL.D., F.A.C.S., Medical Director of the Battle Creek Sanitarium. Cloth. Price, \$2.50. Pp. 342, with illustrations. Battle Creek, Michigan: The Modern Medicine Publishing Co., 1918.

This book begins with a discussion of the effect of bacteria on the body, their methods of propagation in the body, and the body's defense against them, following which is a discussion of the effect that various toxins developed in the intestine have on the body functions, and of methods of determining for examination of the feces the extent of damage being done. The treatment of these conditions and the changing of the intestinal flora is chiefly dietary and is discussed under the headings of "milk regimen, fruit regimen, fasting regimen," the antitoxic diet, and accessory treatment which includes chiefly massage, exercise and baths. In the milk regimen, the author advises the taking of large quantities of milk. He gives the milk at twenty-four feedings every half hour from 7 a. m. to 7:30 p. m. The amount depends on the capacity of the patient, varying from 3 to 6 quarts a day. It is taken in a definite quantity at a definite time, at alternate feedings, sour milk or that fermented by the Bulgarian bacillus being given. At two feedings, fresh fruit is given. Four times a day, bran and paraffin are given. The author believes that the normal human being should have three bowel movements a day at regular hours in order not to be constipated. This is achieved through the diet described.

Following the discussion of the milk regimen, he considers its application to various diseases in which he regards it especially beneficial. With the fruit regimen, the patient takes four meals a day of any kind of fresh fruit, 1 ounce of bran and 1 ounce of paraffin oil, better called liquid petrolatum. If the patient desires, a mixture of equal parts of oatmeal, cornmeal and sterilized bran may be made into a porridge and taken twice a day; if this cannot be taken, agar-agar may be used instead. The author then considers the conditions in which this diet is especially beneficial. The closing chapter is devoted to the subject of milk. It is entitled "Milk the Most Remarkable of Foods," and is in reality the best thought with which to leave the reader of the book. It is quite likely that in the proper cases, the methods advocated by Dr. Kellogg if correctly carried out will result satisfactorily.

The first sections of the book up to the beginning of the discussion on milk regimen are subject to the criticism that they are a little too technical for the average layman and not sufficiently technical for the average physician. Physicians who know of the work at Battle Creek and of the methods used by Dr. Kellogg will realize that these methods are peculiarly sanatorium methods and possibly will not be equally adaptable to general practice.

CHEMICAL PATHOLOGY. Being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. Gideon Wells, Ph.D., M.D., Professor of Pathology in the University of Chicago. Third edition. Cloth. Price, \$4.25 net. Pp. 707. Philadelphia: W. B. Saunders Company, 1918.

It is now three years since the second edition of this valuable book was issued; but in spite of the war the study of the chemical problem of disease has been so active that the additions to our knowledge made it necessary to reprint the book. The chapters on gout, immunologic specificness, anaphylaxis, icterus, acidosis, diabetes and uremia have been rewritten practically altogether, and new chapters or sections have been added on the Abderhalden reaction, chemical basis of growth, atrophy and the pressor basis. While the more recent publications of certain foreign countries have not been accessible, abstracts of most of them have been, so that it is fair to say that all or nearly all of the important literature concerned has been laid under contribution. The presentation is clear, logical and scholarly, and a judicial attitude is maintained throughout. As in previous editions, references are made to the more important publications bearing on the subjects discussed; hence the book is a reliable guide to the

literature. The amount of industry bestowed on this work is very great indeed, and the result is a book the place of which can be taken by no other book in the English or any other language if one is seeking for a clear, competent and complete discussion of chemical pathology.

THE PRINCIPLES OF HYGIENE. A Practical Manual for Students, Physicians and Health Officers. By D. H. Bergey, A.M. M.D., Dr.P.H., Assistant Professor of Hygiene and Bacteriology, University of Pennsylvania. Sixth edition. Cloth. Price, \$3.50 net. Pp. 543, with 63 illustrations. Philadelphia: W. B. Saunders Company, 1918.

The sixth edition of this well known manual continues to embody the features that have recommended it since its first publication. It is always difficult in such a work to keep the pages abreast of current progress. We note (page 117) that the discussion of the New York water supply is somewhat antiquated, no reference being made to the new Catskill system. Again we find (page 125) that the continuous process of sand filtration is said to be in use at Hamburg, although it has been many years since that city resorted to ground water sources. The latest report of the Committee of the American Public Health Association on Standard Methods of Water Examination does not seem to have been consulted in formulating the discussion of bacterial examination of water on pages 148 and 149. The paragraphs on Rocky Mountain spotted fever (pages 416-418) are quite out of date. A few instances of careless diction may be noted, although in general the author's meaning is clear and his treatment concise. On page 323 we note a curious use of *lazareth helper* in place of the common English equivalent. A more thorough revision of the whole work would increase its usefulness.

MODERN UROLOGY IN ORIGINAL CONTRIBUTIONS BY AMERICAN AUTHORS. Edited by Hugh Cabot, M.D., F.A.C.S., Chief of the Genito-Urinary Department of the Massachusetts General Hospital. Volume I, General Considerations—Diseases of Penis and Urethra—Diseases of Scrotum and Testicle—Diseases of Prostate and Seminal Vesicles. Pp. 744, with 375 illustrations. Volume II. Diseases of the Bladder—Diseases of the Ureter—Diseases of the Kidney. Pp. 708, with 274 illustrations. Cloth. Price, \$14. Philadelphia: Lea & Febiger, 1918.

These two volumes will be found useful and valuable as a standard reference work on the subject of urology. One only needs to look over the list of contributors to know that each subject is covered by an authority. It lacks the smoothness found in a work by a single author, but this is necessarily unavoidable in a correlated set of monographs. For this reason it is most valuable as a reference work for those interested in urology, and not as a textbook for the student. The numerous engravings and plates are very instructive, and the bibliographies at the end of each chapter are extremely useful. In the preface the editor calls attention to the importance and rapid advancement of urology, and states that this specialty stands today in America, at least on a par with the position it has made for itself abroad. One can safely state that the work accomplishes its intention, namely, that "it gives articular expression to American urology."

SURGEON GROW, AN AMERICAN IN THE RUSSIAN FIGHTING. By Malcolm C. Grow. Cloth. Price, \$1.50 net. Pp. 304, with illustrations. New York: Frederick A. Stokes Company, 1918.

Dr. Malcolm C. Grow went to Russia in 1915 to work for the Red Cross. He became a lieutenant-colonel [corresponding in rank to major in our army] in the medical department of the Russian army, and was christened in true Russian style Malcolm Alvaovitch Grow. He is now a major in our own Medical Reserve Corps. Dr. Grow's book is not a description of medical organization or a treatise on the care of the wounded; it is a thrilling account of adventure, of attack and retreat, of betrayal through German intrigue, of the spirit of a simple and long suffering peasant people under most adverse conditions. At the same time trench conditions are pictured with much of what Irvin Cobb calls "the essence of the trenches," a rather grim, yet high-spirited humor. Dr. Grow was several times wounded, and received the medal of St. George from the hands of the Grand Duke. While the book was not written especially for them, physicians will find this experience of a surgeon in Russia of special interest at the present time.

Medicolegal

Liability Under Agreement to Cure

(*Frankel v. Wolper* (N. Y.), 169 N. Y. Supp. 15)

The Supreme Court of New York, Appellate Division, Second Department, affirms a judgment dismissing the complaint in this case on the ground that it did not declare on contract, but was for malpractice and was on that account barred by a statute of limitations, whether the cause of action arose from lack of requisite skill or negligent exercise of it. The complaint alleged in effect representations by the defendant of skill and carefulness in his calling; the plaintiff's reliance thereon in entering into a contract with the defendant "to attend to and cure her of" her malady; that in violation of the contract the defendant used neither the agreed care and diligence in the exercise of his skill and application of his learning in treating the plaintiff, nor his best judgment, nor the approved methods, and lanced the plaintiff's affected breast dilatorily and improperly, improperly drained it, made too frequent changes of bandages, and did not properly sterilize the bandages and instruments, etc., and it might be inferred from the complaint that the plaintiff's physical condition was affected permanently (1) by the defendant's negligent treatment; (2) by operations by others, necessitated by the defendant's failure to cure her; (3) by the continuance of her malady, and that she had expended sums of money in endeavoring to be cured.

The defendant, the court says, would not be liable on his agreement to cure for the plaintiff's pains and disability resulting from the conditions to be cured, nor for pains and disabilities caused by the defendant's ignorance or lack of skill, nor for pains and disabilities caused by subsequent operations to cure her of her malady, or to avert the consequences of the defendant's lack of skill or failure to perform his contract, nor expenses to alleviate any such pains and disabilities. The contract to cure was not that the defendant would, on failure, pay the damages resulting from her malady continuing, or for the results of his lack of skill or ignorance, or for the physical consequences of treatment by other physicians necessitated by her condition. The thing he undertook was to cure her. That did, indeed, involve the elimination of the condition that begot suffering and disability. But a physician cannot be held responsible for suffering from a cause which he agrees to end, but does not, unless he is guilty of malpractice. He must have skill, care and judgment, and use them; and if he fail to use them, and pain results therefrom, whether there be or not ultimate cure, he is liable. That culpability results from the duty the law attaches to the undertaking.

The court would say, also, that where a physician, with whatever prudence, agrees that his treatment will cure, and it does not, the patient is absolved from payment, may recover advances, may recover expenditures necessitated for nurses and medicines, and maybe for something else. But such were not the damages stated here. If the complaint otherwise permitted a conclusion that the action was on contract, the misstatement of damages need not disturb it. But here the damages alleged were unsuited to an action on contract, and helped to characterize the complaint as one for malpractice and negligence.

Valid Resolution to Enforce Vaccination

(*Staffei et al. v. San Antonio School Board of Education et al.* (Tex.), 201 S. W. R. 413)

The Court of Civil Appeals of Texas upholds, by affirming a decree that denied the plaintiffs a temporary injunction against the enforcement of, that portion of a resolution of the board of education which instructed the superintendents and teachers of the schools of the San Antonio independent school district to refuse admission to the schools of said district, and to prevent further attendance thereat, of children not complying with the vaccination ordinance of the city of San

Antonio. The particular part of the city vaccination ordinance referred to was:

No child or other person shall be permitted to attend any of the public schools, or any place of education within this city, unless such child or other person shall first present a certificate from some duly qualified physician to the city physician that such child or other person has been successfully vaccinated within six years preceding the time at which such child or other person desires to attend school.

The court holds that the resolution was authorized by the San Antonio independent school district charter, which provided that the management and control of the said school district should be vested in nine trustees, who should be called the San Antonio board of education, and, in another section, said, "The board shall establish, manage and control all public free schools within said district." By these charter provisions the legislature, so far as it could, delegated to the San Antonio board of education the authority to control and manage the public schools in San Antonio. The words "manage and control" conferred the authority on the board to prescribe rules by resolution for the qualifications of children for admission into the San Antonio public free schools. This authority to prescribe the qualifications included the authority to prescribe vaccination as a condition precedent, provided, of course, the requirement was not unreasonable. Nor was that charter provision rendered ineffective by the constitutional guaranty that no citizen of the state should be deprived of privileges except by the due course of the law of the land.

The board of education by its resolution did not undertake or intend to compel the children to be vaccinated. It claimed no such power. The board undertook only to control the schools under its jurisdiction. The resolution did not prevent the children from attending the schools; it was their own consciences, beliefs and convictions that did. Furthermore, the privilege of having children admitted to the public free schools is a creation of the statute, and can be changed by statute.

The argument that the resolution of the board excluded the unvaccinated children from the public free schools in San Antonio and subjected them and their parents to the pains and penalties of the compulsory education law had no bearing on the case before the court, and would not be discussed further than to reply that the control of the schools in San Antonio was given by law to the San Antonio board of education, and not to individual parents, no matter how correct their consciences, convictions, faith and religious beliefs might be. The court may add that such a regulation has been held a valid defense to a prosecution under a compulsory education law. *State v. Turney*, 31 Ohio Cir. Ct. R. 222. However, the court must not be understood as passing on any such question here.

In this case there was no finding of facts. No evidence was heard. But the sworn answer of the defendants alleged that there was smallpox in the city and within the school district; that there was danger of its spreading, and that the best way to prevent this was to vaccinate the children attending the public schools, etc. These allegations warranted holding the resolution a reasonable exercise of power, and justified denying the temporary injunction.

Loss of Lens of Eye Not Loss of Eye

(*Frings v. Pierce-Arrow Motorcar Co.* (N. Y.), 169 N. Y. Supp. 309)

The Supreme Court of New York, Appellate Division, Third Department, in answer to a question certified by the state industrial commission, holds that the loss of the lens of an eye is not the loss of an eye, within the contemplation of the workmen's compensation law. The court says that, unquestionably, when the lens of the eye was destroyed, the use of the eye, unaided, was lost. It was only by providing an artificial lens outside the eye that the image could be so thrown on the retina as to restore the sight. The retina was not destroyed, and through the use of an artificial lens the eye, so far as its use alone was concerned, could fulfil the natural function of an eye. The claimant had permanently lost the use of the eye, when so supplemented, to the extent only of using it in conjunction with the other eye,

which he could not do, owing to the lack of coordination of images. Should he lose the other eye, he would be able, using the injured eye, aided by a lens, fully to perform his duties.

Using Roentgenogram of Normal Foot for Comparison

(Bruce v. Western Pipe & Steel Co. (Calif.), 169 Pac. R. 660)

The Supreme Court of California says that the plaintiff in this personal injury case was allowed to introduce in evidence a roentgen-ray picture of a normal foot, for illustration, and to enable the jury to compare the same with the condition of the plaintiff's foot after the injury. This was not error. The fact that the roentgenogram was taken in the absence of the defendant, or without the knowledge of the latter, did not of necessity affect the propriety of this evidence. It was not claimed that the picture of the normal foot was inaccurate.

Society Proceedings

COMING MEETINGS

- Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
- Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
- Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
- Colorado State Medical Society, Estes Park, Sept. 9-11.
- Indiana State Medical Association, Indianapolis, Sept. 25-27.
- Kentucky State Medical Association, Louisville, Sept. 3-6.
- Minnesota State Medical Association, Duluth, Aug. 28-30.
- Missouri Valley Medical Society, Omaha, Sept. 19-20.
- Ohio State Medical Association, Columbus, Oct. 1-3.
- Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
- Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
- Utah State Medical Association, Salt Lake City, Sept. 10-11.
- West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
- Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Roentgenology, New York

June, 1918, 5, No. 6

- 1 Apparatus for Quick and Accurate Localization on Screen. J. M. Davidson, London, England.—p. 275.
- 2 Roentgenology in Warfare. J. H. Edwards, Birmingham, England.—p. 280.
- 3 Instrument for Rapid Fluoroscopic Foreign Body Localization by Combined Parallax and Double Ring Methods. E. S. Blaine, New York.—p. 288.
- 4 Appendix with Especial Reference to Peristalsis. M. J. Hubeny, Chicago.—p. 293.
- 5 Postroentgen Treatment of Carcinoma of Breast. R. H. Boggs, Pittsburgh.—p. 301.
- 6 An Inexpensive Head Vise. C. C. Thomas, Ann Arbor, Mich.—p. 304.

Archives of Internal Medicine, Chicago

July, 1918, 22, No. 1

- 7 *Blood in Shock. C. C. Guthrie. Pittsburgh.—p. 1.
- 8 *Ligation of Coronary Arteries with Electrocardiographic Study. F. M. Smith, Chicago.—p. 8.
- 9 *Clinical Registration of Cardiac Murmurs by Direct Method. C. J. Wiggers, New York.—p. 28.
- 10 *Prevention of Simple Goiter in Man. O. P. Kimball and D. Marine, Cleveland.—p. 41.
- 11 *Clinical Significance of Abnormally Wide Ventricular Deviation in Electrocardiogram. S. Neuhof, New York.—p. 45.
- 12 Value of Tests of Kidney Function. L. F. Frissell and K. M. Vogel, New York.—p. 56.
- 13 *Studies on Renal Function During and Immediately Following Some of Acute Infectious Diseases. C. Frothingham, Boston.—p. 74.
- 14 Alkaptonuria; Report of Case. S. S. Schochet, Chicago.—p. 82.
- 15 *Occlusion of Entire Inferior Vena Cava by Hypernephroma, with Thrombosis of Hepatic Vein and Its Branches. V. C. Jacobson and E. W. Goodpasture, Boston.—p. 86.
- 16 *Alimentary Renal Glycosuria; Report of Case. K. Goto, New York.—p. 96.
- 17 Gastric Lesions Observed in Experimental Bacteremia. J. W. McMeans, Pittsburgh.—p. 114.

7. **Blood in Shock.**—In an investigation of experimental shock in dogs, the blood was studied by Guthrie to determine if such alterations occurred in the type of shock induced, and if there was a causal relation between blood change and shock. In the condition investigated, alterations in blood volume causatively were unimportant. Evidence of entrance of liquid into the blood was obtained.

8. **Ligation of Coronary Arteries.**—This article is based on a study of sixty-six dogs in which known myocardial lesions had been produced by the ligation of definite branches of the coronary arteries of the heart. The mortality following the ligation of the ramus descendens anterior sinister was 9 per cent. Where in addition one or more small branches of the ramus circumflexus sinister were ligated the mortality was increased to 50 per cent. This was about the same as that from the ligation of either the main trunk of the ramus circumflexus sinister of the right coronary artery, which was 57 per cent. and 54 per cent., respectively. The mortality following the ligation of the first lateral branch of the ramus descendens anterior and either the large anterior or posterior descending branch of the ramus circumflexus sinister was 37.5 per cent. These figures approached those obtained from the ligation of the ramus circumflexus sinister or the right coronary artery, yet the area supplied with blood by the last named arteries far exceeds that supplied by the former. Even though the area supplied with blood in the former is less, the papillary muscles are involved, which perhaps may be the explanation for the high death rate. One fact, strikingly brought out, was that where a lesion was brought about by ligation of the left coronary artery, the softening or fibrosis involved to a much greater extent the endocardial and subendocardial structures than the subpericardial or the body proper of the myocardium. This was true in two cases in man with coronary artery occlusion which Smith and his associates had the opportunity of observing while the work was going on.

As to anastomosis, these observations led to the belief that while the degree of anastomosis is variable, there must often be a fairly free communication between the branches of the right and left arteries or between the smaller branches of the same artery. Otherwise it is difficult to explain the survival of dogs where extensive ligation has been made, the variations in extent of the lesions produced by the obstruction of the same vessel and the comparatively small size of the lesion which frequently results from the occlusion of a large artery. Four dogs in which the ramus circumflexus sinister was ligated, developed, within forty minutes, tachycardia which ended in ventricular fibrillation and death. Ventricular fibrillation was observed in six cases. In four instances this abnormal rhythm was preceded by tachycardia and in the remaining two by auricular fibrillation and auricular flutter. Ventricular fibrillation in the dog invariably ended in death. The early exaggeration of the T-wave, its marked negative drop below the line within twenty-four hours and its more gradual return to its positive position and its final iso-electric or negative location were so characteristic in dogs watched for several days, that similar changes in the wave in man might reasonably be supposed to be due to similar lesions. In fact, one case in man, which will be reported later, was observed in which a clinical diagnosis of coronary thrombosis was made which was verified later at necropsy. The T-wave of the electrocardiogram of the patient ran a course similar to that of the dogs previously described. In other cases believed to be coronary thrombosis similar changes in the electrocardiogram have been seen but no verification of the diagnosis has been made, the patients either living or no necropsy having been obtained.

9. **Registration of Cardiac Murmurs by Direct Method.**—According to Wiggers a presystolic murmur may accompany a variety of cardiac conditions. It is most clearly recognized in cases of mitral stenosis in which the auricle continues to contract regularly and efficiently. In such cases the murmurs increase in intensity and end in a characteristic snapping first sound from which alone the diagnosis may sometimes be made. The vibrations responsible for this murmur

may be felt as a thrill on palpation and end in a characteristic systolic shock. Presystolic murmurs may be present in double mitral lesions in which insufficiency predominates. In such cases the murmur does not necessarily end in the typical sharp first sound, but is separated from it by a short interval. Finally, presystolic murmurs frequently accompany aortic insufficiency. They may be separated from the diastolic murmur by an interval, but not necessarily. Systolic murmurs of soft, blowing character most frequently accompany mitral insufficiency. They rarely replace the first sound entirely, although the character of this sound may be altered. Systolic murmurs are also commonly associated with the diastolic murmurs in aortic insufficiency. Associated mitral or tricuspid lesions or aortic stenosis are, no doubt, sometimes responsible for this systolic murmur. It is possible, also, that the disturbed dynamic pressure relations between the ventricles and aorta in a pure insufficiency may in itself be sufficient to account for the systolic murmur.

Diastolic murmurs may be described as early diastolic, middiastolic and late diastolic. The diastolic murmurs of aortic insufficiency usually occupy the early phase of diastole and may entirely replace the second sound. They may, however, in undoubted cases extend well into the diastolic period. Musical diastolic murmurs follow the second sound and are early diastolic in time. In no case was such a murmur found to extend into the late diastolic period. Diastolic murmurs frequently occur in mitral lesions when the auricles are fibrillating. The murmur then varies from cycle to cycle and may fill the entire period of diastole. They may occur also in mitral stenosis while the auricle is regularly contracting but the rhythm of the heart is slow. In complex mitral lesions systolic and diastolic murmurs may be so prolonged that they merge, thereby obliterating the intervening first sound as an entity.

10. Prevention of Simple Goiter.—It is claimed by Kimball and Marine that simple goiter can be prevented by the administration of small amounts of iodine. One third of the cases of uncomplicated simple goiter disappear or are markedly decreased by the use of a small amount of iodine, given internally. There is no danger of producing a toxic condition. A very small proportion of the cases (at most 0.5 per cent.) may develop an iodine rash, which promptly clears up on stopping the treatment.

11. Ventricular Deviation in Electrocardiogram.—An arbitrary standard of 0.07 of a second was fixed by Neuhof as representing the lower limit of abnormally wide ventricular deviations which were otherwise normal in form and contour. Thus standardized, an abnormally wide R was found in a series of patients, all of whom, with two exceptions, showed evidence of marked myocarditis. These two were cases of rheumatic aortic disease, with extreme ventricular hypertrophy. The presence of the wide R seemed to indicate, though its absence did not exclude, myocarditis. It had no relation to the height of the R, the pulse rapidity, the cardiac rhythm, or to the underlying disease producing the myocarditis. In some of the cases, severe decompensation was present; in others, it was absent. Though no definite statement of the fundamental cause of the abnormally long duration of the R phase can be offered, its frequent association with myocarditis would make it appear possible that this lesion acted as a direct hindrance to the proper normal, rapid propagation of the wave of electrical excitation through the ventricular musculature.

13. Studies on Renal Function.—Frothingham concludes from his studies that these tests for renal function, namely, the phenolsulphonphthalein elimination, the urea nitrogen in the blood, and the index of urea elimination, failed to show consistent evidence of impaired renal function during the course of or following acute infections in which the clinical picture or the urinary examination by the older methods showed nothing suggestive of acute nephritis.

15. Occlusion of Inferior Vena Cava.—Occlusion of the inferior vena cava by new growth (*Geschwulstthrombose*) is rare, up to 1911 there having been but forty-three cases accurately described. In thirteen of these the growth reached

as far as the right auricle or actually invaded it. In only one instance was the entire cava from iliacs to right auricle filled. Since then several other instances of obstruction by intravascular new growth have been reported, two of which showed occlusion from the level of the renal veins with tumor projecting into the right auricle. In one case the tumor tissue completely filled the inferior vena cava and extended into the right auricle. The case reported by Jacobson and Goodpasture is one in which a renal hypernephroma extended from the kidney into the left renal vein, traversed the inferior vena cava below as far as the iliac bifurcation and grew upward into the right auricle and right ventricle causing mechanical embarrassment to the tricuspid valve. The orifices of the hepatic veins were plugged with tumor, and there was acute central necrosis of the liver from thrombosis of the hepatic vein and its branches. Sudden enlargement of the liver was accompanied by the onset of acidosis, which persisted until the death of the patient twenty-four hours later. Where there are already signs of obstruction of the inferior vena cava, sudden enlargement of the liver coincident with the onset of acidosis is probably indicative of acute thrombosis of the hepatic veins.

16. Alimentary Renal Glycosuria.—After the ingestion of more than 34 gm. starch, the urine in Goto's case showed sugar without any hyperglycemia; after 100 gm. starch the urine contained 0.25 gm. sugar, while after 200 gm. starch the urine showed only 0.17 gm. sugar; the maximum of blood sugar was 0.115 per cent. after ingestion of 100 gm. starch and 0.145 per cent. after 200 gm. starch. Furthermore, after the ingestion of 100 gm. glucose, more sugar was excreted in the urine than when 200 gm. were taken, while the blood sugar was higher and remained higher for a longer period after 200 gm. glucose was ingested than after 100 gm. When levulose was given it was excreted as levulose itself, not as glucose.

Arkansas Medical Society Journal, Little Rock

July, 1918, 15, No. 2

- 18 Opportunities Offered to Arkansas Young Men by State Medical School. A. R. Stover, Little Rock.—p. 29.
- 19 Seriousness of Obstetrics and Some of Pitfalls to Be Avoided. J. P. Lunt, Leonard.—p. 33.

Boston Medical and Surgical Journal

July 18, 1918, 179, No. 3

- 20 Shell-Shock and After. E. E. Southard, Boston.—p. 73.
- 21 Organization in Hospital Dietetics. F. H. McCrudden, Boston.—p. 93.
- 22 *Experimental Scurvy in Guinea-Pig. W. C. Rappleye, Foxboro.—p. 98.
- 23 Intrapartum Rupture of Uterus and Bladder; Recovery. Subsequent Closure of Vesical Fistula. G. T. Tyler, Jr., Greenville, S. C.—p. 99.
- 24 Case of Fractured Pelvis with Rupture of Bladder in Infant Under Two Years, with Recovery. R. W. Angevine, Rochester, N. Y.—p. 100.

22. Experimental Scurvy in Guinea-Pig.—A number of pigs were kept on a diet of oats and milk, and the majority of them developed evidences of the disease in four to six weeks. At necropsy of animals dying of the scurvy so produced, the cecum of each animal was found distended with pale, pasty feces, and the extremities showed the usual signs of scurvy. Other animals were placed on a similar diet and after the development of the disease, were given liquid petrolatum or phenolphthalein, with undoubted improvement in the signs of scurvy. In no case, however, was it possible to restore normal health to the animals, though the small number of pigs so treated prevents attaching any significance to the adverse results. And in all probability the administration was begun at too late a stage in the disease to reasonably expect recovery. That there was improvement, however, was evident. Knowing that the disease may develop on a diet which one might expect would yield bulky feces (such as oats and dry cabbage), a larger group of animals was placed on a diet of oats and hay, and these animals developed scurvy in from four to six weeks, as expected. Necropsies done on animals dying from scurvy developed on this diet showed well-formed feces in the lower colon, and firm but not necessarily impacted feces in the cecum. The gums, extremities

and condition of nutrition were, to all appearances, similar to the conditions found in animals necropsied after fatal results on the diet of oats and milk. The feces were dark colored, and the amount of putrefaction was much less than that found in animals which had been on the diet yielding feces of less bulk. The amount of distention was also much less; the appearance of the cecum, colon and ileum was not especially abnormal. The consistence of the stools altered but little during the period of observation. Administration of laxatives after the onset of signs of scurvy benefited these animals also.

It is not evident why, if scurvy in the guinea-pig is due primarily to impaction of feces in the delicate cecum, the pigs on a diet of oats and hay should develop the disease, when the degree of impaction is at least much less than that seen in animals on a diet yielding pasty feces, and the character of the feces not especially abnormal. It is obvious that the poorly balanced diet leads to malnutrition, and it may be that absorption of toxins and bacteria from the intestinal tract may be attributed more directly to that factor, which probably involves the intestinal mucosa quite as much as other tissues. The presumption that a certain degree of the inspissation of the feces is due to a late or terminal feature of the disease seems to be borne out by the fact that the feces of animals killed before the very last stage of the disease are less abnormal than those found in animals at death. During the last stage of the disease, the animals are unable to move about and to secure water, and it is possible that a certain, though probably a small, degree of the fecal condition is due to this factor. Blood cultures made on animals dying from or killed during the study were uniformly sterile. The histobacteriologic studies of the tissues have not been done as yet. The rabbits in four other pens similarly arranged, and which were on a general diet, did not do this. Whether the calcium in the whitewash had anything to do with the prevention of scurvy or malnutrition was not determined.

Bulletin of Johns Hopkins Hospital, Baltimore

July, 1918, 29, No. 329

- 25 Preparation of U. S. Army Triple Typhoid Vaccine. C. G. Snow.—p. 157.
- 26 *Influence of Menstruation on Acidosis in Diabetes Mellitus; Report of Case. G. A. Harrop, Jr., and H. O. Mosenthal, Baltimore.—p. 161.
- 27 *Case of Colloid Degeneration of Skin with Unusual Histological Feature. L. W. Ketron, Baltimore.—p. 163.
- 28 *Sarcoma of Uterus Arising from Endometrium. L. Brady.—p. 164.
- 29 Pharmacologic Appreciation of Shakespeare's Hamlet; Instillation of Poisons into Ear. D. I. Macht, Baltimore.—p. 165.

26. **Influence of Menstruation on Acidosis in Diabetes Mellitus.**—A girl, aged 18, entered the hospital suffering from a very severe type of diabetes mellitus, accompanied by a marked degree of acidosis. The urine could be rendered sugar-free only temporarily by means of starvation; the acid substances in the urine were fairly high, the percentage of ammonia nitrogen of the total urinary nitrogen was well above the normal, and the carbon dioxid tension of the alveolar air was low, in spite of large amounts of bicarbonate of soda administered. The patient was thin and weak, but exhibited none of the distressing subjective symptoms that are often associated with marked acidosis and impending diabetic coma. The gravity of the situation was realized, and every effort was made to improve the girl's condition. At the end of one month, the acidosis had somewhat diminished, but the tolerance for carbohydrates had not increased at all. She was evidently one of the rare but unfortunate cases of diabetes mellitus which are not relieved by the starvation treatment. With the onset of the menstrual period, the picture changed completely. On that day she complained of abdominal pain and refused food. At 7 p. m. a change in the character of the breathing with increasing drowsiness, was noticed, and at 10 p. m. there was well marked hyperpnea; she could scarcely be aroused; there was marked involuntary twitching of the facial muscles, and the carbon dioxid tension of the alveolar air was 20 mm.

The next day the symptoms remained unchanged. On the third day the conditions improved somewhat and on the

fourth day all the symptoms which had manifested themselves at the time menstruation began had disappeared. The patient was treated with large doses of sodium bicarbonate by the mouth, rectum, and intravenously, and by starvation. The effects of this therapy were satisfactory. The tests during this period, which may be regarded as one of diabetic coma, show no appreciable increase in the severity of the acidosis over that of one month previously when there were no subjective symptoms of acidosis. There is perhaps a slight tendency toward a rise in the amount of acid substances and ammonia, but no significant change occurred. The alveolar air showed a lower tension of carbon dioxid on the first day of menstruation than had previously been recorded, but here again the difference was only slight. It may, therefore, be concluded that the process of menstruation in some manner affected the body so that it was less resistant to the influences of the acid bodies and that diabetic coma resulted.

There are several other facts that point to the profound effects which were produced by the menstrual process. During the period the glycosuria and the quantity of nitrogen in the urine were both much increased. These phenomena have often been noted in so-called cases of acute diabetes. When menstruation had ceased, it was apparent that some permanent damage to the carbohydrate metabolism had occurred. The amounts of glucose excreted were somewhat higher than before, and the acidosis, as indicated by the acetoneuria and the quantity of ammonia in the urine, was distinctly more pronounced. In this case of diabetes mellitus it seems justified to conclude that the menstruation was accompanied by an increase in the acidosis. The symptoms became more marked with each successive period until fatal coma occurred. The second menstrual period set in four weeks after the first. The girl was very drowsy and nauseated. Deep coma came on during the course of the day, and on the following day several general convulsions occurred. There was evidently typical air hunger. Death came about thirty-six hours after the onset of the diabetic coma, and on the third day following the beginning of the menstrual period.

27. **Colloid Degeneration of Skin.**—A typical case is reported by Ketron of the rare condition of colloid degeneration of the skin. In the histologic study, peculiar cells with granular protoplasm were found embedded in the colloid blocks. Ketron believes them to be macrophages which have phagocytosed the colloid material, because of its foreign body reaction.

28. **Sarcoma of Uterus Arising from Endometrium.**—A woman entered the hospital worried because of a lump in her breast which turns out to be, on operation, a benign tumor, but gave little attention to the recurrence of vaginal bleeding, one and a half years after the menopause, which scrapings demonstrated to be due to a very malignant growth. The case is interesting because apparently it is not a sarcoma starting from a malignant degeneration of a fibroma, as is usually the case, but one arising from the connective tissue of the endometrium. The tumor cells arose from the region where one finds the remains of the uterine glands.

Georgia Medical Association Journal, Augusta

July, 1918, 8, No. 3

- 30 Value of Commission for Study and Control of Cancer. J. L. Campbell, Atlanta.—p. 45.
- 31 Control of Cancer. G. R. White, Savannah.—p. 47.
- 32 Plea for Conservation of Human Milk. W. L. Funkhouser, Atlanta.—p. 52.
- 33 Baltes, Malaria and Quinin. W. A. Mulherin, Augusta.—p. 56.
- 34 Diatomaceous Earth, New Wound Dressing and Drainage Method. St. J. B. Graham, Atlanta.—p. 61.

Indiana State Medical Association Journal, Fort Wayne

July, 1918, 11, No. 7

- 35 Survey of Trachoma Situation in Indianapolis. B. J. Larkin, Indianapolis.—p. 265.
- 36 Plea for More Conservative Obstetrics. F. E. Abbott, Indianapolis.—p. 270.
- 37 Focal Infection of Mouth and Accessory Sinuses in Relation to Ophthalmic Inflammations. E. E. Holland, Richmond.—p. 274.

Journal of Infectious Diseases, ChicagoJuly, 1918, **23**, No. 1

- 38 *Study of Diphtheroid Organisms; Special Reference to Hodgkin's Disease. F. Ebersson, New York.—p. 1.
- 39 Differentiation of B. Coli and B. Aerogenes on Simplified Eosin-Methylene Blue Agar. M. Levine, Iowa City, Iowa.—p. 43.
- 40 Efficacy of Various Agar-Dye-Mediums Recommended for Isolation of Typhoid and Dysentery Bacilli from Feces. K. F. Meyer and J. E. Stickel, San Francisco.—p. 48.
- 41 Peptic and Tryptic Digestion Products as Inexpensive Culture Mediums for Routine Bacteriologic Work. J. E. Stickel and K. F. Meyer, San Francisco.—p. 68.
- 42 Relative Viability of B. Coli and B. Aerogenes Types in Water. C. E. A. Winslow and B. Cohen, New Haven, Conn.—p. 82.
- 43 Distribution of B. Coli and B. Aerogenes Types in Polluted and Unpolluted Water. C. E. A. Winslow and B. Cohen, New Haven, Conn.—p. 90.
- 44 Thermolability of So-Called Syphilitic Antibody. E. H. Ruediger, Bismarck, N. D.—p. 102.

38. **Diphtheroid Organisms.**—A tentative classification is offered by Ebersson with a view toward grouping prominent biologic characters. Nine distinct groups of diphtheroids are outlined with a type species for each group and corresponding subspecies. The diphtheroids associated with Hodgkin's disease have been studied. It has been shown that neither the source nor the cultural characters serve to distinguish the supposed cause of Hodgkin's disease from numerous saprophytic diphtheroids. By means of complement fixation tests the conclusion is reached that the cause of this disease is not the organism described by numerous workers. Agglutinin absorption studies indicate more clearly the relationship which exists between certain members of the diphtheroid group of bacteria. The results are correlated in the main with complement fixation.

Journal of Nervous and Mental Disease, Lancaster, Pa.June, 1918, **47**, No. 6

- 45 Psychoneurotic Syndrome of Hyperthyroidism. M. S. Woodbury, Clifton Springs, N. Y.—p. 401.
- 46 Melancholia. S. Kuh, Chicago.—p. 411.
- 47 Spinal Tumors: Analysis of Three Hundred and Thirty Collected Cases. C. R. Steinke, Akron, Ohio.—p. 418.
- 48 Family Spastic Paralysis. G. H. Williams, Columbus.—p. 427.
- 49 Diminutive Visual Hallucinations in Middle Aged Women During Involutional Period. A. Gordon, Philadelphia.—p. 434.

Journal of Pharmacology and Experimental Therapeutics, BaltimoreJune, 1918, **11**, No. 5

- 50 *Distribution of Gold in Animal Tissues: Biochemistry and Chemotherapy of Tuberculosis. L. M. DeWitt, S. M. Cadwell and G. Leavell, Chicago.—p. 357.
- 51 Experimental Study of Venom of Manchurian Scorpion. S. Kubota.—p. 379.
- 52 *Relation Between Chemical Structure of Opium Alkaloids and Their Physiologic Action on Smooth Muscle: Pharmacologic and Therapeutic Study of Some Benzyl Esters. D. I. Macht, Baltimore.—p. 389.

50. **Distribution of Gold in Animal Tissues.**—In a recent experiment on the chemotherapy of tuberculosis, gold in the form of various salts was administered to a considerable number of guinea-pigs, and the organs and tissues of the animals were subsequently analyzed quantitatively to determine the distribution of that metal. Gold differs somewhat from other metals in its distribution in the animal body. Copper, zinc, arsenic, tin, antimony and mercury are generally deposited in the liver much more than in other organs. The kidney may in some cases contain as much and occasionally even more in proportion to its weight than the liver. The spleen usually contains none or mere traces. These metals are excreted for the most part through the gastro-intestinal tract. Gold seems to select the spleen by preference, since the amount per gram weight or the gold concentration in the spleen is in most cases much greater than in the liver. Sometimes the kidney and sometimes the liver comes second in gold concentration. About one half of the gold administered was recovered from the urine and feces within seven days after a single injection and in two months during which weekly injections were given and all the urine and feces were saved; more is excreted through the urine than through the feces, at least in the earlier part of the treatment. The

gold salts used are readily absorbed after subcutaneous injection, no more remaining in the subcutaneous tissues around the point of injection than in other parts of the body. Gold salts are quickly taken up from the blood after intracardiac injection and usually no gold or a mere trace is found in the circulating blood twenty-four hours after the injection. Two to four hours after the last injection no gold was found in the clear serum, although a considerable amount was recovered from the layer of blood cells of the centrifuged blood. No gold was found in the brain. The amount of gold administered, the duration of treatment and the time since the last dose seem to exert no constant or consistent influence on either the total or proportional gold content of the animal organs.

52. **Action of Opium Alkaloids on Smooth Muscle.**—From the experiments described by Macht, it is evident that in respect to their physiologic action on the rhythmic contractions and tonicity of smooth muscle from various organs, the opium alkaloids can be divided sharply into two classes: the morphin group on the one hand and the papaverin group on the other. It is further shown that the stimulating or pressor effect of the morphin or the pyridin-phenanthrene group seems to reside in the pyridin or piperidin portion of their molecules. The seemingly anomalous action of peronin or benzyl morphin is explained by the depressor effect of the benzyl grouping, as shown by the action of all the members of the papaverin group. The inhibitory and tonus lowering action of this papaverin or benzyl-isoquinolin group of alkaloids has been pretty conclusively shown to reside in the benzyl portion of their molecules. It is interesting to note that the inhibitory action of the papaverin group is due to the presence of the benzyl nucleus and not to an oxidized, for instance, acidic radicle; for it was found that neither sodium benzoate nor sodium meconate containing monacid aromatic radicles, nor sodium phthalate containing a diacid aromatic radicle produced inhibition. On the other hand, benzamide containing two benzyl rings produced prompt paralysis of the contractions.

The difference in the effect on smooth muscle between the two groups of opium alkaloids is of practical importance in the treatment of all kinds of "colicky" pains or pains due to spasmodic contractions of smooth muscle viscera. It is a well established empirical clinical observation that morphin, in ordinary doses, is not efficient in relieving that colic due to ureteral spasm or spasm of the gallbladder. The explanation of this fact in the light of Macht's investigation is obvious. While morphin acts as an analgesic through its action on the brain, its peripheral effect on the smooth muscle of the ureter or the gallbladder or the uterus or any other smooth muscle viscus is to increase its spasm or tonic contractions. An exhibition of papaverin in such a case is often very efficient in the relaxing the spasm of the smooth muscle and thus alleviating the colic. The rational therapeutic procedure in all such cases would be to administer one of the benzyl-isoquinolin alkaloids, of which papaverin is the most efficient, or still better to give a combination of morphin with benzyl-isoquinolin alkaloids such as pantopium which will give a powerful central analgesic effect on the one hand and will relax the peripheral spasm at the same time on the other.

The difference in the pharmacologic action between the morphin and papaverin groups of alkaloids is also of practical interest in the treatment of diarrheas. It is well known that opium is more efficient in checking diarrhea than the amount of morphin which it contains would be if given alone. The explanation of this action does not lie primarily in the presence of the inert constituents of crude opium but is due to the inhibitory effect of the benzyl-isoquinolin constituents in the opium.

Medical Record, New YorkJuly 20, 1918, **94**, No. 3

- 53 Value of Dichloramin-T Chlorococaine Solution (Dakin-Dunham) in Treatment of Infections of Upper Air Passages. D. B. Delavan, New York.—p. 89.
- 54 Shell Shock and Other War Neuroses. E. L. Hunt, New York.—p. 91.
- 55 Medical Treatment of Exophthalmic Goiter. J. F. Rice, Buffalo.—p. 97.

- 56 Experimental Test with Copper and Potassium Cyanid in Tuberculosis. M. J. Fine, Newark, N. J.—p. 99.
57 Stigmata of Abrams in Hereditary Syphilis. A. Abrams, San Francisco.—p. 101.
58 Blood Supply of Uterus—with Special Reference to Operation of Vaginal Hysterectomy. H. Crutcher, Tularosa, N. M.—p. 103.
59 Testing Facts and Theories of Heredity. C. L. Redfield, Chicago.—p. 105.

Nebraska State Medical Journal, Norfolk

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- 60 Correction of Nasal Deformities by Transplantation of Bone. J. M. Banister, Omaha.—p. 201.
61 Public Health Service for Rural District. F. W. Buckley, Beatrice.—p. 203.
62 Treatment of Diabetes. F. A. McGrew, Comstock.—p. 206.
63 Mechanical Ileus Due to Twisted Pedicle of Cystic Ovary. P. H. Salter, Norfolk.—p. 210.
64 Actual Benefit to Surgery Derived from Present War. R. R. Hollister, Omaha.—p. 211.

New York Medical Journal

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- 65 Blood and Soul in Ancient Belief. J. Wright, Pleasantville.—p. 93.
66 Tonsil Operation and Indications which Require It. C. E. Welton, Peoria, Ill.—p. 98.
67 Undernutrition in Children. A. M. Richardson, New York.—p. 101.
68 Possible Factor of Degeneracy. T. J. Downing, New London, Mo.—p. 103.
69 Syphilitic Joints. P. W. Roberts, New York.—p. 105.
70 Congenital Stenosis of Esophagus. H. Apfel, New York.—p. 108.
71 Case of Salivary Calculus. M. Nisselson, New York.—p. 109.
72 Impregnation of Underwear as Means of Controlling Clothes Louse. W. Moore, St. Paul, Minn.—p. 110.

New York State Journal of Medicine

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- 73 Psychology of War. J. M. Beck, New York.—p. 209.
74 Intestinal Obstruction; Report of Cases. H. P. Jack, Hornell.—p. 219.

Northwest Medicine, Seattle

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- 75 Base Hospital, Camp Lewis, Washington. H. G. Whitacre, Camp Lewis.—p. 191.
76 Naval Hospital, Puget Sound, Washington. R. E. Hoyt, Bremerton.—p. 197.
77 Seattle Hospitals. C. A. Smith, Seattle.—p. 199.

Pennsylvania Medical Journal, Athens

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- 78 Malignant Disease of Throat; Report of Cases. B. M. Dickinson, Pittsburgh.—p. 611.
79 Radical Cautery Operation in Carcinoma of Cervix. X. O. Werder, Pittsburgh.—p. 614.
80 Present Status of Hay Fever Treatment. C. C. Eves, Philadelphia.—p. 617.
81 Case of Myatonia and Three Cases of Progressive Muscular Atrophy with Metabolism Studies in Each. C. C. Wholey, Pittsburgh.—p. 620.
82 Late Results in Amputation of Breast for Carcinoma. J. J. Buchanan, Pittsburgh.—p. 623.
83 Operative Technic and After-Treatment of Inguinal Hernia. P. G. Skillern, Jr., Philadelphia.—p. 627.
84 Enthusiasm. H. W. Gass, Sunbury.—p. 631.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

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- 85 Removal of Intracranial and Spinal Fluids by Extracranial and Spinal Canal Routes for Obscure Fundi Eye Conditions. D. W. White and P. C. White, Tulsa.—p. 145.
86 Tuberculinized Milk in Tuberculosis. W. S. Gregory, St. Joseph, Mo.—p. 153.

Vermont Medicine, Rutland

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- 87 Differential Diagnosis Between Acute Alcoholic Intoxication and Alcoholic Insanity. E. O. Crossman, Burlington.—p. 143.

Wisconsin Medical Journal, Milwaukee

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- 88 Diabetes Mellitus. H. H. Milbee, Marshfield.—p. 48.
89 Indemnities Following Injuries to Eyes; How Shall We Determine Them? V. A. Chapman, Milwaukee.—p. 54.
90 Right Upper Abdominal Quadrant. V. F. Marshall, Appleton.—p. 61.
91 Smith-Indian Intra-Ocular Operation for Cataract. F. Allport, Chicago.—p. 66.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

June, 1918, 23, No. 1

- 1 Treatment of Wounded by Means of Electricity. H. J. Seeuwcn.—p. 5.
2 Case of Fibroid Tumor of Stomach. E. W. H. Groves.—p. 10.
3 New Radiator Type of Hot Cathode Roentgen-Ray Tube. W. D. Coolidge.—p. 11.
4 Stereoscopic Roentgenograms to Illustrate Anatomy of Temporal Bone, and Particularly Fallopian Canal. D. McKenzie and R. Knox.—p. 18.
5 Case of Pulmonary Abscess Occurring in Soldier During Active Service. A. H. Pirie.—p. 26.
6 Roentgenographic Examination of Metals. M. H. Pilon and T. T. Baker.—p. 27.

British Medical Journal, London

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- 7 *Gunshot Wounds of Knee Joint: Conservative Operation at Casualty Clearing Station. R. Charles.—p. 713.
8 Knee Joint Capsule. Roentgenographic Study. F. R. Snell.—p. 717.
9 *Abuse of Drainage Tubes. F. Hathaway.—p. 718.
10 Anomalous Muscular Action in Nerve Injuries. D. M. Hughes.—p. 720.
11 Early Cardiac Breathlessness and Buffer Salt Deficiency in Blood. B. Moore.—p. 720.
12 Two Cases of Cardiopiosis. W. Gordon.—p. 721.

7. **Gunshot Wounds of Knee Joint.**—Charles says that operations should never be attempted without the evidence of roentgenography when this is available. Accurate knowledge of the position of the foreign body and the extent of bone injury is invaluable in determining the procedure to be adopted in any case. The primary object is the scrupulous excision of infected material from the joint and its surroundings without spreading sepsis in so doing. To obtain this object it is absolutely necessary to secure a bloodless field throughout the operation, using a tourniquet for that purpose. The skin all around the knee is thoroughly washed, shaved, cleansed with alcohol, and painted with a solution of picric acid (5 per cent.) in spirit. The wound or wounds must then be packed gently with gauze to prevent leakage of infected fluid on the skin. The whole success of the case depends on attention to every detail which can contribute to the removal of soiled tissue without carrying infection into fresh tissue.

In nearly all cases it is possible to remove the entire track of the missile intact down to the joint cavity without permitting the knife or other instrument to touch the track or the infected surface of the wound. The incision employed for excising the wound varies according to the size and position of the wound, and should always be made with a view to extending it so as to give free access to the joint. All used instruments and gloves are exchanged for clean ones. The original opening is then enlarged and the state of the joint investigated.

The missile may be found loose in the joint cavity. In this case it is removed, and, if no injury is present within the joint, the cavity is thoroughly irrigated, and the joint closed in layers with a view to healing by first intention. If the missile is found impacted in the bone, and access can be got by enlarging the incision, this is done, even if it entails division of the tendopatellae. Free access to the joint is essential. The site of the foreign body is then isolated from the rest of the joint by gauze wrung out of saline, and the foreign body, together with the portion of bone surrounding it, is cut clean out in one piece. When the missile is situated on the side opposite to the wound, and if there is no injury to the intervening tissues, the original opening is closed and a fresh incision made directly over the missile. Grooved injuries are always treated as foreign bodies and excised *en masse*. Small comminuted fractures and chipping of the bone are dealt with in the same careful and thorough manner, the fractured surface being chiseled away along with the adherent fragments.

For irrigation of the joint, Charles invariably uses normal saline, and prolongs the process for several minutes so as to ensure a thorough mechanical cleansing of the joint. It has

been proved that adipose tissue, when transplanted onto any raw surface, has the property of becoming adherent to it, with little reaction or alteration in its original size. Charles has applied this practice to the knee joint in the cleaner cases for filling up a hole in the articular surface. The infrapatellar pad of fat, with the attached portion of synovial membrane, is usually convenient, and Charles has found that such a pad inserted into the bony cavity acts also as a plug in arresting the oozing of blood.

It is now a recognized fact that when the knee joint is given a fair chance it can deal with a mild infection, but not so the surrounding soft tissues; therefore it is important to close the joint completely and without tension. Beginning at the edge of the wound, the redundant synovial membrane is undermined from its attachments to the soft tissues and to the condyle all round the hole; it is then closed by suture, so as to exclude the bone lesion from the joint cavity. This is also done with wounds in the suprapatellar region. Again, in rare cases, where the patella has been removed and the severely lacerated condition of the adjoining soft parts renders it absolutely necessary to close the true joint cavity, the whole of the synovial membrane from the suprapatellar pouch may be brought down and sutured to the synovialis below. A further lateral incision may be required to give access for this dissection. The wound is sutured in layers—the synovial membrane by a continuous suture of fine catgut, the capsule is brought together by interrupted sutures, and the rest of the wound closed without drainage. In any case in which there is doubt as to complete absence of infected tissue, one or two Carrel's tubes are placed under the skin, in the hope of preventing sepsis. This, however, is seldom necessary. The dressing is applied with a firm bandage and the tourniquet is then released. Finally the leg is put up in a Thomas splint.

9. Abuse of Drainage Tubes.—Hathaway believes that if surgeons will take their courage in both hands, and will not be frightened by a little infection, leaving it to be dealt with by the natural resistance of the tissues to infection, and will give up the use of drainage tubes, they will not only find their results very much better, but they will find their outlook on surgery totally changed. All that is necessary is to put something into the tissues which will keep a "passage" open but which does not leave an open "drain." If a passage is required to be kept open, Hathaway puts in a piece of soft folded rubber—for instance, in an appendix abscess. This allows pus to come away, but will not leave an open "drain" by which secondary infection of staphylococci, from the skin, or other organisms can gain entrance.

War surgery has taught what should be the two main principles of civil surgery: 1. Early and complete operation. 2. That secondary or mixed infection is worse than primary infection. While the tissues of the body can, if given a fair chance, deal with one infection only, if that infection becomes a mixed one by entrance of organisms from outside, then the last state is worse than the first. Applying his experience of modern war surgery Hathaway started sewing up ordinary staphylococcal abscesses of the subcutaneous tissues, after incision and wiping out with bipp, and found they healed by first intention.

Hathaway then went a step further. He saw a case of perforated gastric ulcer two hours after perforation, and operated within four hours. He sewed up the perforation and, as it was near the pylorus and tended to close it, did a gastro-enterostomy. He mechanically cleansed the peritoneum of food, washed out with flavine, and sutured completely. The result was healing by first intention and an uninterrupted recovery, better than he has experienced with the use of a drainage tube. Then he had to treat a bad compound fracture of tibia and fibula with a large external and contused wound, in a boy who had been run over by a motor lorry. He excised well clear of all damaged tissues—wiped out with bipp, and so mechanically cleansed and closed the whole wound by primary suture. The result was healing by first intention without a trace of suppuration.

The next step forward was in a case of gonococcal peritonitis. The peritoneum was infected and the abdominal

cavity contained a turbid fluid; he removed one fallopian tube full of thick gonococcal pus, cleansed the peritoneum mechanically, washed out with flavine, and closed without drainage. The result was uninterrupted recovery and healing first intention.

A method of treatment in bone surgery which Hathaway employed in France was founded on the idea of eradicating the "dead space" in a bone following the loss of substance by a gunshot wound or by an operation for infection. His idea was that where a dead space or open cavity was left in a bone by destruction it should be filled, not by blood clots, allowing a nidus for primary or secondary infection, but by an antiseptic wax which could be poured in hot, and would gradually cool and fill up any cavity. Hathaway did this on three occasions with excellent results, using a compound of thymol, petrolatum and candle-wax, which would become semisolid at normal body temperature.

Lancet, London

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- 13 Modern Views on Diabetes and on Significance of Acidosis in Disease. E. P. Poulton.—p. 895.
- 14 *Delayed Primary Suture. W. G. Ball.—p. 898.
- 15 Traumatic Aneurysm of Second Portion of Subclavian Artery; Operation. A. H. Tubby and J. B. Banister.—p. 902.
- 16 *Cerebral Galvanism: Treatment of Children Mentally Backward as Result of Prolonged Illness. F. Herniman-Johnson.—p. 903.
- 17 *Selective Treatment of Paralyzed Muscles. W. J. Turrell.—p. 904.
- 18 *Sterilization of Local Anesthetics. M. Macnaughton-Jones.—p. 904.

14. Delayed Primary Suture.—The object of this paper, which deals with the records of 100 consecutive cases, is to bring to the notice of surgeons the desirability of performing the so-called "delayed primary suture" of wounds as frequently as possible in cases which permit of its being carried out. The wounds treated by Ball have been of all types (excision had been performed in all); for instance, excisions of skin only, skin and muscle, compound fractures embedded in muscle and those lying in subcutaneous situations, amputation stumps, and injuries connected with joints. In all the cases received it had been the object of the surgeon at the casualty clearing station (under instructions from the authorities) that this method of treatment should be adopted at the base, so that careful excisions of damaged tissues had been carried out and careful packing of pockets of the wounds instituted; the chief packs used were flavine and bipp, but ether and plain gauze packs also came to the base.

On arrival, the packs were not removed until the patient was taken to the operating room and anesthetized. The top dressings were then removed and the skin carefully washed with picric acid (2 per cent. alcoholic solution) before the pack was distributed. The pack was always removed with forceps, the fingers not being put into the wound at all. Rough removal of the pack was studiously avoided so as not to start hemorrhage, which Ball believes is probably a factor of great importance in obtaining a successful result. The characteristic appearance of the wound, which has been packed with gauze soaked in flavine (1:2,000), on the second to fourth day, is that it has a dry surface, dull in appearance, slightly sticky, without discharge or granulation tissue formation; a certain yellow discoloration is common but not always present. At a later date, a thin sticky exudate forms and may be seen in the earlier stages in the case of deep wounds of muscles. Ball says that it is uncommon to see a purulent discharge, but still such cases came under observation and were put aside until the wounds had been further cleansed. Bipped wounds have a somewhat similar appearance, but in addition minute particles of the ointment are present; the surface is rather oily than sticky. In both cases there is a tendency for the skin edges to become stuck to the underlying tissues.

For the most part the cases treated had had a single pack only applied, some two packs and in one case sewn up on the seventeenth day several packs had been used. Even in that case there were no granulations; the formation of granulations seems to be delayed by the application of drugs tightly packed into the interstices of freshly damaged tissues. After removal of the pack local treatment to the wound was, for

the most part, avoided, except in cases in which there had been bleeding in the removal of the pack or when an old blood clot was left in the wound from the original operation. Normal saline solution or flavine was used to get rid of such foreign material. Cases have exceptionally been sutured where actual suppuration was present, but only with the object of diminishing the size of the wound, thus avoiding large areas from which absorption could take place, and also relieving the patient from repeated and painful dressings.

In all wounds the skin was sutured with silkworm gut. In deep wounds (that is, including muscle excisions) penetrating, perforating, or gutter in type, the muscles were sutured with catgut, and on occasion with thread, with the object of preventing the formation of a deep-seated dead space. This is an important point and requires to be carried out with great care. In many cases the muscles were sewn in layers with buried stitches. Complete suture of the skin was the rule wherever possible. Partial suture had to be resorted to in some instances owing to the considerable loss of tissue as the result of the original excision operation, making complete suture impossible. Oil silk drains, removed on the second day after suture, were used in wounds appearing a little moister than desirable or showing a tendency to bleed as the result of manipulation. In amputation stumps drainage was the rule by means of rubber tubes. Gauze soaked in flavine was used as the surface dressing. In all cases great care was taken to see that the wound should be immobilized properly (splinting, extension, etc.), at least until the stitches were removed and even after that. The stitches were, as a rule, removed on the eighth day and the patient kept in the hospital until the twelfth day. Cultures were made at the time the pack was removed, but in no case was the result of the investigation awaited, as the wounds were sutured immediately after the removal of the pack. This is important, as the results tend to show the advantage of taking the clinical appearance of the wound as the indication for its suture rather than to depend on bacteriologic findings. It is one of the objects of this paper to show that a knowledge of the latter is not essential in order to get good, or one might even say the best, results.

Among the 100 cases there were 15 failures, 59 complete successes and 26 partial successes. The majority of the latter were completely healed before discharged from the hospital. In the failures the presence of bacteria in the wounds played a prominent part. In 7 out of 15 cases their presence was demonstrated. In 5 cases no cultures were made. In the other 3 no bacteria were present on cultivation. With one exception the clinical appearance of the wound warranted suture. In the three cases from which bacteria were not grown the wounds did not suppurate, but opened up after removal of the stitches, due to lack of healing power. Two flavine packs, one bipp pack. The same occurred in one of those in which no cultures were made. There is nothing to indicate that any one form of packing is better than another. Flavine has been used in 18 cases of partial success, 33 cases of complete success, and 7 cases of failure. Bipp has been used in 3 cases of partial success, 14 cases of complete success, and 4 cases of failure. Plain gauze has been used in 1 case of failure, 3 cases of partial success, and 3 cases of complete success. In the remainder Carrel, ether packs, etc., have been used. In order to obtain the best results it is obvious that adequate excision of the damaged tissues is essential; this is of primary importance, and unless it is carried out successfully the date of suture is necessarily delayed.

16. Cerebral Galvanism.—Hernaman-Johnson claims that cerebral galvanism has given brilliant results not only in neurasthenia, but also in paralysis due to cerebral trauma, when this has not resulted in actual destruction of brain elements. Such injury is usually confined to one hemisphere.

17. Treatment of Paralyzed Muscles.—Two objections have been raised to this form of treatment: (1) That the contractions produced are too jerky and abrupt, and do not possess the smoothness and evenness of a physiologic contraction; (2) that overaction of the healthy antagonistic muscles is excited, especially when muscles in an advanced

stage of degeneration are being treated. Turrell says that both these objections can be overcome by the adoption of an ingenious method described by M. Louis Lapicque, the well known French physiologist. He found that if the current of excitation was made progressively, instead of, as is usually the case, suddenly and abruptly, the loss in efficiency due to this retarded excitation was less in the case of paralyzed muscles than in healthy ones. Lapicque accomplished this retardation by the employment of condensers placed in parallel. At the make of the current the condensers in parallel have to become fully charged before the full current strength reaches the patient; at the break of contact the condenser discharges through the patient in the direction of the current of make, and so damps the current at break. To be fully effective it is necessary that the time of discharge of the condensers should exceed the chronaxie of the nerve of the healthy muscles, but should be less than the chronaxie of the paralyzed muscles. The method does not as yet appear to have been much used in France; but in Turrell's opinion it is deserving of an extended trial, as both theoretically and practically it appears to remove the objections alleged against the use of the interrupted galvanic current in peripheral nerve lesions and in infantile paralysis.

18. Sterilization of Local Anesthetics.—A simple but effective method of preparing a sterile solution of cocain or other local anesthetic which may also contain epinephrin chlorid is described by Macnaughton-Jones. It consists in preparing a solution of sodium chlorid together with the anesthetic or anesthetics and epinephrin chlorid, each constituent being present in such quantity that a dilution with many (for instance, forty) times the volume of water will give a solution containing the requisite percentage of each. The preparation is placed in a sealed phial or ampoule and kept until required. Sterile water is added immediately before injection. Experiments demonstrate that even if the preparation be inoculated with the ordinary forms of bacterial contamination the presence of concentrated salt renders it sterile in a few days. A simple method of preparing the concentrated solution is to take the quantities of anesthetic, salt, etc., required per 1,000 and dissolve in water, but make up to 25 instead of to 1,000. The concentrated solution Macnaughton-Jones prepared contains: procain, 3.25 (13 per cent.); sodium chlorid, 3.25 (13 per cent.); epinephrin chlorid solution (1 in 1,000), 8.0 (32 per cent.); water by weight (or metric), add 25.0 (100). If a 2 in 1,000 (0.2 per cent.) solution of cocain be desired the formula would be modified as follows: The osmotic pressure of such a solution is only equal to that of a 0.35-1,000 sodium chlorid, and consequently about 3.65-1,000 of this salt is added; but, inasmuch as cocain produces anemia, the epinephrin may be reduced if desired. The concentrated solution: cocain hydrochlorid, 2 (8 per cent.); sodium chlorid (approximately), 3.75 (15 per cent.); epinephrin chlorid (1 in 1,000), 6 (24 per cent.); water by weight to 25 (100).

Journal de Médecine de Bordeaux, Paris

June, 1918, 89, No. 6

19 *The Mosquito Question. A. Le Dantec.—p. 151.

20 *Hydrarthrosis of Knee in the Wounded. L. Laubie.—p. 158.

21 *Mycosis Simulating Pulmonary Tuberculosis. R. Canio.—p. 162.

22 Sanatorium for Weakly Children. R. Molinéry.—p. 166.

23 Medical Students in the War. Anonymous.—p. 171.

19. The Mosquito Question.—Le Dantec has been studying this question at a seacoast town where mosquitoes abound and the inadequacy of the water supply compels the collection of rain water in cisterns and hogsheads, etc. His conclusion is that the secret of success under the conditions prevailing there is to keep everything screened or covered, and he declares that the local police could enforce this if the municipality orders it. The mayor of Monaco has passed a decree of this kind, ordering that all recipients of water in the grounds and porches must be hermetically closed, as also fountains unless there is a continuously flowing jet or the basin is stocked with fish or is sprayed with petrol every two weeks, 15 c.c. to the square meter. Roof tanks and cisterns must be kept covered and constantly clean, and be cleared out at least once a year. The local health board sees to it that these regulations are enforced, with strict oversight and

prompt prosecution of offenders. A campaign of educating the public should be undertaken, showing the people that they raise their own mosquitoes to torment them, and that they can stop this at any time they wish.

20. Hydrarthrosis of the Knee.—Laubie deplores that so many men with hydrarthrosis of the knee are allowed to go for months before the knee is punctured. When the joint effusion is withdrawn promptly, smooth recovery is the rule in thirty or thirty-five days, but he has encountered many cases in which this was neglected or postponed, and the men after eight, eleven or more months are still incapacitated by their knee lesion. In one of the cases reported the man had been given treatment at ten different hospitals in the sixteen months, but with little benefit. Laubie then punctured and withdrew 60 gm. of fluid and rinsed out the cavity with a 1 per cent. phenol solution. Puncture alone is not enough, as he shows by some examples. It should be supplemented by lavage of the joint cavity with some antiseptic. Among the seventeen cases described were some with gonorrheal or rheumatismal hydrarthrosis but all yielded the same to puncture with lavage, exercise and massage. In one case the hydrarthrosis was evidently the work of a lesion of the sciatic nerve, but this too yielded to puncture and a splint. He sometimes injects 4 or 5 c.c. of a 1 per cent. solution of cocain before the lavage, but usually this is not required. The amount of fluid withdrawn varied from 30 to 500 gm. The success was complete in his twenty-eight cases, with the exception of two in which there was a hygroma or a lesion of the patella. Immobilization and revulsion may cure in quite recent cases of hydrarthrosis; if not, puncture and lavage can be relied on for a prompt cure. One woman of 75 was using the knee in walking ten days after the puncture. With a chronic lesion of this kind, if there is no fluid evident, he systematically brings on a recurrence by forced walking before he intervenes.

21. Mycosis Simulating Tuberculosis.—Canio's patient was a man of 31 who for six weeks had presented a cough, asthenia, backache, periods of fever and intense pain in the right scapular region, and later throughout the right chest. After nearly three months there was a chill and high fever with signs of pleurisy with effusion. After this he began to improve and seemed to have entirely recovered by the end of the fifth month. The symptoms for several months had deceptively simulated those of pulmonary tuberculosis, but the laboratory cleared up the diagnosis, showing the *Penicillium glaucum* in the sputum, reproducing the mycosis by injecting rabbits with the sputum, while the biologic tests and seroreaction confirmed the mycosis nature of the disease. Prompt recovery followed under iodid treatment.

Nourrisson, Paris

May, 1918, 6, No. 3

24 *Syphilis in Children in Morocco. Lacapère and Laurent.—p. 129.

25 The Technic for Artificial Feeding. A. B. Marfan.—p. 137.

26 *Invagination of Intestine in Infants. E. Apert.—p. 148.

24. Syphilis in Children in Morocco.—Lacapère and Laurent state that among 1,000 syphilitic natives examined, no less than 161 were children under 15. Thus 16 per cent. of the syphilitics were children. Fully 75 per cent. of the natives in their district have syphilis, and the children born without it are liable to acquire it soon. In only 37 of the 161 cases of syphilis in children had the disease been inherited. The child mortality is appalling; 70 per cent. had died of the children of 44 syphilitic women who had each borne over six children, and 55 per cent. of the children of 44 nonsyphilitic women with five children each. Malaria, amebic dysentery and diarrheas lie in wait for the Arab children, and the frequent syphilis and utter lack of hygiene render them more susceptible.

26. Intussusception.—Apert emphasizes the necessity for early recognition of acute invagination as it is almost certainly fatal in infants if not promptly corrected. Recent compilations show a general average of 14 per cent. mortality with operations for invagination within the first twelve hours, up to 78 per cent. mortality by the fourth day. In Grisel's

compilation, 68 per cent. of the 300 cases were in infants. In all statistics, male infants form over two thirds of the cases (89 per cent. in Rilliet's compilation). The invagination in infants was ileocecal in 82 per cent. of the cases. The small intestine alone was involved only in 5 per cent. Vomiting is the first symptom and it keeps up. The child looks very sick and distressed, and with his hand seems to be trying to push off from his abdomen something that is hurting him. The stools show blood from the first day; they soon become a reddish brownish soft mass, more or less mixed with mucus, with fifteen or twenty passages a day, but sometimes scarcely more than the mass of a large sputum is passed.

There is no occlusion of the bowels in infants from the invagination, no constipation, no retraction, no induration, no tympanism, at least at first. The abdomen is soft until peritonitis complicates the clinical picture. The invagination is differentiated by the combination of the vomiting, pain and the bloody stools. If no feces are available for examination, the physician's finger introduced into the child's rectum will become coated with the characteristic brownish red paplike stool. It is sometimes possible to detect with the finger in the rectum the tip of the invaginated. In some rare cases the tip projected from the anus, simulating prolapse of the rectum. When the mass formed by the triple-walled cylinder of the invaginated bowel has become congested and inflamed, the tumor thus formed can be palpated. Although the invagination usually starts in the ileocecal region, it advances along the colon, growing constantly longer, which shortens the bowel outside of the invagination, and this draws the invaginated portion more and more out of place, toward the left iliac fossa or into the small pelvis. Hence the invaginated portion is often found in the left iliac fossa or in the hypogastrium, rather than in the ileocecal region where it started.

Paris Médical

May 11, 1918, 8, No. 19

27 *Night Blindness. A. Magitot.—p. 369.

28 *Bone Periosteum Grafts. Virenque.—p. 373.

29 *Treatment of Syphilis of the Nervous System. A. Tzanck and A. Bernard.—p. 376.

27. Adaptation of the Eye to Comparative Darkness.—Magitot remarks that hemeralopia is not uncommon in soldiers at present. Its mechanism is evident, with retinitis from inherited or acquired syphilis or other lesions. When there are no objective findings, the hemeralopia may be congenital, and sometimes inherited. Examples of hemeralopia through several generations are known, the hemeralopia transmitted through the females to the males. Sclerosis in the elderly may also entail hemeralopia, and it has been observed in persons struck by lightning, and as a consequence of kidney or liver trouble. But all these causes combined, he says, do not explain the prevalence of this *cécité crépusculaire* in the soldiers. It must be that many of them had had hemeralopia in civilian life without knowing it. Conditions with myopia favor it, and the stress of active service and effects of auto-intoxication may transform relative into absolute night blindness. Abuse of alcohol is another predisposing factor. Rest in bed for a week, on a milk diet, with diuretics, and abstention from meat afterward will rapidly cure true hemeralopia, as a rule, when kidney and liver disease have been excluded.

28. Bone-Periosteum Grafts.—Virenque adds his testimony to that of others who emphasize that a graft including bone and periosteum is a "physiologic" implant, which in a few months becomes transformed into compact tissue. His experience with it has been mainly with pseudarthrosis of the lower jaw.

29. Treatment of Syphilis of the Nervous System.—Tzanck and Bernard report encouraging results from their method of intravenous injections of arsphenamin in increasing doses, each followed after an interval of five minutes by lumbar puncture evacuating at least 10 c.c. of cerebrospinal fluid. This method of treatment, they say, ranks next to intraspinal injection of arsphenamized spinal fluid, and is safer than the latter when there is doubt as to the soundness of the neuraxis. The details of eleven cases are given; manifest improvement was realized in about two thirds of them.

Presse Médicale, Paris

June 10, 1918, 26, No. 32

- 30 *Edema without Nephritis. M. Labbé and Marcorelles.—p. 289.
- 31 Care of Amputation Stump. P. Desfosses.—p. 290.
- 32 Tardy Tetanus. E. Antoine.—p. 293.
- 33 *Bacteriologic Examination of War Wounds. C. Levaditi.—p. 294.
- 34 Tetanus Localized in Limbs. E. Chauvin.—p. 295.
- 35 *Hemorrhage after Tonsillectomy. J. Labouré.—p. 296.

30. **Edema Without Nephritis.**—Labbé and Marcorelles report two cases of diffuse edema, with anasarca and retention of chlorids, independent of any tendency to kidney disease. In both cases the severe dropsy developed toward the close of an attack of dysentery of moderate severity in one and very serious in the other case. The edema kept up until salt was excluded from the diet, and with this and theobromin the dropsy rapidly subsided. Others have reported similar cases, occurring likewise when the system had been drained of fluids, albumin and salts by the dysentery. The edema in extent and intensity may simulate that of chronic nephritis.

33. **Technic for Bacteriologic Examination of War Wounds.**—Levaditi reproduces the simple bacteriologic case chart in use for the wounded as a guide to the surgeon.

35. **Hemorrhage After Tonsillectomy.**—Labouré gives an illustrated description of the way to suture the pillars, applying three suture threads and tying them over a roll of gauze, or applying a series of three or four Michel clips. The clips can be applied over a piece of rubber tubing about the size of a lead pencil. He tests the blood beforehand to exclude abnormal coagulating properties, or as an indication for horse serum and calcium chlorid. If the operative wound bleeds much, he applies cotton dipped in horse serum, with suture or the clips if the hemorrhage keeps up; with ligation of the common carotid if all else fails. This, he says, done under local anesthesia is both benign and effectual, as he has proved in three cases reported. In one the ascending pharyngeal artery alone was ligated, in the others the common carotid. These patients were all young adults.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 1, 1918, 48, No. 22

- 36 *Tuberculosis in Soldiers. R. Staehelin.—p. 721.
- 37 *Lactic Acid in Stomach. II. A. Rodella.—p. 726.
- 38 "Iron Placenta" Test for Pregnancy. P. Hüsey.—p. 733.
- 39 Cutis Verticis Gyrata; Four Cases. S. Galant.—p. 743.

36. **Tuberculosis in Soldiers.**—Staehelin reviews his personal experience with tuberculosis in Swiss soldiers. One point brought out by some of the cases is that severe stomach disturbances may be the first and for a time the only appreciable symptoms of beginning tuberculosis. There had been subfebrile temperature for some time, but the tuberculin test was negative, and Schlapfer's experience with numbers of persons with subfebrile temperature followed through years showed that only a third developed tuberculosis during the following six to ten years. Hence the diagnosis of tuberculosis cannot be based solely on a subfebrile temperature. The gastric symptoms: vomiting, with slight admixture of blood, pains and tenderness, suggested gastric ulcer, but the subjective disturbances ceased on wearing a band to support the sagging stomach. Five months later they had all returned, with cough and night sweats. Some of the other cases illustrate the importance of examining twice a day for the focal reaction, after the tuberculin test, as otherwise it may escape detection. Of all the men with tuberculosis or the suspects, including those with pleurisy with or without effusion, only 33 per cent. are now clinically cured. This shows the great burden placed by tuberculosis on the military insurance funds, and this burden will increase in the next few years. Many of these men would not have developed tuberculosis if left in civilian life, and it is hard to determine the exact share of the military service in its development. In 1916 the plan was adopted of giving the married tuberculous soldier only one half and the unmarried one quarter of the regular sickness pension provided by law. This is working well, Staehelin says, although theoretically every man disabled by sickness should get the full pension to which he is entitled by law. A collective inquiry has shown that the pension allowed is inadequate in about half of the cases.

37. **Lactic Acid in the Stomach.**—Rodella found lactic acid constantly in the stomach in thirty-five cases of gastric carcinoma. Sarcinae were found in three of the thirty-five. In a case of carcinoma of the right kidney pelvis, there was considerable lactic acid in the sound stomach, which shows that it is not exclusively restricted to cancer in the stomach. The symptoms in this case for a long time had pointed merely to the stomach, and a simple ulcer was found in it.

Riforma Medica, Naples

June 8, 1918, 34, No. 23

- 40 *Recurring Prolapse of Rectum. D. Giordano.—p. 442.
- 41 *Symptoms after Injury of Internal Carotid. G. Bastogi.—p. 444.
- 42 Diagnosis of Adhesive Pericarditis. G. Moscati.—p. 449.
- 43 Vaccination against Smallpox. S. Belfanti.—p. 454.

40. **Recurring Prolapse of the Rectum.**—Giordano's patient was a woman of 72 who had had two operations done in the last eighteen years to correct prolapse of the rectum, without durable benefit. He discusses the various technics that had been or could be applied, and reports complete success with measures directed toward sustaining the upper part of the bowel and reenforcing the floor of the perineum. Neither alone would have sufficed. The visceral ptosis was corrected by anastomosis between the sigmoid flexure region and the anterior aspect of the cecum. This drew up the rectum and abolished at one stroke all the pathologic conditions maintained by the torpor of the excessively long and sagging large intestine.

41. **Hemiplegia After Ligation of External Carotid.**—Bastogi relates that the internal carotid had been injured by a projectile and ligation of the external carotid was required later. Right hemiplegia and aphasia developed suddenly four days afterward, and in a few weeks there were epileptiform spasms on that side. The course of the projectile apparently exculpated the war wound as the direct cause of the brain symptoms. There was evidently some embolism in a cerebral artery and this in turn induced an inflammatory reaction in the tissues around.

Rivista Critica di Clinica Medica, Florence

June 8, 1918, 19, No. 23

- 44 Epidemic of Cerebrospinal Meningitis at Friuli, 1915-1917. G. Berghinz.—p. 265. Concluded in No. 24, p. 277.

Brazil-Medico, Rio de Janeiro

April 27, 1918, 32, No. 17

- 45 *The Lutz Research Commission. O. A. Penna.—p. 129. Commenced in No. 16, p. 121.

45. **Bacteriologic Research Commission in Northern Brazil.**—The research on endemic diseases in northern Brazil was undertaken mainly to study the *Schistosomum mansoni*. The commission was headed by Professor Lutz, and its three years of work have established the biology of this parasite. Its life cycle has been traced from the characteristic lateral-spined ovum through the intermediate host, which is a fresh-water snail, to the adult parasite in rabbits, guinea-pigs and man. His laboratory findings were confirmed in every respect by conditions in nature in northern Brazil—this parasite is not known in the rest of the country. He took with him patients suffering from this helminthiasis to have them point out on rivers and lagoons the spots where they had probably become infested with the parasite. The infestation is usually by way of the skin, as the subject bathes in water containing the larvae escaping from these snails, or walks barefoot along the river bank. Pernambuco, Sergipe and Bahia are the main centers of this helminthiasis. Only the ova seem to cause disturbances; the carriers of the adult parasites present no appreciable symptoms. At necropsies the ova were found frequently in the rectum, liver, lungs and brain. In some cases supposed to be rebellious amebic dysentery, these lateral-spined ova were found in large numbers in the stools, as also in cases of cirrhosis of the liver in younger men not addicted to alcohol. Penna remarks that the ova imprisoned in liver, lungs and brain are of course unable to complete their evolution. They are also inaccessible to therapeutic measures until we discover some absorbable drug with an affinity for the helminths and somewhat organotropic, or find

some means to act on the parasite in the portal region. P. da Silva's recent research has definitely established that this schistosomum is a distinct species, not a variety of the hematobium.

45. Endemic Disease in Northern Brazil.—In the course of Lutz' research he found that 80 per cent. of the persons examined were carriers of the *Necator americanus*, and from clinical observation alone he estimates that 60 per cent. have hookworm and a similar proportion have malaria. The commission further became convinced that the infectious disease known locally as remittent bilious fever, in some cases, at least, is an incomplete form of yellow fever. This assumption explains the otherwise inexplicable appearance now and then of sporadic cases of actual yellow fever with no known chance for infection. In any event, strict isolation of these cases of so-called remittent bilious fever is imperative.

The mosquitoes are so thick along the rivers of northern Brazil that the commission sometimes felt as if works of effectual prophylaxis were not only beyond human powers but even beyond human imagination. A few cases of bubonic plague were encountered here and there. The city of Penedo has been visited several times with serious epidemics of plague. Prophylaxis of plague in these towns would be extremely difficult. A disease was encountered at one town which seemed to be smallpox but the general health was not impaired; there was no fever and no pitting, and vaccination was no protection against it. There was only one fatal case among the 200 inspected. Only four cases of Vincent's angina were encountered, and no cases, outside of Bahia, of tropical leishmaniasis. No case of Chagas' disease was discovered, although the beetle host was common. None of the numerous specimens examined harbored Chagas' trypanosome. Syphilis was found widely disseminated. Large numbers of blind persons showed the ravages of trachoma, smallpox, syphilis or gonorrhea. A number of "polyvalent individuals" were encountered, that is, affected at the same time with malaria, syphilis and hookworm. Penna adds, "The government has undertaken a campaign to arrest the ravages of the pink boll worm in the cotton plantations, but to date nothing has been done to combat the human endemics."

Medicina Ibero, Madrid

April 6, 1918, 2, No. 22

- 46 *Intensive Local Treatment of Syphilids. A. S. da Aja.—p. 1.
- 47 Spontaneous Cure After Delivery of Hernia Developing in Pregnant Women. A. F. Martinez.—p. 5.
- 48 Tuberculosis and Lactation. B. Frias and Muñoverro.—p. 10.

April 20, 1918, 2, No. 24

- 49 Radium Treatment in Rhinology. J. M. Barajas.—p. 61.
- 50 Various Types of Lichen Papule. Sicilia.—p. 64.
- 51 Hygiene of Vision. D. M. Marquez.—p. 65.
- 52 The Convalescent's Decalogue. H. R. Pinilla.—p. 71.
- 53 *Endocarditis with Puerperal and Gynecologic Disease. A. Gracia.—p. 71.

May 4, 1918, 2, No. 26

- 54 Manic-Depressive Insanity. S. Herreros.—p. 125.
- 55 *Treatment of Severe Seborrhea. Sicilia.—p. 127.
- 56 Treatment of Chronic Constipation. R. M. Terol.—p. 127.

46. Local Treatment of Syphilids.—De Aja advocates intensive local treatment for a just beginning chancre when there is a chance for aborting the infection. Also when a secondary or tertiary lesion seems to be the sole or the principal manifestation of the disease and focus of the spirochetes. Also when a lesion keeps recurring at the same point and these recurrences suggest a special local resistance to the general treatment. Also when disease in kidneys, heart or liver prevent effectual general treatment. Local measures include first excision of the lesion, when practicable, dusting with iodid or arsphenamin preparations or injecting a 1 per cent. solution of the iodid, or applying dressings moistened with 1 per cent. arsphenamin, or injecting a 1 per five hundred solution deep into the tissues if the latter are loose, a 1 per thousand if they are compact. These local measures induce lively reactions but they destroy the focus.

53. Puerperal Endocarditis.—Gracia discusses endocarditis and embolism after childbirth and with gynecologic disease. He emphasizes the decisive importance of an early diagnosis, and urges obstetricians and practitioners to apply auscultation early and often to their parturients. At any signs of

modification of the normal heart sounds, they must be on the alert to insist on the necessity for absolute rest and for refraining from large doses of heart tonics, especially digitalis, as this might bring on embolism. In a case of gonococcus salpingitis in a young woman, very high fever developed with chills, frequent lipothymia, tachycardia, low blood pressure and modification of the heart sounds, and this kept up with very little variation for nearly fifty days. The symptoms then subsided and there has been nothing to call attention to the heart since, not even during an intercurrent normal pregnancy, but there are occasionally slight symptoms that suggest some persisting tubal mischief. The treatment consisted of general daily baths, during the high fever, small saline infusions daily, with camphorated oil and caffeine when the heart grew weak, and injections of epinephrin and a pituitary preparation. In another case a woman developed a dragging gonococcus endocarditis, as a complication of chronic salpingitis. The fever was never over 38.6 C. for five months, but then there were signs of septic embolism in the kidney, liver and legs, with final symmetrical gangrene. No benefit was apparent in this case from antigonococcus vaccine, but in a case of gonococcus endocarditis in a man, the symptoms subsided at the fourth injection of a polyvalent vaccine. When extrasystoles develop and the pulse grows weak, the liver becomes congested and albumin appears in the urine, he gives a small daily dose of digitalis for ten days, suspends for five and then gives it for another ten days, and so on. If the heart is overexcitable, he applies an ice bag and gives valerian or quinin bromid in small but continued doses, with camphor and caffeine as indicated. During fever he allows only a liter of milk and a liter of some weak herb tea; as the fever subsides, 1.5 liter milk and soups made with milk; bed rest during fever, and on a couch when the fever subsides. When the acute stage is past, he gives iodid and arsenic and then mineral waters. An interval of three or four months should elapse between the acute phase and the course of thermal mineral waters of the saline type. These aid in toning up the whole system, including the endocardium, warding off a possible recurrence of trouble.

55. Treatment of Severe Seborrhea.—Sicilia insists that treatment and prophylaxis to ward off recurrence must attack the local lesions, combat the obesity, inherited taint or other general predisposing factors, and seek to regulate the functional disturbances common in such cases. Examination of the urine is a guide to treatment, as it may show the need of tonics or of clearing out of waste products. The weight should be watched also. There is generally hyperchlorhydria, hypophosphaturia or hyperacidity to be combated. Exercise and general local massage are useful, besides vigorous and varied topical applications.

Prensa Medica Argentina, Buenos Aires

April 30, 1918, 4, No. 33

- 57 *Skin Manifestations from Tardy Inherited Syphilis. M. R. Castex and E. Centeno.—p. 479.
- 58 Mercury plus Cholesterol in Treatment of Syphilis. E. F. Solari.—p. 484.
- 59 *Resection of the Patella. R. Finochietto.—p. 486.

57. Skin Manifestations of Tardy Inherited Syphilis.—Castex and Centeno state that these manifestations may develop at any age, but they usually appear during adolescence, and predominantly in girls. They are rebellious to all measures except specific treatment for syphilis. Under this they promptly regress, if taken in time. Specific treatment should be instituted at once in all dubious cases, as otherwise they entail irreparable lesions leaving disfiguring scars.

59. Resection of Patella.—Finochietto remarks that in a certain class of cases he has found it advantageous to induce ankylosis of the knee. To render it more stable, he excavated a mortice hole in the lower cut surface of the femur, and in this hole introduced the upper end of the fibula, cut in a truncated square pyramid to correspond. Both femur and tibia had been resected into sound tissue on account of a chronic purulent process in the knee, resulting from a bullet wound some months before. The ankylosis thus realized was firm and durable without extraneous aid. The shortening of the leg was corrected with a thick soled shoe.

Revista Medico-Cirurgica do Brazil, Rio de JaneiroMarch, 1918, **26**, No. 3

- 60 *Bladder Stones in Children. A. de F. Guíão.—p. 91.
61 *Yellow Fever in Victoria on the Coast. T. Torres.—p. 111.

60. **Bladder Stones in Children.**—Guíão remarks that concretions in the bladder are most common at the two extremes of life, in young children and in the aged. The male children of the poor and the aged form the overwhelming majority of bladder stone cases. In published statistics, children under 14 formed 50 per cent. of the cases, and the greatest frequency was between the ages of 3 and 5. The symptoms are generally merely pain, pollakiuria and the aspect of the urine. The pain radiates to the perineum, rectum, penis and lumbar region. The pain is especially sharp at the close of micturition, when the bladder contracts over the concretion. Repose relieves the pains; it is not felt at night. If the concretion is small it may induce merely slight incontinence, frequent desires to urinate and pruritus of the genital organs. The child rubs the genital organs, so that an especially exuberant prepuce is an instructive sign of bladder stone not causing appreciable symptoms. Palpation through the rectum and hypogastrium may reveal the concretion, or an ordinary catheter introduced into the bladder.

In one of his cases a metal probe disclosed the presence of a supposed concretion in the bladder, but it proved to be a hard tumor. It is difficult to apply the cystoscope to a male child, and radioscopy is likewise difficult; even the use of the No. 12 catheter or metal sound had better be preceded with injection of an anesthetic into the urethra. Operative treatment is the only radical means of cure when the concretion is once formed. The difficulty and the danger of injuring the urethra in the child render lithotripsy rarely applicable. The suprapubic incision of the bladder is the measure advocated by Guíão. He relates ten typical cases to show the harmlessness, the convenience and the complete success of the removal of the stones by the suprapubic route. In one child of 14 months, the stone must have been congenital, as the disturbances in micturition had been noted from birth. The incisions all healed by primary intention and the children were dismissed from the hospital between the tenth and the twentieth day. The calculus in one boy of 10 was as large as a hen's egg. The concretions seemed to be single in each case.

61. **Yellow Fever at Victoria.**—This is a city of 15,000 inhabitants on the coast, 270 miles north of Rio. There were sixty-one cases of yellow fever there early in 1917, and this is the official report of the representative of the national public health service sent to stamp out the epidemic. This was successfully accomplished.

Revista de Medicina y Cirugia, HavanaJune 10, 1918, **23**, No. 11

- 62 *Prevention of Deafmutism. H. Seguí.—p. 291.
63 Branchial Cyst in the Neck; Two Cases. E. Stincer.—p. 295.

62. **Prevention of Deafmutism.**—Seguí comments on the difficulty, even for a physician, to distinguish between congenital and acquired deafness in an infant. But the distinction is extremely important as; without congenital atrophy of the organ, there are generally vestiges of hearing left which are susceptible of being trained. Left unexercised, the auditory nerve finally becomes incapable of functioning. Seguí outlines the exercises capable of rousing these dormant vestiges of hearing, first with loud sounds, then with words and syllables. Loss of hearing before the age of 4 often entails mutism. Even if the child is older when it becomes deaf, it is liable to forget the mechanism of speaking unless pains are taken to keep it practiced. Seguí recently encountered a case of deafmutism acquired in this way. The child's speech and hearing were normal till the age of 5 when it was rendered deaf by having hot oil poured into its ears by a quack, and the child since has forgotten how to talk.

Semana Medica, Buenos AiresMarch 28, 1918, **25**, No. 13

- 64 Dr. Coni's Work on Buenos Aires Institutions for Care of the Sick and Poor and for Welfare Work in General. J. Penna.—p. 337.

- 65 *Mortality at Rosario. J. B. Valdes.—p. 340.
66 Compulsory Notification of Tuberculosis. E. R. Coni.—p. 344.
67 Care of Children's Teeth in Institutions. Zawels.—p. 348.
68 Combinations of Iodin and Tuberculin. J. Frenguelli.—p. 354.
69 Orogenous Meningitis without Pus in Tympanum. F. Eiras.—p. 358.

April 4, 1918, **25**, No. 14

- 70 *Ectromelic Monster. J. C. L. Massini.—p. 365.
71 *Tuberculosis in Western South America. S. de Madrid.—p. 371.
72 Federation of Mutual Aid Societies. E. R. Coni.—p. 375.
73 Diagnosis of Appendicitis. G. Giacobini.—p. 376.
74 *Legislation on Mutual Aid Societies. A. M. Gimenez.—p. 377.
75 Indications for Induced Sneezing. S. V. de Castro.—p. 383.

65. **Mortality from Infectious Diseases at Rosario.**—Valdes' tables of statistics show that since 1915 there has not been a fatal case of smallpox at Rosario, but there were two deaths from plague in 1917, and 631 from tuberculosis. (Rosario's population was given at about 100,000 in a recent census. It is on the river about 250 miles above Buenos Aires.)

70. **Congenital Amputations.**—The roentgenograms of the case reported by Massini confirm the assumption that the so-called amputations are in reality malformations, in consequence of some process of degeneration or necrosis. The limbs show different malformations above the supposed amputation from constricting bands.

71. **Tuberculosis in Brazil, Peru, Bolivia and Chile.**—This is a series of letters, each from an authority in the different countries, replying to de Madrid's questionnaire. All emphasize the high incidence of tuberculosis in negroes, and also in the native Indians when they settle in towns. The death rate from tuberculosis is increasing in each country but much more rapidly in the towns. In Chile, the negro and Indian races have been so decimated by tuberculosis that these races are dying out, and the population is gradually growing white. Persons who return to Chile after a few years' absence comment on this constant blanching of the populace. The only exception is Bolivia; in this country the Indians lead out-of-door lives, and the high altitudes cause the chest measure to be exceptionally large. It is always up to 7 cm. above the average chest measure for the height. The red corpuscle count is also high; it was found up to 7,146,666 in the men examined. The Indians lose their immunity to tuberculosis when they seek work in towns. The half-breed working classes have most of the cases, aside from the tuberculous aliens who seek health in the mountain climate of Bolivia. It is dangerous for those who have heart trouble.

74. **Mutual Aid Societies.**—Gimenez presents an outline for legislation to regulate the founding and functioning of mutual aid and fraternal organizations. He specifies in particular the provisions for providing medical service and medicines, instruction in hygiene, etc., for the members, and for the federation of different societies.

Siglo Medico, MadridMay 4, 1918, **65**, No. 3360

- 76 *Tuberculous Hyperthyroidism. R. S. de Santa Maria.—p. 342.
77 *Two Months in Pulido Martin's Service. B. Gomez.—p. 344.

May 11, 1918, **65**, No. 3361

- 78 History of Municipal Sanitary Inspection. V. Prieto.—p. 362.
79 *Trauma of Urinary Apparatus. S. Pascual.—p. 364.

76. **Tuberculous Hyperthyroidism.**—A case is described in which the vagotonic hyperthyroidism suggested exophthalmic goiter, but unmistakable signs of apical tuberculosis disclosed its toxic origin from the tuberculosis toxins. Under specific treatment of the tuberculosis, the apex cleared up and with this all the thyroid symptoms disappeared. In some cases of pure exophthalmic goiter, the writer has witnessed a spasmodic cough suggesting tuberculosis, of purely vagotonic origin, as also in some cases of simple poisoning from thyroidin. Hypothyroidism may accompany tuberculosis, and thyroid treatment may effectually supplement specific treatment of the tuberculosis, which without it may fail of success. Hypothyroid rheumatism, he says, is comparatively common and exceptionally amenable to treatment.

77. **Some Minor Urologic Points.**—Gomez mentions the instructive findings when a light is introduced into the rectum or vagina to aid in cystoscopy. Lurking gonococci in the

seminal vesicles may be dislodged and destroyed by injection of a silver salt into the vas deferens. This requires an insignificant operation to expose the vas; cases thus treated have been cured or much improved. This had evidently destroyed the focus responsible for the gonorrheal rheumatism in some cases.

79. Trauma of Urinary Apparatus and Workmen's Compensation.—Pascual calls attention to the perils that menace a working man after a traumatism affecting the urethra. He may have apparently entirely recovered, but after a few months signs of stenosis can be discovered if carefully sought.

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- 80 *Experimental Ileus. S. Ogata.—p. 235.
- 81 Pharmacology of the Oxyhydro-Aromatic Bodies. Y. Sasaki and K. Okushima.—p. 257.
- 82 *Hemostatic Action of Gelatin. J. Ono.—p. 271.
- 83 *Action of Toxins on Perfused Uterus. S. Okamoto.—p. 307.
- 84 Influence of Pyroracemic Acid on Experimental Acidosis and Glycosuria. T. Suga.—p. 375.
- 85 *Disinfectants for Wounds. H. Tsuji and K. Tachibana.—p. 387.
- 86 *Improved Recording Instruments. A. Gohara.—p. 399.

80. Experimental Occlusion of the Intestine.—Ogata concludes from analysis of what has been published in this line and his own extensive experience, that in the majority of the experiments, the occlusion was not complete. The supposed total occlusion was merely more or less stenosis of the pylorus or bowel. Complete occlusion can be realized by merely ligating with a strip of fascia from the vicinity. This autoplasmic material does not cut through as do all other materials. It heals organically in place and the passage is permanently closed.

82. Hemostatic Action of Gelatin.—Ono says that gelatin has been used as a hemostatic in China and Japan from prehistoric days, but it has been used in Europe only since Hecker (1838). He has been studying the mechanism of its action, and comparing it with other hemostatics. In the test tube it promotes the coagulation of blood, even when coagulation has been checked with extract of leeches. This confirms that the hemostatic action is due to the sticking together of the blood corpuscles, and not to an action on the walls of the blood vessel or other factor. The blood corpuscles stick together, face to face, in the coin-roll manner. Other substances which have hemostatic action cause precipitation of the corpuscles, as well as agglutination. This group includes starch, agar, abrin, alien serum, alum and copper sulphate. The substances of the gelatin group alone have a coagulating action in vitro. From the alimentary canal, however, they have no action at all.

83. Action of Nerve and Muscle Toxins on Perfused Uterus.—Okamoto experimented with various animals and gives forty-five tracings showing the action of pilocarpin, atropin, etc. His findings are compared with those of others and his own previous research. Among his practical conclusions is that pilocarpin must never be given to pregnant women as it exerts a stimulating influence on the motor function of the uterus as well as of the bowel. Atropin may counteract this stimulation to a certain extent. Nicotin first inhibits and then stimulates; cocaine induces tetanic spasms when in a weak dilution but paralyzes in a stronger solution. Epinephrin behaves differently in different species, exerting a stimulating action in the cat, rabbit and guinea-pig, but inhibiting the rat uterus. Quinin has an inhibiting action on the nonpregnant uterus but stimulates the pregnant or puerperal uterus, as the stretched uterus fibers are more sensitive to stimulating influences of all kinds. Hence the therapeutic administration of quinin to the pregnant should be very cautious, as it might induce premature expulsion of the fetus. On the other hand, quinin might prove useful to combat inadequate labor contractions. It seems to act directly on the muscles, as its action is not checked by atropin, while quinin checks the stimulation from epinephrin: Papaverin relaxes the uterus musculature. Morphin seems to exert a similar action on the uterus in its normal place, but on the surviving and perfused uterus it displays a stimulating action.

85. Wound Disinfectants.—The findings after thirty and after sixty minutes and after twenty hours are given as the index for comparison. The deepest penetration recorded was with 5 per cent. hydrogen dioxid; next to this, 10 per cent. hydrogen dioxid; 10, 5 and 1 per cent. tincture of iodine; 1 and 2 per cent. mercuric chlorid; decinormal potassium iodid solution; alcohol; 5 per cent. phenol; 1 per cent. picric acid; 0.5 and 0.1 per cent. malachite and brilliant green, and balsam of Peru. Dakin's solution is low in the list.

86. Improved Recording Instruments.—Gohara gives five models of recording arms and points which register minute movements with greater precision than heretofore attained. In one, the tangential lever has an interposed spring coil to multiply the elasticity of the recording point. In another model the influence of gravity is utilized. By a further contrivance he is able to use several recording points at once. Each model is described in detail, with illustrations.

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- 87 *Scabies. S. M. da Costa.—p. 1281.
- 88 *Spirochetes in Paretic Dementia. L. Bouman.—p. 1293.
- 89 History of Medicine in the Netherlands. F. M. G. de Feijfer.—p. 1297.
- 90 *Nervous Asthma and Psychoses. A. Q. v. B. Houckgeest.—p. 1293.

87. Scabies.—Da Costa concludes his study of scabies and its treatment by advocating sterilization of body and bed linen by immersing them in boiling water, woolen goods by ironing them with a hot flatiron. The bedsteads are wiped off with a cloth dipped in turpentine. If a sterilizing oven to disinfect the mattress, pillows, etc., is not available, he advises brushing and beating them out of doors and then shutting them up for a couple of weeks in an empty room or large box. Apart from the body, the parasites almost always die in about a week, presumably from lack of food.

88. The Pale Spirochete in Paretic Dementia.—Bouman was unable to find any spirochetes in his sections of brains from cases of paretic dementia until he reached his twentieth brain. Even in this brain there were only a few specimens of the spirochetes to be found. The search for them is facilitated by placing the preparations in a 1 per cent. solution of uranium nitrate for half an hour or an hour at 37 C.; the specimen is then soaked and rinsed in distilled water for a day and then in 96 per cent. alcohol for five days, then rinsed in distilled water until the sections sink, then continuing with the usual technic.

90. Asthma and Psychoses.—Houckgeest comments on the scanty literature on the connection between asthma and psychoses. Kelp has reported a case in which attacks of asthma alternated with a psychosis consisting of hallucinations, weakness of will and intelligence, followed by depression, distress and ideas of being poisoned. As the mental condition returned to normal, the asthma recurred. After this subsided, the man had no further trouble from this source. There had been preceding abuse of morphin and chloral in this case, and the psychosis may have been of toxic origin. Norman has also reported seven cases in which a tendency to asthma coexisted or alternated with periods of mental impairment. In only one of the seven the asthma persisted unmodified during the intercurrent psychosis, an acute melancholia. In a case personally observed by Houckgeest, the young man had had nervous asthma coming on after diphtheria as a child, and a psychosis developed about seven years ago. At present it is of the schizophrenia type. During the periods of the psychosis, the asthma seems to be mitigated but never subsides entirely. He has improved so much in the last year that he is now holding a lucrative position.

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- 91 Physiology of Sense of Smell. E. L. Backman.—p. 319.
- 92 Influence of Santonin on Vision. B. Jacobowsky.—p. 471.
- 93 Relations between Structure and Functioning of Nerve Elements. G. F. Göthlin.—p. 501.
- 94 Action of Electricity on the Ciliary Movements of the Ctenophores. G. F. Göthlin.—p. 522.

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GLUCOSE INTRAVENOUSLY AS A THERAPEUTIC MEASURE*

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In combating serious diseases, besides the specific effects of the invading micro-organisms, we have to deal with three very important conditions, dehydration, intoxication (from retention of waste products) and nitrogen starvation. The picture is a very complex one, and I shall not attempt to analyze and disentangle all the component signs and symptoms.

It seems to me that dehydration is the least appreciated and therefore the most potent for evil. Three fifths of the body weight is water. A man will succumb to the deprivation of water in a few days, while he can survive the deprivation of food for forty days or more. Water is needed to maintain the volume of the blood necessary for the mechanical efficiency of the circulatory apparatus, to carry nourishment to the cells, to carry away in solution the waste products of metabolism, and to maintain the proper solutions and osmotic conditions essential to normal cell life. Lusk¹ points out that without a sufficient supply of water the fasting organism cannot utilize its own protein and fat for the supply of energy necessary for existence. Water is also very important for certain biochemical reactions incident to metabolism. It is an essential factor in heat regulation by evaporation from the skin and lungs; approximately two thirds of a liter being thus utilized daily by a resting man.

When water is abstracted from the blood by natural processes and is not promptly replaced from without, it is taken from the tissues, thereby impairing the normal vital processes of the cells. In the same way, when food is not supplied from without, the body tissues are drawn on and broken down to supply both nitrogenous and nonnitrogenous needs.

The maintenance of a sufficient supply of water from natural sources is interfered with by nausea, conditions of the throat or esophagus which prevent or limit swallowing, conditions of the gastro-intestinal tract which prevent the retention and absorption of water, apathy, delirium and coma. An abnormal and often dangerous loss of water is occasioned by vomiting, diarrhea, profuse perspiration, acidosis, hemorrhage, and by sudden large inflammatory exudates from serous membranes.

We have recently found that in some of our streptococcus pleurisies the nitrogen loss also in these exudates should be reckoned with. The serous exudate contains 1 per cent. of nitrogen, or 10 gm. to the liter. The purulent exudate contains 1.2 per cent. of nitrogen. These figures have been carefully worked out at Camp Lee by Lieutenant Bell of the Streptococcus Commission. Sometimes more than 3 liters were aspirated at one time, and often repeated aspirations were made over periods of several weeks, the exudates still remaining serous. One patient had eleven aspirations in four weeks, although in that case the total amount of fluid drawn was only 1,750 c.c. Purulent cases sometimes discharge large amounts over long periods.

The best known picture of rapid dehydration is that of Asiatic cholera. The best results in the treatment of cholera have been by the free supply of water by intravenous injections. Almost equally striking is the picture sometimes presented in Shiga dysentery and in acute and severe acidosis. Joslin says that the latter patients should be given a liter of water every six hours. Children with dysentery, moribund from dehydration, may be saved by large injections of physiologic sodium chlorid solution into the peritoneal cavity.

This dehydration, with more or less cooperation of sepsis, intoxication and starvation, presents the following picture: Respiration becomes rapid. The pulse increases in rapidity, becomes small and thready, and finally disappears. The systolic pressure falls, sometimes to 60 or 70. The pulse amplitude is diminished. The tongue becomes dry and parched, the skin generally dry, the features pinched, the eyeballs sunken, the tension of the eyeballs markedly diminished. The surface of the body may be cold, and the extremities clammy and shriveled. The patient looks "toxic" and rapidly becomes weaker. Apathy develops, with disinclination to take water or food. There is oliguria, sometimes almost complete suppression, and constipation. Sometimes there is restlessness and irritability, followed by hallucinations, delirium and coma. The loss of weight may be very great.

This picture may occur in empyema, meningitis, typhoid fever, Shiga dysentery, peritonitis, brain abscess, pneumonia and other conditions.

The problem, then, is not merely to supply a sufficient amount of fluid for the daily needs but to make up the extreme deficiency of the past days before the damage shall have become irreparable, while at the same time, energy should be supplied, and the body nitrogen, which is being sacrificed rapidly, should be spared.

The supply of a suitable amount of hypertonic glucose solution intravenously has the following

* Chairman's address, read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Lusk, Graham: The Science of Nutrition, Ed. 3, Philadelphia, W. B. Saunders Company, 1917.

effect: The general appearance improves at once. The features are less pinched. The patient looks brighter and less "toxic." The respiration becomes slower. The pulse becomes slower and fuller. The blood pressure rises. The pulse amplitude is markedly and persistently increased. Erlanger noted much more effect from glucose than from control injections of salt solution. The tongue becomes moist. The patient asks for water and food. The kidneys and bowels become active. If the patient was restless or delirious, he becomes quiet and often goes to sleep while the injection is being given.

This procedure should be repeated, if indicated, at intervals of eight, twelve, eighteen or twenty-four hours, until, with the aid of the oral and rectal administration of water, the normal proportion of fluids has been restored and convalescence established.

Glucose is chosen because it is nontoxic, it is quickly utilized by the organism, it is the best sparer of nitrogen, it is a stimulant to the mechanism of cell metabolism, and it is easily obtained and easily prepared.

When glucose is injected into the blood stream, the first effect apparently is the absorption of water from the tissues, as shown by a fall of the hemoglobin percentage, indicating greater dilution than the water injected will account for. The secretion of the kidneys is temporarily diminished, owing to the need of water in the blood stream.

This taking of water from the tissues may be assumed to remove specific toxins and waste products with it in solution. The glucose is quickly taken up from the blood by the tissues, and this sets free the water either for elimination from the kidneys or for utilization in the body protoplasm. That the glucose is burned there is no doubt. There is an increased heat production which does not follow the intravenous introduction of water or of water with sodium chlorid or urea, as shown by Lusk.

Lusk believes that there is a definite stimulation of the cell mechanism by the food in the blood stream. This accords well with our clinical observation. Many physicians have remarked that the apparent effects of an injection of glucose are often strikingly out of proportion to the quantity of water and sugar used. An injection of 200 or 300 c.c. of a 25 per cent. solution is often followed by a return of thirst and appetite, the reestablishment of a normal flow of urine, a drop of temperature and a definite beginning of convalescence. This cannot be due solely to the water supplied.

The results of a single small injection are particularly striking in cases in which the injection has been followed by a marked reaction—chill, rise of temperature, sweating, etc.

Certain pneumonia patients at Camp Lee during the stage of convalescence, though taking sufficient food and fluid, failed to improve as expected. The tongue showed a tendency to be dry; the pulse was rapid; the extremities were cold and clammy; the appearance was muddy, slightly cyanotic and "toxic"; there was mental sluggishness, or apathy. In four such cases from one to three 25 per cent. intravenous injections initiated a prompt and uninterrupted improvement.

I feel that a reaction following the intravenous injection of glucose is an artefact to be avoided. In the work of Erlanger and Woodyatt,² and Wilder and

Sansum³ a large number of injections have been given without reaction. In my cases, reactions have occurred occasionally, but without serious results. It is interesting to note that the apparent effects of some of the reactions we have had strikingly resemble some of the results reported by Miller and others from the intravenous treatment of arthritis by foreign protein and other substances. For example:

A boy, aged 12, who had been desperately ill for several days with lobar pneumonia with a temperature of 105.3 F., after receiving 300 c.c. of glucose solution had a severe chill of ten minutes' duration and a rise to 108.4 F., followed by a drop of 98 F. in ten hours. Two days later his temperature had risen to 104.5 F., when he received 300 c.c. of glucose, which was followed by a chill with a rise to 107.5 F., dropping to normal in about six hours, followed by a moderate rise for twenty-four hours and an uneventful convalescence.

It is understood, of course, that it was his general condition, not his temperature, that indicated the use of glucose.

After the water is eliminated or absorbed, the blood pressure falls; but the pulse amplitude remains good because the heart muscle has been nourished and stimulated by the glucose.

The loss of fluid into the dehydrated tissues may be more important for the blood volume than the loss of fluid by the kidneys, and indicates an immediate repetition of the intravenous injection.

My experience with the intravenous use of glucose solutions began in 1909. For several years I used only an isotonic solution (51 gm. to the liter), using it in all cases in which I had previously resorted to salt solution by hypodermoclysis.

A series of desperately ill patients with late and neglected pneumonia, brought into the ward of the Pittsburgh Hospital, showed strikingly satisfactory results. I never saw any evidence of hemolysis.

In 1914 I began to use hypertonic solutions.⁴ Since then I have resorted to the intravenous use of hypertonic solutions of glucose with greater and greater frequency and with greater and greater satisfaction.

Many of my surgical friends have become ardent converts to its use both before and after operations—in desperate risks, to prepare the patient for operation, and for varied postoperative conditions for which it offers particular advantages. In my service at Camp Lee during the past nine months, it has been used frequently and freely. Many medical officers have become enthusiastic advocates of this measure from their observation of its results in cases of pneumonia, meningitis, typhoid fever, septic peritonitis, empyema and brain abscess.

TECHNIC

The splendid work of Woodyatt and his followers has demonstrated that a man can take care of 0.8 gm. per kilogram of body weight per hour without glycosuria. For clinical work, 250 c.c. of a 25 per cent. solution, which is the strength I ordinarily use, and of which the caloric value is conveniently counted as 1 calory per cubic centimeter, may be given in about one hour to the average adult patient. Spectroscopic analysis and the electric pump are not necessary outside the physiologic laboratory.

Any method for arsphenamin administration is satisfactory for glucose solutions.

3. Wilder, R. M., and Sansum, W. D.: d-Glucose Tolerance in Health and Disease, *Arch. Int. Med.*, February, 1917, p. 311.

4. Litchfield, Lawrence: The Abuse of Normal Salt Solution, *THE JOURNAL A. M. A.*, July 25, 1914, p. 307.

2. Erlanger, Joseph, and Woodyatt, R. T.: Intravenous Glucose Injections in Shock, *THE JOURNAL A. M. A.*, Oct. 27, 1917, p. 1410.

Care should be taken in the water used, remembering that sterile water is not necessarily nontoxic. A pure supply, filtered and double distilled, is desirable. Any pure glucose may be used. The solution should be sterilized by autoclave or boiling.

The temperature of the solution should be maintained during the administration at about 100 F. This may be done conveniently by having the tube pass through a large basin of hot water placed beside the patient. The needle is held in position by a piece of adhesive plaster fixing the tube to the arm about an inch from the needle. Small needles are best.

A hypodermic injection of morphin may be given if necessary to control a delirious or hypersensitive patient.

The largest amount we have given at one time was 1,700 c.c., which flowed with an intermission of two hours, continuously for eleven hours, and was not followed by glycosuria.

When we know more about inorganic metabolism, we may rationally modify our solutions accordingly.

EXCERPTS FROM CLINICAL RECORDS

CASE 1.—E., admitted because of lobar pneumonia, was irrational for five days after entering the ward, refused nourishment and became steadily weaker. Intravenous injection of 500 c.c. of 25 per cent. glucose solution resulted in immediate improvement.

CASE 2.—F., with lobar pneumonia, in a very toxic condition, with tongue dry, brown and coated, was delirious on admission. Intravenous injection of 500 c.c. of 25 per cent. glucose solution caused the patient immediately to become quiet, and improved.

CASE 3.—P., with streptococcus infection and purulent pericarditis, had undergone operation, and his condition was very low. Intravenous injection of 25 per cent. glucose solution, 1,000 c.c. given in two doses, effected marked improvement.

CASE 4.—C., with lobar pneumonia, Type I, had received 300 c.c. of antipneumococcic serum in three doses, with no improvement. Intravenous injection of glucose solution, 500 c.c., led to immediate improvement.

CASE 5.—S., who had Type I pneumonia, was in an unsatisfactory condition though he had received 900 c.c. of antipneumococcic serum. Intravenous injection of 1,500 c.c. of glucose solution caused him to improve markedly, but he developed streptococcus infection (as shown by blood culture) and died.

CASE 6.—N., with lobar pneumonia of very severe type, lost strength and refused nourishment. Intravenous injection of 500 c.c. of glucose solution resulted in immediate improvement.

CASE 7.—L., an alcoholic, with lobar pneumonia, had been delirious seven days and was thought to be dying. Intravenous injection of 250 c.c. of glucose solution was performed. Improvement began at once and recovery followed.

CASE 8.—F. was brought in delirious on the third day, Oct. 24, 1917, with epidemic meningitis. He developed pneumonia with phlebitis of the left leg, and had nine intraspinal and two intravenous injections of Flexner's serum. In the third week he was semicomatose, but intravenous injection of 210 c.c. of 25 per cent. glucose solution resulted in marked improvement from a condition typical of toxic dehydration. Next day 250 c.c. led to striking improvement; the mouth became moist, the patient took fluids, the kidneys became active, the mental condition steadily improved and slow convalescence followed.

CASE 9.—S., a pneumonia patient in a condition of marked dehydration, was given 1,250 c.c. of 25 per cent. glucose solution intravenously in three days. Convalescence was established.

CASE 10.—H. presented a septic type of temperature and dilated heart following pneumonia with dehydration. Intravenous injection of 1,220 c.c. of 25 per cent. glucose solution in three days led to recovery.

CASE 11.—S., with pneumonia of Type II, was very toxic, dehydrated, and his nervous system was much disturbed.

Intravenous injection of 2,350 c.c. of 25 per cent. glucose solution in five days led to recovery.

CASE 12.—W., a pneumonia patient, was very toxic and dehydrated. Intravenous injection of 580 c.c. of 25 per cent. glucose solution in one dose was followed by immediate improvement, going on to recovery.

CASE 13.—B. (colored), with pneumonia, had a temperature of 105 F. and was in a very desperate condition. Intravenous injection of 400 c.c. of glucose solution was followed by chill and delirium; the temperature dropped 4 degrees in three hours. Four days later, 400 c.c. were again given, this time with no reaction. Recovery was very rapid.

A STUDY OF DIAPHRAGMATIC MOVEMENTS IN ACUTE ABDOMINAL INFLAMMATION*

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Limitation of diaphragm movement in the presence of certain intra-abdominal lesions is well known. About twenty years ago Czerny¹ cited postoperative limitation, with its resulting pulmonary congestion, as one of the causes of postoperative pneumonia. The diagnostic importance of the position of the diaphragm and of its motility in differentiating between supraphrenic and subphrenic disease is often referred to in the literature.² The lesions to which this effect on the diaphragm is attributed are those that involve contiguous organs. Thus, Hubeny³ cites gastric ulcer located at the esophageal opening. Hughes⁴ says:

The diaphragm, if its peritoneal surface be inflamed or irritated from any cause whatever, e. g., a perforating gastric ulcer, will be thrown out of action in the same way as the abdominal muscles. If only one half is affected, that half will not move so freely as normally, and it is probably on this account that the occasional difficulty in diagnosis arises between a lobar pneumonia and a perforated gastric ulcer.

My attention was first called to a unilateral inhibition of diaphragm movement and diminished lung ventilation in a man who had been operated on because of an acute appendicitis; a few hours after recovering from the effects of the anesthetic (ether) he developed a slight cough, but no elevation of temperature. At the request of the surgical service his lungs were examined. This examination was negative except for absence of breath sounds in the lower right axilla and the lower right back. He was seen a few hours later, and this absence of breath sounds was no longer noted. He made an uneventful, afebrile recovery. These auscultatory findings could not be explained on the basis of a pulmonary lesion. It was thought that the absence of breath sounds may have been due to a splinting of the right lung and that this splinting may have been a reflex protective mechanism to shield the area damaged by appendical inflammation and surgical trauma. It was argued that if this condition existed after operation, it might reasonably be looked for before operation, and it was determined to examine as many cases of acute abdominal disease as possible with this end in view. Through the kind-

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Czerny, quoted by Henle: *Arch. klin. Chir.*, 1905, p. 130.

2. Hoover, C. F.: The Functions of the Diaphragm and their Diagnostic Significance, *Arch. Int. Med.*, August, 1913, p. 214. Adams, J. E., and Cassidy, M. A.: *Acute Abdominal Diseases*, London, 1913.

3. Hubeny, M. J.: *Am. Jour. Roentgenol.*, 1916, **3**, 364.

4. Hughes, E. C.: *Guy's Hosp. Gaz.*, 1917, **21**, 294.

ness of the surgical service at base hospital, Camp Wadsworth, S. C., notice was given of all patients that on admission had abdominal pain. Stress of work made it impossible to see all these patients or to study any of them very carefully. Twenty-five patients in all were seen and examined, and the observations made form the basis for this report.

The diaphragm is one of the most important muscles of the body, ranking second only to the heart as a "vital organ." This is not the place to consider minutely its anatomy and physiology. A few cardinal facts should be kept in mind. The inspiratory enlargement of the thoracic cage takes place in three dimensions. The increase of the longitudinal diameter of the thorax is due solely to the descent of the diaphragm.⁵ This has a direct bearing on our problem. Increase of the anteroposterior and transverse diameters (scaleni and intercostals) can be accomplished without influence on a diseased area in the abdomen, that is, without raising intra-abdominal pressure. The diaphragm is supplied by the right and left phrenic nerves, derived from the anterior primary divisions of the third, fourth and fifth cervical nerves. The nerve filaments that pass to the diaphragm from the lower four intercostal nerves are sensory in function and supply only the peritoneum. Inhibitory fibers have not been demonstrated in the phrenic nerve.⁶ This is important to remember in an attempt to explain the phenomenon of unilateral inhibition of the diaphragm.

SCOPE OF THE EXAMINATION

The examination of the twenty-five soldiers, which forms the basis of this report, was conducted as follows: Notice was received that a patient with suspected acute abdominal disease (in every case but one, appendicitis) had been admitted to one of the surgical wards. The patient was seen, and auscultation of the chest was first done. The abdomen was then examined and the findings noted. The soldier was then taken to the roentgen-ray laboratory, and the screen examination was made with the subject in the horizontal position. Those patients that were to be operated on were not given a preliminary morphin injection. No attempt was made to influence the surgeons on the grounds of the auscultatory and screen examinations, as the validity of the conclusions arrived at had not been established. As the investigation progressed, however, I learned to lean more and more on the evidence furnished by the diaphragm sign. The auscultatory difference between the right and the left side was solely a quantitative one in the inspiratory murmur, its loudness, length and intensity. The inspiratory murmur was usually noted as "feebler" on one side than on the other. The roentgen-ray examination consisted of a comparison between the amplitude of the excursion of the right and left halves of the diaphragm.

The majority of cases examined were clearcut cases of acute appendicitis, catarrhal, gangrenous and perforative. The degree of fixation of the right diaphragm, estimated by the intensity of the breath sounds and by the screen, varied somewhat with the severity of the local condition. This relationship was by no means constant, nor could it be estimated quantitatively so that it might be used in foretelling the character of the inflammation that was to be found.

The roentgen ray in every case substantiated the stethoscopic findings. The right diaphragm was as a rule flatter than the left. Its movement was limited when compared to the left, and there was less lighting up of the right than of the left costophrenic sinus. In sixteen cases in which the diagnosis of acute appendicitis had been made, the diaphragm sign was positive and at operation an acute inflammatory condition was found. In three cases the physical signs were questionable so that operation was delayed. In these cases the diaphragm sign was positive and later operation showed an acutely inflamed appendix. In three doubtful cases the diagnosis of appendicitis was made by some of the surgical assistants. In these cases the diaphragm sign was negative. These patients were not operated on and made uneventful recoveries. It is not certain that one or more of them did not have acute appendicitis that subsided without operation. In three cases that were unhesitatingly called acute appendicitis because of history and physical signs in which the diaphragm sign was negative, normal appendixes were found at operation.

It may be interesting to give a few details concerning some of these cases:

REPORT OF CASES

CASE 1.—Private P. G. W., Reg. No. 6189, was admitted with a history of headache and pain in the right lower quadrant radiating down to the scrotum, with nausea, but no vomiting. The usual abdominal signs were negative, so that this was not considered a case of acute appendicitis. My notes on the diaphragm stated that there was a distinct suppression of breath sounds on the right side in the axilla and back. Screen examination revealed some flattening of the right diaphragm. Diaphragm movement on the right was less than on the left, and the lighting up of the left costophrenic sinus was much more pronounced than the lighting up of the right. The patient was operated on twenty-four hours after admission, and the surgeon noted retrocecal appendix, erectile, acutely flexed, walls thickened, vessels injected, bulbous tip.

CASE 2.—Private G. G., Reg. No. 6213, had a ruptured appendix with some free pus in the peritoneal cavity. The diaphragm sign was acutely positive, but in spite of the peritoneal involvement, the left diaphragm moved freely.

CASE 3.—Sergeant H. K., operated on for acute appendicitis, April 12, 1918, had a rise of temperature, April 15, to 102. He was referred to the medical service for the purpose of determining whether or not there was a postoperative pneumonia. Roentgenoscopy revealed a most startling difference between the movements of the two halves of the diaphragm. The excursions on the left side were fairly adequate; the left costophrenic sinus lighted up well. The right diaphragm was practically fixed. Most careful scrutiny revealed a minimal excursion in the central portion of the right half of the diaphragm. Necropsy disclosed a suppurative peritonitis limited to the right side of the abdomen.

CASE 4.—Private C. R. W., Reg. No. 6675, began to be ill with sharp, cramping pains in the lower right abdomen. A few hours later there were nausea and vomiting. The findings of the ward surgeon were tenderness, pain and rigidity over the entire abdomen, especially marked over McBurney's point, and he diagnosed acute appendicitis. The temperature was 98, the leukocyte count, 15,800. The diagnosis of the ward surgeon was concurred in by the assistant chief of the surgical service, and immediate operation was advised. No difference was to be made out in the intensity of the breath sounds over the right and the left lungs; the diaphragm sign was negative. At operation a normal appendix was found.

CASE 5.—First Lieutenant M. H. D., Reg. No. 6396, admitted to hospital with an acute tonsillitis, April 10, 1918, developed pain in the abdomen, April 13, and was nauseated. The chief of the surgical service, April 12, noted that the patient was "nervous" and complained of pain in the abdomen which was

5. Hoover, C. F.: Diagnostic Signs from the Scaleni, Intercostal Muscles and the Diaphragm in Lung Ventilation, *Arch. Int. Med.*, November, 1917, p. 701.

6. Erlanger, Joseph: Personal communication to the author.

relieved by pressure. There was some tenderness in the right iliac fossa. There may have been an acute appendicitis, but he was not certain. From examination of the chest it was noted that the breath sounds over the right lower back were not as distinct as those over the left back, and this difference was noted in the axillae. The patient's temperature from the time of the onset of the abdominal pain was never above 98, and his pulse at no time more than 84. The leukocyte count was 20,600. Operation disclosed an acute gangrenous appendicitis.

CASE 6.—Private G. B. T., Reg. No. 7639, had pain in the right lower abdominal quadrant, with nausea and vomiting. The assistant chief of the surgical service decided on operation because of an acute appendicitis. Auscultation of the lungs revealed inspiration over the right base and in the right axilla louder than in the left side. Roentgenoscopy disclosed no lagging of the right diaphragm; in fact, there was more movement there than in the left side. The diaphragm sign was negative. At operation a normal appendix was found.

CASE 7.—Private I. H., Reg. No. 7666, presented an instructive case. The clinical diagnosis was acute appendicitis. Auscultation revealed very feeble breath sounds over the lower part of both lungs. The screen showed two halves of the diaphragm at exactly the same level. Movement on both sides was limited and jerky in character, not at all like the normal undulation. The findings could not be interpreted, but it was surmised that hyperacute appendicitis with peritoneal involvement might give this picture. The operative findings were acute, ulcerative appendicitis with beginning peritonitis.

CASE 8.—Private W. N. had hyperacute, ulcerative appendicitis. Inspiration on the right side was feebler than on the left. Roentgenoscopy revealed the diaphragms at about the same level. Movement on the left side was limited and on the right side absent except for very slight descent of the central portion.

CASE 9.—Private P. D., Reg. No. 6302, had pain in the right hypochondrium, with rigidity of the right upper rectus and tenderness over the region of the gallbladder. He was kept under observation for some time. There was fever of the septic type. A diagnosis of suppurative cholecystitis was made by the chief of the surgical service and concurred in by five or six consultants. There was no diminished breathing over the right lung such as one would expect to find in an acute cholecystitis. Roentgenoscopy revealed no pulmonary lesion. The right and left diaphragm moved equally and well. The excursions were ample and normal. At operation a normal gallbladder was found.

DIAPHRAGM MOVEMENTS IN NORMAL SUBJECTS

Screen examinations of the diaphragm movements in soldiers who had known no thoracic or abdominal diseases were made for comparison. These were all made with the soldiers in the horizontal position. It was observed that when any difference could be made out, the right diaphragm moved somewhat more than the left. In most cases, however, the amplitude of the excursions, as far as they could be accurately measured, appeared to be equal on the two sides.

LIMITATION OF MOVEMENT IN ACUTE ABDOMINAL DISEASES

In a small number of cases it has been shown that there is a limitation of movement of the diaphragm in acute abdominal diseases. It has been demonstrated that this limitation of movement is confined to the side that corresponds to the site of the lesion, or at any rate is much more pronounced on that side. We have shown that this limitation of movement occurs not only in cases in which there is an involvement of the peritoneal surface of the diaphragm but also in cases in which the lesion is remote. No definite explanation of this process can be offered. If the

phrenic nerve has no inhibitory fibers it cannot be due to the transmission of reflex inhibitory impulses down this nerve. It may be due to an inhibition of the motor phrenic center in the cord. The diaphragm may be immobilized simply in a mechanical fashion through rigidity of the abdominal wall. Voluntary inhibition may explain some of these cases. Professor Erlanger⁶ of Washington University, St. Louis, has said that it is conceivable that a person might be able to inhibit voluntarily one half of the diaphragm.

It is believed that the study of the diaphragmatic movement with the stethoscope, with the fluoroscopic screen and perhaps with other methods may be of some assistance in arriving at a conclusion in cases in which the diagnosis of an acute abdominal lesion is suspected but not established. It seems very desirable that clinicians should study these cases from this point of view. It is only by careful observation of many cases that the practical usefulness of the diaphragm sign can be established.

ABSTRACT OF DISCUSSION

DR. J. BIRNEY GUTHRIE, New Orleans: The new application of Williams' diaphragm sign is exceedingly interesting. We have observed the limitation of motion of the diaphragm in all thoracic diseases. We regard it as a diaphragmatic reflex, a diagnostic measure of great importance in the examination of the chest. There are two other methods of observing the motion of the diaphragm. One is the familiar Litten's phenomenon, which disappears in the course of certain thoracic diseases, and the other consists in the percussion of the line of the diaphragm during quiet and after forced inspiration, and measuring the distance between the lower lung borders during the two phases.

It does not seem mysterious why the diaphragm remains fixed. The occurrence of a spastic reflex seems an adequate explanation. We see a similar phenomenon around a joint in disease. The limb is fixed by a spastic reflex action on the part of the muscles that control that joint. The joint is held in fixation until irritation has subsided. A wasting of the muscles above and below the diseased joint always occurs as a result of this spastic innervation of the muscles. Pottenger has studied the wasting of overlying muscles in thoracic disease, especially in pulmonary tuberculosis. He attributes considerable prognostic value to the degree of that wasting. It is possible that atrophy of the diaphragm exists. It will be exceedingly interesting to study this reflex in an abdominal disease, where heretofore we have been considering it in its relation to thoracic disease only.

DR. F. M. POTTENGER, Monrovia, Calif.: Dr. Sale has pointed out an exceedingly interesting phenomenon. It belongs to the group of viscerogenic reflexes. I do not believe that we can explain this reflex through the phrenic nerve. It must be through the lower intercostals. The phrenics take their origin from the third and fourth cervical segments of the cord, and are in reflex communication with afferent impulses which come from the lung. The abdominal viscera, however, are supplied by the sympathetic nerves, which take their origin from the lower six thoracic segments of the cord. Afferent sensory impulses, traveling centralward from the abdominal viscera, transmit their impulses to the six lower intercostal nerves which supply the intercostal muscles, the costal portion of the diaphragm and the abdominal muscles. An inflammation in the lung forms reflexes with the motor and sensory neurons arising in the cervical portion of the cord, particularly the third and fourth segments. The motor reflex shows in the accessory muscles of respiration, particularly the sternocleidomastoideus, scaleni, trapezius, levator anguli scapulae, rhomboidei and diaphragm. Whenever inflammation exists in the lung, some portion of these muscles shows increased tension, which, in the diaphragm, shows as a lessened respiratory movement on the side of involvement. Reflexes arising from the abdominal viscera would be

accounted for more readily as taking place through the lower six intercostals, the reflex being in the costal portion of the diaphragm rather than in the central tendon, which is supplied by the phrenics.

The observation of these visceral reflexes is of great clinical value. They aid in the study of the manner in which disease processes express themselves in internal viscera. Every important organ of the body stands in definite relationship through the sympathetic nerves which supply it, with certain spinal motor and sensory neurons, which, when irritated, cause contraction of skeletal muscles and referred pain in certain skin areas. I would call attention to the fact, however, that the same limited motion mentioned by Dr. Sale when abdominal viscera are inflamed is found when thoracic viscera are inflamed. Therefore, it would be wise for those who are observing surgical cases of the abdomen to bear in mind that such a reflex may be produced by diseases above the diaphragm; and, likewise, it would be well for those who deal with thoracic diseases to remember that a reflex limited motion of the diaphragm may also be caused by diseases in the abdomen. I do not know of any one having described this reflex before, although the physiologic basis for its existence is definite.

DR. WALTER E. SCOTT, Adel, Iowa: This subject has been investigated entirely from the thorax, because of the fact that the vesicular respiratory murmur is not necessarily due to the ingress and egress of air. This was shown by a case Dr. Hoover reported some years ago, in which there was severe hiccup for several days before death. The air did not enter the lungs on account of the spasm of the glottis, but the vesicular respiratory sound was present, nevertheless. I have tried to show that the vesicular respiratory murmur is due to another cause; it is closely related to the muscles. The lessened activity of the muscles on the side affected, including the diaphragm, gives a diminished muscle sound and, therefore, a diminished vesicular sound. The diminished muscular activity is due to the inflammatory condition, and because of the diminished respiratory murmur on the side affected it has always been considered from the chest standpoint, as the diminished breath sounds appeared to point to trouble in the chest. I investigated the origin of the vesicular respiratory sound very thoroughly quite a while ago, but have not yet reported my findings, except occasionally in discussions.

DR. JOHN A. MACDONALD, Indianapolis: I have been greatly interested in Major Sale's observations on the diaphragmatic sign in acute abdominal inflammation. The most important paper in the history of this study has been lost sight of. Ten or twelve years ago, in a carefully reported study of the pleuritic reflexes, a clinician, whose name has escaped me, came to the conclusion that the diaphragmatic reflex arises from a zone approximately 2 inches wide adjacent to the lateral thoracic pleura. The reflex travel by the route of the phrenic and perhaps the pneumogastric to the bulb and are referred to the scalenes and more particularly to the upper border of the trapezius muscle, leaving a spot at the upper border of the muscle which is intensely sensitive at that time. The outer zone is reached by the route of the lower intercostals, the lower intercostals referring the pain downward. At that time we were in confusion about the pain as existing in appendicitis and in basilar pleurisy. In the last ten years I have seen ten patients who were operated on for appendicitis and a normal appendix was found. In these cases the tenderness picture was characteristic. They proved to be cases of pleurisy. In each one of the adults, who were in a mental condition to respond to questioning instantly, the trapezius sign was typical, so that in going to the upper border of the trapezius tenderness was invariable.

One of my patients still had a temperature elevation three weeks after a diagnosis of appendicitis. The roentgenogram appeared to be normal, although there was limitation of movement and slight arching of the right diaphragm. Being suspicious of a subdiaphragmatic empyema, I introduced a needle and operated successfully with the needle in situ. This sign requires greater study and more careful consideration, but I am grateful for it in the differentiation of appendicitis and lung conditions.

DR. LLEWELLYN SALE, St. Louis: I was glad to hear these explanations for the diaphragm sign, because that was what I have been looking for. Major Guthrie's explanation does not explain. To say it is a spasm does not explain much to me. A statement like that needs a little explanatory comment as to the nature of the reflex, its course, etc. Dr. Pottinger's explanation did throw a little light on the subject. I submitted the whole matter to Professor Erlanger of Washington University, and he seemed to be of the opinion, and it coincided with what I had thought, that the sign was due largely to that same inhibition of muscular movement in the abdominal wall that one finds in acute abdominal inflammations; that the whole process was a teleological one, that it is not so much to lessen trauma, but rather to keep down pain. While that does not explain, it explains a little more than the term "reflex spasm," which Major Guthrie offers.

The point that was mentioned by Dr. MacDonald was a very enlightening one; in those rare situations in which we have to differentiate between an acute abdominal lesion and an acute diaphragmatic pleurisy the sign would not, it seems to me, be very helpful. Things that have caused me trouble are the chronic thoracic lesions and their possible confusion with intra-abdominal conditions.

An example is chronic pleurisy, tuberculous in character, which simulates gastric or duodenal ulcer until the patient finally fills up with fluid, and we know then what we are dealing with. Dr. MacDonald's discussion makes me realize that acute conditions might arise in which this sign would not be very helpful in interpretation.

THE RESPONSIBILITY OF INDUSTRIAL BOARDS TO EMPLOYER AND EMPLOYEE

AS INFLUENCED BY THE OPINION OF THE
MEDICAL EXAMINER *

CHARLES S. ANDRUS

Chairman, Illinois Industrial Commission

CHICAGO

It is estimated by competent authorities that in the United States annually more than 1,000,000 men are killed or injured in industrial accidents. In practically all fatal cases dependents are left, and in practically all nonfatal cases the injured employee is dependent on his wages for the support of himself and family. Adequate provision for the injured employee and his dependents is worthy of the best study and thought. I can briefly present only a few facts within the limits of this paper, asking you to consider them, not only as they affect your professional work, but also as good citizens interested in the welfare of your fellow men.

If the medical fraternity were as conservative and as jealous of precedent as the legal fraternity, to which I belong, they might still be arguing that anti-toxin is not necessary in the treatment of diphtheria; that surgery is not necessary in the treatment of appendicitis; that trauma never produced a hernia, and that there couldn't be anything the matter with a man because there was no evidence of an organic lesion. I am thankful to state, however, that physicians are not bound by precedents, and to this untrammelled freedom of thought may be ascribed the wonderful advance that has been made and is still being made in the science of medicine.

* Read before the joint meeting of the Section on Preventive Medicine and Public Health and the Section on Orthopedic Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

It is still difficult for lawyers to break away from old precedents. I am sorry to confess that the adoption of the compensation principle for accidental injuries, instead of the archaic and decidedly unsatisfactory common law personal injury suit, was not primarily the work of the lawyers. Be it said to their credit, however, that there was no concerted opposition to this measure from them, although they knew that it would decrease litigation along personal injury lines.

THREE METHODS OF ADMINISTRATION OF COMPENSATION ACTS

Workmen's compensation acts are now in force in thirty-seven of the forty-eight states of the Union. The earliest act dates only from 1911, so it may be seen that the spread of the compensation principle has been rapid. These acts are administered in different ways in different states. Twenty-three states have industrial boards or commissions; four states each have a single commissioner; and in ten states the act is administered by the courts. Five states have a monopolistic state-managed insurance fund from which the compensation is paid, and nine states have privately managed insurance companies in competition with the state-managed insurance fund.

We thus have three widely different methods of administration, and this should be borne distinctly in mind in considering the status of the medical adviser. In one class we have the act administered by the courts, in another class, claims paid directly from the state fund, and only on approval of the industrial commission, and in a third class, disputed claims only litigated or determined by the commission.

In these states in which the compensation act is administered by the courts, medical questions are determined generally as in other cases, by testimony, expert and otherwise. In at least one state, however, the court has the power to appoint an impartial medical referee to advise him. The method of determining the extent of physical disability by expert testimony has not proved a success. I do not consider that the physicians themselves are entirely to blame for the failure, for the fault lies in the system itself. The physician, who is the expert witness, is not allowed to volunteer his opinion. He is merely asked to answer the questions that are propounded to him by the attorney. The attorney is a partisan and is developing only his side of the case. If the expert witness has any information or opinion that would not help the side of the case on which he is called as a witness, he is not allowed to tell or express it. If, on cross-examination, this is elicited from the witness, it has the appearance of being something concealed by him and places him in an unfavorable light. Usually, however, the witness feels that he is being attacked by the cross-examining attorney and that it is a personal fight between them. Frequently also, one physician testifies to objective symptoms, and another to subjective symptoms, and to the layman this gives their testimony the appearance of being in conflict, while in reality no such conflict exists. How a layman is to decide a disputed question of extent of disability, when an equal number of apparently equally honest and intelligent physicians testify exactly opposite to one another, is a problem the correct solution of which would be of great assistance to tribunals who are compelled to solve it.

PHYSICIAN'S PART IN ADMINISTRATION

The physician's part in the administration of workmen's compensation acts is a large one. The extent of disability caused by accident is in dispute more than any other point, in fact more than all other points combined. The tribunal passing on this question must of necessity rely very largely on the opinion of a physician in determining this question. So also frequently in death cases the question in dispute is whether the accident caused the death, and in this matter the physician must be appealed to in deciding the question.

It is not a question in administration of dispensing with physicians, because this cannot be done, and no one wishes it to be done, but the administrative problem is how to secure this opinion in the best possible manner. In states that have a monopolistic state fund from which compensation payments are made, the problem is much simplified, although the work rendered by the physicians of the commission is much more extensive. In Ohio, which has this system, more than 7,000 examinations are made annually. The physician's bill, as well as the injured employee's compensation, is paid from the state fund. There is thus every inducement for the physician to assist the commission in its work, and to disclose fully the medical facts in each case. In very few cases is the medical man compelled to testify. A claim is made by the injured employee, substantiated by the statement of a physician, and the compensation is paid directly from the state fund.

It is, however, in states that do not have this system that the principal difficulty arises. In a large number of states, as in Illinois, there is no state fund, and compensation is paid directly, either by the employer or the insurance company. Duplicate receipts of payments made are sent to the industrial commission and a check and record is kept of compensation payments in this manner.

It is, however, only in disputed cases that the commission is called on to decide whether compensation shall be paid and in what amount. In Illinois, in 1917, there were 3,238 such contested cases. July 1, 1917, the compensation act was made compulsory as to all hazardous occupations, and if the same ratio of increase continues during the remaining months of the year as has occurred thus far, there will be 5,166 such disputed claims filed in Illinois during the year 1918.

PHYSICIAN'S SERVICES TO INDUSTRIAL COMMISSION

More than half these claims involve the question of the extent of the disability. The law in this state allows the industrial commission on its own motion to have the injured employee examined by a physician of its own choice. The Illinois commission has established a medical department of which Major P. B. Magnuson is the director. He spends each afternoon at the commission's office and another physician spends the forenoon. We thus have a physician on whom we may call at any time for examinations or advice. Major Magnuson has been in Washington for some time assisting the Surgeon-General in war work, and his place has been ably taken by Dr. W. E. Shackleton.

In disputed cases in which the medical testimony is in conflict, we have the employee examined by our

physician and consider his report in deciding the case. This is of inestimable value to us. We know that our physician is unprejudiced, that he was not brought into the case by either side and that he will give us a fair and impartial opinion. And naturally this opinion is considered of great weight by us.

Not only in disputed cases is a medical department desirable, but also in the case of lump sums and settlements, which are usually agreed matters. The employer or insurance company agrees to settle a case with an employee for a certain amount, and the employee is willing to accept this. The employee in such cases usually has neither a physician nor a lawyer. Our law provides that these settlements cannot be made without the approval of the industrial commission. In such cases especially does the commission need the advice of an impartial physician to examine the employee and to advise the commission whether in his opinion the settlement should be approved. In Illinois in 1917 there were 2,485 cases of this kind. In 1918, with the same ratio of increase that has occurred during the preceding months of the year, there will be 3,192 such cases.

Not only in the examination of injured employees is the medical director valuable to the industrial commission, but also in the analysis of medical testimony, the explanation of which is not easily understood by a layman, and in numerous other ways including the giving of advice on medical matters. In many cases it is desirable that the injured employee should be examined by a specialist. It may be an eye specialist, a specialist on nervous and mental diseases, or a specialist in laboratory or radiographic work. It is the province of the medical director to select these experts—something that could not be satisfactorily done by a layman, especially in a city the size of Chicago.

SERVICES TO EMPLOYER AND EMPLOYEE

It is to the interest of both employer and employee that proper medical services be furnished the injured employee. The medical director can do much to assist in encouraging employers to procure the proper kind of medical treatment. They may be shown that there is nothing more costly than cheap medical work. The experience of one large firm in Chicago with their medical department illustrates this. This company was paying the head of their medical department \$75 a month and imagined they were saving money. They concluded to change their system and put a trained surgeon in charge. The first year the medical expenses increased 800 per cent. In the preceding year this company had had thirty-one lawsuits. In the first year of the new system they had one suit and the claim department saved \$30,000.

This was accomplished in several ways. Regardless of expense, the men were given the proper kind of medical treatment and they were able to return to work sooner. The medical director told the men the exact truth about their condition, and he did not act as a sounding board for the claim agent. The consequence was that the men had confidence in him, and the ambulance chaser did not succeed in stirring up trouble. They were ready to make a settlement on what the physician told them, as they knew he was telling them the truth. Taking into consideration, aside from the actual money saved, the increased good feeling between the employer and employee, which is so necessary in modern industrial times, it may readily be seen that cheap medical treatment does not pay.

The medical director may do much to show this to the employer and to the insurance companies that have not yet found it out. Fortunately most of them have.

The medical director can do much along this line in advising employers as to the attitude of the physicians they employ. The physician who has the mental attitude that every injured man is either a malingerer or is greatly exaggerating his injury has no place in industrial surgery. If a man is a malingerer, the physician will find it out sooner by pretending not to consider him such, and if the medical man is mistaken in this respect, he frequently causes the patient to put himself in the mental attitude of wanting to be as sick as he can to spite the physician and show him up. The other extreme is nearly as bad, and the physician who tells the man that he has a broken spine when he hasn't and that he will never be able to work any more is frequently the cause of many industrial cripples.

THE PHYSICIAN'S WORK IN REHABILITATION

The medical director may do much to assist the commission along the line of rehabilitation and retraining of injured men. It frequently happens that a laboring man has an arm amputated, for example, and honestly considers that there is nothing further that he can do, and that his usefulness is forever gone. The state has not done its duty to this man by merely paying him his compensation, which is soon gone. He should be trained for other work. The treatment is mental as well as physical and should be a part of the work of the medical department.

For this purpose the medical director should study the man, taking into consideration his age, mentality and education, his likes and dislikes, and the condition of the labor market. He should be definitely trained for some other line of work in which he may be made a 100 per cent. man. I lay emphasis on this 100 per cent. man, as that is the aim of the rehabilitation and the results accomplished. In a number of cases, men have lost an arm and have been trained for some other work, and have made more money than they have ever been able to make with two arms. The United States government, having the advantage of the experience of Canada and the European countries in the war, is outlining an elaborate plan for the rehabilitation of injured soldiers. All this work, of course, must not stop with the care of injured soldiers, but the facilities thus used and the experience thus gained must be used for the training of injured workmen.

No one class of persons in the present war have distinguished themselves more than the physicians. The critics all agree that no matter what defects may exist in other branches of the service, the medical staff has been 100 per cent. efficient. Never before in any war have medical men been exposed to so much actual danger and been so much under fire. Those of us who are particularly interested in injured workmen confidently expect that after the war the great knowledge and experience attained by the medical profession will be used for the benefit of men injured in industry. For as peace has its victories no less than war, so peace, no less than war, has its injured men, who are in fact much more numerous in the aggregate than war's wounded soldiers. And we know that in striving for better conditions for these injured men, we shall have the hearty and enthusiastic support of the medical profession.

ABSTRACT OF DISCUSSION

DR. WILLIAM KRUSEN, Philadelphia: I have been, so far, without any personal experience in medical expert testimony. I think that many doctors are deterred from this by a certain amount of fear of the members of the legal profession. It was Gladstone, I believe, who said, "The perpetuation of these two professions is assured; because law rests on dissention, while medicine rests on disease." The one point that I think we should emphasize is the necessity for immediate impartial medical expert testimony. The medical man never presents such an undignified and unedifying spectacle as when he is being examined as a party in a damage suit case. He loses his dignity and his prestige when he attempts to maintain both. The division of his fee, it being paid by both plaintiff and defendant, makes it possible for him to give his testimony without offense to his conscience or to any one, with dignity and truthfulness, which is usually the aim of the medical man. Some of you may have read the book of Münsterburg called, "Psychology on the Witness Stand," in which he shows the difficulty which a man who is retained by either side has in trying to give testimony as unbiased as if he were retained by neither side. Let us put ourselves on record as being in favor of an expert medical board, not retained by either plaintiff or defendant.

MR. CHARLES S. ANDRUS, Chicago: I wish it understood that I do not criticize the medical profession as a class because of what I consider the evils of expert testimony. I understand that a lawyer will not bring in an expert witness to testify unless he knows that that witness will substantiate his theory of the case. No fault can be found with the lawyer for so doing. In fact, if he did not do this he would be guilty of malpractice.

Our medical department is entirely divorced from politics. Governor Lowden's ideas are being carried out in this respect. I do not know today the political faith of the two doctors who are at present doing our work.

We had a recent case in which an applicant for compensation was sent to Chicago for examination. Our doctors reported that he had traumatic neurosis and that, while he is now totally disabled, they believed that a few weeks' treatment would place him on the road to recovery. Through the cooperation of the employer we are having this man brought to Chicago for treatment and hope and expect to be able to restore him to industry. The assistance of a medical department in such cases is of great value. In fact, the work could not be successfully done without it.

We feel very strongly about the reconstruction of injured workmen. I hope that you will use all the influence that you can bring to bear in urging that whatever is done for the retraining of injured soldiers will be done for the retraining of men injured in industry. It is very probable in this war that we shall have no greater casualties than occur at the same time in industry, but we are so accustomed to industrial accidents that they do not make the impression on us that war casualties do. I hope that all of you will do everything in your power to see that the facilities provided for the reconstruction of injured soldiers shall be available for the reconstruction of injured workmen.

Abortive Treatment of Acute Articular Rheumatism.—According to an abstract in the *Correspondenz-Blatt*, A. Edelmann reported in the *Münchener medizinische Wochenschrift*, 1917, No. 51, that he has been successful in aborting acute febrile articular rheumatism by enhancing the action of the salicylates by inducing, as a preliminary, hyperemia in the affected joints. The means with which he induced this focal hyperemia was by parenteral injection of milk. Müller and others have called attention to the hyperemia with transudation which is induced at points of lessened resistance by heterovaccine therapy and by parenteral injection of milk. Edelmann found that then when the salicylates were administered they were attracted likewise to these points, and their action was thus materially enhanced and the acute rheumatism aborted. In a group of forty-six cases, a heart defect developed only in two, and pericarditis did not develop once in a group of seventy cases.

SYSTEMIC MANIFESTATIONS OF CHRONIC
NASAL SINUS INFECTION IN
CHILDHOOD *

ALBERT H. BYFIELD, M.D.

IOWA CITY, IOWA

The part that acute and chronic respiratory infection plays in the immediate health and welfare of the infant and the child has been generally appreciated in the medical profession. Clinical experience has taught that the tonsils and adenoids are to be regarded as the primary loci of infecting micro-organisms, and there have grown up terms such as the tonsillar or rheumatic syndrome, and the like. It has been understood that from these primary loci infection travels either by continuity or by invasion into the body itself, and that other more distant affections are now regarded, if not directly caused by these primary troubles, as at least standing in close etiologic connection with them. However, a certain note of dissatisfaction is unmistakable, especially as evidenced in the discussion held in this section two years ago as to the possibility of overemphasizing the importance of these locations. This dissatisfaction is based in part on the fact that removal of the tonsils and adenoids did not yield the expected cure in a certain number of cases. The question is then opened as to other possible nests of infection in the nasopharyngeal or oral tracts, and while the teeth come into consideration as one of the favorite sites whereby germs may enter the body, it would seem that in early childhood at least this region plays a minor rôle in such invasions. So the problem would seem to have remained unsolved.

DISCOVERY OF NASAL SINUS AS SOURCE OF
INFECTION

In the course of clinical investigations made in a case of chronic deforming arthritis, which is either a subacute stage or a subacute type of the disease to which Still's name is given, it was observed that removal of the tonsils and adenoids and treatment of the teeth did not control the progress of the disease. My conviction was that with the irregular, even if slight, temperature and with the persisting tenderness of the joints, infection must still be present. As all other possible avenues of entrance of the etiologic agent or toxin into the body, except the nose, seemed to have been eliminated, the possibility that the nasal tract itself might be at fault was considered. Bearing in mind the commonness of infection of the accessory sinuses in adults, the head of the department of nose and throat diseases directed investigations toward that end at my suggestion.

The first two investigations, including intranasal puncture of the antrums following roentgen-ray examination, yielded only negative reports, in spite of which further investigations were urged. These resulted in a more radical opening of the antromental wall and the finding of streptococci, whose exact type, however, was not determined, in the curettings of spongy granulation tissue present in the antrums. Vigorous treatment of this assumed focus of infection was followed with a gradual but distinct subsidence of the clinical manifestations, after which, with

* From the Department of Pediatrics, College of Medicine, State University of Iowa.

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

appropriate orthopedic treatment, the child was restored to a condition as near normal as might be expected. The progress of the distressing disease was absolutely arrested and there remained only certain residual deformities which were still present at the last examination, eighteen months after the patient was first seen, while the pain on movement, a prominent feature in the early stages of the disease, was entirely absent.

INADEQUATE ATTENTION PAID TO THE DISEASE

Examination of the medical literature reveals but little regarding the accessory sinus disease in childhood. Barthez and Rilliet¹ state that they will not treat of the simple snuffles so benign that parents do not need to bring their children to the hospital. Kohts² makes the first adequate mention of the subject, referring to the periostitis and the relationship of tooth infection, and to certain of such curious things as the finding of parasites in the frontal sinus. Onodi,³ besides his work on the anatomy of the sinuses of infants, has collected fifty-three cases of acute sinus infection, some of marked severity, from the literature. In his article, instances of eight cases in the new-born were given. Hubbard⁴ has shown the connection between the intense nasal discharge of scarlet fever and nasal sinus infection. A similar involvement has shown this connection in diphtheria. A report by Skillern⁵ and other isolated reports have discussed this subject with further reference to acute disease. Oppenheimer⁶ believes the disease is as common in children as in adults. Phelps⁷ believes that, with careful study of certain infections, chronic sinus involvement might often be found. Other articles emphasizing the specialist's point of view have also appeared. From the small number of articles and the fact that the subject finds little or no mention in the modern pediatric textbooks, it would seem fair to believe that the chronic condition is either very uncommon or that its existence is not frequently appreciated.

RESULTS OF CLINICAL EXAMINATIONS

With our attention, then, called to accessory nasal sinus infection as a possible etiologic factor in disease, routine observations were made by means of the roentgen ray, by puncture, nasal endoscope, and later by actual exploration, because of the fact that the roentgen ray often revealed no diseased area where the latter tests were positive; for it is well known that in certain instances, even when a considerable amount of pus is present, the roentgen examination may be negative. It was found that a surprisingly large number of young individuals had demonstrable pathology in these regions.⁸ Simultaneously, those patients admitted to the department of pediatrics who gave evidence of focal infection were examined and it was possible to establish an exclusive or partial association with sinusitis in a number of instances. The closest, exclusively causal relationship was found in two

other cases of infectious arthritis. In one of these, which was progressing rapidly with a regular fever, with pain on the slightest motion and marked deformity, including destruction of the joint surface, the first definite relief, after the tonsils and adenoids had been removed, was found in radical surgical intervention in the region of the sinuses.

If we refer to the daily notes taken and allow for the possible prejudice in the eye of the observer, there would seem to be no doubt, from the patient's own testimony and from the definite diminution of pain on passive motion, that almost immediate relief was obtained. The irrigation and the suction daily applied in the nose and throat department might have been regarded as unpleasant. In this and in one other case, these measures were even asked for by the patients themselves, when there were lesser returns of the symptoms in the joints. In these two instances the disease, while arrested, has not been definitely cured and the cause for this will be hinted at later.

Another patient with the same joint infection was discharged from the hospital, as no focal infection had been found. On his return one year later, the disease was found progressing definitely, and in the light of these communications, an operative examination of the sinuses will be made.

One striking example showed most clearly how infection of the sinuses might play a partially exciting rôle in disease.

A boy, aged 4½ years, in a fair state of nutrition was found to have a typical case of cyclic vomiting. Believing that the attacks of vomiting are aroused in by far the highest percentage of instances by respiratory infection led me to urge a topical examination of the nose and throat. Enlarged tonsils and infected adenoids were diagnosed, whereas sinus disease was only suspected by the aural surgeon, although it was my conviction that this trouble was present to a marked degree. For the sake of completeness, the antrums were punctured immediately after the removal of adenoids and tonsils, and pus was found on both sides. A more extensive antral operation, however, was not done at this time. The patient's condition was definitely improved, but an occasional attack of fever, with depression, malaise and digestive disturbance, has since been reported. The purulent nasal discharge has persisted.

Similarly, I have record of an instance in which the removal of the tonsils and adenoids brought out clearly the latent sinus trouble, as there is now a marked purulent nasal discharge with sneezing. Another patient, having repeated attacks showing unexplained high temperature and cyclic vomiting, was found to have a marked pansinusitis. Surgical treatment of the sinuses and the removal of the adenoids produced an almost critical cure. In this instance, of course, there is no definite proof that the sinuses were the sole cause of the trouble. One patient with asthma after surgical treatment of the infected ethmoidal cells has been free from attacks for nearly a year.

It was our fortune to observe in this clinic in the past three years a series of six most unusual cases⁹ indicating a poisoning of the sensory or trophic nerves and leading to changes in the cornea, to painless dropping out of the teeth, the most intense peripheral pruritis, to weakness and muscular wasting, and, in two cases, to death. There is some evidence to indicate that this peculiar trouble may be due to nasal diphtheria of a chronic type. After seeing two such cases resist all treatment directed toward improving nutrition and

1. Barthez, A. C. E., and Rilliet, F.: *Traité clinique et pratique des maladies des enfants*, Paris, 1853; German Edition, Leipzig, 1844, 1, 138.

2. Kohts, W. E. O.: *Handbuch der Kinderkrankheiten* (Gerhardt), Tübingen, 1878, 3, Part 2, p. 27.

3. Onodi, A.: *Jahrb. f. Kinderh.*, 1915, 31, 159; abstr., *THE JOURNAL A. M. A.*, March 27, 1915, p. 1113.

4. Hubbard, Thomas: *Accessory Sinus Suppuration in Scarlatina*, *Am. Jour. Dis. Child.*, July, 1911, p. 11.

5. Skillern, R. H.: *Sinusitis in Infants*, *THE JOURNAL A. M. A.*, Sept. 15, 1917, p. 895.

6. Oppenheimer, S.: *Am. Jour. Obst.*, 1913, 67, 397.

7. Phelps, K. A.: *New York Med. Jour.*, 1917, 106, 550.

8. Fourteen per cent. of all children recently examined in the Department of Otology and Laryngology of the State University of Iowa. Personal communication of Dr. L. W. Dean.

9. Byfield, A. H.: *A Series of Trophoneuroses Probably Due to Infection*, to be published.

end fatally, we decided in the next instance further to investigate the cause of the nasal discharge present. The nasal sinuses were found to be definitely infected. Surgical intervention was resorted to, routine irrigations were practiced, and within a week, the youngster, whose condition had hitherto baffled us, improved; and in a month or so, he was able to leave the hospital in good condition. Other disorders brought into more or less close association with sinus infection were chronic cough, nephritis (and there is some evidence to suggest that the chronicity of the renal process may be due to sinus infection), pyelitis and diphtheria organisms in carriers.

ETIOLOGY OF INFECTION

The series of routine examinations made in the nose and throat department showing a high percentage of infected sinuses and the brief mention made of cases showing that in certain instances medical phenomena may be produced, requires certain discussion as to the etiology of respiratory infection in general. It is probably well understood by all that the germs which form part of our environment obtain access to the open tracts of the body within a very short time after birth. The type of germ and the location are probably determined by certain more or less accidental factors, among which might be mentioned climate; for there is no doubt that catarrhal troubles are more common in certain regions than in others. It is well known, for example, that the Pacific coast is remarkably healthful in this respect. The source of the germ is probably either in the personal environment or it may be introduced into the system accidentally by the food or from the ground.

The first of these sources, in my estimation, plays a part not sufficiently emphasized, in that there seems to exist "catarrhal families." I recall one family in which in the last two years four members have had severe respiratory infection, three having sinus involvement. Just how significant this is, further observation only can tell. This, of course, brings up the theory of the hypothetic elective power of germs, which, while interesting, is far from being proved as existing.

The child's constitution or power of resistance is also a variant in this struggle for survival between parasite and host, and the question as to the relationship of these two is neatly brought out in a conversation reported between a pediatrician and a nose and throat specialist. A child with a chronic nasal discharge was referred by the former to the latter for treatment, and the child was returned with a statement that if the pediatrician would build up the child's resistance, the infection would cease. The pediatrician, in turn, retorted that if it were possible to control the nasal discharge, the child's bodily condition would be improved. The situation was not greatly clarified by the consultation.

Exactly how the diet, the atmosphere and the temperature of the home (especially in winter) influence respiratory infection is not definitely known. That these are important factors, there is no doubt. These things, and other remote conditions causing reflex congestion of the nasal mucous membrane, undoubtedly interfere with drainage of the accessory sinuses of the nose and therefore may tend to prolong or aggravate a condition already existing. The age of the patient plays only a slight determining part in

the trouble, sinus infection having been noted in the earliest weeks of life. As might be expected, those organisms that find their habitat in the nares and pharynx will be the infecting agents in sinus trouble. Further work along this line is necessary.

The pathologic changes in the chronic subacute types of this disease seem to be due, not so much to the formation of pus as to a submucous involvement with or without periostitis and to polyp formation. Pus, however, may be present and be recognized either by puncture or by the roentgen ray.

The question arises as to whether there are symptoms or signs pathognomonic or even indicative of the disease. As a result of the experience in this clinic, I have been accustomed to regard the existence of a persisting mucopurulent nasal discharge, especially when associated with frequent sneezing attacks, headache, depression, as indicating the need of further investigation in this direction. If these troubles are present after removal of the tonsils and the adenoids, one may be quite sure of their diagnostic significance. In older children, postnasal mucopurulent droppings are also seen, but it must be borne in mind that chronic adenoiditis may also produce this sign. The aggravation of symptoms and signs by cold and damp weather is also worthy of note. We may, indeed, overlook the presence of sinus disease in summer weather. Children with sinus infection, or at least those we have seen in our neighborhood, present a picture somewhat different from the so-called adenoid facies. In the former, there would seem to be a more distinct look of depression than in the latter. The diagnosis is finally made by a topical examination and the roentgen ray, but it must be borne in mind that because of the latency of the pathologic process the presence of the disease may be overlooked unless a radical exploration is made.

TREATMENT

In discussing the treatment, I come to the most difficult and unsatisfactory part of my topic. The pediatrician is often conservative when it comes to surgical intervention, whereas the consultant may tend to see only the operative aspect of the disease. I should like to defer the expression of a definite opinion in the matter, except to say that drainage and clearing out of infected areas must certainly be practiced after other more conservative methods have been tried and found incapable of controlling systemic manifestations. Sinus infections are often notoriously resistant to any method of treatment, and this must be borne in mind in prognosis. One possible advantage of energetic intervention, however, might lie in the fact that a trouble which tends to be prolonged throughout a lifetime may be better controlled in childhood than in later years. It is our feeling that when asthma is due to nasal infection, usually of the ethmoids, surgical intervention is far more likely to cure or produce at least greater relief in childhood than in adults.

Nonsurgical treatment brings us face to face with the problem of combating chronic infection in general—a subject that is beginning to occupy the attention of the present-day medical men. We hear of nonspecific protein injections and we have heard of vaccines. In the end, we may have to admit that the persistence of infection is merely the index of the degree of the individual's ability to hold his own in the struggle for existence. It goes without saying

that in such cases as have been discussed, a control of the factors increasing nasal irritation and congestion must be attempted.

CONCLUSIONS

It would seem, then, that the following conclusions are justified:

1. Infection of the accessory nasal sinuses is greater than has hitherto been commonly suspected.
2. The possibility of this infection as a source of general bodily involvement deserves more attention. In a series of cases including chronic digestive disturbances, persistent cough, occult temperature, poor general health, asthma, infectious deforming arthritis and cyclic vomiting, sinusitis has been observed, and a definite relationship between the infection and certain metastatic processes has been established.
3. Symptoms, such as chronic purulent nasal discharge (especially in winter), sneezing, headache, depression and irritability suggest the possibility of an infection of this region, provided that other etiologic factors have been excluded.
4. The diagnosis may be made by the roentgen ray, but exploratory puncture or even curetting may be necessary.
5. The treatment should be conservative and expectant unless the trouble persists and continues to affect unfavorably the health of the patient. In the light of our present knowledge, surgery is then indicated.

ABSTRACT OF DISCUSSION

DR. R. U. ANDREWS, Mankato, Minn.: This very important paper brings out a few things we have undoubtedly overlooked. About a month ago I saw a child whose tonsils and adenoids had been removed, but the child did not improve. She had a profuse, purulent discharge from the nose. I had a specialist examine the child, and he found diseased ethmoid cells on both sides. These were operated on and the child recovered promptly. Unfortunately, nose and throat work is taken up by many who should not do it. I believe the greatest crimes in surgery today are committed in this work. The nose and throat surgery should be turned over to trained specialists. I recently saw a case in which the tonsils and adenoids had been removed, and in which a series of infections developed that were really quite serious. A part of the tonsil was left, producing a focus of infection and causing a great deal of trouble.

DR. HENRY J. GERSTENBERGER, Cleveland: Very recently a child came to our dispensary with a history of a mucopurulent discharge from the nose; when the child was bent forward a thin discharge poured out. The child also had choking spells. When I saw it the child had palsy of the soft palate, and when tipped forward a thin, seropurulent fluid escaped. My impression was that it must have come from the antrum. It was the first case I had seen, and the first time I had realized the possibility of an infection of the sinuses in infants. I had believed, with others, that they were so small in infants that infection could not occur. The Wassermann test was negative, and there was no history of diphtheria. I should like to ask Dr. Byfield if any of his cases have or have not shown palsy of the soft palate.

DR. JOHN ZAHORSKY, St. Louis: Many babies between two and five years of age whose adenoids are removed, have a purulent rhinitis as a sequel. This has followed in so many cases that I have been trying to find some explanation—whether the purulent rhinitis was a previous infection of the sinus, and the adenoid trouble was secondary, or whether the operation had something to do with infection of the sinus, or whether the taking out of the adenoid tissue interfered with some absorptive system.

DR. A. H. BYFIELD, Iowa City, Iowa: In presenting this paper I desire simply to call the attention of the members of the section to the existence of sinus disease in order that they

may make more careful investigations in the future with possible relief to the patient. In regard to Dr. Gerstenberger's question, I will say that I have not seen any cases resembling the one he described. I have had the same experience in a number of cases as has had Dr. Zahorsky, and in the light of my present experience I would say that in these cases sinus disease had been latent or unrecognized. Removal of the tonsils permitting freer drainage then brought the unrecognized trouble into prominence. It is also theoretically possible that removal of the tonsils caused sinus infection, but I do not think this to be likely. Other investigations will be necessary to clear up that point.

DR. PAUL ARMAND-DELILLE, Paris, France: In France, in various institutions where I have been, they try to dissipate sinus trouble, especially in cases complicating measles, etc., by regularly at the beginning dropping into the nose eucalyptus and other oils. When it is done early these complications are lessened.

SOUNDS HEARD IN THE AUDITORY METHOD OF MEASURING THE BLOOD PRESSURE

THEIR MECHANISM AND SIGNIFICANCE*

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AND

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The working out of the main physical mechanism underlying the arm band method of measuring blood pressure by Luckhardt and Brooks¹ paved an easy way to the understanding of the sounds heard in the auditory method of measuring blood pressure. Brooks and Luckhardt also prepared a physical model which gave sounds somewhat similar to those heard from a pulsating, suitably compressed blood vessel. They described the mechanism of the sounds produced in experiments on this model, and suggested that the sounds heard in the auditory clinical method of blood pressure measurement might be produced in the same way as those heard on the model.

Since that time work has been carried on in the clinic with the purpose of gathering new and more accurate data concerning the sounds actually to be heard in clinical practice from the compressed artery under the arm band, and to see if the character of the sounds permits the satisfactory analysis and explanation according to the physical laws as described in the work by Brooks and Luckhardt referred to above.

It has been found that the sounds heard are not the same as those described by Korotkow and others, but there are a great many phases of sounds that have not heretofore been described. It is the main purpose of the present work to examine and describe what is to be heard from the arm during the auditory blood pressure measurement, and as far as possible to offer a satisfactory explanation of the mechanism of the production of these sounds.

The plan of study consisted of making observations in a large number of normal as well as pathologic cases and of recording accurately all sounds to be heard in each case. This plan has been carried out, the work extending over a period of more than two years.

* From the laboratory of physiology, Ohio State University, College of Medicine.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Brooks, Clyde, and Luckhardt, A. B.: The Chief Physical Mechanism Concerned in Clinical Methods of Measurement of Blood Pressure, *Am. Jour. Physiol.*, 1916, 40, 49.

PHASES OF SOUNDS

In the normal adult, on raising the cuff pressure to a high level and allowing it to fall gradually, the following phases of sounds are heard:

1. *Silence*.—This may be called the upper phase of silence. This extends from the second phase which is just below it, on up to any point higher.

2. *Murmurs*.—This may be called the upper phase of murmurs. These murmurs occur at the rather narrow area just before the third phase begins. The murmurs are soft and they remind one of swirling fluid. They are short in duration, and they occur at systole. In the great majority of cases these murmurs are barely distinct enough to be heard, but in some cases they are quite easily heard. In other cases they are not audible. These murmurs when heard extend over a very narrow limit, usually not more than 5 or 10 mm. in height. They seem to be more easily heard on patients with slim, soft arms, such as a child or a young woman whose arm is not very muscular.

3. *Arrhythmic or Desultory Snapping Sounds or "Thumps"*.—These sounds occur at about every third or fourth systole. They occur singly, in pairs, or even in threes, and each one corresponds with a systole. These groups occur at about the end of inspiration, or at the beginning of expiration. The sounds are distinct, smart, snapping sounds or thumps, but at this stage they are not loud, though they can be easily heard. This phase is the beginning of that kind of sounds which are heard by every one on taking blood pressure by the auditory method. The only difference between this and the fourth phase is in the irregularity of the sounds. If the observer hears any sounds at all he will hear snapping sounds. Therefore, they are familiar to all clinicians. However, most observers have overlooked the beginning of these sounds when they are not regular. They sound something like the second sound of the heart, the "dup" sound, or as one internist who had just heard the irregular snapping sound for the first time said, "They remind one of the sound made by a sick cat in attempting to vomit." The snapping of the cat's diaphragm makes a sound not unlike these arterial sounds. They extend over a very narrow range of blood pressure, and for that reason are easily overlooked. These irregular snapping sounds can be heard in every case when the adjustment is suitably made. The line of demarcation between this phase and the next one below it is sharply defined.

4. *The Phase of Regular Rhythmic Snapping Sounds*.—These "thumps" are smart and distinct, and they grow louder as the cuff pressure is lowered. They are regular and they occur synchronously with

systole. As the pressure in the cuff is lowered they continue to grow louder, and there gradually appears engrafted on them an added character which constitutes the next phase.

5. *The Phase of Friction Sounds or "Thump-sh-sh."*—This phase begins with a barely perceptible friction sound, "sh-sh," which is engrafted on the snapping sound; joined right on it and following it immediately, without any intermission, it sounds like a single sound. Close attention, however, reveals the dual character of the sound. The friction sound has a sharp, dragging character. It sounds like a friction rub. The double character of this sound may be imitated by thumping the fist down on the knee, and the instant the fist strikes the knee dragging the fist along on the knee for a short distance. This produces a thump when the fist strikes the knee, and immediately there

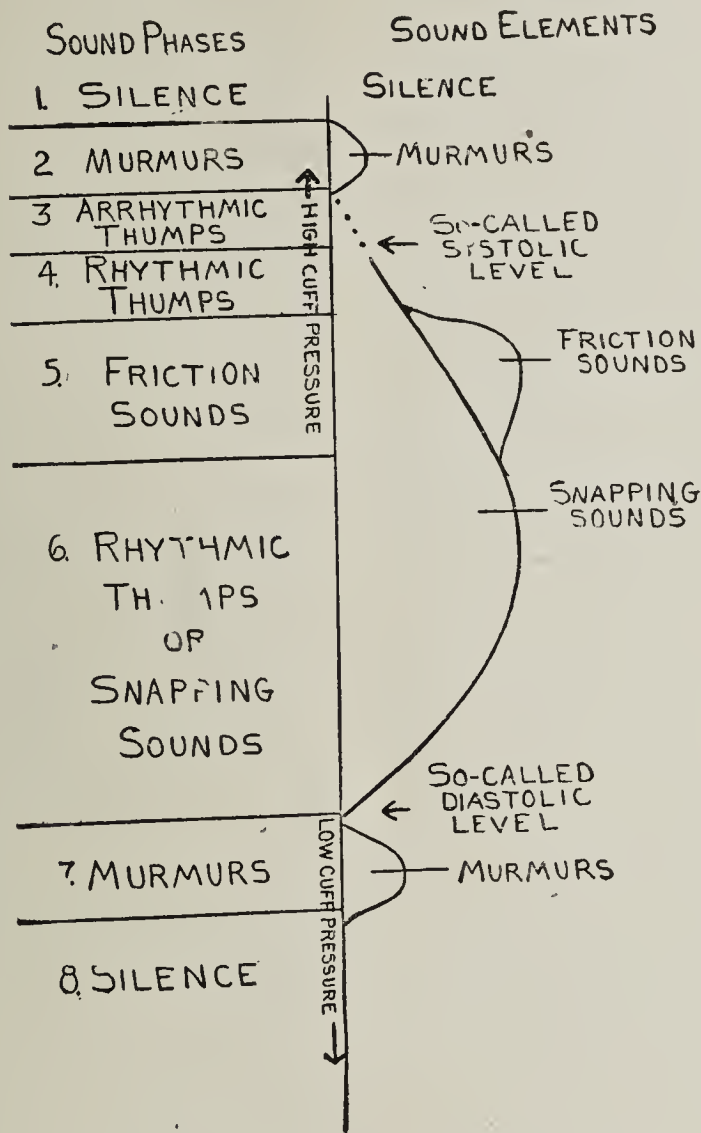
follows a rub due to drawing the fist along over the knee. "Thump-sh-sh" is the nearest we can express this sound on paper. This fifth phase begins with the friction element of the dual sound, delicate and barely perceptible, but growing louder rapidly with further lowering of the cuff pressure. So much is this the case that in many instances the friction element soon becomes louder than the snapping sound so that it becomes difficult to note the "thump" which marks the beginning of the dual sound. This friction sound often becomes loud enough to resemble the Duroziez sound except that it is not double. After the friction element reaches the maximum it rapidly wanes on further lowering of the cuff pressure. By gradually shading off, it disappears, leaving the snapping sound alone once more. After all the friction element has died out this marks the end of the fifth phase and the beginning of the sixth.

6. *The Phase of Regular Snapping Sounds*.—This may be called the lower phase of

snapping sounds. The sounds are similar to those in the fourth phase, which may be called the upper phase of the snapping sounds. The only real difference in these two phases is that in the upper the sounds are growing louder, whereas in the lower they are growing fainter, as the cuff pressure is lowered. When finally the snapping sounds disappear this marks the end of the sixth phase and the beginning of the seventh phase.

7. *Murmurs*.—This may be called the lower phase of murmurs. These murmurs are much more constant and distinct than those of the upper phase of murmurs, or the second phase. They are soft and sound like some of the heart murmurs. They are heard only within a narrow limit of cuff pressure, and soon die out as the cuff pressure is gradually lowered. When these murmurs cease, it marks the end of the seventh phase and the beginning of the eighth phase.

8. *Silence*.—The lower phase of silence.



Location and position of the various sound elements.

SOUND ELEMENTS CONCERNED IN THE FORMATION
OF THE VARIOUS PHASES

It will be noticed that all the various sound phases described above are made up of three fundamental elements, namely: (1) snapping element, (2) friction element, and (3) murmur. Silence, or absence of sound, need not be considered as an element here for its mechanism is well known. These elements run a rather similar course; that is, they begin faintly, grow stronger, reach a maximum, and then fade out gradually as the cuff pressure is gradually lowered. Beginning at a high level where there is silence and gradually lowering the cuff pressure, one encounters first the upper phase of murmurs. This narrow phase is soon passed, and the murmurs cease. After this comes the beginning of the snapping sounds. These are desultory at first, but become more frequent and finally regular, one for each systole. They also grow more distinct. After a still further lowering of cuff pressure they reach a maximum, after which they gradually fade and finally cease. The whole course of this snapping element is over a large area of pressure. It is the largest and most important element in the sounds of the artery.

The element of friction sound also begins faintly, grows louder, reaches a maximum, and then fades as the cuff pressure is further lowered. However, its upper limit, or level of beginning, is always lower than that of the upper limit of the snapping sounds. Also its lower limit, where it fades completely away, is not very far below the point of beginning. That is, it covers a rather short area from beginning to end. Therefore, it is engrafted on the upper area of the snapping sound, which extends well above its upper limit and far below its lower limit.

The lower element of murmurs is located below the lower limit of the element of snapping sounds. This element of murmur is short in extent from top to bottom.

The accompanying diagram will show the location and position of these various sound elements.

THE MECHANISM OF THE PRODUCTION OF SOUNDS

Some of the phases of sound described in the foregoing may be accounted for quite satisfactorily, while others must for a while longer remain in doubt. The knowledge of the behavior of the artery during compression by the cuff affords an easy and satisfactory explanation of many of these sounds. Furthermore, such knowledge enables us to point out other sounds heretofore unnoticed and to offer an explanation of their mechanism. It was shown by Brooks and Luckhardt that an artery, during complete suppression of the arterial pulse by high cuff pressure, does not open at all, even at the highest point of systole. This occurs during the upper phase of silence. The artery remains throughout completely flattened, with no blood moving through it; but as the cuff pressure is gradually lowered, the level is reached where the segment of artery that is under the cuff opens with wedge shaped spaces at each end and with apple seed shaped spaces at the corners of the flattened tube. Even at the crest of systole the arterial segment is never entirely penetrated by the pulse pressure. But the blood rushes down into these wedge shaped and apple seed shaped openings just as they suddenly enlarge at systole. These blood currents most probably produce the indistinct and often unnoticed murmurs.

As the cuff pressure is still further lowered, the wedge shaped areas and the apple seed shaped areas increase in their penetration until at the crest of systole they break through the occluding pressure of the cuff. The result is the beginning of snapping sounds. Just as soon as a systolic pulse wave breaks through and opens the artery, there is a "thump" or snapping sound. The first of these are irregular or desultory in rhythm. That is, they occur in single thumps or in pairs or, with lower cuff pressure, in threes. Only the highest systolic waves, which occur at the end of inspiration or the beginning of expiration, are strong enough to break through. So at each respiratory rise in blood pressure there break through one or two systolic pulsations which produce a corresponding "thump." This accounts in a very satisfactory way for the irregular rhythm of the thumps in the beginning. As to the mechanism of the production of these sounds there is still uncertainty. Brooks and Luckhardt suggested, from the results obtained from the physical model, that they are due either to the thumping together of the two ends of the divided column of blood, or to the snapping together of the walls of the artery. The snapping open and sudden tension of the vessel walls might also be considered as a possibility. Of course, when the cuff is first applied to the arm and is gradually inflated, the first result is to occlude the venous outflow. This results in filling the veins. As the pressure is gradually raised in the cuff, the venous pressure rises with the cuff pressure. So when the arterial pressure is exceeded by the cuff pressure and when enough excess is added to compress the artery itself and completely suppress the pulse, then the pressure in the arm vessels (arteries, capillaries and veins) distal to the cuff is the same in all parts and equal to the systolic pressure of the artery just above the cuff. Now when the cuff pressure is lowered until the pulse again begins to break through at the crest of the highest systoles, when it does go through it meets the column of blood in the distal end of the arterial segment. No doubt these two ends of the divided column of blood strike together with some force. But at the same time there is a sudden outward fling or snap of the arterial walls. Also just afterward there is a sudden closing together of the arterial walls. It is to be remembered, furthermore, that thus far there is not yet any forward movement of the blood through the arteries. These are various possibilities for the production of the snapping sounds.

The next phase where the thumps become rather rapidly stronger and wholly regular, occurring at each systole, is explainable on the hypothesis that as the cuff pressure is lowered it reaches the level where all systoles break through. As soon as this is the case there are regular rhythmic snapping sounds or thumps, to be heard just below the arm band. The same analysis of the mode of production of the sound given above will be applicable here.

The mechanism of the production of the friction sound is plain. Its onset is marked by the actual beginning of movement of blood through the arteries. The arterial segment is flattened out and opens only partially. The blood, therefore, has to pass through a narrow slitlike opening, producing a friction or nozzle sound as it squirts through. As the cuff pressure is further lowered this flat nozzle is allowed to open a little wider and for a longer time, permitting more blood to squirt through. The result is a more pronounced and a lengthened friction or nozzle sound.

Indeed, it becomes in many cases so prominent that it overshadows the thump sound so that this element is frequently unobserved. The mechanism of the production of the friction or nozzle element is thus satisfactorily explained. The fading of the friction sound on further lowering of the cuff pressure is due to the promptness and completeness with which the arterial segment opens when the systolic pulse wave strikes it, and closes again when the systolic wave passes. There is no appreciable time when the artery is partially flattened with blood squirting through it. So the friction element of sound is lost, leaving only the snapping sound element. This gives rise to the sixth phase, or the phase of regular snapping sounds. The mechanism of the production of these sounds is the same as that of the fourth phase, or the upper phase of rhythmic thumps. The cuff pressure is lower and the artery is open during a longer period. The blood column is divided by the complete flattening and closure* of the segment of artery under the cuff. Whereas in the fourth phase the artery opens only during a short portion of the time during each systole, that is, while the pressure in the artery is high enough to overcome the pressure in the cuff, in the sixth phase, the cuff pressure being lower, the artery remains open for a longer time, in fact, closing only when, during diastole, the blood pressure is lower than the cuff pressure. The snapping sound heard in the sixth phase is the same in character as that heard in the fourth phase. In the fifth phase it is the same snapping sound plus the friction sound which is added to it.

The cessation of the snapping sound is brought on by the further lowering of cuff pressure which results in the failure of the artery to close completely even at the lowest ebb of diastole. Here the cuff pressure is not strong enough to overcome the blood pressure plus the arterial resistance. This results in the failure of the arterial segment, which is under the cuff, to be collapsed, and also the failure of the artery to flatten results in the failure of the division of the column of blood in the artery. This results in the failure of the snapping sounds.

During diastole, however, when the pressure in the cuff is at the right level, the pressure within the artery plus arterial resistance is just about balanced by the cuff pressure; there results a sudden diminution in the caliber of the artery during diastole, and a sudden distention during systole. This is also accompanied by the increase and decrease in the size of the lower end of the arterial segment corresponding to the upper wedge shaped end of the arterial segment described above. Also there is a phase where at diastole the arterial segment under the cuff is partly flattened, but not sufficiently to cut off the blood flow or to cause the nozzle action, which produces the friction sounds. These alterations in size and shape of the cuff arterial segment cause vortices and other irregularities in the blood stream, which produce the murmurs heard in the seventh phase.

The phase of silence which results from still further lowering the cuff pressure is due to the fact that when the cuff pressure is insufficient to overcome the arterial pressure plus the arterial resistance, no impression is made on the artery, that is, there is no great change in caliber or shape of the artery on account of the cuff pressure.

SIGNIFICANCE OF THE ARTERIAL SOUNDS

If these are the sounds which may be heard and the mechanisms by which they are produced, what is the

criterion point which corresponds to systolic pressure? And what criterion point corresponds to diastolic pressure?

Unfortunately it is not yet possible to select a sound phase which will correspond to the true systolic, or one which will correspond with the true diastolic blood pressure. The reason for this lies in the fact that *the arterial pressure plus the arterial resistance are two factors that are inseparable by present methods of blood pressure measurements*. Therefore, it is not yet practicable to obtain the true systolic or the true diastolic blood pressures. Nevertheless we can measure the point where the cuff pressure just balances the systolic pressure plus the arterial resistance, and also we can measure the point where it just balances the diastolic pressure plus the arterial resistance. These two points can be located by the sounds and can be of great clinical use if their true significance is kept in mind.

These two points are located as follows:

The point where regular snapping sounds are first heard, or the beginning of the fourth phase, is the best criterion for the so-called systolic pressure reading. This point is easily recognized, and all clinicians could easily follow this practice. In fact, this is the point now commonly adopted by them. It is not the actual systolic pressure, but it is a definite point and has its clinical significance.

The point where all snapping sounds cease, or the end of the sixth phase, is the best criterion for the so-called diastolic blood pressure reading. Here, again, this is not the true diastolic pressure; but it is a definite point easily located, and if used would have a definite clinical value. Since there is no practicable way to obtain the actual diastolic, this point is the best criterion to use in the place of it. Some have already advocated the adoption of this criterion for the diastolic reading, but there is much disagreement in regard to it.

These two criteria, one for the so-called systolic, the other for the so-called diastolic, are the two most definite and most easily observed that can be found. Furthermore, the sounds are more sharply discernible than the alterations in size of pulse or artery, etc. So the auditory method is superior to the palpatory or sphygmographic methods involved in such as the Uskoff or the Erlanger apparatus.

CONCLUSIONS

The beginning of regular, rhythmic snapping sounds is the best criterion point for use clinically in measuring the so-called systolic blood pressure.

The criterion for measuring the so-called diastolic blood pressure is the lowest point where the snapping sounds are heard, or where they just cease.

The auditory method of measuring blood pressure is more satisfactory than the palpatory or sphygmographic methods by the use of such instruments as the Uskoff or the Erlanger apparatus.

ABSTRACT OF DISCUSSION

DR. HENRY SEWELL, Denver: Investigators on this subject fail in one very important matter. If you make a long series of clinical observations by the use of the auscultatory method, you are almost certain to be struck with the fact that the evidences gained by the perception of sound differ according to the physiologic condition of the patient. Take normal people, with the normal conditions of blood pressure, and you will get a most beautiful portrayal of these sounds as the

books give them to us. Take a person suffering from so-called blood ptosis, a person in whom the systolic blood pressure reclining may be 120 mm. and in the standing position 100 mm., and, in my experience, in a large percentage of these cases, with the bell of the stethoscope on the artery, after the "pop-pop" of the first phase, maximum blood pressure, the sound soon dies out, and the succeeding phases of the sound are not heard, or heard with such small intensity that it is an agony to listen for it. This lapse of sound is especially frequent in the standing position of the patient. If you change from the bell stethoscope to the Bowles stethoscope you will hear those sounds much better. That weakening of sound phases after the first phase has given me enormous difficulty, because it is in the class of subjects which particularly interest me, and a class of subjects that I believe is vastly more numerous and important than the clinician takes account of; one in which the effect of gravity on the blood is not properly compensated by the heart and vasomotor system. A great many peculiarities are noticed in dealing with morbid cases which greatly puzzle one. For example, in cardiovascular-renal cases the maximal blood pressure may reach, say, 240 mm. of mercury. The sounds may soon die out and not reappear again until the pressure in the mercury column has dropped to, say, 210 mm., from which point the sound phases proceed as usual. It would be easy in such a case to mistake 210 mm. for the maximal pressure. That has been my experience. I hope somebody more competent will criticize me and show me my errors. I came here to get information. This is practical data in which the physiologists do not help us one particle, because they seek to deal with normal people. There is still a deal to be done as to the relations of the respiratory movements with the maximum blood pressure.

With certain pathologic cases, functional and organic, one often sees evidence of periodic waves of blood pressure much longer and deeper than those due to respiration. My maximal blood pressures practically always occur in the phase of expiration, contrary to the findings of some recent observers.

DR. ARTHUR D. HIRSCHFELDER, Minneapolis: I was very much interested in this paper and also in Dr. Sewall's remarks. My own experience, which was gained chiefly some years ago when the Korotkov sound method first came out, was somewhat similar to Dr. Sewall's as regards the low blood pressures. We found, when we first began to study blood pressures in Baltimore, that the so-called auscultatory method was very satisfactory with arteries of normal size; but when we got to dealing with small, not well filled arteries, or small arteries in a state of vasoconstriction, somewhat similar to the type of case Dr. Sewall mentioned, there was sometimes a great deal of difficulty in getting the sounds. As Dr. Sewall said, we found that there is in this type of case also a great deal of difficulty in getting satisfactory evidence by any method, frequently even by the method of Erlanger with the graphic method for determining diastolic pressure; it is difficult to feel the maximum oscillation of the artery using the Korotkov method, difficult to record it with the Erlanger apparatus and difficult to get the sound changes with the auscultatory method. One is faced with the choice to find the lesser of the two evils. I believe that when you can get the sounds at all by this method it presents least of the evils in the determination of blood pressure.

I would like to mention one thing:

Last Christmas, in Minneapolis, Erlanger of St. Louis made a very interesting demonstration of a model showing the mechanism of the production of the arterial sounds. He used a very thin walled tube which was alternately filled with water from a reservoir and clamped off. It was kept collapsed until the wave of liquid came through, when it suddenly passed from a state of complete collapse into distention. A sound was heard when the wave passed under that part of the tube which was under the stethoscope. This corresponds to the systolic sound. This occurred only when the artery had been completely collapsed, and not when it was only partially so; and that explained why we do not get the sound through diastole.

DR. ARNO B. LUCKHARDT, Chicago: I cannot answer Dr. Sewall's question, and I shall not refer to Dr. Hirschfelder's,

but the proposition generally was this: Some arbitrary rules had been laid down about the measurement of blood pressure and they did not seem quite logical to us; and since they were based on premises that had no conclusive experimental evidence for their foundation, we decided to work this thing out. The first thing done was to construct a physical pump and have physical arrangements fixed so that we could take one factor at a time and leave the others constant. On this model systolic and diastolic pressures were measured by the arm band cuff method. In the paper just now presented, it was pointed out that some factors are quite different in pathologic states from what they would seem to be under physiologic conditions; and one factor emphasized in that paper was the importance of the knowledge of the tension and elasticity and condition of the arterial wall. With the apparatus, such as it is constructed, work will be carried on. This work is an extension of the work to the sounds heard over arteries, with their various forms of resiliency and elasticity, and various forms of thickening, with the hope that light may be thrown on the significance of the criteria for making diastolic and systolic blood pressure measurements and the effect of treatment of blood pressure under various pathologic conditions. This work was begun, first, to show the fallacy of the criteria used in establishing diastolic and systolic pressures in common use; second, to investigate the sounds heard over arteries thoroughly, and, third, to make use of these sounds in pathologic conditions where the character of the arterial wall is of great consequence in drawing conclusions as to the usefulness of the blood pressure measurements.

BOTULISM

A METHOD OF ISOLATING *BACILLUS BOTULINUS* FROM INFECTED MATERIALS *

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AND

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During recent years we have been recognizing outbreaks of food poisoning caused by the ingestion of canned vegetables and fruits, in which the symptoms of the victims were those of botulinus intoxication. In every case that has come to my knowledge, home-canned products have been the cause. Not only have human beings been poisoned, but domestic fowl and animals have also been affected after eating home-canned food. In many cases there has been coincident intoxication of human beings and domestic fowl or animals, the fowl or animals having been fed remnants of the food which had caused the poisoning of the human beings (Table 1); but in other instances the poisoning of the domestic fowls or animals occurred independently of poisoning of human beings, because they were fed spoiled home-canned vegetables which had been recognized as spoiled and unfit for human consumption (Table 2). The majority of the recognized outbreaks of botulism have occurred on the Pacific Coast, but cases are being discovered in other portions of the United States, and it is probable that the causative factor, *Bacillus botulinus*, is widely distributed throughout the country.

In our investigation of outbreaks of botulism on the Pacific Coast, we have succeeded in establishing the diagnosis in seven cases by the isolation of *B. botulinus* from materials that were collected for examination (Table 3). In our earlier attempts to recover the organism we encountered considerable difficulty, but

* Aided by a grant from the California State Council of Defense.

* From the Laboratory of Experimental Medicine, Stanford University Medical School

eventually we adapted methods which have proved to be quite satisfactory, and which we hope may be of some assistance to laboratory workers who are called on for the first time to investigate an outbreak of food poisoning of this kind.

In our routine work with *B. botulinus* we have employed only three kinds of culture mediums, glu-

TABLE 1.—INSTANCES IN WHICH DOMESTIC ANIMALS AND FOWL WERE POISONED BY EATING THE REMNANTS OF HOME-CANNED FOOD WHICH HAD CAUSED THE POISONING OF HUMAN BEINGS

Date	City	Persons		Limber-Neek	Cause of Poisoning
		Ill	Died		
1907	Ontario, Calif.	3	3	12 ehiekens	Canned pork and beans
1912	Romley, Colo.	7	5	5 burros	Canned beans
1912	North Yakima, Wash. .	6	3	12 ehiekens	Home-canned asparagus
1913	Hornbrook, Calif.	1	1	50-100 ehiekens	Home-canned apricots
1915	Fallbrook, Calif.	5	5	Several ehiekens, 1 dog*	Home-canned eorn†
1915	Hillsboro, Ore.	1	1	50 ehiekens	Home-canned string beans†
1916	San Jose, Calif.	1	1	8 ehiekens	Home-canned string beans
1916	Eseondido, Calif.	1	...	25 ehiekens	Home-canned string beans
1917	Seattle.....	3	3	Several ehiekens	Home-canned asparagus†
1917	Ontario, Ore.	1	1	39 ehiekens	Home-canned string beans
1918	Madera, Calif.	8	6	30 chickens, 1 turkey	Home-canned apricots†

* The animal was ill but reeovered.

† *B. botulinus* was isolated.

cose-infusion agar and glucose-infusion broth, prepared according to the formula given by van Ermengem¹ and sheep's brain medium, since the identification of this bacillus can more easily be established by the demonstration of its characteristic toxin than by the study of its imperfectly understood cultural reactions in sugars and other mediums. Standard test tubes are filled to a depth of from 3½ to 4 inches of medium, about 10 to 12 c.c., and the broth and brain mediums are covered with liquid petrolatum. The reaction of the mediums should be slightly alkaline to litmus, and sterilization should be accomplished by the fractional method in the Arnold steam sterilizer, heating for twenty minutes on each of three consecutive days.

Immediately before the mediums are inoculated they should be boiled for at least twenty minutes. The fluid mediums, broth and brain, are quickly cooled by plunging the tubes into cold tap-water, but the agar is cooled only to from 45 to 47 C., a temperature at which the 2 per cent. agar medium is of sufficient fluidity to permit of thorough admixture with the material with which it is inoculated, and which has proved to be entirely safe when we are dealing with *B. botulinus* or its spores. Immediately after the agar medium is inoculated, it is also plunged into cold tap-water, and left until it has solidified, and the stoppered end of the tube is then sealed with a wax prepared from paraffin, beeswax and zinc oxid to prevent evaporation and shrinkage. All culture tubes are incubated at from 26 to 28 C., the optimum temperature of *B. botulinus*.

The points which we consider essential for the identification of *B. botulinus* are:

1. The demonstration of large, gram-positive bacilli with rounded ends and terminal spores.

1. Van Ermengem, in Kolle and von Wassermann: Handbuch der pathogenen Mikro-organismen, 1912, 4, 921.

2. The occurrence of anaerobic growth of characteristic appearance in glucose-agar cylinders with formation of gas and fragmentation of the medium.

3. The blackening of brain medium.

4. The characteristic growth in glucose-infusion broth, with the production of a virulent toxin which can be demonstrated in filtered broth by the inoculation of susceptible animals, and which is neutralized by specific antitoxic serum prepared by immunizing goats to the toxin of known *B. botulinus*.

The odor of *B. botulinus* cultures is quite characteristic, somewhat like rancid butter or certain kinds of cheese, and is frequently of sufficient strength, even in mixed cultures, to give a clue to the presence of this organism.

We have found that we are able to recover *B. botulinus* from contaminated material with much greater ease and in a much shorter time by fishing the characteristic colonies from a thinly seeded agar cylinder than from deep agar plates that have been incubated in an atmosphere of hydrogen. It is important that the agar cylinders be very thinly seeded in order that there may be room for the typical development of the individual colonies, and sufficient separation of the colonies to allow for observation and for isolation. In practice we have found that one small loop of the suspected material in about 12 c.c. of glucose-agar will give the required dilution, but usually it is advisable to make successive dilutions as in preparing gelatin cultures for plates. In the majority of cases the optimum time for fishing the more favorably appearing colonies is on the third or fourth day; but the tubes should not be discarded if no typical colonies have appeared by that time, as sometimes they do not appear for from six to ten days.

Our method of fishing the colonies is to file and break the tubes about half an inch below the lowest suspected colony, to force out the agar cylinder from above until the colony is just below the broken rim of the tube, to sterilize the exposed surfaces of the

TABLE 2.—INSTANCES IN WHICH ONLY DOMESTIC ANIMALS AND FOWLS WERE POISONED BY EATING DISCARDED, SPOILED HOME-CANNED VEGETABLES

Date	City	Limber-Neek	Cause of Poisoning
	Eseondido, Calif.	25 ehiekens	Home-canned string beans
1914	Eseondido, Calif.	80 ehiekens, 6 turkeys	Home-canned string beans
1915	Madera, Calif.	Several ehiekens	Home-canned string beans
1915	Santa Ysabel, Calif.	130 chickens, 30 turkeys	Home-canned string beans
1917	Hanford, Calif.	Several ehiekens	Home-canned eorn
1917	Visalia, Calif.	Several ehiekens	Home-canned eorn
1917	San Jacinto, Calif.	58 ehiekens	Home-canned eorn
1917	Berkeley, Calif.	52 ehiekens	Home-canned string beans
1918	Berkeley, Calif.	12 ehiekens	Home-canned string beans*
1918	Hollister, Calif.	2 hogst	Home-canned peas

* *B. botulinus* was isolated.

† The animals were ill but reeovered

medium with a heated platinum wire, and to fish the colony through the sterilized surface. We have found that a dissecting microscope gives sufficient magnification and allows much greater freedom of movement for this procedure than does the ordinary laboratory microscope.

The isolated colonies are transplanted to glucose-agar, glucose-broth and brain medium. In glucose-agar, if one has succeeded in obtaining a pure culture, the growth usually becomes visible in from thirty-six

to forty-eight hours, and the upper surface of the growth is sharply defined about 1 cm. below the surface of the medium. Gas formation occurs soon after, and by the third day the agar column is usually fragmented. In glucose-broth a diffuse cloudiness appears at about the same time as the growth becomes visible in agar, but within a few days the cloud begins to settle and within a week or ten days the upper portion of the medium is clear and the bacterial growth is seen as a flocculent sediment at the bottom of the tube. The broth is usually allowed to incubate for one month before it is filtered through a diatomaceous filter and tested for the presence of virulent toxin. The growth in brain is quite profuse, and numerous spores are usually formed within a few days. The medium becomes blackened in from ten days to six weeks.

Occasionally one is able to obtain an unopened jar or can of home-canned vegetables or fruit in which there is a pure culture of *B. botulinus* and in which there is virulent toxin. Under such circumstances the bacteria can be recovered directly by inoculation of suitable mediums, and the presence of the toxin and

TABLE 3.—SOURCES FROM WHICH OUR SIX STRAINS OF THE *B. BOTULINUS* WERE ISOLATED

Date	City	Cause of Poisoning	Strain	Material from Which <i>B. Botulinus</i> Was Isolated
1915	Hillsboro, Ore.	Home-canned corn	IV	Contents of gizzard of chicken
1916	San Jose, Calif.	Home-canned string beans	III	Contents of crops and gizzards of three chickens
1917	Esecondido, Calif. ...	Home-canned string beans	V	Contents of can of beans obtained from cellar
1917	Seattle.....	Home-canned asparagus	VII	Contents of crops and gizzards of seven chickens
1918	Berkeley, Calif.	Home-canned string beans	VIII	Contents of three jars of beans which were obtained from closet, and of gizzards of two chickens
1918	Madera, Calif.	Home-canned apricots	IX	Contents of gizzard of chicken
1918	Hollister, Calif.	Home-canned green peas	X	Feces of two sick hogs

the specificity to known antitoxin can be tested in the juice or syrup from the container. Usually, however, the *B. botulinus*, if present in the jar, is associated with other spore-bearing bacteria; usually with *B. subtilis*, and in order to obtain a pure culture it is necessary to inoculate glucose-agar cylinders and fish for the characteristic colonies. But even here the problem of identification is greatly simplified, since the production of toxin is not prevented by the presence of the other bacteria, and its presence may be detected and its type tested by injecting the filtered juice or syrup from the infected container.

More often, however, the investigation must be made of remnants of the poisonous food that have been discarded, and the problem is much more difficult. Occasionally one may gather fragments of the discarded food from among the garbage, but usually this is not possible since the onset of the symptoms is so delayed that the garbage pail no longer contains the remnants of the food that caused the poisoning. We have examined four separate lots of suspected food that was recovered from garbage several days after the onset of the symptoms of poisoning, but did not succeed in isolating *B. botulinus*. Usually the only hope of recovering the organism lies in bacterio-

logic examination of the contents of the crops and gizzards of chickens that have died after eating the discarded food, or of the intestinal canal of human beings or of animals that have been poisoned. We have succeeded in recovering four strains of *B. botulinus* from the contents of the crops and gizzards of chickens that died after eating spoiled home-canned foods (thirteen chickens in all, Table 3), one from the feces of two hogs which became ill after eating spoiled home-canned green peas, and one from the intestinal content of a hog which we had experimentally inoculated by feeding. We did not succeed in recovering the organism from the contents of the intestinal tract of the one human victim in which we obtained necropsy before the body was embalmed.

The contents of the crops and gizzards or of the intestinal canal are mixed with sterile physiologic sodium chlorid solution in bottles or in flasks which are large enough to allow of thorough shaking. A portion of the mixture is then removed and heated at 60 C. for an hour, and parallel inoculations of heated and unheated material are made into glucose-agar and glucose-broth. The glucose-agar tubes are inoculated with minute amounts of the material for the reasons already discussed, but the glucose-broth tubes are inoculated with relatively large amounts, from 0.25 to 1 c.c. of the saline suspension.

The glucose-agar cultures are examined for characteristic colonies in from forty-eight to seventy-two hours after inoculation, but, as stated before, the cultures should not be discarded for at least two weeks if they appear to be negative. The presence or absence of gas in these cultures cannot be considered as conclusive evidence for or against the presence or absence of *B. botulinus*, as many other gas-forming bacteria may be present in the culture, or colonies of *B. botulinus* may be insufficiently developed to have caused the splitting of the glucose-agar.

The glucose-broth cultures are allowed to incubate for about one month before they are disturbed. A portion of the broth is then passed through a diatomaceous filter and 1 c.c. is injected subcutaneously into a guinea-pig. If virulent toxin is demonstrated by the death of the animal, a series of inoculations is made to determine the degree of virulence of the toxin, and the specificity and type as tested with specific antitoxic serums. If no virulent toxin can be demonstrated, the medium is discarded; but if there is a toxin, minute portions of the unfiltered portion of the medium are transplanted into glucose-agar, and the characteristic colonies are fished when they appear.

We have occasionally succeeded in obtaining *B. botulinus* in pure culture from glucose-agar cultures that had been inoculated with the original saline mixture; but we have been much more uniformly successful with the glucose-broth cultures that had been incubated for one month. We have never failed to obtain the organism in pure culture from the broth in which a virulent toxin had developed.

Occasionally *B. botulinus* may be recovered from the spleen of a human or animal victim of botulinus poisoning. We did not succeed in obtaining a culture from the spleen of our human case in which we performed necropsy before the body was embalmed, but in one instance (Strain III) we obtained a pure culture from the spleen of a rabbit that had been given intravenous injection of a contaminated broth culture. This method of separation does not appear to be

reliable, however, as repeated trials with other strains of *B. botulinus* have always been unsuccessful. The technic of making cultures from the spleen does not differ in any way from that of making routine cultures from tissues at the necropsy table. Portions of the spleen are removed through a seared surface, and inoculated into glucose-agar and glucose-broth culture tubes. We have not found it necessary to grind up the tissue before inoculation, as *B. botulinus*, if present, will soon spread out from the small pieces of tissue. If cultures are obtained, the bacilli are isolated and identified in the manner already described.

INTRARECTAL ADMINISTRATION OF ARSPHENAMIN

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It is not the intention of this paper to discuss the value of arspenamin when used alone, or its relative value when used in conjunction with other drugs. Its value as an antisyphilitic remedy, especially in the early stages of the disease, is undoubted, and the prompt response obtained from its use to the acute and subacute manifestations are generally gratifying.

As to its mode of administration, the most convenient and accepted method at present is by the intravenous injection. Next to this stands the intramuscular injection. We are each day learning more and more about the untoward effects and even the fatalities that sometimes accompany the former route. Sargent's¹ experience with arspenamin administered by intravenous injection is not at all encouraging.

We have never attempted the intramuscular injection of arspenamin or neo-arsphenamin. There are strong objections to it, even when it is carefully prepared in an oily suspension. The chief objection is the pain accompanying the injection, to say nothing of the more intense pain and subsequent swelling, lasting for several days. In addition there is always the danger, especially in obese patients, of a possible abscess formation.

Further, there are few in the medical profession who have not at some time been confronted with the problem of administering arspenamin or neo-arsphenamin in some patient in whom the intravenous method was almost a practical impossibility, unless a dissection of the vein was resorted to. The latter procedure cannot be very desirable when the injections are to be repeated, as is most often the case. Also, it is well known that arspenamin and neo-arsphenamin are very irritating to the subcutaneous tissues, even in small quantities, causing painful indurations. When these occur in the elbow, the most preferred site of injection, there is impairment of motion for weeks or months.

Again, it stands to reason that when a toxic drug like arspenamin, and, to a less extent, neo-arsphenamin, is suddenly thrown into the system by the most direct route, the blood stream, whence absorption in toto is almost immediate, its possible dangers must be reckoned with, when we consider the immediate reac-

tion: fever, headache, dizziness, nausea and vomiting, or the more severe subsequent reactions, such as damage to the eyes, the skin, the liver or kidneys, and even fatal termination. Even when patients are properly prepared, and likewise carefully selected, every physician experiences these untoward effects sooner or later. We had two striking instances in Cases 1 and 4, discussed later, in each of which the patient showed a rather severe reaction after the administration of neo-arsphenamin and arspenamin, respectively, by intravenous injection, but no bad effects after a number of intrarectal injections. Further, when the drug is quickly absorbed it is eliminated with relative rapidity, so that its curative power lasts only a short time. For this reason, a method in which the arspenamin is more slowly absorbed, offering a more prolonged and so probably a more effective curative method, is to be preferred. It is for this reason that some therapeutists are inclining to greater use of the intramuscular administration of the drug. This was not the real point, however, in our seeking another method of arspenamin or neo-arsphenamin administration.

Syphilis is a common disease everywhere, but is especially prevalent in Panama. The number of our routine Wassermann tests on hospital patients averages one-third positive. Further, obesity is very common among our native women after marriage, and it is at this time when many of them contract the disease from their husbands. Hereditary syphilis, too, is common among the children. We were for a time confronted with the problem as to how to administer arspenamin and neo-arsphenamin in these types of cases, and also in some very anemic, nervous women with small, collapsed veins. We learned that intrarectal arspenamin had been tried by some French physicians, and, though we could not find the original record, we decided to give this method a trial.

The method we used is very simple. The arspenamin or neo-arsphenamin is prepared just as in the intravenous method and can be made up with a similar or smaller amount of fluid, from 25 to 50 c.c. for neo-arsphenamin and about 100 c.c. for arspenamin. The patient is put to bed and the solution is allowed to run in slowly, allowing about ten minutes for the injection. The patients, especially children, were urged to retain it. We preceded the injection by a cleansing enema, and, in the early cases, elevated the buttocks and also the foot of the bed. These steps are unnecessary, though a cleansing enema is a good procedure to adopt and in children the extra precautions are also wise. Injections may be given safely every three days, the full dose for men and women being 0.9 gm. of neo-arsphenamin or 0.6 gm. of arspenamin, and for children, 0.1 gm. for each 25 pounds of body weight.

At first we checked up our cases by titrated Wassermann tests in ten dilutions, conducted by Dr. Gorton at our laboratory. Out of nine cases worked out by this special titration, five showed a moderate or complete improvement in the Wassermann reaction, and the other four showed little or no change. In the remainder of the cases, numbering about thirty-five, the routine Wassermann test was done. What we were interested in chiefly, however, was clinical improvement in the symptoms, which included skin, bone, joint and glandular lesions, and also improvement in general health.

Our series is, indeed, very small, as most of our patients are charity patients, unable to purchase the

1. Sargent, J. C.: Toxicity of the American-Made Arspenamin (Salvarsan), THE JOURNAL A. M. A., March 30, 1918, p. 908.

needed drug, and the cases for arspenamin treatment are too numerous to permit the hospital's free administration. At first we treated a small number of patients, whom we used for experimental purposes, and later when we had demonstrated the efficacy of the method to our own satisfaction, we treated patients unfitted for intravenous injection who needed the arspenamin.

We do not desire to discuss each case, but some were so striking in their response that they are worthy of individual consideration. In general, we might say that the majority of patients showed improvement from symptoms after from three to five intrarectal injections, even when the Wassermann reaction remained unchanged, often, perhaps, because the patients left too early, either demanding their discharge or being discharged for other reasons.

REPORT OF CASES

CASE 1.—R. G., a middle-aged married man, admitted Aug. 21, 1917, complained of a leg ulcer over the left thigh above the knee and a tumefaction at the back of the elbow. He had had the ulcer for about one year and the tumor for several months. He also felt run down in general health. The ulcer was about the size of a silver dollar, chronic in appearance, with a highly indurated margin. The elbow tumefaction was about the size of a walnut and impaired the motion of the elbow to some extent. It was smooth, firm and apparently a gumma. The patient had general glandular enlargement, was anemic and had a ++++ Wassermann reaction.

After four intrarectal injections of French neo-arsphenamin, the ulcer had almost completely filled in, the gumma was reduced to about one-fourth its size, and the patient was feeling much better. He was discharged shortly after, to return for more treatment later, and after several weeks was given an intravenous injection of neo-arsphenamin. Immediately after the injection the patient grew dizzy, had to remain at the hospital for a while, and told us later that at home he developed a chill and a rather high fever and was nauseated. He refused to take any more intravenous injections after his experience with both methods. His last Wassermann test, about two months after his first admission, persisted in full strength, ++++.

CASE 2.—A. C., a young married woman, very obese, was admitted, July 10, 1917, with a history of headache and pain extending down her spine and growing worse at night. She had also had twelve abortions. Her Wassermann reaction was +++.

After five intrarectal injections of neo-arsphenamin, her symptoms disappeared and her general health was improved. Her Wassermann reaction was negative. Seen a short time ago, she still reported excellent general health and no abortions since her treatment. We were disappointed in her negative history concerning pregnancy.

CASE 3.—J. de C., a young and exceedingly anemic woman, married, was admitted, Feb. 5, 1918, with a history of metrorrhagia and a general run down condition. The following day a curettage was performed, but during the night before the operation, she had had a slight rise of temperature. This grew steadily worse, the temperature climbing and the pulse increasing in rate, until the patient appeared quite sick. On admission she had had a fading eruption which grew marked during the fever. She also developed an outspoken palmar and plantar syphilid. We were inclined to regard the whole picture as one of secondary syphilis, especially in the presence of a ++++ Wassermann reaction; but the extremity of the picture, especially the febrile reaction, from 39 to 41 C. (102.2 to 105.8 F.), and her apathy gave us sufficient anxiety to request a Widal reaction and a blood culture, both of which were negative. The blood was negative for malarial parasites also, and the fever failed to respond to quinin.

After the first intrarectal injection of French neo-arsphenamin, 0.9 gm., the patient showed some improvement and con-

tinued to do so after subsequent similar injections. After the fourth injection, the temperature came to and remained at normal, and after a few days the patient was up and about, quite herself again, all the skin manifestations having disappeared completely. The last Wassermann reaction taken about a month after her last injection was negative.

CASE 4.—M. de A., a woman, admitted, April 14, 1918, had been married seven months. Three months after marriage, she had had a facial neuralgia and heat flushes, and also some fever and a general eruption. These symptoms had disappeared, to be followed, shortly before admission to the hospital, with sores in the throat and around the vulva and vagina, the latter being associated with agonizing pain, painful micturition and insomnia. Her Wassermann reaction was ++++. Her husband's reaction had been the same. Mucous patches were present on the posterior pharynx, and ulcerated condylomas in the vagina and on the vulva.

The patient was first given an intravenous injection of the Farbwerke-Hoechst brand of arspenamin, 0.4 gm., after which she was very sick, felt feverish and nauseated, and had an epileptiform convulsion. She begged not to be given any more intravenous injections. After this she was given four intrarectal injections of arspenamin, 0.6 gm. each time, suffering no reaction. Her lesions disappeared entirely and she felt much improved, being discharged, May 1, 1918, sixteen days after admission, to continue treatment outside the hospital. Her Wassermann reaction at this time was still ++++.

In addition to the patients mentioned, we have had two other patients with persistent relapsing fever that responded to intrarectal injections of neo-arsphenamin, each receiving three or four injections.

CASE 5.—P. de A., an extremely obese, middle-aged woman, before admittance to the hospital had had high fever, which failed to respond to quinin by mouth or hypodermically. On admission, she still had fever ranging between 39 and 40 C. (102.2 and 104 F.) and pains in the joints. The blood was negative for malarial parasites and the relapsing fever spirochete, and the Wassermann reaction was negative. The patient's body showed evidence of a mottled, faded eruption, suspiciously suggestive of syphilis. Her temperature fell to normal after intrarectal injections, and she had completely recovered after four injections.

CASE 6.—E. G. de V., a young woman, was admitted to the hospital, Feb. 19, 1918, with acute appendicitis. The appendix at operation was found gangrenous, ready to rupture, and the cecum near its base appeared gangrenous. In spite of the fact that there was evidence of a fecal fistula on the fourth day, the wound drained well and seemed to be closing up, with no further evidence of trouble in the abdomen. About a week after the operation, the patient's temperature, which had fallen almost to normal, began to run a four or five day relapsing fever course, with occasionally chilly sensations. This condition showed no improvement with hypodermic injections of quinin or quinin by mouth. The blood on being examined the second time for malaria, revealed no parasites, and was negative for the spirochete of relapsing fever. The patient asserted that she felt very well after her first intrarectal injection of neo-arsphenamin, 0.9 gm., and her temperature remained practically at normal from that time on, though she was given two subsequent injections. She was discharged, March 19, 1918, just one month after operation, feeling very well and with the wound practically closed.

SUMMARY

It is interesting to note that, after the intrarectal injections, not a single patient showed the slightest reaction, whether the Farbwerke-Hoechst brand of arspenamin or the German or French neo-arsphenamin was used. During these arspenamin courses we tried to eliminate all other forms of antisyphilitic treatment, and while we can make no detailed statement as to the relative value of these preparations, we have found the results more or less encouraging with all.

We strongly urge the trial of this method on those connected with institutions who can and do give arsphenamin to patients gratis.

CONCLUSIONS

1. The intrarectal administration of arsphenamin is a successful method of treating syphilis and relapsing fever.
2. The untoward effects are practically eliminated by slower absorption.
3. The method requires no special skill in administration, and can be entrusted to a nurse or to the patient himself.
4. The dosage can be increased by this route and given as often as every three days.
5. It is the method of choice in nervous subjects, in obese or very anemic women, and in children.
6. It offers at least the same curative value as the intravenous route.

HAY-FEVER RESORTS IN THE UNITED STATES AND CANADA

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NEW ORLEANS

As it has been definitely established that hay-fever is due to the inhalation of pollen,¹ it would appear to be simply a question of eliminating all wind-pollinated plants from certain areas in order to abolish this disease. This has been actually demonstrated in a number of places, which have in this way acquired considerable popularity as hay-fever resorts. All weeds and grasses are scrupulously cut not only by city ordinances, which are strictly enforced, but also through the influence of public opinion, as the visitors are a source of profitable revenue. The freedom from hay-fever in these places is due to the fact that all weeds and grasses with wind-borne pollen² are rigidly excluded.

The history of hay-fever resorts, before pollen was discovered to be the cause, forms an interesting example of the unreliability of health measures when not based on scientific principles. A sufferer from hay-fever, in his efforts to find a location in which he will find relief, reaches a location many miles from human habitations and cultivated fields, perhaps in a virgin forest, and his attacks disappear. He pitches his tent, passes his time in fishing and hunting, and returns home convinced that he has at last found the Mekka of hay-fever sufferers. The place is advertised, cottages are built and perhaps even a hotel, and the first year the reputation is sustained—no one has hay-fever.

The next year, the plans are extended. The timber is cut and the land is planted in corn and oats for the stock, and vegetables for the guests. Immediately the seeds of the weeds, the parasites of agriculture, are brought in by the stock, the hay, oats and seeds, and the weeds appear with their millions of noxious wind-borne pollen.

The guests now begin to suspect that the location is not entirely free of hay-fever. The following year the weeds have increased in number and activity, and the pollen abounds in the air. Hay-fever is common, the guests leave in disgust, and the place is abandoned. This history of the rise and fall of hay-fever resorts has repeated itself in almost every part of the country.

The recently established resorts, however, being scientifically based on the exclusion of all weeds, have maintained their reputation and increased in popularity. It is only a question of time, however, when every summer resort will be compelled, in its own interest, to take similar steps for the comfort of hay-fever sufferers. The elimination of hay-fever in towns and cities generally is simply a question of time, this result depending on the thoroughness with which the weeds are destroyed.³

It is popularly believed that hay-fever is gradually increasing, and this is supported by the statistics which we have collected from all parts of the country. The cause, however, is not the increase of susceptibility as is usually supposed, but of exposure. It is well known that hay-fever is less frequent in the heart of crowded cities, and many living in the suburbs find relief at their places of business. The reason is that these congested parts of the cities are beyond the potential radius of the hay-fever weeds and grasses of the suburbs and surrounding country.⁴

The true reason is, therefore, that the ease of transportation has enabled thousands to live in the suburbs and surrounding country of all large cities. Most of these localities are sparsely settled, and are surrounded by vacant lots and fields. The latter too frequently are abandoned to ragweed and other hay-fever weeds, even in cases in which a crop has been cultivated at some portion of the year. The air in these places is therefore infested with hay-fever pollens, which find their victims in subjects with low immunity to their protein.

There are a number of places in the United States and Canada in which the meteorological or topographic condition prevents the growth of the plants that cause hay-fever, and which may therefore be termed natural hay-fever resorts. There are several varieties of hay-fever, however, and, accordingly, there are some localities in which one class of hay-fever sufferers find relief but in which others are not benefited. A patient from Illinois, sensitive to the common ragweed (*Ambrosia elatior*) hay-fever only, would find relief in California, where this is not found⁵ and a subject in California, sensitive to the sagebrush (*Artemisia*) only, would be relieved in Illinois. This explains the apparent contradiction in regard to many popular hay-fever resorts.

There are some localities, however, in which the natural flora of all hay-fever weeds is extremely low, so that they offer relief to the great majority of hay-fever cases of all forms.⁶

For several years, the American Hay-Fever Prevention Association has been endeavoring to form a reliable list of such localities, so that physicians might

3. Scheppegrell, William: The Prevention of Hay-Fever as a National Problem, Jour. Am. Pub. Health Assn., 1918.

4. Scheppegrell, William: Hay-Fever and Hay-Fever Pollens; Arch. Int. Med., June, 1917, p. 959.

5. Scheppegrell, William: Hay-Fever: Its Cause and Prevention in the Pacific and Rocky Mountain States, Pub. Health Rep., 1917, 32, 1135.

6. Scheppegrell, William: Hay-Fever and Its Relation to One Hundred of the Most Common Plants, Trees and Grasses, Med. Rec., New York, 1917, 92, 230.

1. Scheppegrell, William: Hay-Fever and Its Prevention, Pub. Health Rep., 1916, 31, 1907.

2. Flowers of all kinds, whether wild or cultivated, are practically all insect-pollinated, and, as the pollen is not in the air, they do not cause hay-fever, although some may cause a reaction on direct inhalation.

be able to direct their hay-fever patients to the nearest resort in their vicinity. In this work, we have received valuable assistance from most of the state boards of health, from physicians in general and from our Botanical Department.

This list of hay-fever resorts will be increased as reliable information is obtained. It is published at this time, in order to be available for the approaching fall hay-fever season which is due in August.

PARTIAL RELIEF

Contrary to the popular belief, altitude is no protection against hay-fever unless this exceeds 6,000 feet. Up to 4,000 feet, the common ragweed (*Ambrosia elatior*) is as common as on the plains. At an altitude over 6,000 feet, however, the ragweed does not thrive, and such localities afford relief to those sensitive to this pollen. Some of the wormwoods (*Artemisia frigida*), however, are found at this altitude, but these are practically confined to the Pacific and Rocky Mountain states.

An island that is kept free of weeds, and has no land nearer than 5 miles, is practically free of hay-fever pollen, and is therefore without hay-fever. Even 1 or 2 miles is ordinarily a sufficient water protection, as the lightest pollen of the hay-fever weeds (ragweeds, 15 microns in diameter) does not traverse more than this distance except in winds of high velocities (20 or more miles an hour).

The apparently erratic benefits of coast resorts is simply a question of wind direction. If this is from the water, the air is free of pollen, and hay-fever subjects find relief. If the wind is from the land, however, and this is infected with hay-fever weeds, which is usually the case, the proximity of the water affords no relief.

COMPLETE TEMPORARY RELIEF

There are a number of places in the United States and Canada, where, on account of the altitude (over 6,000 feet), latitude or the presence of extensive forests, the common hay-fever weeds are not found, and which are therefore free of hay-fever. The following list of such places has been carefully compiled, and should prove convenient to practitioners in general, who are frequently at a loss as to the nearest hay-fever resort for their patients.

HAY-FEVER RESORTS IN THE UNITED STATES⁷

ARKANSAS.—Eureka Springs, Heber Springs, Sylvan Springs and Winslow, all located in the Ozark Range, are reported.

CALIFORNIA.—Santa Cruz, Del Monte, Santa Barbara and Coronado along the coast, and Lake Tahoe and other places among the high Sierras are reported.

COLORADO.—Silver Plume, and other mountains with an altitude over 7,000 feet, are reported.

CONNECTICUT.—The Litchfield Hills, in the northwestern part of the state, afford relief in a certain class of cases along the coast, and the seaside resorts, especially in the New London district, afford relief to a class of inland cases.

FLORIDA.—The coast of southern Florida affords partial relief.

LOUISIANA.—Covington and Abita Springs afford relief in the vernal type of hay-fever.

MAINE.—Rangeley Lakes and Kineo, located on Moosehead Lake, are reported.

MICHIGAN.—At Mackinac Island in a series of fifty cases, sixteen patients were free of hay-fever, twenty-five were improved, and nine were not benefited.

7. In addition to our own sources of information, a letter was sent to the state board of health, and at least two rhinologists of each state. If no report, or a negative one, was received, the name of the state is omitted.

MINNESOTA.—Duluth is favorably reported.

MISSISSIPPI.—Pass Christian, Bay St. Louis and other coast resorts afford relief in the vernal form of hay-fever.

NEW HAMPSHIRE.—Bethlehem, located in the White Mountains, has long been a favorite resort for hay-fever sufferers; Bretton Woods, Jefferson, Fabyans and Dixville Notch are other resorts.

NEW MEXICO.—Cloudcroft, Whitcom Springs, Albuquerque, Valley Rancho, Glorietta, Jemez Springs, Sulphur Springs, El Porvenir and East Las Vegas are reported.

NEW YORK.—The Adirondacks (highest point 5,379 feet), Fire Island, an insular strip of land south of Long Island, Thousand Islands Park, Big Moose and Old Forge Lake are reported.

NORTH CAROLINA.—Eagle's Nest, altitude 5,050 feet; Glen Ayre, Blackstock Knob, 6,378 feet; Black Dome, 6,502 feet; Mount Gibbs, 6,591 feet; Hall Back, 6,403 feet, and Mount Mitchell, 6,711 feet, in the Black Mountains; Double Spring, 6,380 feet; Richland Balsam, 6,370 feet, and Jones' Knob, 6,224 feet, in the Balsam Range, and Mount Buckley, 6,599 feet; Clingman's Drive, 6,660 feet; Mount Love, 6,443 feet, and Alexander, 6,447 feet, in the Smoky Mountains, are reported.

PENNSYLVANIA.—Eaglesmere, the Pocono Mountains, the hills in the vicinity of Bradford, and the mountains near Mont Alto and Caledonia are reported.

SOUTH DAKOTA.—Hot Springs is reported.

TENNESSEE.—Roan Mountain, altitude 6,310 feet, has long been noted for its relief to hay-fever sufferers.

TEXAS.—San Antonio is reported as having but few hay-fever cases.

UTAH.—There are a number of places in various parts of this state having an altitude of over 6,000 feet which afford relief to hay-fever subjects; also several canyon resorts, such as Brighton and Ogden, where comparative immunity exists. Many persons from Salt Lake City, which has an elevation of 4,300 feet, visit these places with relief.

VERMONT.—The Green Mountains (highest point 4,430 feet) afford relief.

WASHINGTON.—Although there is the usual percentage of hay-fever east of the Cascade Mountain Range, there is practically none in any part of the state west of this range, which is therefore favorable to hay-fever subjects.

WEST VIRGINIA.—Terra Alta, Marlinton and Webster Springs are favorably reported, although their altitude (2,500 feet) is not sufficient for marked benefit.

WISCONSIN.—Two Rivers, located on a peninsula extending seven miles into Lake Michigan, is favorably reported.

CANADIAN HAY-FEVER RESORTS

PROVINCE OF ALBERTA.—This province is remarkably free of hay-fever, many persons from the United States and eastern Canada obtaining marked relief.

PROVINCE OF ONTARIO.—The Muskoka Lake region and the National Park, known as Algonquin Park, abounding in lakes and densely wooded, have a low percentage of atmospheric pollen. Campobello, in the Bay of Fundy, and Prince Edward Island, in the Gulf of St. Lawrence, are favorably reported.

The ragweeds and other members of the *Ambrosia* family⁸ are not found in Europe, so that it offers immunity to our common fall hay-fever. The grasses (*Gramineae*), however, are common, so that the vernal type of hay-fever is fairly prevalent in many sections.

8. Scheppegrell, William: The Classification of Hay-Fever Pollens from a Biological Standpoint, Boston Med. and Surg. Jour., 1917, 177, 42.

The War in Winnipeg.—An advanced guard of the first army corps of house flies has already occupied several stables and other outposts of the city, and it is reported that an immense army of several millions will follow immediately unless prompt measures are taken, not only to repel the invaders, but to exterminate them utterly.—Winnipeg Health Bulletin.

NEUROCIRCULATORY ASTHENIA *

WILLIAM H. ROBEY, JR., M.D.

Major, M. R. C., U. S. Army

BOSTON

AND

ERNST P. BOAS, M.D.

Captain, M. R. C., U. S. Army

NEW YORK

A condition known as "soldier's heart" was recognized during the Civil War and described by DaCosta. At the beginning of the present war, Thomas Lewis gave the name of "effort syndrome" to the condition and later published an elaborate description. More recently a better name has been adopted—neurocirculatory asthenia. Work produces the syndrome in exaggerated form, but all of the phenomena are present in varying degrees after it declares itself with sufficient force to limit the soldier's usefulness. The condition is quite clearly a vasomotor disturbance occurring in nervous, highly strung persons. The heart, *per se*, is rarely affected except in rate. Patients with true organic heart disease rarely present this syndrome, and when found are immediately discharged to civil life. A heart lesion may be a comparatively harmless condition in a civilian, but in the stress of army life it becomes a menace, and experience has shown that it is useless for the soldier to continue.

Briefly, the syndrome of symptoms is breathlessness on exertion, tachycardia, palpitation, precordial pain, vertigo, headache, easy fatigue, lassitude, high systolic blood pressure and general nervous instability. All of these symptoms are exaggerated by a slight amount of exercise. Not all patients have a complete syndrome, but the chief complaint is precordial pain. Thrills are common, and their presence led us at the outset to think, in some cases, that we were dealing with mitral stenosis, but the thrill is generally systolic in time, and the other phenomena of stenosis are absent.

The cases are of importance to the military surgeon because of their frequency, and because of the real disability under which the patients suffer. The results of observation here show that the case should be discovered as early as possible. Some patients clearly show the signs of neurocirculatory asthenia at the time they are recruited, and others only after a period of intensive training; but practically all give a past history of the syndrome. We can all recall cases in civil practice. That they are often unrecognized is shown by the fact that only two patients of our series were sent to the hospital with the correct diagnosis. The most frequent diagnoses were heart trouble, tachycardia, myocarditis, some form of valvular defect and pulmonary tuberculosis.

The most important consideration for us as military surgeons is the early diagnosis, treatment and ultimate disposition of these cases. In the United States Army until very recently there has been no category of light duty, so that unless a man was fit for full duty he had to be discharged. As a result, more of our patients have been discharged from the Army than would have

been necessary. Under the new regulation providing for "domestic service only," some of those who have been discharged might have been retained for light duty.

TREATMENT

Lewis¹ treats his patients with graduated calisthenic exercises. Patients gradually progress from one class of exercises to the next; and when finally, after a period of about six weeks, they are able to perform the most difficult exercises without distress, they are returned to duty. Those patients who are unable to complete the series of exercises are discharged from the Army. Thus the exercises serve both as diagnostic and as therapeutic measures.

This report is based on a study of eighty-nine cases out of a total of 200 at the base hospital, Camp McClellan, Ala.

In the British army the term "constitutional" is used to designate those patients whose history from youth has given evidence of being not quite up to the average. In our study we have used the term "constitutional" to indicate the foregoing class of patients, and "nonconstitutional" for those whose neurocirculatory asthenia has apparently resulted from some acute infectious disease or has been induced by it.

The majority of our cases have been in the "constitutional" class.

In the treatment of all of our patients Lewis' instructions have been followed carefully, and much the same exercises that he describes have been used. The exercises have yielded valuable information as to the degree of disability, but as a therapeutic measure they have been a failure. None of the patients, not even those returned to duty, showed improvement objectively or subjectively. A few gained in weight and strength, but their cardiovascular symptoms remained unchanged. Of Lewis' patients, 41 per cent. were returned to duty, half of these to full duty, and half to light duty. Of our eighty-nine cases, twelve, or 13.5 per cent., were returned to full duty. One of these returned to the hospital one week later because he could not stand the work, and was then discharged. This leaves 12.3 per cent. of the patients on full duty. Four patients, or 4.5 per cent., were returned to light duty.

Thus 16.8 per cent. of the soldiers treated were returned to duty of some sort. Counting the man who was discharged after being on duty for one week, seventy-four, or 83.2 per cent., were discharged from the Army.

The point, however, that should be emphasized is that the exercises brought about no improvement in the patients whose condition was constitutional. Those men who were returned to full duty showed the same degree of dyspnea, tachycardia, high blood pressure, vertigo, etc., at the time of their discharge that they had on their admission to the hospital. They simply had milder cases. They would probably have stood the heaviest exercise at once, without first undergoing the lighter grades of exercise. In other words, if we had used the exercises as diagnostic means alone, not as a therapeutic measure, we should have discovered at once that these patients presented symptoms only on rather severe exercise, and much time and expense to the government would have been saved.

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Lewis, Thomas: Report on Neuro-Circulatory Asthenia, and Its Management, Mil. Surgeon, 1918, 42, 409.

FUNDAMENTAL NERVOUS INSTABILITY

We have become convinced that neurocirculatory asthenia is due to a fundamental nervous instability of the patient that cannot be cured. There is a slight waxing and waning of the symptoms, varying with the general condition of well-being of the patient, but a real cure is impossible. Lewis warns against the diagnosis of neurasthenia in these soldiers, for he says that it prejudices the mind against a possible cure, and renders the treatment less effective as a consequence. When we first began to study these cases they were new to us, and we were guided in their study and treatment exclusively by Lewis' report. At first we, too, discounted the mental and nervous symptoms; but eight months' experience in the handling of these cases has changed our views. The reasons for this will now be enumerated.

The vast majority of the patients give a family history of nervous disorder. The father or mother or some of the brothers and sisters are nervous and irritable, and are easily upset. The patient himself, when carefully questioned, will reveal symptoms dating back to childhood. He, too, has always been nervous and excitable. Small things unnerve him so that he trembles and feels faint. In crises or emergencies, whether it be in games such as baseball or in the line of his work, he cannot stand the strain and quits. He has no stamina. A number of the patients have had enuresis in childhood. Objectively they usually present a number of signs of nervous instability. These become particularly evident after the exercises. There is twitching of the fingers, often a coarse general tremor, and emotional instability sometimes manifested by crying. Two illustrative instances of emotional instability may be mentioned:

A sergeant, a man with mild symptoms who wanted to return to duty, was asked one day by the commanding general, who was on a tour of inspection, how he was getting on. This question from so distinguished a source so unnerved the man that all of his symptoms became acute that day, and he could hardly go through an exercise that the day before had given him little trouble.

Another man had disobeyed a direct order and had received a severe reprimand as a consequence, and was confined in a room by himself for two days. From that time on, all of his symptoms were much worse; the slightest exercise evoked a coarse general tremor, and the patient was weaker than he had ever been before.

Although all of the patients were treated with disregard of their neurotic symptoms, those in whom these symptoms were more marked were seen in consultation by the psychiatrist. Thirteen of these were discharged by the neuropsychiatric board, six under the diagnosis of constitutional psychopathic state; two, of constitutional mental inferiority, and five, of psychoneurosis. However, in most of the cases the mental symptoms were insufficient to warrant any action by the neuropsychiatric board. Major Harlow Brooks at Camp Upton noted the neurotic element in these patients as well as in their families.

ASSOCIATION OF CARDIOVASCULAR AND NERVOUS SYMPTOMS

The cardiovascular and nervous symptoms go hand in hand. Those patients with marked neurotic symptoms represent the severe cases of neurocirculatory asthenia. Lewis reports patients with respirations varying from 60 to 100 a minute. We have seen several patients with respirations from 60 to 70 a minute

after exercises. These patients were all distinct psychopaths. Moreover, the dyspnea was not real, for if a patient breathing 60 a minute were asked a question he would reply without showing any signs of distress, using long sentences without drawing a breath. In agreement with Lewis we have found that the symptoms often date from an acute infection, and we have observed a number of patients who were made worse by an intercurrent infectious disease. Careful questioning usually will elicit the information that even before the infection some of the symptoms were present, and that the acute insult was only the exciting factor. Similarly in the cases of those patients who date their symptoms from the intensive training at camp, a significant previous history may usually be obtained. Patients, who at first stated that their symptoms were of only a few months' duration, on careful questioning gave histories of a mild form of the disorder many years back. Lewis found that 43 per cent. of his patients had symptoms before joining the service. Our patients may be justly compared only to those of his who developed symptoms before their entry into active service. Of these, only 36 per cent. were returned to duty, and only 10 per cent. of them to full duty. Thus, in the class of cases the ineffectiveness of treatment is shown in both of our series.

Neurocirculatory asthenia as seen in our training camps occurs in persons with fundamentally unstable nervous system, with resultant instability of the vasomotor system. They do not improve under treatment and should be discharged from the Army at once. With the category of light duty introduced in our Army, the exercises will be of value in grading the men as to the degree of work that they can perform.

Lian² has reported on 350 soldiers with disordered action of the heart. He states that the treatment in the chronic cases can be only palliative, and that those who were returned to duty were returned only to light duty.

Major Harlow Brooks³ has reported briefly on cases of neurocirculatory asthenia at Camp Upton. He too notes marked emotional instability and neurovascular instability, as well as a family history of nervous disorders. He ascribes the condition to hyperthyroidism, and has noted definite thyroid enlargement or prominence in at least two thirds of his patients. Fifty per cent. of his cases occurred in Jews. Thyroid enlargement has been noted in very few of our cases. While many of the symptoms of neurocirculatory asthenia correspond to those of exophthalmic goiter, the general impression that one gets of each case does not justify this diagnosis. Exophthalmos is rare, and when present is very slight. It would be expected that in a large series of patients showing marked cardiovascular disturbance, at least a few would have a distinct goiter or exophthalmos if they had exophthalmic goiter. Moreover, the tremor in these patients is usually much coarser than that found in exophthalmic goiter. Dr. Leszynsky⁴ says that in his opinion emotional strain, rather than a disturbance in thyroid secretion, is responsible for the symptoms. This is much nearer the truth. Lewis found only two cases of exophthalmic goiter in a series of 1,000 cases. Only

2. Lian, G.: *Presse Medicale*, 1918, **26**, 11.

3. Brooks, Harlow: Hyperthyroidism in the Recruit, abstr., *THE JOURNAL A. M. A.*, March 9, 1918, p. 728.

4. Leszynsky, W. M., in discussion on Brooks, Harlow: Hyperthyroidism in the Recruit, *THE JOURNAL A. M. A.*, March 9, 1918, p. 730.

4 per cent. of his patients had palpable enlargement of the thyroid. Two and two-tenths per cent. of our series were Jews; 3.4 per cent. were Italians and the rest Anglo-Saxons, mostly native Americans for several generations.

The patients with neurocirculatory asthenia bear a great resemblance to patients with orthostatic albuminuria. There is the same vasomotor and nervous instability. Orthodiagrams show that there is no diminution in heart size after exercise. This condition, too, is found with orthostatic albuminuria. Routine urinalyses of our patients reveal at the most an occasional very faint trace of albumin. In a series of twenty-seven patients, the urine passed before and after exercise was tested for albumin. Six* of these cases showed a trace of albumin before the exercise, which in four cases was distinctly increased in amount by the exercise. Two urines showed a trace of albumin before the exercise, and none afterward. In no case did an early morning specimen collected on arising show albumin.

THE BLOOD PRESSURE

Blood pressure studies have proved very interesting. When the patient is up and about, the systolic blood pressure is high, usually between 135 and 170. The diastolic pressure is generally normal. After exercise the systolic pressure rises greatly, and not infrequently the diastolic pressure drops. A few examples are cited in Table 1. A frequent feature is the persistence and loudness of the fourth sound heard with the stethoscope when taking the blood pressure. Frequently a loud fourth sound can be heard down to the zero mark. This makes the estimation of the diastolic pressure difficult at times.

TABLE 1.—BLOOD PRESSURE

Case	Blood Pressure after Rest		Blood Pressure after 100 Hops	
	Systolic	Diastolic	Systolic	Diastolic
10	155	90	175	70
16	135	65	165	0
17	145	65	185	0
43	150	90	170	78
44	140	85	154	0
45	140	80	184	0
61	154	100	165	70
62	120	80	138	60

Barringer⁵ has studied the heart's functional capacity by means of blood pressure readings taken thirty, sixty and ninety seconds after a measured exercise. He has found that when the exercise overtakes the reserve power of the heart, there is a delay in rise in the systolic blood pressure after the exercise. He expresses the belief⁶ that patients with effort syndrome have a decreased cardiac reserve power. Experiments according to his methods were undertaken to study this point. Protocols of our findings are given in Tables 2, 3 and 4. All three patients showed marked dyspnea on the completion of these exercises. Yet the reserve power of the heart as measured by the number of foot-pounds of work that a patient can do before showing a delayed rise in blood pressure is practically normal. Barringer found that between the ages of 20 and 30 the reserve power of the heart measured by this method is about 5,600 foot-pounds in sixty seconds. These experiments show that the symptoms are not due to cardiac weak-

ness, and that the exercises usually used to strengthen a weak heart are unnecessary in these cases.

THE PULSE

The behavior of the pulse after exercise is worthy of note. In all of our cases the pulse rate has been taken every day, before the exercise, immediately afterward, and two and four minutes afterward. Usually the pulse rate is accelerated out of all proportion to the exercise, and does not drop to normal in four, or even in ten minutes. However, at times the pulse slows after exercise, or it may first slow

TABLE 2.—BLOOD PRESSURE IN CASE 1

	Systolic Blood Pressure
1,200 foot-pounds in 13 seconds:	
Before work	166
30 seconds after work	180
60 seconds after work	178
90 seconds after work	164
6,000 foot-pounds in 60 seconds:	
Before work	160
30 seconds after work	182
60 seconds after work	182
90 seconds after work	176
120 seconds after work	170
6,480 foot-pounds in 65 seconds:	
Before work	146
30 seconds after work	185
60 seconds after work	194*
90 seconds after work	180
120 seconds after work	174

*Delay in rise.

TABLE 3.—BLOOD PRESSURE IN CASE 2

	Systolic Blood Pressure
1,025 foot-pounds in 20 seconds:	
Before work	138
30 seconds after work	153
60 seconds after work	146
90 seconds after work	136
2,460 foot-pounds in 30 seconds:	
Before work	142
30 seconds after work	158
60 seconds after work	152
90 seconds after work	142
4,100 foot-pounds in 50 seconds:	
Before work	142
30 seconds after work	165
60 seconds after work	166
90 seconds after work	160
120 seconds after work	148
5,125 foot-pounds in 65 seconds:	
Before work	125
30 seconds after work	158
60 seconds after work	168*
90 seconds after work	160
120 seconds after work	152

*Delay in rise.

TABLE 4.—BLOOD PRESSURE IN CASE 3

	Systolic Blood Pressure
400 foot-pounds in 30 seconds:	
Before work	150
30 seconds after work	174
60 seconds after work	168
90 seconds after work	166
120 seconds after work	162
2,675 foot-pounds in 45 seconds:	
Before work	150
30 seconds after work	150
60 seconds after work	150
90 seconds after work	150
120 seconds after work	148
5,340 foot-pounds in 85 seconds:	
Before work	146
30 seconds after work	168
60 seconds after work	160
90 seconds after work	154
120 seconds after work	150

and then become rapid. Examples are given in Table 5. Just what the significance of the variable reaction of the pulse rate is, it is difficult to say. In these patients emotion speeds the heart just as much as exercise. It is probable that this factor causes the variability in pulse rate. Thus a man becomes excited before the exercise. He calms down later, and so, in spite of the exercise, his pulse rate is slower than it was before the exercises.

In a series of 100 patients, Lewis found 48 per cent. showing precordial hyperalgesia. Of eighty-five

5. Barringer, T. B., Jr.: The Circulatory Reaction to Graduated Work as a Test of the Heart's Functional Capacity, Arch. Int. Med., March, 1918, p. 363; Studies of the Heart's Functional Capacity, ibid., 1917, p. 829.
6. Barringer, T. B., Jr.: The Reserve Power of the Heart, Brit. Med. Jour., Dec. 15, 1917.

patients whom we tested, thirty-nine, or 45.8 per cent., had hyperalgesia, thirty-four, or 40 per cent., had no precordial sensory disturbance, and twelve, or 14.2 per cent., had hypalgesia. The degree of hyperalgesia in general corresponded to the degree of pain of which the patient complained. This relationship, however, was not constant. Two patients in whom precordial pain was a continual complaint had no precordial sensory change, and four patients with severe precordial pain had precordial hypalgesia. Eight patients complaining of moderate precordial pain also showed hyperalgesia. Three patients who had no precordial pain had hyperalgesia. Thus the precordial pain and precordial hyperesthesia are not always concomitant.⁷

TABLE 5.—PULSE RATE BEFORE AND AFTER EXERCISE

Case	Exercise	Before	Immediately Afterward	Two Minutes Afterward	Four Minutes Afterward
2	A 15	104	108	116	112
	A 15	112	92	92	92
	A 15	96	112	100	116
	B 15	136	120	104	88
4	A 15	144	72	88	92
	A 15	96	132	120	132
	C 15	84	92	128	92
	C 15	132	128	96	104
5	C 15	116	120	124	76
	A 15	80	144	144	132
	A 15	136	132	132	112
	B 15	92	120	112	104
25	B 15	112	120	128	104
	C 15	136	124	112	120
	A 15	96	80	76	72
	A 15	100	100	112	108
33	BC30	132	116	92	88
	C 30	92	132	92	96
	A 15	124	96	96	96
	A 15	128	104	120	120
	B 15	96	136	112	120
	D 30	94	120	108	120
	D c30	112	88	104	108

CONCLUSIONS

1. The name recently adopted by Thomas Lewis and his co-workers for this clinical picture, neurocirculatory asthenia, is an improvement on the old one.
2. The condition exists in civil life, and most patients give a history of attacks before enlistment.
3. Family history is an important factor.
4. Early recognition is very important. Much time and expense are wasted by delay in diagnosis.
5. Recruiting officers and regimental surgeons should be familiar with the syndrome.
6. Some cases become evident immediately, others after a few weeks of intensive training.
7. Exercises have not improved the patient's condition in constitutional cases. Recently the exercises have been used more for diagnosis than for treatment.

ABSTRACT OF DISCUSSION

DR. LOUIS M. WARFIELD, Milwaukee: I have been particularly interested in this question of effort syndrome or neurocirculatory asthenia, or whatever one chooses to call it. I am examining for the cardiovascular board in the camp at Jefferson Barracks. About 50,000 men passed through the camp since I have been there, and I have examined all the referred heart cases besides about 20,000 men in routine work. The problem has been how it is possible to determine these cases at that stage. The exercises that one can give these men must necessarily be brief, and one can pick out only the cases where there is really some fairly gross condition bringing about the inability of the individual heart to carry on these minor exercises. The exercise is to hop 100 times on

the toes of the left foot. That is quite sufficient to determine at once the capability of some men for military service. It has been my experience in examining these cases that a number of men with mitral regurgitant murmurs who have responded to this exercise even better than I could respond to it. I do not believe that these men are unfit for general military service, and I cannot see that a systolic murmur itself, especially in a man who has had no rheumatism or where infection has been trivial, should unfit him for military service. Major Robey, is there any way that we can determine at the recruit depots whether these men are going to break down or not? Undoubtedly a number of men have hearts which respond in a normal way to the exercises who will probably break down under strain. We cannot look inside the body to determine the muscular energy of the heart, nor can we determine how much the heart is going to stand under a certain strain; yet it is a distinctly important subject, not only for the man himself but from the standpoint of expense to the government, to take these men into training and then return them back into civil life after a while. I recall only one man with neurocirculatory asthenia or effort syndrome. I have seen a number of men who I thought were hyperthyroidism cases. Other cases have been termed psychoneuroses by the psychiatrists, and there were some cases which after careful examination we were able to determine were cases of pulmonary tuberculosis. Those cases we can detect, but it is the great group of cases of trivial heart murmurs and the cases that do not seem to give very much information of what is going to happen to them eventually on which we want to have some information, so that we need not subject them to military training and to some future condition which will be inimical to them.

SIR JAMES MACKENZIE, London, England: When the war broke out men were shocked to find that they had heart disease and were rejected from the army. I drew up a short account for the war office, calling attention to how you could recognize murmurs that were of significance and murmurs that could be ignored. A perfectly sound heart can give murmurs. If the heart is not otherwise impaired; if it is normal in size, normal in rate, and the response to effort is good, ignore the murmur—it makes no difference where you hear it. That dictum was adopted and sent to all the recruiting stations in England. The effect lasted for about three months, then it was forgotten. New instructions were issued and they were back to the old things of mitral regurgitation of first, second and third degrees. I remember a man in Manchester told me that no man dies with mitral regurgitation; the mere fact that a systolic murmur is present does not matter. What is it due to? If you cannot tell what it is due to, why give it a name? We had a number of boys rejected. One lad was rejected six times, and it was only because of my certificate that he went into the army. He had a rough systolic at the apex. He has been through the very hardest time, and he was as fit the last time I saw him as he was on the day he entered the army, so that the seriousness of systolic murmurs should never be considered. Never base a grave prognosis on only one sign. Take an irregular heart; if that is the only sign, ignore it. If there is only a murmur, ignore it, but examine the muscle. A failing muscle always shows.

The hyperthyroidism cases also rose in England and spread. I submitted 300 cases to careful examination; the symptoms were almost identical. Some times there was irritability of the heart; sometimes there were tremors, and in only one case could I say that there was an enlargement of the thyroid or a suspicion of protrusion of the eye. But they say, "Here is this hyperthyroid," and I say, "There is the coccygeal gland, it might be due to that."

In regard to tobacco: Some of the men had gotten into the habit of chewing guncotton to quicken the heart, but when we analyze all cases we find that the excessive use of tobacco, in addition to exertion, will cause all sorts of symptoms. Tobacco is one agent; it is not the whole story, though it may be a predisposing cause.

In regard to psychic conditions: There is one type of man who has the "X" disease; and the reason I call it the "X" disease is because I do not know what it is. Other people

7. In addition to the references already given, the following will be found of interest:

Reports on Soldiers Returned as Cases of "Disordered Action of the Heart," or "Valvular Disease of the Heart," Medical Research Committee, Special Report Series No. 8, London.
Heart, 6, No. 4.

describe it under different names, as congenital something or other. The type is as follows: The man is, as a rule, poorly nourished and often has not much muscular development. He has those cold extremities, almost like Raynaud's disease, and sometimes they become flushed, but he does not enjoy a cold bath; that is, the response to cold is excessive, like the syndrome effort. These people generally have a red nose in cold weather, and their temper is irritable. They very often have an irritable heart, and when put into the army they break down. They also exhibit a number of mental peculiarities—melancholia and digestive disturbances, such as gastric ulcer, and what my colleague, Arbuthnot Lane, calls ileostasis, a form of intoxication. I do not know whether he is right, but I have traced that condition down to the intestines. These people have been treated everywhere, but if you look at them, as a rule, a good general practitioner can tell that there is a change in a man's condition. You look at the man and you will conclude that there must be some nutritional defect; that the man is poorly nourished; his heart is poorly nourished; and a large number of my cases consult me on account of that.

In England we have a class termed conscientious objectors. One of them came to me. I took him to a mirror and said, "Don't you think that is not a well nourished face?" He said, "Yes." "And what is the condition of your heart?" "It is half starved." Then I said, "If your heart is half starved, your brain is half starved."

DR. J. N. HALL, Denver: I wish to ask regarding the diagnosis of exophthalmic goiter in the soldiers who come from the Great Lakes district, where goiter is common. The symptoms as put down in our report were choking, dyspnea, lack of endurance, tachycardia, palpitation, exophthalmos in many cases, rapid exhaustion on exercise, general exhaustion, tremor of fingers. Nearly all showed distinct thyroid enlargement—some to a marked degree. Some gave a history of neuroses, and in nearly half the cases goiter existed in the family. Cardiac reserve was poor. I would like to know how those cases are to be classified.

MAJOR B. S. OPPENHEIMER, New York: Late last summer the Surgeon-General sent six American medical officers of the Reserve Corps to the English Military Heart Hospital, with which Sir James Mackenzie has been connected since its inception. After serving there for several months, they wrote an independent report in which they suggested the new name, neurocirculatory asthenia, for a now familiar symptom complex. After the completion of this report Dr. Thomas Lewis wrote a brief but valuable foreword, showing its military bearing to the young American forces. By some mistake, however, the paper was printed in the April issue of the *Military Surgeon* with Dr. Lewis as the author; the names of six American officers really responsible for the report, and also for the introduction of the name (N. C. A.), were entirely omitted. This explanation may make certain parts of that paper more intelligible. Several other names have been used, such as "disordered action of the heart," "irritable heart of soldiers," "effort syndrome," "athlete's heart," "cardiac neurosis," etc., but the use of any term which directs the soldier's attention to his heart handicaps him and the officer who deals with him. Neurocirculatory asthenia overcomes that objection; moreover, the name is not meant to imply any theory of the fundamental pathology, which is still unknown. It is purely a descriptive term, indicating that in this syndrome there are nervous and circulatory symptoms associated with an increased susceptibility to fatigue.

Since returning to America there has been an opportunity to compare the cases among American recruits who have broken down in training with such symptoms as the British soldiers who were invalided from the front with "D. A. H." The condition as seen in England and America is identical, but the cases here are milder, and, as Major Robey and Captain Boas point out, belong almost entirely to the constitutional group; i. e., to the group that had symptoms prior to entrance into service. The question of fundamental pathology, especially that of hyperthyroidisms, is here complicated by the great prevalence of thyroid enlargement in the "thyroid belt" of the Great Lakes. Some of these men have a simple thyroid enlargement; some suffer from thyreotoxic hearts, but it is

exceptional to find a typical case of Basedow's disease. As to the question of nervous instability which Major Robey has emphasized, Captain Rothschild and I took in detail the family and the personal histories of one hundred soldiers in Colchester, and found that 46 per cent. had predisposing neuropsychic factors in their family and previous histories, but that 39 had absolutely negative histories and had given valuable military service before breaking down. Only a certain percentage of cases can be picked out in the initial examination of drafted men, for the disorder may not develop until the soldier is exposed to the conditions of modern warfare. In view of the abundance of perfectly normal recruits in this country, every man who is sent overseas should be fit; and, for the present at least, it is sound to reject doubtful or borderline cases.

DR. ABRAHAM JACOBI, New York: When a mitral murmur exists and you want to be sure, or fairly sure, that you have to deal with an organic disease, you must expect one thing at least, dilatation or hypertrophy, or both. Unless you find that, you are not dealing with organic disease. Then there are other murmurs which you may find one day and not the next, or you may find them after exertion only and not connected with dilatation or hypertrophy. They are functional, not organic. These cases are not infrequently set down as "myocarditis." They are not cases of myocarditis. They are simply cases of a certain amount of muscular weakness of the heart, fatty heart, nervous heart, tobacco heart. I have seen a great many cases among men or women, mostly men, who complain of the heart. There are very few symptoms about the heart, that is true. The only thing I make these patients do is to run about the room or run upstairs and down again, and if a murmur is present, allow the patient to rest ten minutes, and the murmur is gone. We see such cases very frequently, and a number of those men are quite fit to do moderate work. These are the cases that are often diagnosed as mitral incompetency, which they are not. I expect a mitral incompetency only when there is some hypertrophy or dilatation or both.

DR. WILLIAM H. ROBEY, Boston: There is no surprise because examiners are sometimes puzzled about findings in heart cases. They hear abnormalities, or what appear to be abnormalities, and may easily be in doubt as to correct classification. The examination must necessarily be brief. The War Department has sent out a large number of cardiac examiners provided with a set of rules which have been followed with considerable care, since in 26,000 soldiers at Camp McClellan we have found very few cases of organic heart disease. We have discovered some cases of organic valvular disease, but none of muscular insufficiency. Can the heart do its work? If you think you can answer that question, the recruit should be given a trial, leaving a more thorough study to the cardiac experts at the various camps. Sir James Mackenzie has called attention to the importance of not condemning a heart on a murmur alone.

Major Oppenheimer has very truly said that we do not care very much what name you give to the syndrome described in my paper. The chief point is that the condition exists, must be recognized and dealt with. Captain Warfield has asked a very pertinent question. How can you tell when a man is recruited whether he has neurocirculatory asthenia or not? It is a difficult problem and cannot always be answered at once. If the man has tremor, rapid heart and cyanosed hands, with a history, then it is quite clear that he comes within this group and should not be accepted. Then there is the other class, even among the constitutional cases, which does not show symptoms until there is the strain of camp or battle. No one can discover these cases until they are put to the test. The point we want to emphasize is that the syndrome called neurocirculatory asthenia is a real condition and must be recognized as early as possible for the good of the service.

Reduce the Protein Intake.—Chittenden has shown that when the protein intake is reduced by one half or less of that which the American appetite suggests, professional men, soldiers and athletes may be maintained in the best physical condition.—Lusk, Food in War Time.

IMPREGNATION OF THE UNDERWEAR AS A MEANS OF CONTROLLING THE CLOTHES LOUSE*

WILLIAM MOORE

ST. PAUL

The data obtained in the experiments made to determine the possibility of impregnating the underwear with some substance that would destroy the clothes louse fall into four distinct divisions: (1) impregnation with oil; (2) impregnation with oils carrying certain toxic substances; (3) impregnation with the toxic substances without the oil, and (4) impregnation with nonorganic chemicals.

Since there seems to be a general understanding that oily underwear is unfavorable for the development of the clothes louse, it was first determined to study a number of different oils. From the examination of the results, it was apparent that in the use of mineral oils, at the rate of 1 c.c. to 4 square inches of a medium-weight piece of underwear, the oil would destroy the lice in a mechanical manner. With a higher rate of oil than 1 c.c. to 4 square inches, this was more apparent until one reached 1 c.c. to 1 square inch, the point of saturation for the underwear.

A number of mineral oils were used in this manner, such as lubricating oils, petrolatum, paraffin, chlorcosane, and crude oils from Pennsylvania, Kansas and Oklahoma. On reduction of the amount of oil present to about 1 c.c. to 8 square inches, a point at which the garment was just visibly oily, the killing quality of the oil disappeared to a great extent. In using lard, fish oil and "bone oil," the results were no better than in the use of mineral oil, and the same may be said to be true of the vegetable oils, cottonseed oil, olive oil, peanut oil, rape-seed oil and palm oil. It was noticed, however, that, in the vegetable and animal oils, if the oil was rancid or became rancid during the period of the experiments, its killing qualities were, in general, increased. The presence of oil equal to 1 c.c. to 4 square inches slightly retarded egg-laying; at the rate of 1 c.c. to 8 square inches, egg-laying was not retarded; nor was the hatching of the eggs interfered with.

In the second phase of the work, in which certain toxic chemicals were introduced into the oil, a large series of experiments was conducted.

Among the organic acids, salicylic, oleic, valeric, and cinnamic acids were used. Valeric acid was the only one giving good results; but, owing to its volatility, it soon disappeared.

Among the iodine derivatives used were iodoform, phenyl iodide and thymol iodide. Iodoform was very good while phenyl iodide, although killing at first, lost these properties within twenty-four hours. Surprisingly, thymol iodide failed to kill.

Several alkaloids and similar compounds were used, such as cinchonin, morphin, strychnin and urea. These were uniformly of little value, owing possibly to their insolubility in the oils used.

Crude anthracene was effective and retained its effectiveness for as long as 118 hours. Possibly some chemical, such as diphenyl, carbazol or arcidin, pres-

ent as an impurity in crude anthracene, was responsible for the killing of the lice, since neither commercially pure nor chemically pure anthracene killed.

Diphenyl destroyed the lice within twenty-four hours and retained its killing qualities for as long as 280 hours. A 10 per cent. solution of naphthalene in lubricating oil resulted in the destruction of 100 per cent. of the lice in twelve hours, but such underwear twenty-four hours later failed to kill the lice. Alphanaphthylamine was just as effective and still killed 100 per cent. of the lice within twenty-four hours, after the underwear was 720 hours old. Sulphonated naphthalene, tetrachloronaphthalene (addition compound) ordinary chlorinated naphthalene and dichlorinated naphthalene were all more or less ineffective. In a study of betanaphthol and alphanaphthol, the former was but slightly toxic, while the latter killed slowly and its killing qualities lasted for as long as 360 hours.

The nitro compounds tried were paranitrophenol, which failed to kill, and orthonitranilin, which was effective for as long as 480 hours.

Among the sweet-smelling aromatic compounds, coumarin was fairly toxic; vanillin failed to kill, while heliotropin, or piperonal, proved to be the most effective compound tried, killing 100 per cent. of the lice within twelve hours, even after a period of 528 hours had elapsed.

The phenol compounds, creosote and tricresol, were effective, while guaiacol carbonate and phenyl salicylate were nontoxic, the latter even at a concentration of 25 per cent. Tribromophenol was toxic to the lice, but would not last longer than 192 hours.

Summarizing the data, it appears that the chemical to have lasting qualities must not be less volatile than a compound boiling at from 300 to 350 C., while the most toxic compounds are those with boiling points of 265 C. or lower. Our most favorable compound—heliotropin, often known under the name of piperonal—has a boiling point of 263 C.

The second phase of the work was planned with the object of determining whether or not these organic compounds retained their toxicity when no oil was present. Heliotropin, o-nitranilin, benzidin, resorcinol and betanaphthol were tested. The data show no reduction in toxicity, while some of the compounds killed even better without the oil, no doubt owing to larger quantities being used than was possible when the chemical was dissolved in the oil.

A number of inorganic compounds were tested for comparison with the organic compounds. Oil solutions of copper oleate, zinc stearate and sulphur were tried with negative results. Copper sulphate, zinc chlorid, ferrous sulphate, sodium arsenite, sodium hydroxid and silver nitrate were all used at 2 per cent. aqueous solutions, but were ineffective. Similar results were obtained in experiments with a saturated aqueous solution of lead acetate; but a saturated aqueous solution of mercuric chlorid killed within twelve hours. Of the inorganic solutions, it was the only one tried that gave favorable results. Sodium fluorid, which is used for biting lice on chickens, was ineffective against the clothes louse.

In considering the results, the two most favorable compounds selected for further study were creosote and heliotropin. A strip of underwear, containing a 10 per cent. solution of creosote in lubricating oil, used at the rate of 1 c.c. to 8 square inches of underwear, worn next to the skin, was effective for twenty-four

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* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

hours, after which it was found to have lost its toxicity.

Surprising results were obtained with heliotropin, which was effective for only forty-eight hours when worn. A study of why its toxicity should be lost so quickly, when it is not a very volatile compound, brought out the fact that the lubricating oil was being absorbed by other clothing, thus weakening the dose to a point at which it was no longer effective.

If heliotropin is used without oil, it crystallizes out and is soon rubbed off. It is therefore necessary to use some other compound of an oily nature that is too viscous to be absorbed rapidly by the underwear. Experiments with heavy lubricating oils, beeswax, petrolatum, spermaceti and oil of theobroma (cacao butter) were conducted. Results showed that a 5 per cent. solution of heliotropin in ether, to which 0.5 gm. of fat or wax was added, would remain effective for seventy-two hours. When increasing the amount of heliotropin, it was found to be most soluble in oil of theobroma. When 1 gm. of heliotropin to 3 gm. of oil of theobroma dissolved in ether, carbon bisulphid or benzene was used, spread over 48 square inches of underwear, the underwear could be worn for 168 hours before it lost its toxicity to lice.

Considering the results of all the experiments, it appears that 168 hours is the maximum time that an effective compound will remain in the underwear in sufficient quantities to kill the lice quickly. Using a less volatile compound, which would remain in the clothing a longer period of time, would result in a diminished toxicity, that is, an increase in the time required to kill the lice.

Division of Entomology, University Farm.

ABSTRACT OF DISCUSSION

DR. AUGUSTUS WADSWORTH, Albany, N. Y.: I have not made any study such as Dr. Moore has made of the destruction of lice, but I stumbled upon a very effective and simple method of getting rid of these animals rapidly. We went ahead on the basis that the animal might feed on the solution, and I mixed alcohol, water and glycerin, in equal parts, and added mercuric chlorid in the solution of about 1:500 or 1:1,000. I was especially interested in Dr. Moore's remarks of figures by the government on the use of mercuric chlorid. The men in charge of the animals were directed to spray the ears of the rabbits with this solution, not carefully, but quite carelessly, in fact. Invariably, within a short time, depending on the amount of inflammatory action on the ears, they died—whether because of feeding on this solution or not I do not know. I sent a sample of this solution to Dr. Howard for investigation. It does not seem to me at all impracticable, at any rate, to give so effective and simple a remedy a trial, as in any event it would seem it can have no harmful effect. It is not necessary to use such large quantities of it. I should like to know if it would prove effective against the body louse.

The Secret of Longevity.—The late S. Wier Mitchell, himself an enthusiastic mountain climber and pedestrian, related to me an interesting conversation he had with the late John Biglow, who survived till he was 97. Mr. Biglow asked Dr. Mitchell how he had attained the then age of 80. Biglow being the elder, Dr. Mitchell urged him to divulge his cherished principles of life. Mr. Biglow replied with unctious that he "had never smoked, never drank and never taken any form of exercise." Whereupon Dr. Mitchell replied, he himself had smoked since boyhood, had always taken wine and enormous amounts of active exercise. No man had ever lived a fuller, more agreeable or successful life than that of S. Wier Mitchell, and he ranged the hills till just before the end.—J. Madison Taylor, M.D.

Military Medicine and Surgery

IMMOBILIZATION OF PATIENT ON STANDARD ARMY LITTER

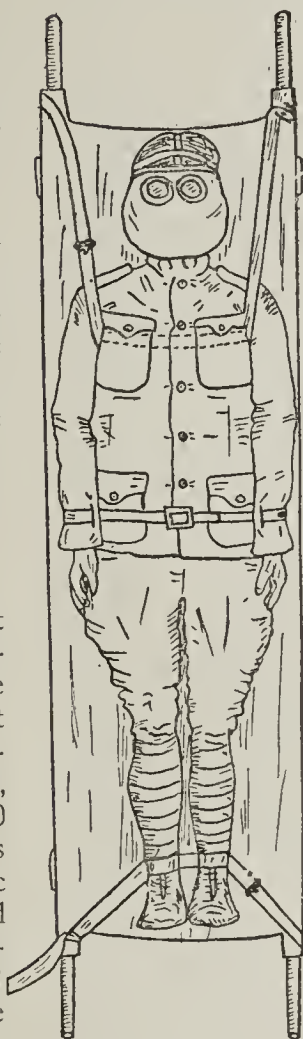
A METHOD OF SECURING THIS AND TRACTION ON BOTH LEGS WITHOUT ANY EXTRA APPARATUS EXCEPT THE PATIENT'S WAIST BELT

A. E. LEMON, M.D. (SAULT STE. MARIE, MICH.)
Captain, M. C., N. G.

FRANCE

To meet the needs of the Army for a litter in which the patient can be made secure and in which traction can be provided, this method has been designed:

1. The patient is placed on his back on the litter, and is moved upward until his head is off the canvas.



Method of securing immobilization of patient and traction on both legs on standard Army litter, without any extra apparatus except the patient's waist belt.

2. The litter sling is shortened at the head of the litter by sliding the buckle about 15 inches. This sling is then passed over the right shoulder, down through the right axilla, across under the back, up through the left axilla, over the left shoulder, and the end loop of the sling is slipped over the left handle of the litter.

3. The patient's waist belt (regulation length) is fastened fairly tight around his waist and forearms. If he is delirious the belt is passed through a slit cut in each sleeve of the blouse.

4. The patient is moved downward to the normal position on the litter, when the upper sling will become taut.

5. Strong traction is made on the patient's left foot, and at the same time a tight half hitch is made with the sling on the same foot. The sling is held taut, traction is made on the patient's right foot, and the sling secured with a similar half hitch. The sling is then tied securely to the handle of the litter at the patient's left foot.

ADVANTAGES

The patient is now secured to the litter. He cannot fall off in any position. He cannot interfere with his mask or dressings even if left alone during stress of work. If splints are not available, he can, if this method is properly applied, be transported for miles without injury or great discomfort. Additional traction may be applied to either leg by another belt or rifle strap being applied to the foot as a "Spanish windlass." In darkness or when going around turns in trenches, the patient cannot fall off the litter. The method can be learned in one trial.

This method, in addition to its use for purposes of fixation and traction, is of especial value as a ready means of restraint when the patient is delirious or maniacal.

A spiral puttee may be used instead of the waist belt, and may also be used to make traction on either arm, the upper litter sling producing effective counter-traction.

TYPHOID IN A COMPANY OF
IMMUNIZED SOLDIERS

SAMUEL BRADBURY, M.D. (NEW YORK)

First Lieutenant, M. R. C., U. S. Army; Visiting Physician, City
Hospital; Associate Visiting Physician and Chief of
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FRANCE

The occurrence of four cases of typhoid fever in a company of 175 men (Company F, Eleventh Engineers, (Ry.), A. E. F.), who had been immunized but five months before the occurrence of the infection, is of enough interest to warrant a brief report. The available facts are not so complete and convincing as is desirable, especially as there is a bacteriologic discrepancy to be noted later. Despite this, it is hoped to emphasize the fact that, while an effort has been made to protect our soldiers from typhoid group infection by immunizing them, the six injections they received are not a guarantee that they will not contract one of these diseases.

Some persons do not develop immunity, or retain it a very short time, as is known from the not unusual second attack of typhoid, and in any event no soldier should abuse his immunity. Most of the men are immune, for how long is not known; but every factor that has made typhoid almost an army curiosity must be carefully observed. Rist,¹ in writing of typhoid in the French army, says that at the beginning of the war, in August, 1914, there were 2,500,000 men brought into the army who had not been immunized. By the end of 1915 more than 80 per cent. had been inoculated, and during the same period the drinking water problem had been solved, fecal matter properly disposed of, better sanitary arrangements made in the cantonments and trenches, and carriers had been searched for and isolated. In January, 1915, there were 13,993 cases of typhoid but in December, 1916, there were only 323 cases. The regiment was organized and the prophylaxis against typhoid and paratyphoid A and B and against smallpox administered at Fort Totten, N. Y. The medical officers were assigned to the regiment during its recruiting period, gave the immunizing injections, and all were with the same regiment until March, 1918. I was with the company in which the cases occurred from the latter part of August, 1917, until the middle of February, 1918, and thus had the opportunity of following the epidemic. That the immunization was thoroughly and completely done was due to the surgeon, Major H. H. VanKirk, M. C., who adopted the following procedure: Each company furnished him with two rolls, arranged in alphabetical order, of all enlisted men. An entire company was then directed to report at the dispensary tent. Each man, as he received the injection, gave his name to the medical officer in charge of the roll of the company, and the date of that injection was written opposite his name on the roll. One list was used for the dates of the three injections of typhoid vaccine and the other for the injections of paratyphoid (mixed A and B) vaccine. Smallpox vaccination was done on the day of the first injection of typhoid vaccine, and if not positive about ten days later, was repeated. In Company F, typhoid vaccine was injected, June 2, 11 and 18, and the paratyphoid vaccine, June 22 and July 2 and 11, 1917.

The original check lists of this company have been consulted, and it is found that each of the four men who contracted typhoid had the three doses of each vaccine on the dates specified. The vaccine used was that supplied by the Army, contained 1 billion organisms per cubic centimeter, and the dosage was that usually employed, 0.5 c.c. for the first dose and 1 c.c. each for the second and third doses. About 1,200 men were immunized with no ill result. There were perhaps forty men who were excused from duty for a day or two, usually after the second dose.

Of the patients with typhoid, the diagnosis in every case was made by the isolation of *Bacillus typhosus* from the blood, urine or feces. All bacteriologic work was done at the hospitals of the British Expeditionary Forces to which these patients were sent. Records of the temperature and pulse and a few daily notes of the two earlier cases are available as a simple chart had been prepared for notes on the early fever and pulse rate of trench fever which had appeared in the company early in September. None of these men were held in camp longer than seven days, and the later patients were kept only two or three days.

REPORT OF CASES

CASE 1 (161523).—A white man, aged 21, in the two weeks preceding the onset of fever had two attacks of severe epistaxis and for one week had been constipated. November 6, at sick call, he complained of stiff neck, severe occipital headache and backache. The pulse was 110 per minute and the temperature 102. After two days of rest in bed, a laxative and acetylsalicylic acid every three hours, the pain in the head and back was no better, the tongue was heavily coated, fever was continuous at about 102, and the pulse had dropped to 84. The temperature rose gradually to 104. November 13, the spleen was not felt, no rash was noted, but the pain in the back and head was considerably lessened. Typhoid was suspected and the patient was transferred to Casualty Clearing Station 56, British Expeditionary Forces, where typhoid bacilli were isolated from the stools.²

CASE 2 (161638).—A white man, aged 47, a steady beer drinker, and with an old mitral stenosis, noted in September that he had slight decompensation after some heavy work. He reported sick, November 14, complaining of chilliness and fever, frontal headache, slight cough, and pains in the feet and legs. There had been no epistaxis, no anorexia and no irregularity of the bowels. The temperature was 100 and rose rapidly and with quite regular daily remissions until November 17, it was 103.4, the pulse varying widely between 80 and 110. At first only the mitral stenosis was noted; November 17, a few scattered râles were heard over both sides of the back, and the next day the spleen was easily felt and there were definite rose spots on the abdomen. He was then transferred to the British Medical Services, No. 9 (Lakeside, U. S. A.) General Hospital, where *Bacillus typhosus* was isolated from the urine.³

CASE 3 (161578).—A white man, aged 27, reported sick complaining of nausea, feverishness and diarrhea. Two days later, November 30, the temperature had risen, the tongue was very dry with a thick brown coat, and he was sent to No. 9 (Lakeside, U. S. A.) General Hospital, British Expeditionary Forces, where *Bacillus typhosus* was isolated from the blood.³

2. Letter from the deputy assistant director of medical services, headquarters, Third Army, British Expeditionary Forces, to the surgeon, Eleventh Engineers (Ry.), under date of Dec. 16, 1917: "Bacillus typhosus isolated from the stool of . . . 161523, and from the blood of . . . 161603, at C. C. S. 56, B. E. F."

3. Letter from the chief of the medical service, No. 9 (Lakeside, U. S. A.) General Hospital, B. E. F., to the surgeon, Eleventh Engineers (Ry.), dated April 16, 1918, in response to inquiry: "161638, . . . Bacillus typhosus isolated from urine. 161578, . . . Bacillus typhosus isolated from blood. 161553, . . . ran a course simulating typhoid. Rose spots, big spleen and dicrotic pulse. Enteric group was not isolated from blood, urine or feces."

1. Rist, Edouard: Acute Contagious Diseases in the French Army, Am. Jour. Pub. Health, 1917, 7, 981; abstr., THE JOURNAL A. M. A., Feb. 9, 1918, p. 415.

CASE 4 (161603).—A white man, aged 19, reported sick November 29, with fever rising slightly until, December 1, he was sent to Casualty Clearing Station 56, where typhoid bacilli were isolated from the blood.²

ADDITIONAL CASES OF FEVER

There were during the same period, the last three weeks of November, several other cases with fever of undetermined origin; one especially was clinically typical typhoid as reported from the hospital.³ These undetermined cases have not been included, as all attempts at isolation of typhoid group bacilli from blood, urine or feces failed. All four typhoid patients have recovered their health, and three of them have returned to duty. As nearly as may be determined from their statements, no one was severely ill, though one (Case 2) developed a phlebitis in one leg. The one man who has not returned is now quarantined in hospital as a paratyphoid A bacillus carrier,⁴ though reports of all bacteriologic examinations of each man at the time of his illness declared the infection to be *Bacillus typhosus*. Such a mistake may be easily made without careful differential tests, and unfortunately it is not possible at present to give the methods of examination. It would seem probable that in all four cases infection originated from the same source and they may have been all infections by paratyphoid A bacilli. At any rate, each man had the usual amount of each vaccine that is thought sufficient to render him immune to either of these diseases. It is generally admitted, I believe, that immunity conferred by inoculation with paratyphoid A and B bacilli is not as specific or of as long duration as that produced by vaccination with *Bacillus typhosus*.

POSSIBLE SOURCES OF INFECTION

An investigation as to possible sources of infection was essential. The camp was on ground sloping toward the north. There were no traces of any former buildings nearer than the ruined village 500 yards west, and from the appearance of the ground no other soldiers had been camped at this place. All latrines were deep pits, box covered; urinals were of the covered soakage pit type with funnel; all garbage was burned daily at the camp. The kitchen was not screened, and there was no mess room, the men eating in their tents or huts in rainy weather and in the open otherwise. Flies were very few, even in August and September. The men were quartered in tents at first, but during the last two weeks of October huts were provided. Any one sick in camp was at once transferred to a regulation pyramidal tent reserved for that purpose, and cared for there by an enlisted man, a graduate nurse. Each typhoid patient had been living in a different hut.

In the area for 10 miles about the camp there had been no civilians for at least seven months, when Allied troops first occupied this territory. The troops in the same area averaged less than two cases of typhoid a month throughout the year, and the medical officer then in charge of bacteriology at Casualty Clear-

ing Station 56, where patients with infectious disease were usually sent, informed me that our men were the first with typhoid he had seen for six months. There was no other typhoid in that area at that time.

The water used for drinking and cooking was piped from a large spring 4 miles distant, to "water-points" for the men, to horse troughs and to railway engine supply tanks. This water requires at the source less than one-fourth measure of chlorinated lime per hundred gallons to neutralize the organic matter present, and instructions at all water-points were to use 1 measure (= 1 gm.) of chlorinated lime per water-cart (114 gallons). For troops without water-carts there were two galvanized iron tanks of chlorinated water. Each morning one of these tanks, alternating daily, was completely emptied, refilled, chlorinated in the same strength as for water-carts, and allowed to stand for twenty-four hours before being used. They were attended to by the British Sanitation Corps and were used by several small detachments of other troops nearby. Company F took its water from these tanks, carried it about one-fourth mile to camp in large cooking pots, and there stored it in an iron tank kept for that purpose and from which water was dipped when wanted. The arrangement was not ideal: a water-cart was requisitioned for early in September but did not arrive until December. About October 10 the water began to taste as if cresol or tar had been added to it. A request, made October 14, to have this taste investigated resulted in having the water-point put "out of bounds," instructions to get our water from the railway supply tank and chlorinate it ourselves, and a reply stating that the taste was due to a new lining with which the storage tank supplying the water-point had been repaired. The water-point was continued closed for about four weeks, and in the meantime the company drew its water from the railway supply tank. The mess sergeant was entrusted with the chlorination. He was instructed in the method and care necessary in mixing the chemical, and frequent inquiries were made as to whether it had been properly done.

On examination of the kitchen force it was discovered that the mess sergeant had had typhoid in Mount Sinai Hospital, New York, in 1915; one cook had had typhoid in Florida in 1903, and one cooks' helper in 1910 had had typhoid in Pawling, N. Y. The two cooks and two cooks' helpers had been acting in that capacity since the organization of the company in June, 1917. The mess sergeant was appointed about Aug. 1, 1917. There are also employed in the kitchen four men, known as kitchen police, who are detailed daily from the company. Their duties include washing the cooking utensils, procuring the fuel and water, and cleaning up about the kitchen; at times they are entrusted with peeling vegetables, cutting bread, mixing hash, etc. Of the men who had done kitchen police duty during October and November, practically the entire company except the noncommissioned officers, six had had typhoid fever: a total of nine possible carriers working in the kitchen, three of them constantly, six at intervals.

Infection on pass to civilian area was not likely, as none of the men taken sick had been away since September. Infection by green vegetables or other uncooked food was not likely, as none had been served.

November 10, Company B and thirty men of Company E of the same regiment were ordered to

4. Letter from the commanding officer of No. 9 (Lakeside, U. S. A.) General Hospital, B. E. F., to the chief surgeon, American Expeditionary Force, copy to the surgeon, Eleventh Engineers (Ry.): "161523, . . . admitted here from 46 Stationary Hospital, B. E. F., March 19, where he was diagnosed paratyphoid carrier. 161523, . . . is now quarantined in 25 Stationary Hospital, B. E. F." Letter from headquarters, No. 9 (Lakeside, U. S. A.) General Hospital, B. E. F., to the surgeon, Eleventh Engineers (Ry.), dated May 12, 1918, in response to inquiry: "Returned. This soldier was a paratyphoid A carrier."

this camp. Company B ate only food prepared in its own kitchen, and the men of Company E were divided for rations between the messes of Companies F and B. All used the same water, at first from the railway supply tank and later from the water-point. From August 27 to December 3 there were five officers attached to Company F. The food and water for their mess came from the same kitchen as did that of the men, but the food was prepared separately. November 10, officers of the newly arrived companies, five in all, joined this officers' mess, and during the entire period there were frequent visiting officers but no cases of typhoid. Since November 29 no new cases have appeared.

December 3, as the camp had been shelled for three or four days, the whole command was ordered to leave. The water question could therefore be disregarded in measures taken to prevent further infection, and, in my opinion, the water could not be held responsible, there had been so many other troops using the identical supply without any infection.

The mess sergeant was removed, November 29, from the kitchen for other reasons than the occurrence of typhoid in the company, and while at work the next day was unfortunately captured by the Germans before any specimens of feces or urine could be examined. The remainder of the kitchen force was sent to hospital during December for careful bacteriologic examination of their stools and urine to ascertain that they were not carriers, and no bacilli were found in any of them. The stools of the six men in the company, with history of typhoid, who had worked in the kitchen during October and November were examined but once, and the results of that examination have unfortunately never been received.

In the armies of the British Expeditionary Forces, to which we were then attached, there is a standing order that no man who has had typhoid fever or dysentery shall work in the kitchen. Accordingly, from Company F four men, who gave no history of either of these diseases, were selected to act as permanent kitchen police. The cooks and cooks' helpers were allowed to continue as such, as they had been proved noncarriers.

The epidemic of four cases was caused, in my opinion, by a carrier working in the kitchen of Company F: either the mess sergeant or one of the men detailed from the company each day; but this has not been determined definitely. The infection was limited to men eating from one mess kitchen in which seven possible carriers had been working. Men of another company, eating at their own mess, but using the same water, did not have any infection, and there was no typhoid in any British troops using this water. The officers using the same water, and food prepared separately, but in the same kitchen, did not have any illness. There has been no other typhoid in any other company in this regiment.

It may be concluded that the immunity in four men in a company of 175 was not of five months' duration. That they had six weeks of hard work, with long hours and irregular meals, owing to necessities of the service at that time, and that they may have been subjected to an extremely heavy dose of infecting bacilli, as might occur in carrier infection, are possible factors. To explain the infection on a difference in strain of organism, one against which there was no protection, does not appear probable, as one would

then expect an epidemic of considerably larger proportions.

TYPHOID IN FRENCH IMMUNIZED SOLDIERS

In the present location all medical literature is very meager. One review, by Pagniez and Valléry-Radot,⁵ of cases of typhoid in immunized soldiers admitted to a French army hospital between July and November, 1916, is available. They had during this period 128 patients, of whom thirty-three had not been immunized at all, seventy-six had been immunized more or less completely against typhoid fever only, and nineteen had had an early vaccination with typhoid bacilli and a later one with either a mixed vaccine of typhoid and paratyphoid A and B bacilli, or with a vaccine of paratyphoid A and B bacilli. In all but eight cases of the 128, the diagnosis was based on positive blood cultures; and of the eight in which negative blood cultures were obtained, four were in patients who had had no immunization. Among the thirty-three non-vaccinated cases there were twenty of typhoid, nine of paratyphoid A and four of paratyphoid B fever; there were eight deaths, all typhoid fever patients, and all three diseases were more severe than in men who had been immunized. Of the seventy-six patients vaccinated with typhoid bacilli only, eighteen had typhoid fever, forty-four paratyphoid A, and fourteen paratyphoid B; there was but one death, a typhoid fever patient with intestinal hemorrhage. Of the patients, twenty-two had received three or four injections of typhoid vaccine less than sixteen months before their admission to the hospital; four of them had typhoid, twelve paratyphoid A and six paratyphoid B. Of the nineteen patients who received two courses of immunizing injections, Pagniez and Valléry-Radot tabulate seventeen, but refuse to draw any conclusions from this series as the number is not sufficiently large. There were five cases of typhoid, eleven of paratyphoid A and one of paratyphoid B. One patient, in the last list, aged 26, received in 1914, four injections of typhoid vaccine, and in 1916 four doses of typhoid and paratyphoid A and B vaccine. In the fall of 1916, this man was admitted to the hospital with a mild attack of typhoid.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

SILVER PROTEINATE "HEYDEN"—*Argentum Proteinicum "Heyden."*—Said to be identical with protargol. (See New and Nonofficial Remedies, 1918, p. 362.)

Actions and Uses.—See general articles, Silver Protein Compounds (N. N. R., 1918, p. 360).

Dosage.—See under protargol (N. N. R., 1918, p. 362).

Manufactured by the Heyden Chemical Works, New York. No U. S. patent or trademark.

Silver proteinate "Heyden" must conform with tests and have the properties described under protargol.

5. Pagniez, M. P., and Pasteur Valléry-Radot: Remarques sur les fièvres typhoïdes et paratyphoïdes chez les vaccinés et les non-vaccinés, d'après la statistique d'un service de typhoïdes (Juillet-Novembre, 1916), Ann. de méd., 1917, 4, 308.

MEDICAL EDUCATION IN THE UNITED STATES

ANNUAL PRESENTATION OF EDUCATIONAL DATA FOR 1918 BY THE COUNCIL ON MEDICAL EDUCATION

The tabulated statistics herewith presented are for the year ending June 30, 1918, and are based on reports received from the medical colleges or from other reliable sources. We take pleasure in acknowledging here the courtesy and cooperation of the officers of the colleges who have made the compilation of these complete statistics possible.

STATISTICS OF COLLEGES

Table 1, on pages 536-538, gives the colleges in session during 1917-1918; the population of the city; the rating given to the college in the latest classification of the Council on Medical Education; the number of students, men and women, registered during the year; the number of 1918 graduates, men and women; the number of graduates holding collegiate degrees; the number of teachers for each college; the number of weeks of actual work in the college year; the total fees for each year; the executive officer of the college, and the dates of beginning and ending of the next session. The figures in heavy-faced type show the totals by states. Beginning on page 554 are given essential facts concerning all medical colleges arranged by states.

HOME STATES OF MEDICAL STUDENTS

Table 2, on pages 540-541, shows from what states the students came who were in attendance at each medical college during the session of 1917-1918. The influence of the proximity of the medical school is seen in the fact that states having medical colleges contribute more students in proportion to the population than those which have no colleges. This is shown by the dark zone of figures running diagonally down the page. A comparison of this table with the large tables based on state board examinations,¹ which show the distribution of the alumni of each college, is interesting. The college that has widely distributed alumni usually has a student body from an equally large number of states.

The state furnishing the largest number of students this year was New York, with 2,232. Illinois contributed 1,048 and Pennsylvania 1,010. The next states, in the order of the number of students contributed, are: Massachusetts, 696; Ohio, 634; Missouri, 535; Texas, 446, and Michigan, 426. Four states had less than 20 each, these being Arizona, 11; New Mexico, 11; Nevada, 5, and Wyoming, 4. There were 113 students from Hawaii, Porto Rico and the Philippine Islands, and 390 students from foreign countries.

In Table 3, on page 542, the students enrolled in each college are shown by classes. This permits one to see whether the attendance at each college is increasing or decreasing. The total attendance for the first year was 4,283, as compared with 4,107 last year and 3,582 in 1916. The second year attendance was 3,521, as compared with 3,117 last year, and 3,094 in 1916. The enrolments for the third and fourth years, respectively, were 2,893 and 2,933, as compared with 2,866 and 3,674 last year. The freshmen, sophomore and junior class enrolments, therefore, show increases, respectively, of 176, 404 and 27 over the enrolments of the previous year. This indicates that the college enrolments have largely been readjusted under the higher entrance requirements and, as was expected, the enrolment of medical students is again on the increase.

TABLE 4.—MEDICAL COLLEGE ATTENDANCE

Year	Non-sectarian	Homeopathic	Eclectic	Physio-Med.	Nondescript	Total
1880.....	9,776	1,220	830	...	...	11,826
1890.....	13,521	1,164	719	...	...	15,404
1900.....	22,710	1,909	522	...	...	25,171
1901.....	23,846	1,683	664	80	144	26,417
1902.....	24,878	1,617	765	91	150	27,501
1903.....	24,930	1,498	848	149	190	27,615
1904.....	23,662	1,309	1,014	123	234	28,142
1905.....	24,119	1,104	578	114	232	26,147
1906.....	23,116	1,085	644	110	249	25,204
1907.....	22,303	1,039	545	97	292	24,276
1908.....	20,936	891	479	90	206	22,602
1909.....	20,554	899	413	52	227	22,145
1910.....	20,136	867	455	49	19	21,526
1911.....	18,414	890	433	49	...	19,786
1912.....	17,277	827	308	...	...	18,412
1913.....	15,919	850	256	...	...	17,015
1914.....	15,438	794	270	...	...	16,502
1915.....	13,914	736	241	...	...	14,891
1916.....	13,121	638	263	...	...	14,022
1917.....	12,925	580	250	...	...	13,764
1918.....	12,727	540	138	...	225	13,630

NUMBER OF MEDICAL STUDENTS

The total number of medical students (Table 4) in the United States for the year ending June 30, 1918, excluding premedical, special and postgraduate students, was 13,630, a decrease of 134 below last year. This is the lowest decrease since 1905, when the general reduction in the number of medical students began. It is noteworthy, however (Table 12, page 544), that in the high grade (Class A) medical colleges the total enrolment of students shows an increase. Of the total number of students, 12,727 (93.4 per cent.) were in attendance at the nonsectarian (regular) colleges, 540 (4.0 per cent.) at the homeopathic, 138 (1.0 per cent.) at the eclectic, and 225 (1.6 per cent.) enrolled in three nondescript colleges. As indicated by the larger enrolments in the freshman, sophomore

(Continued on page 539)

1. THE JOURNAL A. M. A., State Board Number, April 13, 1918, pages 1174 to 1177 inclusive.

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA

Marginal Number	NAME AND LOCATON OF COLLEGE	Population of City where College is Located (Census of 1916)	Classification by Council on Medical Education	No. of Students Registered 1917-18		Graduates 1918		Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer	Session of 1918-19		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year		Begins 1918	Ends 1919	
1	ALABAMA University of Alabama School of Medicine, Mobile.....	58,221	A	44	...	11	...	4	42	32	165	160	160	185	T. H. Frazer, M.D., Dean.....	Oct. 3	June 4	1
2	ARKANSAS University of Arkansas Medical Department, Little Rock.....	57,343	B	52	...	21	...	3	56	34	50	50	50	50	Morgan Smith, M.D., Dean.....	Sept. 16	June 4	2
3	CALIFORNIA College of Medical Evangelists, Loma Linda.....	125	B	425	45	76	10	10	40	36	166	161	161	161	Newton Evans, M.D., President.....	Sept. 1	May 29	3
4	College of Physicians and Surgeons, Los Angeles.....	503,812	B	83	9	25	3	...	122	36	220	217	202	227	Charles W. Bryson, M.D., Dean.....	Sept. 3	June 12	4
5	Oakland College of Medicine and Surgery, Oakland ¹	198,604	C	15	2	3	...	...	...	...	...	...	...	...	...	...	...	5
6	College of Physicians and Surgeons of San Francisco.....	463,516	C	53	3	15	1	...	40	39	193	193	193	218	H. D'Arcy Power, M.D., Dean.....	Aug. 12	June 5	6
7	Hahnemann Medical College of the Pacific, San Francisco.....	463,516	B	10	1	10	1	...	72	34	200	155	150	150	William Ophüls, M.D., Dean.....	Oct. 1	June 17	7
8	Leland Stanford Junior Univ. School of Med., San Francisco.....	463,516	A	72	10	5	2	7	137	34	200	155	150	150	Frank W. Lynch, M.D., Acting Secretary.....	Sept. 28	June 4	8
9	University of California Medical School, San Francisco.....	463,516	A	135	15	...	...	...	...	...	...	...	...	...	...	...	...	9
10	COLORADO University of Colorado School of Medicine, Denver ³	260,800	A	73	4	6	2	7	66	32	85	85	75	75	Charles N. Meader, M.D., Dean.....	Sept. 30	June 4	10
11	CONNECTICUT Yale University School of Medicine, New Haven.....	149,685	A	67	4	8	...	8	84	35	205	200	200	210	George Blumer, M.D., Dean.....	Sept. 26	June 18	11
12	DISTRICT OF COLUMBIA Georgetown University School of Medicine, Washington.....	363,980	A	283	7	56	1	35	90	34	190	175	175	175	George M. Kober, M.D., Dean.....	Sept. 24	June 11	12
13	George Washington University Medical School, Washington.....	363,980	A	102	5	12	1	...	95	34	175	175	175	175	W. C. Borden, M.D., Dean.....	Sept. 25	June 11	13
14	Howard University School of Medicine, Washington.....	363,980	A	112	2	27	...	22	38	32	140	130	130	137	Edward A. Balloch, M.D., Dean.....	Oct. 1	June 4	14
15	GEORGIA Emory University School of Medicine, Atlanta.....	190,558	A	198	...	33	...	5	106	33	172	160	155	180	W. S. Elkin, M.D., Dean.....	Sept. 23	June 1	15
16	University of Georgia Medical Department, Augusta ³	50,245	A	70	...	6	...	3	53	34	60	60	60	60	William H. Doughty, Jr., M.D., Dean.....	Sept. 18	June 5	16
17	ILLINOIS Chicago Coll. of M. and S., Sch. of Med. of Loyola Univ., Chicago	2,497,722	B	1603	92	294	19	105	159	32	155	155	155	155	George E. Wyneken, M.D., Secretary.....	Oct. 1	May 31	17
18	Chicago Hospital College of Medicine, Chicago ⁴	2,407,722	C	87	8	44	5	...	...	...	137	135	115	145	...	...	...	18
19	Hahnemann Medical College and Hospital of Chicago.—H.....	2,497,722	B	48	3	14	1	4	86	32	176	162	177	192	Joseph P. Cobb, M.D., Dean.....	June 3	Feb. 3	19
20	Northwestern University Medical School, Chicago.....	2,497,722	A	281	...	62	...	42	170	33	190	195	190	206	Arthur I. Kendall, M.D., Dean.....	Oct. 1	June 7	20
21	Rush Medical College (University of Chicago).....	2,497,722	A	505	45	39	3	37	274	33	180	180	180	195	John M. Dodson, M.D., Dean.....	Oct. 1	June 14	21
22	University of Illinois College of Medicine, Chicago.....	2,497,722	A	260	10	28	2	22	104	32	165	160	150	165	William H. Browne, Secretary.....	Oct. 1	June 1	22
23	INDIANA Indiana University School of Medicine, Indianapolis.....	271,708	A	208	7	35	...	28	163	34	100	100	130	130	Charles P. Emerson, M.D., Dean.....	Sept. 15	May 31	23
24	IOWA State University of Iowa College of Medicine, Iowa City ³	12,033	A	194	4	29	1	19	51	35	95	85	85	85	Lee Wallace Dean, M.D., Dean.....	Sept. 16	June 6	24
25	State Univ. of Iowa College of Homeo. Medicine, Iowa City.—H.....	12,033	A	8	1	2	1	...	20	35	95	85	85	85	George Royal, M.D., Dean.....	Sept. 16	June 6	25
26	KANSAS University of Kansas School of Medicine, Rosedale-Kansas City ³ ..	404,782	A	138	7	18	...	11	65	35	60	60	100	100	M. T. Sudler, M.D., Dean.....	Sept. 16	June 11	26
27	KENTUCKY University of Louisville Medical Department, Louisville.....	238,910	A	99	...	16	...	2	112	35	175	176	180	183	Henry Enos Tuley, M.D., Dean.....	Sept. 24	June 5	27
28	LOUISIANA Tulane University of Louisiana School of Medicine, New Orleans...	371,747	A	267	8	62	1	18	131	35	200	200	200	230	Isadore Dyer, M.D., Dean.....	Sept. 23	June 4	28
29	MAINE Bowdoin Medical School, Brunswick-Portland.....	68,867	A	54	...	18	...	8	55	31	130	126	110	105	Addison S. Thayer, M.D., Dean.....	Oct. 10	June 1	29
30	MARYLAND Johns Hopkins University Medical Department, Baltimore.....	589,621	A	588	53	127	9	95	181	33	257	257	257	257	J. Whitridge Williams, M.D., Dean.....	Oct. 1	June 10	30
31	Univ. of Maryland Sch. of Med. and Coll. of P. and S., Baltimore.	589,621	A	266	...	49	...	8	189	32	185	185	185	215	J. M. H. Rowland, M.D., Dean.....	Oct. 1	June 2	31

TABLE 1.—STATISTICS OF MEDICAL COLLEGES IN THE UNITED STATES AND CANADA—(Concluded)

Marginal Number	NAME AND LOCATOR OF COLLEGE	Population of City where College is Located (Census of 1916)	Classification by Council on Medical Education	No. of Students Registered 1917-18		Graduates 1918		Grads. with A.B., B.S., or Ph.B.	Number of Teachers	Weeks in College Year	Total Fees (Dollars)				Executive Officer		Session of 1918-19		Marginal Number
				Men	Women	Men	Women				1st year	2d year	3d year	4th year			Begins 1918	Ends 1919	
81	SOUTH CAROLINA Medical College of the State of South Carolina, Charleston.....	60,734	A	55	...	9	...	4	71	33	150	150	150	145	Robert Wilson, Jr., M.D., Dean.....	...	Sept. 27	June 5	81
82	SOUTH DAKOTA University of South Dakota College of Medicine, Vermillion*.....	2,376	A	17	2	...	...	...	10	35	60	60	...	...	Christian P. Lommen, B.S., Dean.....	...	Sept. 17	June 11	82
83	TENNESSEE University of Tennessee College of Medicine, Memphis ³	148,995	A	423	3	124	2	25	111	34	107	102	102	127	A. H. Wittenborg, M.D., Dean.....	...	Sept. 21	June 4	83
84	University of West Tennessee Coll. of Med. and Surg., Memphis.....	148,995	C	21	...	17	1	5	22	32	65	65	65	75	M. V. Lynk, M.D., Dean.....	...	Sept. 23	May 20	84
85	Meharry Medical College, Nashville.....	117,057	B	205	1	76	1	14	24	30	70	70	70	80	G. W. Hubbard, M.D., President.....	...	Oct. 8	May 22	85
86	Vanderbilt University School of Medicine, Nashville.....	117,057	A	115	...	23	...	6	79	33	156	150	150	175	B. F. Hambleton, M.D., Acting Dean.....	...	Sept. 30	June 11	86
87	TEXAS Baylor University College of Medicine, Dallas.....	124,527	A	317	16	62	1	15	58	32	160	155	155	150	Edward H. Cary, M.D., Dean.....	...	Sept. 30	May 29	87
88	Fort Worth School of Medicine, Fort Worth ¹⁵	104,562	B	56	...	10	...	...	...	...	...	...	...	...	...	...	...	...	88
89	University of Texas Department of Medicine, Galveston.....	41,863	A	198	11	39	1	15	40	32	78	48	31	18	William S. Carter, M.D., Dean.....	...	Oct. 1	May 31	89
90	UTAH University of Utah School of Medicine, Salt Lake City ³	117,399	A	33	1	...	...	...	23	33	95	95	...	...	Perry G. Snow, M.D., Dean.....	...	Sept. 30	June 7	90
91	VERMONT University of Vermont College of Medicine, Burlington.....	21,432	A	105	...	22	...	5	38	32	145	145	145	170	H. C. Tinkham, M.D., Dean.....	...	Oct. 9	June 4	91
92	VIRGINIA Medical College of Virginia, Richmond.....	156,687	A	239	...	65	...	21	13 ²	36	169	169	169	201	Stuart McGuire, M.D., Dean.....	...	Sept. 18	June 5	92
93	University of Virginia Department of Medicine, Charlottesville.....	12,500	A	100	...	22	...	5	35	36	150	150	150	150	Theodore Hough, M.D., Dean.....	...	Sept. 12	June 11	93
94	WEST VIRGINIA West Virginia University School of Medicine, Morgantown*.....	12,974	A	33	3	...	...	...	12	34	50	40	...	...	John N. Simpson, M.D., Dean.....	...	Sept. 23	June 11	94
95	WISCONSIN University of Wisconsin Medical School, Madison ³	30,699	A	114	6	7	...	2	28	35	70	70	...	...	C. R. Bardeen, M.D., Dean.....	...	Oct. 1	June 25	95
96	Marquette University School of Medicine, Milwaukee.....	436,535	A	66	1	7	...	...	81	36	195	135	195	225	L. F. Jermain, M.D., Dean.....	...	Sept. 17	June 17	96
97	CANADA ¹⁶ University of Alberta Faculty of Medicine, Strathcona, Alta. [†]	5,579	B	39	9	...	...	...	19	30	88	88	...	...	Oecil E. Race, A.B., Registrar.....	...	Oct. 1	May 15	97
98	Dalhousie University Faculty of Medicine, Halifax, N. S.	46,619	B	66	11	7	...	...	36	32	110	120	120	126	D. Fraser Harris, M.D., Secretary.....	...	Oct. 1	May 29	98
99	Queen's University Faculty of Medicine, Kingston, Ont.	18,874	B	180	...	22	...	5	49	33	115	115	115	115	J. C. Connell, M.D., Dean.....	...	Sept. 30	June 6	99
100	University of Toronto Faculty of Medicine, Toronto, Ont.	376,538	A	471	51	70	4	9	205	33	150	150	150	150	C. K. Clarke, M.D., Dean.....	...	Sept. 24	June 1	100
101	Western University Faculty of Medicine, London, Ont.	46,300	B	68	...	11	...	...	54	32	115	115	115	140	H. A. McCallum, M.D., Dean.....	...	Oct. 1	May 30	101
102	McGill University Faculty of Medicine, Montreal, Que.	470,480	A	361	4	62	...	10	174	32	174	174	174	204	John W. Seane, M.D., Registrar.....	...	Oct. 1	May 30	102
103	Montreal School of Medicine and Surgery, Montreal, Que.	470,480	B	231	...	43	...	...	80	36	118	118	118	138	L. D. Mignault, M.D., Secretary.....	...	Oct. 3	June 30	103
104	Laval University Faculty of Medicine, Quebec, Que.	78,190	B	103	...	19	...	10	35	3	60	60	60	60	Edwin Turcot, M.D., Dean.....	...	June 4	Dec. 18	104
105	University of Manitoba, Manitoba Medical College, Winnipeg.....	136,035	B	119	9	32	...	3	59	29	160	160	160	160	S. Willis Prowse, M.D., Dean.....	...	Oct. 1	May 9	105

* Gives only the first two years of the medical course.

E.—Eclectic; H.—Homeopathic; N.—Nondescript.

- College reported closed.
- Has just graduated its last class. Discontinued when elective chairs in homeopathic materia medica, therapeutics and practice were established in the University of California Medical School.
- Fees given are for residents of the state. For nonresidents amounts should be added for each year in the several states as follows: Colorado, \$25; Georgia, \$100; Iowa, \$15; Kansas, \$20 (for the first two years only); Michigan, \$20 (and \$25 extra the first year for matriculation); Tennessee, \$30; Utah, \$25, and Wisconsin, \$124.
- Since July 1, 1917, has not been recognized by the Illinois Department of Registration and Education. It is reported not recognized also by the licensing boards of 36 other states.
- This school states that it is no longer a sectarian institution.
- Figures given are approximate. Reported not recognized by the licensing boards of 37 states.
- Has been closely related to an osteopathic college and has granted liberal advanced standing for work done in osteopathy. Reported not recognized by the licensing boards of 31 states.
- College reported closed.
- This college was an offshoot of the Eclectic Medical University although it is reported as not recognized as an eclectic institution by the National Eclectic Association. It is reported not recognized by the Missouri State Board of Health and by the licensing boards of 31 other states. Under these circumstances it cannot be rated higher than Class C, pending an inspection which it has refused.
- This college was formerly the Central College of Osteopathy. In 1917 amended its charter so as to grant degrees in medicine; then took the name of Central College Medical Department, and recently assumed its present title. Is reported not recognized by the licensing boards of Missouri and 27 other states.
- College reported closed.
- The Missouri State Board of Health states that recognition has just been withdrawn from this college. It is reported also to be not recognized by the licensing boards of 34 other states.
- Reported not recognized by the licensing boards of Nebraska and of 31 other states.
- It is reported that the college has been abolished and its teaching faculty dismissed. A new charter has been asked for.
- College reported closed.
- In Canada the entrance requirement to all medical schools is a secondary school education. The first year of the five-year course is devoted largely to courses in physics, chemistry and biology, which, in the United States, are required to have been completed in one or two years of premedical college work. Their courses may, therefore, be considered the equivalent of medical schools in the United States which require one year of college work for admission. On a basis similar to that of Canada, 82 of the medical schools of the United States would be considered as giving a six-year medical course—six years of collegiate work based on a four-year high school education.

(Continued from page 535)

and junior classes, the enrolment of medical students has about reached its lowest ebb under the higher entrance requirements.

NUMBER OF MEDICAL GRADUATES

The total number of graduates for the year ending June 30, 1918, was 2,670, a decrease of 709 below 1917. There were 137 other students who completed the four year medical course, whose diplomas are withheld pending completion of the hospital internship. The number of graduates from the nonsectarian colleges was 2,454, or 680 less than last year. The number from the homeopathic colleges was 114, or 66 less than last year, and from the eclectic colleges there were 42 graduates, or 23 less than last year. The three nondescript colleges had 60 graduates.

TABLE 5.—MEDICAL COLLEGE GRADUATES

Year	Non-sectarian	Homeopathic	Eclectic	Physio-Med.	Nondescript	Total
1880.....	2,673	380	188	..	..	3,241
1890.....	3,853	380	221	..	..	4,454
1900.....	4,715	413	86	..	..	5,214
1901.....	4,879	387	148	18	12	5,444
1902.....	4,508	336	138	16	11	5,009
1903.....	5,088	420	149	24	17	5,698
1904.....	5,190	371	146	20	20	5,747
1905.....	5,126	276	153	22	23	5,600
1906.....	4,841	286	186	22	29	5,364
1907.....	4,591	225	121	11	32	4,980
1908.....	4,370	215	116	12	28	4,741
1909.....	4,163	209	84	15	44	4,515
1910.....	4,113	183	114	16	14	4,440
1911.....	4,006	152	110	5	..	4,273
1912.....	4,206	185	92	..	..	4,483
1913.....	3,679	209	93	..	..	3,981
1914.....	3,370	154	70	..	..	3,594
1915.....	3,286	195	55	..	..	3,536
1916.....	3,274	166	78	..	..	3,518
1917.....	3,134	180	65	..	..	3,379
1918.....	2,454	114	42	..	60	2,670*

* Altogether 2,807 students successfully completed the courses of the senior year. There were 22 of these at the University of California, 77 at Rush Medical College, and 38 at the University of Minnesota from whom the degree has been withheld pending completion of the hospital internship.

GRADUATES HOLDING DEGREES IN ARTS

Of the 2,670 medical graduates, 1,024 were reported to hold also degrees in arts or science. This total includes those taking the combined courses in arts or science and medicine. This year 38.4 per cent. of all graduates held collegiate degrees, as compared with 32.5 per cent. last year, 26.9 per cent. in 1916, and 24.3 per cent. in 1915. This increase is what was expected under the general adoption by medical schools of the entrance requirements of two years of college work. In 1910 it is noteworthy that only 15.3 per cent. of the graduates showed this evidence of higher preliminary qualifications. Of the 2,454 nonsectarian school graduates, 1,007, or 41.0 per cent., were reported to have baccalaureate degrees; of the homeopathic graduates 15, or 13.2 per cent., were so reported, and of the eclectic graduates this year none was reported as holding such a degree. As will be noted by referring to Table 11, of the 1,024 graduates holding baccalaure-

ate degrees, 143—the largest number—came from the New York colleges. Last year Massachusetts furnished the largest quota, and in 1915 and previous years the Illinois colleges were in the lead. Massa-

TABLE 6.—MEDICAL GRADUATES WITH LIBERAL ARTS DEGREES

* Year	Nonsectarian			Homeopathic			Eclectic			Totals		
	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.	Graduates	A.B., B.S.	Per Cent.
1910.....	4,113	664	16.1	183	13	7.1	114	3	2.6	4,440	680	15.3
1911.....	4,006	683	17.0	152	18	11.8	110	4	3.6	4,273	705	16.5
1912.....	4,206	744	17.7	185	15	8.1	92	4	4.3	4,483	763	17.0
1913.....	3,679	732	19.9	209	20	9.6	93	1	1.1	3,981	753	18.9
1914.....	3,370	794	23.5	154	7	4.5	70	6	8.6	3,594	807	22.5
1915.....	3,286	839	25.5	195	16	8.2	55	3	5.5	3,536	858	24.3
1916.....	3,274	928	28.3	166	20	12.0	78	0	0.0	3,518	948	26.9
1917.....	3,134	1078	34.4	180	19	10.5	65	2	3.1	3,379	1099	32.5
1918*.....	2,454	1007	41.0	114	15	13.2	60	0	0.0	2,670	1024	38.4

* None of the 60 graduates of nondescript colleges is reported as having a collegiate degree.

chusetts and Pennsylvania each furnished 109 this year, followed by Illinois with 105 and Maryland with 95. The percentage of graduates holding collegiate degrees is rapidly increasing and will continue to increase, since most medical schools are now requiring two years of college work for admission, which brings more students in the combined course for the B.S. and M.D. degrees.

WOMEN IN MEDICINE

During the past year there were 581 women studying medicine, or 29 less than last year, but 15 more than in 1916. The percentage of women to all medical students is 4.3, a percentage approximating those of pre-

TABLE 7.—WOMEN IN MEDICINE

Year	Total Women Students	Percentage of All Students, Both Sexes	Total Women Graduates	Percentage of Graduates, Both Sexes	Women's Colleges	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates	Co-ed. Schools	Students	Percentage of All Women Students	Graduates	Percentage of All Women Graduates
1904	1,129	4.3	244	4.0	3	183	16.2	56	23.0	97	946	83.8	198	77.0
1905	1,073	4.1	219	4.0	3	221	20.6	54	24.5	96	852	79.4	165	75.5
1906	895	3.5	233	4.3	3	189	21.0	33	14.1	90	706	79.0	200	85.9
1907	928	3.8	211	4.2	3	210	22.6	39	18.5	86	718	77.4	172	81.5
1908	835	3.7	185	3.9	3	186	22.3	46	24.9	88	649	77.7	139	75.1
1909	921	4.2	162	3.7	3	169	18.4	33	20.3	91	752	81.6	129	79.7
1910	907	4.2	157	3.5	3	155	17.1	41	26.3	82	752	82.9	116	73.9
1911	680	3.4	159	3.7	2	134	19.7	36	22.6	74	546	80.3	123	77.4
1912	679	3.2	142	3.2	2	143	21.1	32	22.5	64	536	78.9	110	77.5
1913	640	3.8	154	3.8	2	138	21.6	33	21.4	55	502	78.6	121	78.6
1914	631	3.8	121	3.4	2	135	21.4	25	20.7	54	496	78.6	96	79.3
1915	592	4.0	130	3.7	2	116	19.6	38	29.2	53	462	80.4	92	70.8
1916	566	4.0	134	3.8	2	102	18.0	28	20.0	51	464	82.0	106	80.0
1917	610	4.5	153	4.5	2	81	13.3	29	18.9	56	529	86.7	124	81.1
1918	581	4.3	106	4.0	2	70	12.0	12	11.3	60	511	87.9	94	88.7

vious years. This is true also in regard to women graduates. There were 106 women graduates this year, 47 less than last year and 28 less than in 1916. Of all the women matriculants, a smaller percentage

(Continued on page 542)

TABLE 2.—DISTRIBUTION OF

Marginal Number	NAME OF COLLEGE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Marginal Number
		Alabama.....140	Arizona.....11	Arkansas.....97	California.....442	Colorado.....118	Connecticut.....230	Delaware.....26	Dist. of Col. ....90	Florida.....51	Georgia.....200	Idaho.....33	Illinois.....1,048	Indiana.....245	Iowa.....352	Kansas.....290	Kentucky.....119	Louisiana.....151	Maine.....80	Maryland.....192	Massachusetts.....696	
1	University of Alabama School of Medicine.....	41												1				1				1
2	University of Arkansas Medical Department.....	1		39			1										2	1				2
3	College of Medical Evangelists.....		2		19	3				1		1	2	2	1	3						3
4	College of Physicians and Surgeons, Los Angeles.....				86																	4
5	Oakland College of Medicine and Surgery*.....				17																	5
6	College of Physicians and Surgeons of San Francisco.....		1		48																	6
7	Hahnemann Medical College of the Pacific*.....				8																1	7
8	Leland Stanford Junior University School of Medicine.....				59	1						1		1	1			1			1	8
9	University of California Medical School.....				131							1		2		1						9
10	University of Colorado School of Medicine.....					70						1				2						10
11	Yale University School of Medicine.....				1		47						2								3	11
12	Georgetown University School of Medicine.....						5		22					1	1				1	3	3	12
13	George Washington University Medical School.....	1					1		37				1								3	13
14	Howard University School of Medicine.....	3		2				1	14	3	1		3		1		5			8		14
15	Emory University School of Medicine.....	12								2	94				1		2	1				15
16	University of Georgia Medical Department.....										67											16
17	Chicago Coll. of M. & S., Sch. of Med. of Loyola Univ.	2			1	3	5		1	3	3	1	244	9	9	6	6		2	4	4	17
18	Chicago Hospital College of Medicine*.....												95									18
19	Hahnemann Med. College and Hosp. of Chicago.—H.						1						14	7	6	3	1					19
20	Northwestern University Medical School.....			3	3	4				2		1	124	10	15	12	1	1				20
21	Rush Medical College (University of Chicago).....		2	1	8	5	1			1		3	233	20	25	35	3	1				21
22	University of Illinois College of Medicine.....		1		5	2					1		165	3	23	3	1					22
23	Indiana University School of Medicine.....												3	207	1							23
24	State University of Iowa College of Medicine.....				1	1						3	3		168	1						24
25	State University of Iowa College of Homeo. Med.—H.														8							25
26	University of Kansas School of Medicine.....	1														137						26
27	University of Louisville Medical Department.....			2		1				3	1	1	5	13			39				1	27
28	Tulane University of Louisiana School of Medicine.....	29	1	12						9	11			2		3	1	117				28
29	Bowdoin Medical School.....						3												36		7	29
30	Johns Hopkins University Medical Department.....	5		3	9	6	12		3	1	10		6	7	4	1	7	1	3	64	12	30
31	Univ. of Maryland Sch. of Med. and Coll. of P. & S.	3					7	6	2	3	1						3			93	5	31
32	Boston University School of Medicine.....							1			1					1			3		27	32
33	College of Physicians and Surgeons, Boston†.....																				47	33
34	Medical School of Harvard University.....	1	1	1	5	8	15		1	3	9	2	8	7	3	1			15		155	34
35	Middlesex College of Medicine and Surgery.—N.*.....																				84	35
36	Tufts College Medical School.....						13				1		1			1			6		274	36
37	University of Michigan Medical School.....	1	1		2				3	1	1	2	10	13	3	1				1	1	37
38	University of Michigan Homeo. Medical School.—H.				2								1	1								38
39	Detroit College of Medicine and Surgery.....				1												1					39
40	University of Minnesota Medical School.....				2							1	2		11					1		40
41	University of Mississippi School of Medicine.....	1			1													1				41
42	University of Missouri School of Medicine*.....			1												1						42
43	Eclectic Medical University, Kansas City.—E.*.....																12					43
44	Kansas City College of Medicine and Surgery.—N.*.....															25						44
45	Kansas City Univ. of Physicians and Surgeons.—N.				9																	45
46	National University of Arts and Sciences Med. Dept.			2	1							1	8		1		2					46
47	St. Louis College of Physicians and Surgeons*.....			2									10									47
48	St. Louis University School of Medicine.....	1	1		12	1					1		46	8	25	16	1	2				48
49	Washington University Medical School.....			1		4						1	16	2	3	9						49
50	Lincoln Medical College.—E.†.....														4							50
51	John A. Creighton Medical College.....														14	4						51
52	University of Nebraska College of Medicine.....					1						1			9	2						52
53	Dartmouth Medical School.....						1						1					1			8	53
54	Albany Medical College.....						1							1							5	54
55	University of Buffalo Department of Medicine.....				1	1					1					1						55
56	Columbia University College of Phys. and Surgs.	1	1			2	33			1	13	2	1	2					1		11	56
57	Cornell University Medical College.....				3		5				2		1	1	1	1			1		1	57
58	Fordham University School of Medicine.....						18														6	58
59	Long Island College Hospital.....						2														3	59
60	New York Homeo. Med. Coll. and Flower Hosp.—H.*.....				1		5												1			60
61	New York Medical College and Hosp. for Women.—H.																					61
62	University and Bellevue Hospital Medical College.....				2		13				1		1		1	1					2	62
63	Syracuse University College of Medicine.....																					63
64	University of North Carolina School of Medicine.....									2	1											64
65	Leonard Medical School.....	1									1										1	65
66	Wake Forest College School of Medicine.....																	1			1	66
67	University of North Dakota School of Medicine.....											1										67
68	Eclectic Medical College, Cincinnati.—E.										1		4	4	1	1	9		1			68
69	University of Cincinnati College of Medicine.....				1								2	7			17					69
70	Western Reserve University School of Medicine.....					1			1			1	3	4	2	1	1					70
71	Ohio State University College of Medicine.....													2			1					71
72	Ohio State University College of Homeo. Med.—H.													1			1					72
73	University of Oklahoma School of Medicine.....	1		1						1								1				73
74	University of Oregon Medical School.....																					74
75	Hahnemann Med. Coll. & Hosp. of Philadelphia.—H.						2	4												3	1	75
76	Jefferson Medical College of Philadelphia.....	1		1	2	2	15	8		1	1	3	3	1	1	1			2	2	11	76
77	Temple University Department of Medicine.....										2											77
78	University of Pennsylvania School of Medicine.....	1			5	1	6	5	1	1	3	1	5	3	6	1	1		3	5	4	78
79	Woman's Medical College of Pennsylvania.....	1			2		3						1								1	79
80	University of Pittsburgh School of Medicine.....										1				1						1	80
81	Medical College of the State of South Carolina.....										1											81
82	University of South Dakota College of Medicine.....												1	1								82
83	University of Tennessee College of Medicine.....	1		1						2		1				1	1	2			1	83
84	University of West Tennessee Coll. of Med. and Surg.	1		1							3		1					2				84
85	Meharry Medical College.....	13		11					1	3	23		10	1		1	5	10				85
86	Vanderbilt University School of Medicine.....	12		5	2	1				4			2				3	4				86
87	Baylor University College of Medicine.....				1					1	1						1	1				87
88	Fort Worth School of Medicine*.....																					88
89	University of Texas Department of Medicine.....	1									1							1	1			89
90	University of Utah School of Medicine.....											2										90
91	University of Vermont College of Medicine.....						13				1								3		11	91
92	Medical College of Virginia.....						1		1											1		92
93	University of Virginia Department of Medicine.....	3					1	1	2	1	2			1			2	1		2		93
94	West Virginia University School of Medicine.....																					94
95	University of Wisconsin Medical School.....											1	9		1	1	2					95
96	Marquette University School of Medicine.....																					96

E.—Eclectic; H.—Homeopathic; N.—Nondescript. * Figures exact; distribution approximate. † Figures and distribution approximate.

MEDICAL STUDENTS BY STATES

[illegible]

Name of College	Enrolled During 1917-18					Name of College	Enrolled During 1917-18				
	1st Yr.	2d Yr.	3d Yr.	4th Yr.	Total		1st Yr.	2d Yr.	3d Yr.	4th Yr.	Total
University of Alabama School of Medicine.....	24	8	3	9	44	University of Nebraska College of Medicine.....	69	49	32	30	180
University of Arkansas Medical Department...	17	6	6	23	52	Dartmouth Medical School.....	19	12	...	...	31
College of Medical Evangelists.....	22	14	4	22	62	Albany Medical College.....	33	22	13	13	81
College of Phys. and Surgs., Los Angeles.....	24	8	32	28	92	University of Buffalo Department of Medicine	85	62	40	28	215
Oakland College of Medicine and Surgery.....	6	4	3	4	17	Columbia University Coll. of Phys. and Surgs.	213	114	148	114	589
College of Phys. and Surgs. of San Francisco..	8	16	6	26	56	Cornell University Medical College.....	70	55	29	32	186
Hahnemann Medical College of the Pacific.....	...	...	...	11	11	Fordham University School of Medicine.....	97	73	64	63	297
Leland Stanford Junior Univ. School of Med. ..	22	14	25	21	82	Long Island College Hospital.....	125	108	72	40	345
University of California Medical School.....	74	34	20	22	150	N. Y. Homeo. Med. Coll. and Flower Hosp.—H.	50	51	40	29	170
University of Colorado School of Medicine.....	25	21	22	9	77	New York Med. Coll. & Hosp. for Women.—H.	4	5	14	4	27
Yale University School of Medicine.....	24	25	14	8	71	University and Bellevue Hospital Med. College	189	125	87	90	491
Georgetown University School of Medicine.....	24	17	12	16	69	Syracuse University College of Medicine.....	38	40	23	24	125
George Washington University Medical School..	42	34	17	14	107	University of North Carolina School of Med. ..	34	23	...	...	57
Howard University School of Medicine.....	22	34	27	31	114	Leonard Medical School.....	1	4	...	...	5
Emory University School of Medicine.....	48	28	25	27	128	Wake Forest College School of Medicine.....	21	14	...	...	35
University of Georgia Medical Department.....	42	15	7	6	70	University of North Dakota School of Medicine	18	12	...	...	30
Chicago College of M. and S. (Loyola Univ.)..	125	86	84	153	448	Eclectic Medical College, Cincinnati.—E.	15	23	28	22	88
Chicago Hospital College of Medicine.....	23	23	...	49	95	University of Cincinnati College of Medicine...	51	39	28	24	142
Hahnemann Med. Coll. & Hosp. of Chicago.H.	7	8	19	17	51	Western Reserve University School of Medicine	51	44	42	44	181
Northwestern University Medical School.....	59	61	95	66	281	Ohio State University College of Medicine.....	52	29	19	24	124
Rush Medical College (University of Chicago)..	122	123	155	150	550	Ohio State Univ. College of Homeo. Med.—H.	11	4	7	16	38
University of Illinois College of Medicine.....	98	91	51	30	270	University of Oklahoma School of Medicine....	25	21	17	13	76
Indiana University School of Medicine.....	83	63	32	37	215	University of Oregon Medical School.....	23	15	16	21	75
State University of Iowa College of Medicine..	60	56	46	27	189	Hahnemann Med. Coll. and Hosp. of Pa.—H.	61	36	31	12	140
State Univ. of Iowa Coll. of Homeo. Med.—H.	3	2	1	3	9	Jefferson Medical College of Philadelphia.....	70	148	146	102	466
University of Kansas School of Medicine.....	69	38	21	17	145	Temple University Department of Medicine....	26	23	28	29	106
University of Louisville Medical Department...	47	18	18	16	99	University of Pennsylvania School of Medicine	121	111	126	121	479
Tulane University of Louisiana School of Med.	67	78	69	61	275	Woman's Medical College of Pennsylvania.....	18	10	7	8	43
Bowdoin Medical School.....	9	9	18	18	54	University of Pittsburgh School of Medicine...	51	42	28	26	147
Johns Hopkins University Medical Department.	94	94	98	89	375	Medical College of the State of South Carolina	19	15	11	10	55
Univ. of Md. Sch. of Med. & Coll. of P. & S.	95	64	46	61	266	University of South Dakota College of Med. ...	10	9	...	...	19
Boston University School of Medicine.....	16	15	9	18	58	University of Tennessee College of Medicine....	29	17	19	19	84
College of Physicians and Surgeons, Boston*...	12	13	6	16	47	Univ. of West Tenn. College of Med. and Surg.	7	3	3	8	21
Medical School of Harvard University.....	94	98	98	94	384	Meharry Medical College.....	45	37	40	84	206
Tufts College Medical School.....	113	97	96	66	372	Vanderbilt University School of Medicine.....	45	24	23	23	115
Middlesex College of Medicine and Surgery.—N.	27	21	11	25	84	Baylor University College of Medicine.....	25	18	12	13	68
University of Michigan Medical School.....	118	94	60	67	339	Fort Worth School of Medicine.....	16	14	14	12	56
University of Michigan Homeo. Med. Sch.—H.	5	3	8	20	36	University of Texas Department of Medicine...	41	73	54	41	209
Detroit College of Medicine and Surgery.....	63	49	33	21	166	University of Utah School of Medicine.....	15	19	...	...	34
University of Minnesota Medical School.....	80	78	62	60	280	University of Vermont College of Medicine....	39	23	21	22	105
University of Mississippi School of Medicine...	26	31	...	...	57	Medical College of Virginia.....	33	30	24	52	139
University of Missouri School of Medicine.....	43	35	...	...	78	University of Virginia Department of Medicine	27	23	27	23	100
Eclectic Medical University, Kansas City.—E. ..	13	7	4	10	34	West Virginia University School of Medicine...	15	21	...	...	36
Kansas City Coll. of Medicine and Surgery.—N.	26	20	23	27	96	University of Wisconsin Medical School.....	63	57	...	...	120
Kansas City Univ. of Phys. and Surgs.—N.	8	13	12	12	45	Marquette University School of Medicine.....	28	17	15	7	67
National Univ. of Arts and Sciences Med. Dept.	...	...	...	37	37						
St. Louis College of Physicians and Surgeons..	8	13	11	40	72	Totals for 1918.....	4283	3521	2893	2933	13630
St. Louis University School of Medicine.....	87	74	60	55	276	Totals for 1917.....	4107	3117	2866	3674	13764
Washington University Medical School.....	28	27	49	32	136	Totals for 1916.....	3582	3094	3559	3727	14022
Lincoln Medical College.—E.*.....	3	4	6	3	16						
John A. Creighton Medical College.....	30	23	21	16	90						

* Figures approximate.

(Continued from page 539)

were in attendance at the two medical colleges for women, while 511 (87.9 per cent.) were matriculated in the sixty coeducational colleges. From the two women's colleges there were 12 graduates, while 94 secured their degrees from coeducational colleges. This increase of women students in coeducational colleges is not surprising, since in recent years some of the largest and oldest medical schools, as Columbia, Tulane, the University of Pennsylvania and Harvard (and McGill University in Canada), have thrown open their doors to women.

NUMBER OF COLLEGES

Since June 30, 1917, two new medical colleges were reported, while eight colleges (mentioned on page 544) were closed by merger or otherwise. The present total number of medical colleges is ninety—six less than last year. Of the ninety colleges, 79 are nonsectarian (regular), 6 are homeopathic, 2 are eclectic and 3 are

nondescript. Two of the nondescript and one of the eclectic colleges are not recognized by the licensing boards of the states (Missouri and Nebraska) in which they are located.

LENGTH OF TERMS

During the last eighteen years there has been a decided lengthening of college terms. This has reference to the weeks of actual work exclusive of holidays. Prior to 1904 the majority of colleges had sessions of twenty-eight weeks or less. For three years no colleges have had sessions shorter than twenty-nine weeks, and this year only two colleges reported sessions of thirty weeks. Sessions of from thirty-three to thirty-six weeks were reported by fifty-nine, or 65.6 per cent., of all colleges.

TUITION AND OTHER FEES

Attention is called to Table 1, on page 536, to the amount charged by the various medical colleges per annum for tuition, matriculation, laboratory and grad-

uation fees for each student. In Table 10, eighty-nine of the ninety colleges—from one Class C college the figures were not obtained—have been grouped according to the amount of fees charged and according to their classification by the Council on Medical Education in Classes A, B and C. Sixteen colleges charge fees of \$100 or less per year; forty-three between \$100 and \$175, and thirty charge above \$175. Of the sixteen colleges charging \$100 or less, twelve (75 per cent.) are listed among Class A (acceptable) colleges² by the Council on Medical Education; three are Class B colleges and one is rated in Class C. Among the twelve Class A colleges having these low fees are the schools of medicine of the state universities of Colorado, Iowa, Michigan, Mississippi, Missouri, North Dakota, South Dakota, Texas and Utah. On the other hand, five colleges listed by the Council in Class C charge fees of from \$100 to \$175 per year for each

TABLE 8.—MEDICAL COLLEGES

Year	Non-sectarian	Homeopathic	Ecclectic	Physio-Med.	Non-descript	Total
1850.....	44	3	4	1	..	52
1860.....	53	6	4	2	..	65
1870.....	60	8	5	2	..	75
1880.....	76	14	8	2	..	100
1890.....	106	16	9	2	..	133
1900.....	126	22	9	2	1	160
1901.....	125	22	10	2	1	160
1902.....	126	20	9	3	2	160
1903.....	126	20	9	3	2	160
1904.....	127	19	9	3	2	160
1905.....	125	19	9	3	2	158
1906.....	130	19	8	3	2	162
1907.....	127	18	9	3	2	159
1908.....	120	18	9	2	2	151
1909.....	115	15	8	1	1	140
1910.....	109	12	8	1	1	131
1911.....	103	12	7	..	..	122
1912.....	101	11	6	..	..	118
1913.....	92	10	5	..	..	107
1914.....	87	10	5	..	..	102
1915.....	83	9	4	..	..	96
1916.....	82	10	3	..	..	95
1917.....	83	9	4	..	..	96
1918.....	79	6	2	..	3	90

student, and two exact fees between \$175 and \$250. Diplomas from Class C colleges are reported as not recognized by thirty-two state licensing boards.³ No intelligent student would knowingly spend his time and money in a low-grade college, the diplomas of which are not recognized by many states, when in the same time and for even less money he could attend one of the best-equipped colleges, the diplomas of which are recognized everywhere. Although forty-two colleges listed in Class A charged fees ranging from \$150 to \$275 per year for each student, the actual expense for teaching that student in these colleges amounts to from two or three to several times these sums. In fact, accurate data secured from eighty-two medical colleges show that the average amount received each year from the individual student was \$150, while the average amount actually expended in the training of that stu-

dent for a year was \$419! And the latter sum is much larger in the higher grade colleges since there were several colleges among the eighty-two which still apparently made profits from teaching medical students or which paid all expenses, including rents, or even erected new buildings out of the income from students' fees!

TABLE 9.—COLLEGE TERMS

Year	23 to 26 weeks		27 to 28 weeks		29 to 30 weeks		31 to 32 weeks		33 to 34 weeks		35 to 36 weeks		Over 36 weeks	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
1901	58	36.5	42	26.4	8	5.0	26	16.4	4	2.5	18	11.3	3	1.9
1902	44	28.4	44	28.4	11	7.1	33	21.3	3	1.9	18	11.6	2	1.3
1903	33	21.4	46	29.9	15	9.7	37	24.0	2	1.3	19	12.4	2	1.3
1904	27	16.3	44	26.5	22	13.3	37	22.3	13	7.8	20	12.0	3	1.8
1905	15	9.4	35	21.8	12	7.5	44	27.5	13	8.1	28	23.8	3	1.9
1906	14	8.7	35	21.7	26	16.1	32	19.9	24	14.9	28	17.4	2	1.3
1907	6	3.7	27	16.8	26	16.1	42	26.1	29	18.0	29	18.0	2	1.3
1908	2	1.3	21	13.8	28	18.4	51	33.6	24	15.8	22	14.5	4	2.6
1909	4	2.3	17	11.6	23	16.4	51	34.9	18	12.3	30	20.5	3	2.0
1910	2	1.5	8	6.0	19	14.3	42	31.5	30	22.6	30	22.6	2	1.5
1911	..	....	6	5.0	16	13.3	37	30.8	32	26.7	28	23.4	1	0.8
1912	1	0.9	1	0.9	11	9.5	34	29.3	37	31.8	31	26.7	1	0.9
1913	..	....	3	2.8	5	4.7	29	27.4	41	38.7	27	25.5	1	0.9
1914	..	....	2	2.0	4	4.0	25	24.8	41	40.5	28	27.7	1	1.0
1915	..	....	1	1.0	5	5.3	22	23.2	36	37.9	30	31.6	1	1.0
1916	..	....	..	....	4	4.2	17	17.9	43	45.3	28	29.5	..	...
1917	..	....	..	....	1	1.0	15	15.6	46	47.9	31	32.3	..	...
1918*	..	....	..	....	2	2.2	23	25.6	37	41.1	22	24.4	..	...

* Information not furnished by six Class C colleges.

COLLEGES, STUDENTS AND GRADUATES BY STATES

Illinois formerly had the largest number of medical colleges (Table 11), but for the last two years the first place has been held by New York, where there are nine colleges. Illinois, Missouri and Pennsylvania have six each; California, Massachusetts and Ohio have five each and Tennessee has four colleges. Of Class C colleges, however, Missouri has three, Massachusetts has two, and there is one each in California, Illinois, Nebraska and Tennessee. In Illinois, Missouri and Nebraska, however, the Class C colleges are not recognized by the local state licensing boards. For the last three years New York has had the largest number of students enrolled, this year having 2,526,

TABLE 10.—COLLEGE FEES

Total Fees	Number of Colleges			
	Class A	Class B	Class C*	Total
\$ 50 or less.....	3	2	..	5
50 to \$ 75.....	4	1	1	6
75 to 100.....	5	..	..	5
100 to 125.....	7	2	1	10
125 to 150.....	8	..	4	12
150 to 175.....	17	4	..	21
175 to 200.....	10	1	1	12
200 or above.....	15	2	1	18
Totals.....	69	12	8	89

* Figures not obtainable from one Class C college.

followed by Illinois with 1,695 and Pennsylvania with 1,381. New York leads also in the number of graduates, having reported 437, followed by Illinois with 313, Pennsylvania with 286 and Massachusetts with 239.

Table 12 shows the students and graduates of the last six years grouped according to the rank of the

2. See Classification of Medical Colleges, page 552.

3. See THE JOURNAL, April 13, 1918, page 1084, Table D, which shows in what states diplomas granted by various colleges are not recognized as an acceptable qualification for the license to practice.

colleges in the classification of the Council on Medical Education Note that during the six years the percentage of students enrolled in Class A colleges has increased from 65.4 to 84.5 and that for the last three years the total enrolment of students in attendance at

TABLE 11.—MEDICAL COLLEGES, STUDENTS AND GRADUATES BY STATES

State	Colleges		Students		Graduates		Graduates with B.S. or A.B.
	Total	Class C	Men	Women	Men	Women	
Alabama.....	1	..	44	....	11	....	4
Arkansas.....	1	..	52	....	21	....	3
California.....	5	1	425	45	76	10	10
Colorado.....	1	..	70	4	6	2	7
Connecticut.....	1	..	67	4	8	....	8
Dist. of Columbia...	3	..	283	7	56	1	35
Georgia.....	2	..	198	....	33	....	5
Illinois.....	6	1	1,603	92	294	19	105
Indiana.....	1	..	208	7	35	....	28
Iowa.....	2	..	194	4	29	1	19
Kansas.....	1	..	188	7	18	....	11
Kentucky.....	1	..	99	....	16	....	2
Louisiana.....	1	..	267	8	62	1	18
Maine.....	1	..	54	....	18	....	8
Maryland.....	2	..	588	53	127	9	95
Massachusetts.....	5	2	905	40	230	9	109
Michigan.....	3	..	512	29	95	5	52
Minnesota.....	1	..	269	11	36	2	36
Mississippi.....	1	..	57	....	....	....	....
Missouri.....	6	3	755	19	210	7	44
Nebraska.....	3	1	280	6	45	1	24
New Hampshire.....	1	..	31	....	....	....	....
New York.....	9	..	2,420	106	422	15	143
North Carolina.....	3	..	97	....	....	....	....
North Dakota.....	1	..	28	2	....	....	....
Ohio.....	5	..	553	20	125	3	63
Oklahoma.....	1	..	72	4	13	....	7
Oregon.....	1	..	68	7	19	2	7
Pennsylvania.....	6	..	1,307	74	270	16	109
South Carolina.....	1	..	55	....	9	....	4
South Dakota.....	1	..	17	2	....	....	....
Tennessee.....	4	1	423	3	124	2	25
Texas.....	2	..	317	16	62	1	15
Utah.....	1	..	33	1	....	....	....
Vermont.....	1	..	105	....	22	....	5
Virginia.....	2	..	239	....	65	....	21
West Virginia.....	1	..	33	3	....	....	....
Wisconsin.....	2	..	180	7	7	....	2
Totals.....	90	9	13,049	581	2,564	106	1,024

these schools has also increased. Note on the other hand, both the percentages and the totals of students enrolled in Class B colleges have been reduced. The percentage of students in Class B colleges has been reduced from 24.4 to 10.9 and in Class C colleges from 10.2 to 4.5 Of graduates, also, the percentage in Class A colleges shows an increase; in Class B colleges it is nearly at a standstill, while in Class C

TABLE 12.—STUDENTS AND GRADUATES ACCORDING TO CLASSIFICATION

Year	Students						Graduates					
	Colleges Rated in Class						Colleges Rated in Class					
	A	%	B	%	C	%	A	%	B	%	C	%
1913	11,122	65.4	4,158	24.4	1,735	10.2	2,539	63.8	1,050	26.4	392	9.8
1914	12,336	74.7	2,838	17.2	1,328	8.1	2,626	73.1	686	19.1	282	7.8
1915	11,314	76.0	2,668	17.9	909	6.1	2,629	74.4	688	19.4	219	6.2
1916	11,162	79.6	2,087	14.9	773	5.5	2,630	74.7	695	19.8	193	5.5
1917	11,317	82.2	1,761	12.8	686	5.0	2,577	76.3	648	19.2	154	4.5
1918	11,522	84.5	1,488	10.9	620	4.5	2,024	75.8	399	14.9	247	9.2

colleges there has been a decrease, except for an increase this year, due to the organization of new medical schools of this variety. The reduction in the total numbers of students and graduates has been largely at the expense of the lower grade colleges, while the numbers of students and graduates in the higher grade colleges are actually increasing.

COLLEGE NOTES

Colleges Closed.—Eleven medical schools have been closed during the year. Three of these, the North Carolina Medical College, Charlotte, N. C.; the Medico-Chirurgical College of Philadelphia, and the Lincoln Memorial University Medical Department, Knoxville, Tenn., were reported in previous years as having merged. They have continued their existence, nominal or otherwise, however, until the classes still enrolled at the time of the merger should have been graduated. The last classes graduated this year. The other eight colleges reported closed are the Hahnemann Medical College of the Pacific, San Francisco, closed; the Oakland College of Medicine and Surgery, Oakland, Calif., suspended; Chicago College of Medicine and Surgery, Chicago, merged with Loyola University School of Medicine (retaining the joint title); the Jenner Medical College, Chicago, suspended; Eclectic Medical University, Kansas City, Mo., suspended; National University of Arts and Sciences, Medical Department, St. Louis, suspended; New York Medical College and Hospital for Women, New York, reported abolished, and the Fort Worth School of Medicine, Fort Worth, Texas, suspended.

New Colleges.—Two other colleges are added to the list, both of which are of a rather nondescript character. The Middlesex College of Medicine and Surgery, Cambridge, Mass., has been organized in a close relationship to a college of osteopathy and has granted very liberal advanced standing for work done in osteopathic schools. The other is the Kansas City University of Physicians and Surgeons, Kansas City, Mo., which was formerly the Central College of Osteopathy. In 1917 it amended its charter, securing the right to grant degrees. Most of the students in its classes are those whose previous work has been taken in the osteopathic school.

Special Items Concerning Medical Education

Arkansas.—The new Isaac Folsom Clinic, clinical building of the University of Arkansas Medical Department, has been completed at a cost of \$35,000. The old medical school building is being equipped as an isolation hospital at a cost of \$6,000, this sum having been appropriated for the purpose by the state.

California.—The College of Physicians and Surgeons, Medical Department of the University of Southern California, Los Angeles, will require the hospital intern year for all students entering during 1918-19 and thereafter.

—The Pacific Medical College, Los Angeles, was a non-descript institution chartered in 1910 to grant M.D. degrees, but was reported not recognized either as a medical or a drugless college by the California State Board of Medical Examiners. The institution closed its doors about two years ago. Dr. C. B. Pinkham, secretary of the California Board, received word recently that diplomas were still being issued by the institution although no sessions were being held, and urged that state boards be on the lookout for such diplomas. At the California board's investigation the attorney for the college promised to take immediate steps to disincorporate the institution.

—The College of Medical Evangelists, during the last twelve months, has established a clinical department in Los Angeles. A city block has been purchased on which five buildings, including a 75-bed hospital, a dispensary, two dormitories and a hydrotherapy building, have been completed at a cost of approximately \$100,000.

—A school for the intensive training of medical officers for the United States Army was established in San Francisco, March 15, 1918, under the direction of the medical faculties of the University of California and Stanford University.

Colorado.—The Colorado legislature voted a special appropriation of \$150,000 a year for the next ten years to be used on buildings for the University of Colorado. The School of Medicine will secure new buildings from this fund.

Connecticut.—During the past year Yale University has secured an endowment of \$2,500,000 for placing the departments of medicine, surgery, obstetrics and gynecology on a full-time clinical basis. A contract with the New Haven General Hospital gives the medical school complete control of the public wards.

—Yale University School of Medicine is doing its part in solving problems connected with the war. Its departments of physiology, pathologic chemistry and pathology, particularly, have been aiding the government in providing gas masks for the American troops and in conducting experiments leading to the reduction of fatalities from gas warfare.

Georgia.—Emory University School of Medicine has received \$5,000 by the will of J. B. White, Augusta, to establish a camp for the treatment of tuberculosis.

Illinois.—Suit to recover the property of the Chicago College of Medicine and Surgery, valued at \$300,000, was filed, March 19, 1918, by Mrs. Neva A. Brown, widow of the late Henry B. Brown, a chief owner of the Valparaiso University. The property was reported sold by Dr. J. Newton Roe to the Loyola University School of Medicine.

—The University of Illinois College of Medicine, Chicago, has adopted the quadrimester system by which each twelve months is divided into three terms of four months each. Under this arrangement students may begin the study of medicine at the beginning of any one of the three terms.

—The Illinois Department of Registration and Education has announced that after Oct. 15, 1918, no medical school will be recognized as in good standing in Illinois unless it requires for admission two years of work in an approved college of liberal arts and sciences or a fully equivalent education.

Indiana.—The Indiana University School of Medicine is erecting a new medical building on the property adjoining the Robert W. Long Hospital, Indianapolis, at an approximate cost of \$400,000. The new building will have four or five stories and be of material harmonizing with the hospital buildings. About \$150,000 of this sum will be realized from the sale of the old medical building. The medical school is continuing its sessions without vacations so as to hasten the graduation of physicians as a war measure.

Maryland.—The Maryland legislature, at its recent session, appropriated \$25,000 annually for two years for the University of Maryland Medical School. The medical school has received as a gift the medical library and surgical instruments of the late Dr. Charles F. Bevan. The medical school also has voted to admit women students.

—Johns Hopkins Hospital has received \$100,000 from the will of Jannie Gillender and \$300,000 from the estate of James Buchanan Brady.

Massachusetts.—Harvard Medical School has voted to admit women students. This has been due to the heavy draft of the war on the medical profession.

—Boston University School of Medicine announces that it has become nonsectarian and from now on will offer courses in regular materia medica, therapeutics and practice.

Michigan.—The Detroit College of Medicine and Surgery has been taken over by the city of Detroit and placed under the control of the Board of Education. It will hereafter be maintained as a municipal institution.

Minnesota.—A Navy Hospital Corps Training School has been established in connection with the University of Minnesota Medical School. It was formally opened on Oct. 29, 1917, with an initial attendance of 100 men.

Missouri.—The Missouri State Board of Health reports that on July 8, 1918, recognition was withdrawn from the St. Louis College of Physicians and Surgeons.

Nebraska.—The University Hospital, erected on the campus of the College of Medicine of the University of Nebraska, was formally opened in October, 1917. It consists of 120 beds and was erected at a total cost, for the building and equipment, of \$210,000. A new library building, an exact duplicate of the present library unit, is being erected on the medical campus which will house the departments of physiology, pharmacology and biochemistry. The funds were provided by the legislature which also appropriated \$100,000 for maintenance for two years.

—The Nebraska State Board of Health has endorsed the action of the Advisory Board in refusing to permit graduates of the Lincoln Medical College to take the examination for the license to practice medicine in that state. It was stated that the medical school was not conforming with the requirements of the state law.

New York.—Columbia University College of Physicians and Surgeons has added a fifth clinical year to the medical course to be required of all students matriculating in and after September, 1918. The college has also opened its doors to women students. This was made possible by a gift of \$50,000 from George W. Breckenridge, San Antonio, Texas, a gift of \$5,000 from an association of women physicians, and \$18,000 from other donations. A new building for the use of women students will be erected and additional laboratories provided.

—Cornell University Medical College has established a clinic for the functional reeducation of disabled soldiers, sailors and civilians. This constitutes practically a new branch of medicine.

—Long Island College Hospital, Brooklyn, has received \$265,000 from the estate of Charles W. West.

—University of Buffalo Medical Department has begun a campaign for funds for a new medical building and laboratories. A gift of \$10,000 has been obtained to go toward current expenses for the year.

—Fordham University School of Medicine has established a scholarship to be conferred on the senior student who has secured the highest general average during the first three years of the course. This scholarship will cover the student's tuition fees.

Ohio.—University of Cincinnati College of Medicine formally dedicated its new medical building on March 25, 1918. Subscriptions were previously raised for this building aggregating \$555,000.

—Jan. 1, 1918, under the new charter for Cincinnati, all of the medical and scientific work of the Cincinnati General Hospital, was placed under the direction of the University of Cincinnati. The staff will be made up of members of the medical school faculty. Thus the medical school secures for teaching purposes the splendid clinical facilities of the hospital.

Oklahoma.—The legislature appropriated \$200,000 for a state hospital at Oklahoma City to be under the control of the Oklahoma University School of Medicine. The building is rapidly approaching completion. The School of Medicine has completed a new chemistry building at Norman at a cost of \$33,000.

Oregon.—On May 1, 1918, the University of Oregon Medical School dedicated Mackenzie Hall, the first unit of the new group of medical buildings. The building was erected at a cost of \$117,000. It is on the new campus of 21 acres which provides space not only for other medical school buildings, but also for hospital sites.

Pennsylvania.—The University of Pennsylvania has received \$50,000 from the will of Dr. William C. Goodell. The board of review has awarded the university damages of \$714,000 for the old Medico-Chirurgical College and Hospital property taken by the city to provide space for the new parkway. The Medico-Chirurgical property had been transferred to the University of Pennsylvania with the merger two years ago.

—The Woman's Medical College of Pennsylvania has arranged four special lecture courses, these being on (a) reconstructive work in the devastated villages of Europe; (b) personal and public hygiene; (c) laboratory technic to prepare for routine work in war hospitals, and (d) nutrition and dietetics.

—The University of Pittsburgh School of Medicine is receiving \$100 annually from the Pennsylvania Association for the Blind to be used as a prize to the member of the senior class who writes the best essay on the prevention of blindness.

Tennessee.—Meharry Medical College dedicated the new Anderson Anatomical Hall on Oct. 19, 1917. The \$10,000 used in its erection was the gift of Dr. John W. Anderson of Dallas, Texas.

Texas.—During 1917 an attempt by Governor Ferguson to secure political control of the University of Texas and its medical department aroused a vigorous protest. A special session of the legislature was called; Governor Ferguson was impeached; an appropriation of \$1,629,407.17 for the university, including \$197,500 for the medical department, which Governor Ferguson had vetoed, was again passed, and three regents of the university named by Governor Ferguson were replaced by those who had the best interests of the university at heart.

Virginia.—The Medical College of Virginia has voted to admit women students. A new three-story hospital building is to be erected as a part of the new group of buildings for the Memorial Hospital. This first building will cost about \$40,000 and will be used for contagious diseases. The money was donated by Major James H. Dooley.

Wisconsin.—The University of Wisconsin has received gifts amounting to \$100,000, which, with an appropriation of \$50,000 from the legislature of 1917, will be used to construct a new infirmary for the medical school.

—Marquette University School of Medicine is conducting a campaign to raise \$1,000,000 for endowment. Mr. Andrew Carnegie has agreed to give one third of this sum provided the university raises the balance. During the first evening of the campaign \$175,000 was raised. A gift of 1,000 volumes to be added to the medical library, has been received from the late Dr. John L. C. Cronyn of Buffalo.

Canada.—McGill University Medical Faculty, Montreal, has just opened its doors to women.

—The University of Toronto has recently received gifts of approximately \$2,000,000 to endow chairs in pediatrics, gynecology, orthopedics, and a special branch in medicine.

England.—The London units of the Scottish Women's Hospitals have decided to establish a chair in medicine in the University of Belgrade, Serbia, when it is reestablished after the war, in honor of Dr. Elsie Englis, who was closely identified with hospital work.

Scholarships in Medical Schools

Harvard University received \$5,000 by the will of Mrs. Elizabeth Franham, for the creation of two scholarships in the medical school. A donation of \$25,000, also, was received from an anonymous donor to establish a scholarship to bear

has been organized consisting of Dr. David L. Edsall, professor of clinical medicine; Dr. Reid Hunt, professor of pharmacology; Dr. Milton J. Rosenau, professor of preventive medicine and hygiene, and Dr. Cecil K. Drinker, assistant professor of physiology. Fellowships and scholarships are available for applicants who are properly qualified. Opportunities will be open to three separate groups, as follows: (a) research worker; (b) medical officers for large industries, and (c) inspectors of industries. Alterations in the plans will be made, if necessary, to meet war conditions.

Harvard University has received a donation of \$10,000 under the will of Rebecca A. Green. Of this sum \$500 will be used to found a John White Browne Scholarship for research in medicine. A fund of \$100,000 was received by the will of Mrs. Charles H. Colburn for research in tuberculosis. A donation of \$7,500 was received from M. Douglas Flattery; the income to be used annually to present a gold medal and \$500 in cash to the person who may discover means that will result in the greatest good to humanity in connection with the prevention of disease and the conservation of health.

Columbia University recently announced a gift from an anonymous donor of \$3,000 for research work in war problems, and another gift of \$5,000 from Clarence Mackay for surgical research work.

Graduate Medical Instruction

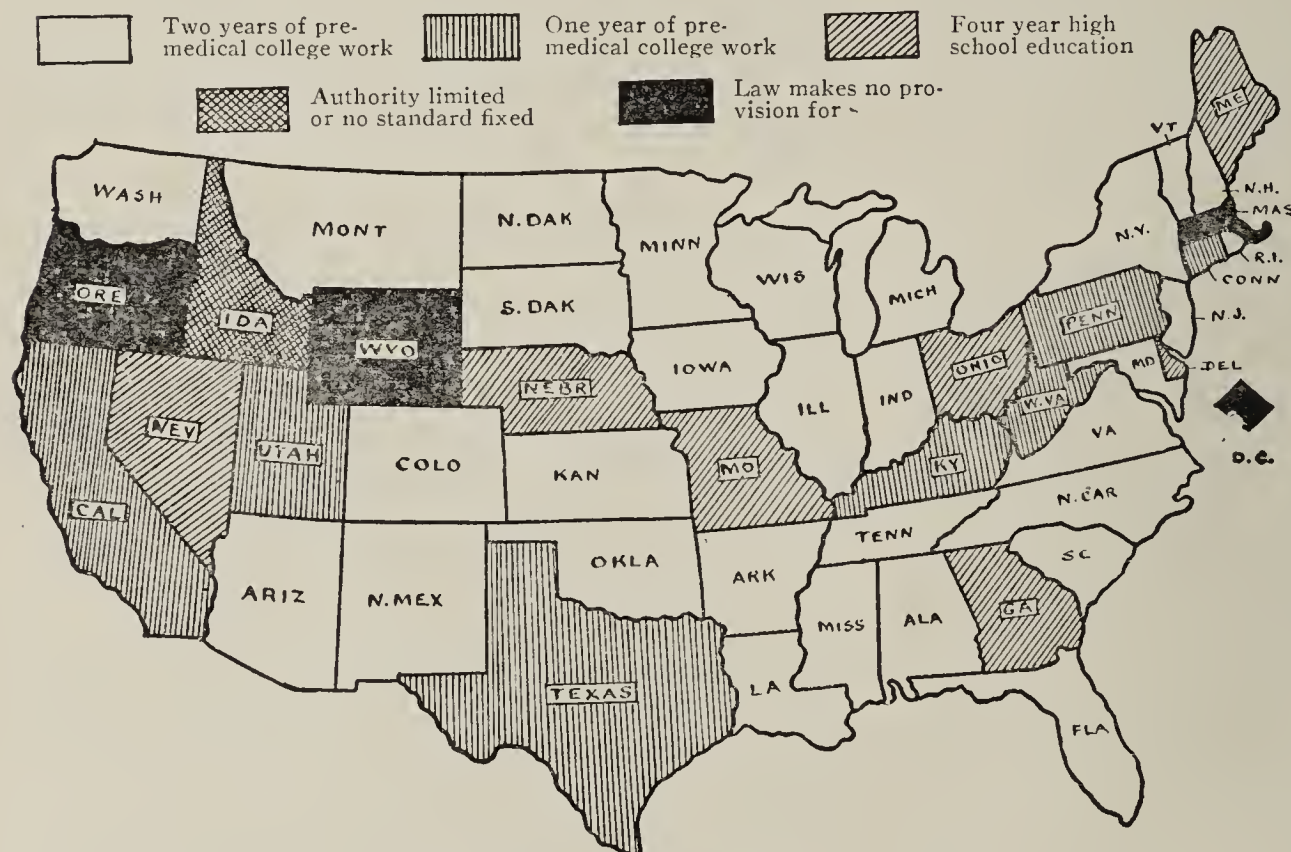
The Philadelphia Polyclinic has recently merged with the Medico-Chirurgical Post-Graduate School of Pennsylvania.

On Jan. 17, 1918, bonds and cash amounting to \$1,693,000, representing the trust fund established by Drs. Charles H. and William J. Mayo, Rochester, Minn., were turned over to the state treasurer to endow graduate medical instruction and research at the University of Minnesota.

A postgraduate medical school for negro physicians has been established in connection with the Provident Hospital of Chicago, which is a hospital for negro patients.

The University of Minnesota Graduate School has established teaching fellowships in pediatrics, medicine, surgery, nervous and mental diseases, ophthalmology and otolaryngology. These fellowships convey stipends of \$500 to \$1,000. A fellowship has also been established in tuberculosis.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION



the name of Dr. Edward H. Bradford, recently resigned dean of the medical school.

Cornell University received \$5,000 by the will of the late Dr. William M. Polk, to continue the John Metcalf Polk scholarship in the medical school.

A scholarship in medicine for a college woman has been endowed by Mrs. E. T. Stotesbury and placed in charge of Dr. Elizabeth Thelberg of Vassar College, New York.

McGill University has been offered \$10,000 by Mrs. Frank Oliver, Edmonton, Alta., to establish an annual scholarship of the value of \$500, in memory of her son, the late Lieut. Allen Oliver, M. C., killed at the Somme.

Funds for Research

The University of California has obtained the rights of the product "Tethelin," isolated from the anterior lobe of the pituitary body and believed to control growth of cells, and to be capable of accelerating repair in slowly healing wounds. These rights have been given by Dr. T. Brailsford Robertson, professor of biochemistry and pharmacology in the medical school. All profits resulting from the discovery are to be used to endow medical research.

Harvard Medical School is prepared to offer courses of instruction in industrial hygiene and facilities to investigate the problems of industry. In these courses it has the assurance of the cooperation of an advisory board of prominent business men of Boston. A committee on industrial hygiene

Requirements for the Practice of Medicine in Jamaica.

A letter from the American Consul at Kingston, Jamaica, states that in order to secure the legal right to practice medicine and surgery in the Island of Jamaica, a physician—unless he is on the British Register—should make application in writing to the Governor of Jamaica, requesting him to appoint a board of examiners to pass on his qualifications. He would then have to appear before this board and present a diploma from a faculty of medicine and a license to practice in some state, both of which should be duly authenticated. The physician would then be examined in the various branches of medicine, surgery and midwifery. The examination usually lasts about a week and is both oral and written. The fee must be deposited beforehand with the secretary of the Medical Council of Kingston. This fee amounts to about 12 guineas (English money), or about \$65. No specified dates are fixed for examinations, these being held as occasion for them arises.

Medical School at Monterey, Mexico

Correspondence received through the American Consul at Monterey, Mexico, quotes a Dr. Eusebio Guajardo as stating that the School of Medicine of Monterey was founded in September, 1859, and since May, 1878, has had its headquarters at the place known as "Hospital Gonzalez." Dr. Guajardo states that at the present time the School of Medicine has a building of its own and is attended by eighteen professors; that it has provided amphitheatres, laboratories and clinics.

He claims the curriculum is equal to that of the medical schools in Mexico City. He further states that the Mexican government has disbursed \$20,000 (Mexican gold) for the School of Medicine at Monterey during the present school year. The present title of the school in Spanish is "Escuela de Medicina de Nuevo León."

Recognition of this school in the United States cannot be recommended until further information in regard to the character of the teachers and laboratories, and the abundance and use made of clinical material has been ascertained. An attempt is being made to secure this information.

The New Peking Union Medical College

The announcement of the new Peking Union Medical College, Peking, China, for the session of 1918-19, has recently been sent out. It contains a perspective view of the new medical school and its group of hospital buildings. These, when completed, will consist of seventeen buildings, connected by covered corridors, and will occupy the space of about four city blocks. All but four of these buildings and two prospective wings of the medical school have already been completed. A premedical school was opened in September, 1917, and the medical school will be open for students in September, 1919. Graduation from an approved middle school of China, or its equivalent, in addition to 108 credit (semester) hours of college work, is required for admission. The premedical work includes courses in English, Chinese language and literature, algebra through quadratics, plane geometry, biology, chemistry, physics, Chinese and universal history and drawing. The teaching year begins September 17 and will end June 20 of the following year. The announcement contains floor plans of the various college and hospital buildings.

This Peking Union Medical College was founded early in 1906 by various American and English boards of missions, following the Boxer outbreak. Substantial contributions toward the building fund were obtained from the Empress Dowager of China. The Chinese language was the medium of instruction.

The college rendered valuable service in 1910-11 in connection with the serious outbreak of pneumonia and the epidemic of the plague. As a result of their work three members of the college staff were decorated with the Order of the Double Dragon. The college staff, also, rendered valuable military surgical work with the Imperial forces during the revolution of 1911.

In the spring of 1914, the China Medical Commission, representing the Rockefeller Foundation, was sent to China "to inquire into the condition of medical education, hospitals and public health in China." This commission recommended Peking as the place where the first medical educational work should be organized. The China Medical Board was then organized which took over the property of the college. The terms of the transfer provided for a board of trustees consisting of thirteen members, one to be appointed by each of the six missionary organizations previously maintaining the college, and seven by the China Medical Board. Full support of the college was assumed by the China Medical Board on July 1, 1915.

This generous support of medical education in China by Mr. Rockefeller will help to strengthen the friendship between America and the newly established republic on the other side of the Pacific Ocean.

The Training of the Student of Medicine

A series of papers on "The Training of the Student of Medicine," the result of an organization conducted under the auspices of the Edinburgh Pathological Club, have appeared in the *Edinburgh Medical Journal*, beginning with the January, 1918, number. Including the July number, altogether twenty-five separate articles have appeared. Extensive discussions which followed the reading of the article before the Royal Medical Society and the Edinburgh Pathological Club are also published. The papers thus published and their authors are as follows:

1. The Aim of Medical Education, Sir James Mackenzie.
2. The Teaching of Chemistry, Prof. James Walker.
3. Botany in Medical Education, Prof. Bayley Balfour.
4. The Connection of Zoology with Medicine, Prof. J. Cossar Ewart.
5. The Teaching of Anatomy, Prof. G. Elliot Smith.
6. The Teaching of Anatomy, Prof. David Waterston.
7. The Place of Anatomy in the Curriculum, Professor Robinson.
8. The Relation of Physiology to Medicine, Dr. J. S. Haldane.
9. The Position of Systematic Lectures in the Curriculum, Sir Edward A. Schäfer.

10. The Relation of the Preliminary Sciences to the Curriculum, Sir Edward A. Schäfer.
11. Pathology and the Medical Students, Prof. Henry R. Dean.
12. On the Teaching of Pathological Anatomy with Special Reference to Clinical Medicine, Dr. Ivy MacKenzie.
13. Pathology in General Practice, James S. Edwards.
14. The Teaching of Pathology, Prof. Lorrain Smith.
15. The Place of Bacteriology in the Ordinary Medical Curriculum, Professor Ritchie.
16. Memorandum on the Teaching of Materia Medica and Therapeutics, Prof. Sir T. R. Fraser.
17. The Teaching of Materia Medica and Therapeutics, Prof. C. R. Marshall.
18. Teaching: With Special Reference to Materia Medica.
19. The Teaching of Materia Medica, Prof. Ralph Stockman.
20. Memorandum of the Teaching of "Public Health" in the Curriculum of Medical Students, John Robertson.
21. The Teaching of Public Health, Prof. Matthew Hay.
22. The Place of Public Health in the Medical Curriculum Prof. Hunter Stewart.
23. The Teaching of Medicine, Prof. William Russell.
24. The Teaching of Medicine, Prof. G. Lovell Gulland.
25. The Teaching of Medicine, Dr. Edwin Matthew.

STATE REQUIREMENTS OF PRELIMINARY EDUCATION

There are now thirty-seven states which have adopted requirements of preliminary education in addition to a standard four-year high school education. These states, the number of college years required and the time the higher requirements became or become effective are as follows:

TABLE 3.—STATE REQUIREMENTS OF PRELIMINARY EDUCATION

State Examining Board of	One Year of College Work		Two Years of College Work	
	Affects Students Matriculating	Affects All Graduates	Affects Students Matriculating	Affects All Graduates
Alabama.....	.....	....	1915-16	1919
Alaska.....	1914-15	1918	1918-19	1922
Arizona.....	1914-15	1918	1918-19	1922
Arkansas.....	1915-16	1919	1918-19	1922
California.....	1915-16	1919	.....	....
Colorado.....	1908-09	1912	1910-11	1914
Connecticut.....	1911-12	1915	.....	....
Delaware*.....	.....	....	.....	....
Dist. of Columbia.....	.....	....	.....	....
Florida.....	1914-15	1918	1918-19	1922
Georgia*.....	.....	....	.....	....
Idaho*.....	.....	....	.....	....
Illinois.....	1915-16	1919	1918-19	1922
Indiana.....	1910-11	1914	1911-12	1915
Iowa.....	.....	....	1911-12	1915
Kansas.....	1910-11	1914	.....	....
Kentucky.....	1914-15	1918	.....	....
Louisiana.....	1915-16	1919	1918-19	1922
Maine*.....	.....	....	.....	....
Maryland.....	1914-15	1918	1918-19	1922
Massachusetts†.....	.....	....	.....	....
Michigan.....	1914-15	1918	1918-19	1922
Minnesota.....	.....	....	1908-09	1912
Mississippi.....	1915-16	1919	1919-20	1923
Missouri*.....	.....	....	.....	....
Montana.....	1914-15	1918	1918-19	1922
Nebraska*.....	.....	....	.....	....
Nevada*.....	.....	....	.....	....
New Hampshire.....	1914-15	1918	1915-16	1919
New Jersey.....	1915-16	1919	1916-17	1920
New Mexico.....	1914-15	1918	1918-19	1922
New York.....	1917-18	1921	1918-19	1922
North Carolina.....	1914-15	1918	1918-19	1922
North Dakota.....	.....	....	1908-09	1912
Ohio*.....	.....	....	.....	....
Oklahoma.....	1914-15	1918	1917-18	1921
Oregon†.....	.....	....	.....	....
Pennsylvania.....	1914-15	1918	.....	....
Rhode Island.....	1914-15	1918	1918-19	1922
South Carolina.....	.....	....	1916-17	1920
South Dakota.....	1908-09	1912	1911-12	1915
Tennessee.....	1916-17	1920	1918-19	1922
Texas.....	1914-15	1918	.....	....
Utah.....	1913-14	1917	.....	....
Vermont.....	1913-14	1917	1918-19	1922
Virginia.....	1914-15	1918	1917-18	1921
Washington.....	1914-15	1918	1918-19	1922
West Virginia.....	1917-18	1921	.....	....
Wisconsin.....	.....	....	1915-16	1919
Wyoming†.....	.....	....	.....	....

* Require a four-year high school education or its equivalent.
† No fixed standard.

STANDARDS OF THE COUNCIL ON MEDICAL EDUCATION OF THE AMERICAN MEDICAL ASSOCIATION

SCHEDULE FOR THE GRADING OF MEDICAL SCHOOLS

Schools will be rated on a civil service basis on a scale of 1,000 points. The data relating to each school will be grouped under ten general heads in such a manner that the groups will have as nearly equal weight as possible, each group allowing a possible 100 points (10 per cent.) out of a possible 1,000 points (100 per cent.). The revised schedule showing the general heads under which the data will hereafter be arranged is as follows:

1. Character of curriculum, grading of course, sequence of subjects, supervision, administration, etc.
2. Medical school buildings; adaptability, light, heat, ventilation, cleanliness, etc.
3. Laboratory facilities and instruction.
4. Dispensary facilities and instruction.
5. Hospital facilities and instruction in medicine, surgery, obstetrics, and gynecology.
6. Hospital facilities for instruction in medical specialties and provision for clinical clerkships, necropsies, etc.
7. Full-time instructors and assistants with special reference to their special qualifications and evidences of their work, including research.
8. Faculty, number, qualifications and organization of, including the staff of teaching hospitals.
9. Library, museum, charts and special apparatus and evidences of the use made of them.
10. Showing of graduates at state board and other examinations and other evidences by which the training received is indicated.

It will be noted that financial income is not referred to in the ten heads outlined. It is quite evident, however, that no college can secure an adequate number of expert full-time teachers, provide well equipped laboratories, library and museum, and be conducted in accordance with present-day medical knowledge without a liberal income in addition to students' fees.

MEANING OF CLASSES A, B, AND C

Class A Colleges will, as heretofore, be those which are acceptable; Class B, those which, under their present organization, give promise of being made acceptable by general improvements, and Class C those

(a) Which require a complete reorganization to make them acceptable.

(b) Which do not keep satisfactory records of their students in regard to entrance requirements, attendance, grades in courses, division into classes and reasons for promotion.

(c) Which do not enforce their requirements in regard to admission (including those admitted to advanced standing), promotion and graduation.

(d) Which give the major portion of their instruction after 4 o'clock in the afternoon.

(e) Which are privately owned and conducted for profit.

(f) Which for other specific reasons are not eligible for inclusion in Class B.

ESSENTIALS OF AN ACCEPTABLE MEDICAL COLLEGE

(Revised to June 15, 1918)

The following outline of the essentials of an acceptable medical college was issued by the Council on Medical Education of the American Medical Association for its suggestive value in the rapid development in progress in the medical colleges of the United States. It also represents the standard by which medical colleges are measured in the Council's classifications.

REQUIREMENTS FOR ADMISSION

1. The minimum requirement for admission to an acceptable medical college is a four-year high school education or its full equivalent and two years of work in a college of arts and sciences approved by the Council, as follows:

I. High School Requirements

(a) For admission to the two-year premedical college course, students shall have completed a four-year course of at least fourteen units (fifteen after Jan. 1, 1920) in a standard accredited high school or other institution of standard secondary school grade, or have the equivalent as demonstrated by examinations conducted by the College Entrance Examination Board, or by the authorized examiner of a standard college or university which has been approved by the Council on Medical Education. Unless all the entrance units are obtained by examination, a detailed statement of attendance at the secondary school, and a transcript of the student's work, should be kept on file by the college authorities. This evidence of actual attendance at the secondary schools should be obtained, no matter whether the student is admitted to the freshman or to higher classes.

(b) Credits for admission to the premedical college course may be granted for the subjects shown in the following list and for any other subject counted by a standard accredited high school as a part of the requirements for its diploma, provided that at least eleven units must be offered in Groups I-V:

SCHEDULE OF SUBJECTS REQUIRED OR ACCEPTED FOR ENTRANCE TO THE PREMEDICAL COLLEGE COURSE

Subjects	Units*	Required
GROUP I, ENGLISH—		
Literature and composition.....	3-4	3
GROUP II, FOREIGN LANGUAGES—		
Latin	1-4	2†
Greek	1-3	
French or German.....	1-4	
Other foreign languages.....	1-4	
GROUP III, MATHEMATICS—		
Elementary algebra	1	1
Advanced algebra	½-1	..
Plane geometry	1	1
Solid geometry	½	..
Trigonometry	½	..
GROUP IV, HISTORY—		
Ancient history	½-1	1
Medieval and modern history	½-1	
English history	½-1	
American history	½-1	
Civil government	½-1	
GROUP V, SCIENCE—		
Botany	½-1	..
Zoology	½-1	..
Chemistry	1	..
Physics	1	..
Physiography	½-1	..
Physiology	½-1	..
Astronomy	½	..
Geology	½-1	..
GROUP VI, MISCELLANEOUS—		
Agriculture	1-2	..
Bookkeeping	½-1	..
Business law	½	..
Commercial geography	½-1	..
Domestic science	1-2	..
Drawing, freehand and mechanical	½-2	..
Economics and economic history	½-1	..
Manual training	1-2	..
Music: Appreciation or harmony	1-2	..

* A unit is the credit value of at least thirty-six weeks' work of four or five recitation periods per week, each recitation period to be not less than forty minutes. In other words, a unit represents a year's study in any subject in a secondary school, constituting approximately a quarter of a full year's work. A satisfactory year's work in any subject cannot be accomplished under ordinary circumstances in less than 120 sixty-minute hours, or their equivalent.

† Both of the required units of foreign language must be of the same language, but the two units may be presented in any one of the languages specified.

Of the fourteen units of high school work (fifteen after Jan. 1, 1920), eight units are required, as indicated in the foregoing schedule; the balance may be made up from any of the other subjects in the schedule.

II. Premedical College Course

(c) Beginning Jan. 1, 1918, the minimum requirement for admission to acceptable medical schools, in addition to the high school work specified above, will be sixty semester hours of collegiate work, extending through two years, of thirty-two weeks each, exclusive of holidays, in a college approved⁴ by the Council on Medical Education. The subjects included in the two years of college work should be in accordance with the following schedule:

4. A tentative list of approved colleges may be received on application.

SCHEDULE OF SUBJECTS OF THE TWO-YEAR
PREMEDICAL COLLEGE COURSE

Sixty Semester Hours* Required

Required Subjects:	Semester Hours
Chemistry (a)	12
Physics (b)	8
Biology (c)	8
English composition and literature (d).....	6
Other nonscience subjects (e)	12
Subjects Strongly Urged:	
French or German (f).....	6-12
Advanced botany or advanced zoology.....	3-6
Psychology	3-6
Advanced mathematics, including algebra and trigonometry...	3-6
Additional courses in chemistry.....	3-6

Other Suggested Electives:

English (additional), economics, history, sociology, political science, logic, mathematics, Latin, Greek, drawing.

* A semester hour is the credit value of sixteen weeks' work consisting of one lecture or recitation period per week, each period to be not less than fifty minutes net, at least two hours of laboratory work to be considered as the equivalent of one lecture or recitation period.

SUGGESTIONS REGARDING INDIVIDUAL SUBJECTS

(a) *Chemistry*.—Twelve semester hours required (eight until Jan. 1, 1919), of which at least eight semester hours must be in general inorganic chemistry, including four semester hours of laboratory work. In the interpretation of this rule work in qualitative analysis may be counted as general inorganic chemistry. The remaining four semester hours (required after Jan. 1, 1919) may consist of additional work in general chemistry or of work in analytic or organic chemistry.

(b) *Physics*.—Eight semester hours required, of which at least two must be laboratory work. It is urged that this course be preceded by a course in trigonometry. This requirement may be satisfied by six semester hours of college physics, of which two must be laboratory work, if preceded by a year (one unit) of high school physics.

(c) *Biology*.—Eight semester hours required, of which four must consist of laboratory work. The requirement may be satisfied by a course of eight semester hours in either general biology or zoology, or by courses of four semester hours each in zoology and botany, but not by botany alone.

(d) *English Composition and Literature*.—The usual introductory college course of six semester hours, or its equivalent, is required.

(e) *Nonscience Subjects*.—Of the sixty semester hours required as the measurement of two years of college work, at least eighteen, including the six semester hours of English, should be in subjects other than the physical, chemical or biologic sciences.

(f) *French or German*.—A reading knowledge of one of these languages is strongly urged. If the reading knowledge in one of these languages is obtained on the basis of high school work, the student is urged to take the other language in his college course. It is not considered advisable, however, to spend more than twelve of the required sixty semester hours on foreign languages. In case a reading knowledge of one language is obtained by six semester hours of college work, another six semester hours may be well spent in taking the beginner's course in the other language; if this is followed up by a systematic reading of scientific prose, a reading knowledge of the second language may be readily acquired. When a student spends more than two years in college he may well spend twelve semester hours of his college work in the second language.

III. Approved Colleges of Arts and Sciences

A tentative list of colleges of arts and sciences approved by the Council on Medical Education has been prepared, and revisions of this list will be published from time to time. By an approved college (of arts and sciences) is meant one whose standing has been vouched for by some standardizing agency in whose methods the Council has confidence. To be recognized a college must have sufficient scientific equipment and maintain laboratories in the premedical sciences. It must have ample endowment to maintain a sufficient corps of teachers. Membership in some national organization or association of colleges will be favorably regarded by the Council and, in the absence of such membership, careful

investigation will be made of the causes of exclusion. It must also maintain national standards for admission to its freshman class. Students must be required to complete a four-year high school course, and the requirements for admission to the premedical course must be no less than the requirements for admission to the regular B. S. course of the college.

Particular attention will be given to the character of high schools from which certificates are received. Colleges should recognize only certificates from high schools approved by commissions or boards of associations of colleges and secondary schools or other agencies approved by the Council. When such endorsement is lacking the college should be slow in accepting certificates without the support of entrance examinations. Undue liberality in the acceptance of certificates from secondary schools unendorsed by approved standardizing agencies will be registered by the Council as a failure to comply with its requirements and the college will be dropped from the approved list.

PREMEDICAL COURSES IN MEDICAL COLLEGES—
JUNIOR COLLEGES

Premedical college courses given in or by medical schools, or advance years taken in high schools, will not be considered as acceptable unless they have been investigated and approved by some association of colleges and secondary schools or other approved agency having to do with the standardizing of liberal arts colleges.

ADMINISTRATION OF ENTRANCE REQUIREMENTS

2. The admission of students to the medical school must be in the hands of a responsible committee or examiner whose records shall always be open for inspection.⁵ Documentary evidence of the students' preliminary education should be obtained and kept on file. When the medical school is an integral part of a university, this work usually devolves on the university examiner. Unless the university examiner and his records are closely accessible, however, some officer at the medical school should obtain and keep on file documentary evidence of each student's preliminary education, including both high school and collegiate work. It is particularly important that the records show that the required amount of work in the premedical sciences, including laboratory exercises, has been completed.

OTHER MEDICAL SCHOOL REQUIREMENTS

3. The college should require that students be in actual attendance in the college *within the first week* of each annual session and thereafter.

4. Actual attendance at classes should be insisted on except for good cause, such as for sickness, and no credit should be given for any course where the attendance has been less than 80 per cent. of the full time.

5. (a) Full advanced standing may be granted to students only for work done in other acceptable medical schools, and in granting advanced standing there should be no discrimination against the college's full-course students. Official verification of the student's previous medical work should be obtained by direct correspondence with the college previously attended, and his preliminary qualifications should also be verified and recorded the same as for freshman students. (b) In *exceptional cases* students from Class B medical schools may be given advanced standing but not higher than *entrance* to the third year (junior) class, and no credit should be given in any subject except on recommendation of the head of the department teaching that subject. (c) In *exceptional cases* students from Class C colleges may be given advanced standing but not higher than *entrance* to the second year (sophomore) class, and then only after thorough examinations in all first year subjects have been passed.

SUPERVISION, EQUIPMENT, TEACHERS

6. There should be careful and intelligent supervision of the entire school by the dean or other executive officer who holds, and has sufficient authority to carry out, fair ideals of medical education as determined by the present day knowledge of medicine.

7. There should be a good system of records⁶ showing conveniently and in detail the credentials, attendance, grades and accounts of the students, by means of which an exact knowledge can be obtained regarding each student's work.

5. See "Meaning of Classes A, B and C," paragraph (c), on page 548.

6. See "Meaning of Classes A, B and C," paragraph (b), on page 548.

Records should also be kept showing readily the attendance of patients at the teaching hospitals and dispensaries; the maternity cases attended by students, and the postmortem cases used in teaching.

8. The college curriculum should be fully graded and should cover four sessions of at least thirty-two weeks each, exclusive of time required for matriculation and holidays, and at least thirty hours per week of actual work. The courses offered in the various subjects should be set forth by departments (anatomy, physiology, etc.) in the annual announcement, showing for each course its number, subject content, character (lecture, recitation, laboratory or clinic), length of time, when, where, and by whom given, and the amount of credit allowed. The courses for each class should also be clearly set forth in a printed class schedule, for the guidance of the students.

(a) The college should give two years of work consisting largely of laboratory work in well equipped laboratories of anatomy, histology, embryology, physiology, chemistry (inorganic, organic and physiologic), bacteriology, pathology, pharmacology, therapeutics and clinical diagnosis. Present-day medical knowledge makes it essential that these subjects be in charge of full-time, well-trained teachers.

(b) Two years of clinical work, largely in hospitals and dispensaries, with courses in medicine (including physical diagnosis, pediatrics, nervous and mental diseases), surgery (including surgical anatomy and operative surgery on the cadaver), obstetrics, gynecology, laryngology, rhinology, ophthalmology, otology, dermatology, hygiene and medical jurisprudence. With the higher entrance requirements time is now available in the latter part of the second year for beginning courses in physical diagnosis and the principles of surgery.

(c) As soon as conditions warrant, relations should be established with a number of approved hospitals so that a fifth undergraduate year may be required to be spent by the student as an intern under the continued supervision of the medical school.

FACULTY

9. (a) The college should provide at least *eight expert thoroughly trained professors in the laboratory branches*, salaried so that they may devote their entire time to instruction and to that research without which they cannot well keep up with the rapid progress being made in their subjects.⁷ There should also be a sufficient number of assistants in each department to look after the less important details. For colleges having *sixty students or less* in each class, there should be *at least one full-time salaried assistant each in the departments* of (1) anatomy, (2) physiology, (3) pathology and bacteriology, and (4) physiologic chemistry and pharmacology, and *one additional assistant in each of these departments should be provided for each additional thirty students enrolled*. This represents a low average of the full-time assistants already employed by the acceptable medical colleges.

(b) The faculty should be made up of graduates of institutions recognized as medical colleges and who have had a training in all departments of medicine. Nonmedical men should be selected as teachers in medical schools only under exceptional circumstances and only when medical men of equal special capacity are not available. The faculty should be organized, each department having its head professor, its associate professor, assistant professor, instructor, etc., each having his particular subjects for the teaching of which he is responsible to the head of the department.

CLINICAL FACILITIES

10. (a) The college should own or entirely control a hospital, in order that students may come into close and extended contact with patients under the supervision of the attending staff. This hospital should be in close proximity to the college and have a daily average (for senior classes of 100 students *or less*) of not less than 200 patients who can be utilized for clinical teaching, these patients to be of such character as to permit the students to see and study the common variety of surgical and medical cases as well as a fair

number in each of the so-called specialties. In the use of this material *bedside and ward clinics* should be developed for sections of from five to ten students, and for the seniors, a certain number of patients in medicine, surgery and the specialties should be assigned to each student. A well supervised clinical clerk system should also be installed. The treatment and care of these patients should be particularly observed and recorded by the student under the strict supervision of the intern, or the attending staff of the hospital.⁸

(b) The college should also have ample hospital facilities for children's diseases, contagious diseases and nervous and mental diseases.

(c) The college should own or control a dispensary, or outpatient department, the attendance to be a daily average of 100 patients (visits) (for senior classes of 100 students *or less*), the patients to be carefully classified, good histories and records of the patients to be kept and the material to be well used. The attending staff should be made up of good teachers, should be well organized and be regular in attendance.

(d) At least six maternity cases should be provided for each senior student, who should have actual charge of these cases under the supervision of the attending physician. Careful records of each case should be handed in by the student.

(e) Facilities should be provided for at least thirty necropsies (for senior classes of 100 students *or less*) during each college session which are attended and participated in by senior students.

OTHER TEACHING FACILITIES AND FINANCES

11. The college should have a working medical library, to include the more modern text and reference books with the *Index Medicus* and thirty or more leading medical periodicals, the current numbers of which should be in racks or on tables easily accessible to the students; the library room should be properly lighted and heated, and open during all or the greater part of the day; it should be equipped with suitable indexes as well as with tables and chairs, and have a competent librarian in charge.

12. There should be a working medical museum having its various anatomic, embryologic, pathologic and other specimens carefully prepared, labeled and indexed so that any specimen may be easily found and employed for teaching purposes. It is suggested that so far as possible with each pathologic specimen coming from postmortems there also be kept the record of the postmortem, the clinical history of the patient on whom the necropsy was held and microscopic slides showing the minute structures of the disease shown in the gross specimen. The museum furnishes an excellent means of correlating the work of the department of pathology with that of the clinical departments.

13. There should be sufficient dissecting material to enable each student individually to dissect at least the lateral half of the human cadaver, to provide cross-sections and other demonstration material and to allow of a thorough course for each senior in operative surgery on the cadaver.

14. For modern experimental laboratory work in physiology, pharmacology and bacteriology as well as for medical research, a supply of animals—frogs, turtles, rabbits and guinea-pigs, if not also cats and dogs—is essential. Proper provision, also, is necessary for the housing and care of such animals. In any use made of animals every precaution should be taken to prevent needless suffering, and work by students should be carefully supervised.

15. Each college should have a supply of such useful auxiliary apparatus as a stereopticon, a reflectoscope, carefully prepared charts, embryologic or other models, manikins, dummies for use in bandaging, a roentgen-ray and other apparatus now so generally used in medical teaching.

16. The college should show evidences of thorough organization and of reasonably modern methods in all departments, and evidences that the equipment and facilities are *being intelligently used* in the training of medical students.

17. A clear statement of the college's requirements for admission, tuition, time of attendance on the classes, sessions, courses offered and graduation should be clearly set forth, together with complete classified lists of its matriculants and latest graduating class in regular annual catalogues or announcements.

7. These professors should have a definite responsibility in the conduct of the college, and their first and chief interest should be the training of medical students. It is suggested that four of these professors be placed at the head of the departments of (a) anatomy, (b) physiology, (c) pathology and bacteriology and (d) physiologic chemistry and pharmacology. The other four may be assigned, one each, to (e) histology and embryology, under the department of anatomy, and to the departments of pathology and bacteriology, physiology and pharmacology, and to the departments of internal medicine and surgery.

8. Suggestions more in detail may be found in the "Report of the Committee on the Reorganization of Clinical Teaching."—THE JOURNAL A. M. A., March 6, 1915. Reprint sent on application.

18. Statistics show⁹ that modern medicine cannot be acceptably taught by a medical school depending solely on the income from students' fees. No medical school should expect to secure admission to, or be retained in Class A, therefore, which does not have an annual income of at least \$25,000 in addition to the amount obtained from students' fees.

NOTE.—Correspondence from medical colleges regarding the above requirements is invited, and further suggestions or information available will be gladly furnished.

ENTRANCE REQUIREMENTS OF MEDICAL COLLEGES

Eighty-one medical schools are now requiring, as a minimum for entrance, *two years* or more of work in a college of liberal arts in addition to a four-year high-school education. The years, respectively, when for each college the one-year and the two-year requirements became effective, and the rating of each college, are as follows:

College	One Year	Two Years	College Rating
ALABAMA			
University of Alabama School of Medicine	1914	1915	A
ARKANSAS			
University of Arkansas Medical Department	1915	1918	B
CALIFORNIA			
College of Medical Evangelists	1914	1915	B
University of Southern California Med. Dept.....	1914	1916	B
Leland Stanford Junior University School of Med....	1909	1909	A
University of California Medical School.....	1905	1905	A
COLORADO			
University of Colorado School of Medicine.....	1910	1910	A
CONNECTICUT			
Yale University School of Medicine.....	1909	1909	A
DISTRICT OF COLUMBIA			
Georgetown University School of Medicine.....	1912	1912	A
George Washington University Medical School.....	1914	1918	A
Howard University School of Medicine.....	1910	1914	A
GEORGIA			
Emory University School of Medicine, Atlanta.....	1914	1918	A
University of Georgia Medical Department.....	1914	1918	A
ILLINOIS			
Chicago College of Medicine and Surgery School of Medicine of Loyola University	1915	1918	B
Hahnemann Medical College and Hospital.....	1914	1916	B
Northwestern University Medical School.....	1908	1911	A
Rush Medical College (University of Chicago).....	1904	1904	A
University of Illinois College of Medicine.....	1913	1914	A
INDIANA			
Indiana University School of Medicine.....	1909	1910	A
IOWA			
State University of Iowa College of Medicine.....	1909	1910	A
State University of Iowa College of Homeo. Med....	1910	1910	A
KANSAS			
University of Kansas School of Medicine.....	1909	1909	A
KENTUCKY			
University of Louisville Medical Department.....	1914	1918	A
LOUISIANA			
Tulane University of Louisiana School of Medicine.	1910	1918	A
MAINE			
Bowdoin Medical School.....	1912	1916	A
MARYLAND			
Johns Hopkins University Medical Department.....	1893	1893	A
University of Maryland School of Med. and Coll. of Physicians and Surgeons	1914	1918	A
MASSACHUSETTS			
Boston University School of Medicine.....	1914	1916	A
Medical School of Harvard University.....	1900	1900	A
Tufts College Medical School.....	1914	1918	A
MICHIGAN			
Detroit College of Medicine and Surgery.....	1914	1918	A
University of Michigan Medical School.....	1909	1909	A
University of Michigan Homeopathic Medical School	1912	1916	A
MINNESOTA			
University of Minnesota Medical School.....	1907	1907	A
MISSISSIPPI			
University of Mississippi School of Medicine.....	1914	1918	A
MISSOURI			
St. Louis University School of Medicine.....	1910	1918	A
University of Missouri School of Medicine.....	1906	1910	A
Washington University Medical School.....	1910	1912	A
NEBRASKA			
John A. Creighton Medical College.....	1914	1918	A
University of Nebraska College of Medicine.....	1908	1909	A
NEW HAMPSHIRE			
Dartmouth Medical School	1910	1910	A

9. See "Medical College Finances," THE JOURNAL A. M. A., April 8, 1916, p. 1115.

College	One Year	Two Years	College Rating
NEW YORK			
Albany Medical College	1914	1918	A
Columbia University College of Phys. and Surg.	1910	1910	A
Cornell University Medical College.....	1908	1908	A
Fordham University School of Medicine.....	1911	1918	A
Long Island College Hospital.....	1914	1918	A
New York Homeo. Med. Coll. and Flower Hospital..	1915	1919	B
Syracuse University College of Medicine.....	1909	1910	A
University and Bellevue Hospital Medical College..	1912	1918	A
University of Buffalo Department of Medicine.....	1914	1918	A

NORTH CAROLINA

NORTH CAROLINA			
Leonard Medical School.....	1914		B
Wake Forest College School of Medicine.....	1908		A
University of North Carolina School of Medicine..	1910	1917	A

NORTH DAKOTA

University of North Dakota School of Medicine..	1907	A
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OHIO

Eclectic Medical College	1915	1918	B
Ohio State University College of Medicine.....	1914	1915	A
Ohio State Univ. Coll. of Homeopathic Medicine..	1915	1916	B
University of Cincinnati College of Medicine.....	1910	1913	A
Western Reserve University School of Medicine...	1901	1901	A

OKLAHOMA

University of Oklahoma School of Medicine.....	1914	1917	B
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OREGON

University of Oregon Department of Medicine.....	1910	1915	A
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PENNSYLVANIA

Hahnemann Medical College and Hospital.....	1914	1917	A
Jefferson Medical College	1914	1917	A
Temple University Department of Medicine.....	1914	1918	B
University of Pennsylvania School of Medicine...	1909	1910	A
University of Pittsburgh School of Medicine.....	1911	1913	A
Woman's Medical College of Pennsylvania.....	1914	1915	A

SOUTH CAROLINA

Medical College of the State of South Carolina....	1914	1916	A
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SOUTH DAKOTA

University of South Dakota College of Medicine..	1908	1909	A
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TENNESSEE

Meharry Medical College	1914	1918	B
Vanderbilt University Medical Department.....	1914	1918	A
University of Tennessee College of Medicine.....	1914	1918	A

TEXAS

Baylor University College of Medicine.....	1913	1918	A
University of Texas Department of Medicine.....	1910	1917	A

UTAH

University of Utah School of Medicine.....	1909	1910	A
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VERMONT

University of Vermont College of Medicine.....	1912	1918	A
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VIRGINIA

Medical College of Virginia.....	1914	1915	A
University of Virginia Department of Medicine....	1910	1917	A

WEST VIRGINIA

West Virginia University School of Medicine.....	1911	1917	A
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WISCONSIN

Marquette University School of Medicine.....	1913	1915	A
University of Wisconsin Medical School.....	1907	1907	A

Total, 81.

The eleven following medical colleges¹⁰ either have not announced the higher entrance requirements or evidence has not been received to show they are in effect for all students enrolled:

	Rating
College of Physicians and Surgeons, San Francisco.....	C
Chicago Hospital College of Medicine.....	C
College of Physicians and Surgeons, Boston.....	C
Middlesex College of Medicine and Surgery, Cambridge, Mass....	C
Eclectic Medical University, Kansas City.....	C
Kansas City College of Medicine and Surgery.....	11
Kansas City University of Physicians and Surgeons.....	12C
St. Louis College of Physicians and Surgeons.....	C
Lincoln Medical College, Lincoln, Neb.....	C
University of West Tenn. Coll. of Med. and Surg., Memphis....	C

Scholarships in Medical Schools

As evidenced that provision is being made for worthy students, regardless of their financial status, 335 scholarships are reported this year in the following thirty-eight medical schools:

University of Alabama School of Medicine, Mobile.....	67
Leland Stanford Junior University Medical School*	3
University of California Medical School,* San Francisco.....	3
University of Colorado School of Medicine,* Boulder	1
Yale University School of Medicine, New Haven, Conn.*	2
Hahnemann Medical College and Hospital of Chicago*.....	6
Loyola University School of Medicine, Chicago.....	3

10. For the standing of these and other medical colleges before state licensing boards, see Table D, THE JOURNAL A. M. A., April 13, 1918, p. 1084.

11. This college is an offshoot of the Eclectic Medical University; it has refused to have an inspection made. It is reported not recognized by the Missouri State Board of Health.

12. This college was formerly the Central College of Osteopathy; in 1916 it assumed the title Central College Medical Department, and took its present name in 1918.

Rush Medical College, Chicago.....	7
University of Illinois College of Medicine, Chicago*.....	7
Indiana University School of Medicine, Indianapolis.....	12
State University of Iowa College of Medicine.....	1
University of Kansas School of Medicine*.....	17
Johns Hopkins University Medical Department, Baltimore.....	6
University of Maryland School of Medicine,* Baltimore.....	6
Harvard Medical School,* Boston.....	30
Boston University School of Medicine*.....	50
Detroit College of Medicine and Surgery.....	8
Washington University Medical School, St. Louis.....	4
Dartmouth Medical School,* Hanover, N. H.....	2
Fordham University School of Medicine.....	1
University of Buffalo Department of Medicine*.....	1
University of Cincinnati College of Medicine*.....	12
Western Reserve University School of Medicine, Cleveland.....	1
University of Oregon Department of Medicine,* Portland.....	3
Hahnemann Medical College and Hospital of Philadelphia*.....	12
Jefferson Medical College of Philadelphia.....	1
Temple University Department of Medicine, Philadelphia.....	3
University of Pennsylvania School of Medicine,* Philadelphia.....	3
Woman's Medical College of Pennsylvania,* Philadelphia.....	15
Medical College of the State of South Carolina, Charleston.....	8
University of Tennessee College of Medicine, Memphis.....	6
Vanderbilt University Medical Department, Nashville, Tenn.....	4
Baylor University College of Medicine, Dallas, Tex.....	5
University of Texas Department of Medicine,* Galveston.....	1
University of Wisconsin Medical School*.....	6
University of Vermont College of Medicine*.....	1
Medical College of Virginia, Richmond.....	15
University of Virginia Department of Medicine, Charlottesville*..	2

Total in 38 medical schools..... 335

* Have loan funds also.

Loan Funds

Besides the twenty-one colleges marked by an asterisk (*) in the above list which have loan funds for deserving but needy students, such funds are available also at the five following medical schools:

College of Medical Evangelists, Loma Linda, Calif.
Tulane University of Louisiana School of Medicine, New Orleans, La.
University of Missouri School of Medicine, Columbia, Mo.
University of Nebraska College of Medicine, Omaha, Neb.
Wake Forest College School of Medicine, Wake Forest, N. C.
University of North Dakota, School of Medicine, University, N. D.

Hospital Intern Year

Eight medical colleges have adopted the requirement of a fifth year to be spent by the student as an intern in an approved hospital or in other acceptable clinical work before the M.D. degree will be granted. These colleges and the sessions when the requirement became effective are as follows:

	Session of
University of Minnesota Medical School.....	1910-11
Leland Stanford Jr. University School of Medicine.....	1914-15
Rush Medical College (University of Chicago).....	1914-15
University of California Medical School.....	1914-15
Northwestern University Medical School.....	1915-16
University of Vermont College of Medicine.....	1915-16
College of Physicians and Surgeons, Medical Department of the University of Southern California.....	1918-19
Columbia Univ. Coll. of Physicians and Surgeons, New York..	1918-19

Eight state licensing boards now require that every candidate to be eligible for license to practice medicine in those states must have served at least one year as an intern in an approved hospital. The requirement became effective in Pennsylvania in 1914, in New Jersey in 1916, in Alaska in 1917 (unless applicant has been in general practice for four years), in North Dakota and Rhode Island in 1918, and will become effective in Illinois in 1921, in Michigan in 1922, and in Iowa in 1923.

CLASSIFICATION OF MEDICAL COLLEGES

Revised to June 10, 1918

CLASS A—ACCEPTABLE MEDICAL COLLEGES

ALABAMA

University of Alabama School of Medicine.....Mobile

CALIFORNIA

Leland Stanford Junior Univ. School of Med..San Francisco
University of California Medical School.....San Francisco

COLORADO

University of Colorado School of Med.....Boulder-Denver

CONNECTICUT

Yale University School of Medicine.....New Haven

DISTRICT OF COLUMBIA

Georgetown University School of Medicine.....Washington
George Washington University Medical School..Washington
Howard University School of Medicine¹.....Washington

1. Rating raised to Class A June 6, 1910.

GEORGIA

Emory University School of Medicine².....Atlanta
University of Georgia Medical Department³.....Augusta

ILLINOIS

Northwestern University Medical School.....Chicago
Rush Medical College (University of Chicago).....Chicago
University of Illinois College of Medicine.....Chicago

INDIANA

Indiana Univ. School of Med.....Bloomington-Indianapolis

IOWA

State University of Iowa College of Medicine....Iowa City
State Univ. of Iowa Coll. of Homeopathic Med....Iowa City

KANSAS

University of Kansas School of Med....Lawrence-Rosedale

KENTUCKY

University of Louisville Medical Department⁴.....Louisville

LOUISIANA

Tulane Univ. of Louisiana School of Med....New Orleans

MAINE

Bowdoin Medical School.....Brunswick-Portland

MARYLAND

Johns Hopkins University Medical Department....Baltimore
University of Maryland School of Medicine and
the College of Physicians and Surgeons.....Baltimore

MASSACHUSETTS

Boston University School of Medicine.....Boston
Medical School of Harvard University.....Boston
Tufts College Medical School.....Boston

MICHIGAN

Detroit College of Medicine and Surgery⁵.....Detroit
University of Michigan Medical School.....Ann Arbor
University of Mich. Homeopathic Med. School....Ann Arbor

MINNESOTA

University of Minnesota Medical School.....Minneapolis

MISSISSIPPI

University of Mississippi School of Medicine*.....Oxford

MISSOURI

St. Louis University School of Medicine.....St. Louis
University of Missouri School of Medicine*.....Columbia
Washington University Medical School.....St. Louis

NEBRASKA

John A. Creighton Medical College⁶.....Omaha
University of Nebraska College of Medicine.....Omaha

NEW HAMPSHIRE

Dartmouth Medical School*.....Hanover

NEW YORK

Albany Medical College.....Albany
Columbia Univ. Coll. of Phys. and Surgs...New York City
Cornell University Medical College.....New York City
Fordham University School of Medicine⁷.....New York City
Long Island College Hospital⁸.....Brooklyn
Syracuse University College of Medicine.....Syracuse
University and Bellevue Hospital Med. Coll..New York City
University of Buffalo Department of Medicine.....Buffalo

NORTH CAROLINA

University of North Carolina School of Med.* Chapel Hill
Wake Forest College School of Medicine*....Wake Forest

NORTH DAKOTA

University of North Dakota School of Medicine*..University

OHIO

Ohio State University College of Medicine.....Columbus
University of Cincinnati College of Medicine....Cincinnati
Western Reserve University School of Medicine..Cleveland

* Gives only the first two years of the medical course.

2. Rating raised to Class A Feb. 24, 1914; formerly the Atlanta Medical College.

3. Class A rating restored Feb. 24, 1913.

4. Rating raised to Class A June 6, 1910.

5. Class A rating restored June 21, 1914.

6. Class A rating restored Feb. 4, 1917.

7. Class A rating restored Feb. 24, 1914.

8. Class A rating restored June 21, 1914.

OREGON

University of Oregon Medical School.....Portland

PENNSYLVANIA

Hahnemann Medical College and Hospital.....Philadelphia
Jefferson Medical College of Philadelphia.....Philadelphia
University of Pennsylvania School of Med....Philadelphia
University of Pittsburgh School of Medicine⁹.....Pittsburgh
Woman's Medical College of Pennsylvania.....Philadelphia

SOUTH CAROLINA

Medical College of the State of South Carolina¹⁰..Charleston

SOUTH DAKOTA

University of South Dakota College of Medicine*..Vermilion

TENNESSEE

University of Tennessee College of Medicine¹¹.....Memphis
Vanderbilt University Medical Department.....Nashville

TEXAS

Baylor University College of Medicine¹².....Dallas
University of Texas Department of Medicine.....Galveston

UTAH

University of Utah School of Medicine*.....Salt Lake City

VERMONT

University of Vermont College of Medicine.....Burlington

VIRGINIA

Medical College of Virginia.....Richmond
University of Virginia Department of Med....Charlottesville

WEST VIRGINIA

West Virginia Univ. School of Medicine*¹³.....Morgantown

WISCONSIN

Marquette University School of Medicine¹⁴.....Milwaukee
University of Wisconsin Medical School*.....Madison
Total, 69.

CLASS B—COLLEGES NEEDING GENERAL
IMPROVEMENTS TO BE MADE
ACCEPTABLE

ARKANSAS

University of Arkansas Medical Department.....Little Rock

CALIFORNIA

College of Medical Evangelists¹⁵....Loma Linda-Los Angeles
University of Southern California Medical Department (Col-
lege of Physicians and Surgeons).....Los Angeles

ILLINOIS

Chicago College of Medicine and Surgery, School of
Medicine of Loyola University¹⁶.....Chicago
Hahnemann Medical College and Hospital¹⁷.....Chicago

NEW YORK

New York Homeopathic Medical College and
Flower Hospital¹⁸.....New York City
New York Medical College and Hospital for Women¹⁹
.....New York City

NORTH CAROLINA

Leonard Medical School*²⁰.....Raleigh

OHIO

Eclectic Medical College.....Cincinnati
Ohio State Univ. Coll. of Homeopathic Med.²¹.....Columbus

OKLAHOMA

Univ. of Oklahoma School of Med.²²..Norman-Oklahoma City

PENNSYLVANIA

Temple University Department of Medicine²³....Philadelphia

TENNESSEE

Meharry Medical College²⁴.....Nashville

TEXAS

Fort Worth School of Medicine²⁵.....Fort Worth
Total, 14.

CLASS C—COLLEGES REQUIRING A COMPLETE
REORGANIZATION TO MAKE THEM
ACCEPTABLE

CALIFORNIA

College of Physicians and Surgeon.....San Francisco
Oakland College of Medicine and Surgery²⁶.....Oakland

ILLINOIS

Chicago Hospital College of Medicine.....Chicago
Jenner Medical College²⁷.....Chicago

MASSACHUSETTS

College of Physicians and Surgeons.....Boston
Middlesex College of Medicine and Surgery²⁸.....Cambridge

MISSOURI

Kansas City University of Phys. and Surgs.³⁰....Kansas City
Eclectic Medical University³¹.....Kansas City
National Univ. of Arts and Sciences Med. Dept.³²...St. Louis
St. Louis College of Physicians and Surgeons³³....St. Louis

NEBRASKA

Lincoln Medical College³⁴.....Lincoln

TENNESSEE

University of West Tenn. Coll. of Med. and Surg..Memphis
Total 12.

CLASSIFICATION OF CANADIAN MEDICAL
COLLEGES

CLASS A

University of Toronto Faculty of Medicine....Toronto, Ont.
McGill University Faculty of Medicine.....Montreal, Que.

CLASS B

University of Manitoba, Manitoba Medical Col-
lege³⁵.....Winnipeg, Man.
Dalhousie University Faculty of Medicine.....Halifax, N. S.
Queen's University Faculty of Medicine³⁶.....Kingston, Ont.
Western University Faculty of Medicine³⁷.....London, Ont.
Montreal School of Medicine and Surgery....Montreal, Que.
Laval University Faculty of Medicine.....Quebec, Que.

The University of Alberta at Edmonton, besides the pre-
medical year, gives only the first two years of the medical
course as measured by that of the medical schools of the
United States. It has not been inspected.

23. Rating raised to Class B June 6, 1910.

24. Rating dropped to Class B Feb. 24, 1914.

25. Rating restored to Class B May 10, 1914. In 1918 it merged
with the Baylor University College of Medicine.

26. Rated in Class B June 6, 1910; rating dropped to Class C Feb.
3, 1918.

27. Rated in Class C when last inspected—1912. Has recently refused
reinspection. In December, 1917, it transferred its students to the
Chicago Hospital College of Medicine. Both institutions are reported
as "not in good standing" by the Illinois Department of Registration
and Education.

29. This is the medical department of the so-called "University of
Massachusetts." It was rated in Class C, Feb. 4, 1918.

30. Formerly the Central College of Osteopathy; in 1917 under an
amended charter took the name of Central College Medical Department;
assumed present title in 1918. Rated in Class C, March 15, 1918.

31. An offshoot of this institution—the Kansas City College of Medi-
cine and Surgery—was organized in 1915. It is reported not recognized
by the Missouri State Board of Health. Since it is an offshoot of a
Class C institution reported not recognized by the Missouri State
Board of Health, no higher rating could be granted it pending an
inspection which it has refused.

32. Formerly known as the American Medical College. Extinct May,
1918.

33. Rating dropped to Class C July 1, 1909. In 1915 it merged with
the Medical Department of the National University of Arts and
Sciences, but in 1917 was reestablished.

34. Formerly known as the Cotner University Medical College.

35. Rating dropped to Class B Feb. 6, 1916.

36. Rating dropped to Class C Feb. 6, 1916; restored to Class B Feb.
3, 1918.

37. Rating raised to Class B Feb. 4, 1917.

* Gives only the first two years of the medical course.

9. Rating raised to Class A June 6, 1910.

10. Class A rating restored Feb. 6, 1916.

11. Rating raised to Class A June 21, 1914.

12. Rating raised to Class A June 12, 1916.

13. Class A rating restored Feb. 4, 1917.

14. Rating raised to Class A Feb. 15, 1915.

15. Rating raised to Class B. Feb. 3, 1918.

16. The Chicago College of Medicine and Surgery was merged with
the Bennett Medical College, School of Medicine of Loyola University,
in September, 1917, retaining the combined title as now given.

17. Rating dropped to Class B June 3, 1912.

18. Rating dropped to Class B Feb. 15, 1915.

19. Rating in Class B restored June 14, 1918; it had been dropped
from Class B to Class C June 3, 1912. Reported closed in 1918.

20. Rating raised to Class B June 21, 1914.

21. Rating raised to Class B Feb. 4, 1917.

22. Rating dropped to Class B June 3, 1912.

DESCRIPTION OF MEDICAL COLLEGES

Below are given brief descriptions of the medical colleges in the United States and Canada that are legally chartered to teach medicine, several of which do not grant degrees. The name, address, year of organization, history and date when first class graduated are given in each instance. Unless otherwise stated, a class graduated each subsequent year. Where official reports have been received from the college, information regarding faculty, entrance requirements, length of term, fees, students (excluding specials and postgraduates), graduates, name of dean and next session is given without discrimination, regardless as to whether the college is sectarian or not. In a few instances in which such reports were not received, the information published is from other reliable sources. Figures for graduates include all who graduated since July 1, 1917. Extracts of rules and the membership of the Association of American Medical Colleges are shown following the list of colleges. Figures showing population of cities and states are taken from the United States Census Bureau's estimate for 1916. Statements have been added showing the preliminary requirements held by state licensing boards where those requirements include one or two years of collegiate work. Eight states, Alaska (Ter.), Illinois, Iowa, Michigan, New Jersey, North Dakota, Pennsylvania and Rhode Island require a year's hospital internship before a license will be granted.

ALABAMA

Alabama, population 2,348,273, has one medical college, the School of Medicine of the University of Alabama, located in Mobile, a city with a population of 58,221.

In order to secure licenses to practice medicine in Alabama, students matriculating in the session of 1915-16 and thereafter must have completed two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language, prior to entering on the study of medicine.

Mobile

UNIVERSITY OF ALABAMA SCHOOL OF MEDICINE, 550 St. Anthony Street.—Organized in 1859 as the Medical College of Alabama. Classes were graduated in 1861 and in all subsequent years except 1862 to 1868 inclusive. It was reorganized as the Medical Department of the University of Alabama in 1897. All property was transferred to the University of Alabama in 1907 when the present title was assumed. Two years of college work are required for admission. The faculty consists of 14 professors and 28 lecturers and assistants, a total of 42. The course of study covers four years of thirty-two weeks each. The total fees for each of the four years, respectively, are \$165, \$160, \$160 and \$185. The Dean is Dr. T. H. Frazer. The total registration for 1917-1918 was 44, graduates, 11. The fifty-third session begins Oct. 3, 1918, and ends June 4, 1919.

ARKANSAS

Arkansas, population 1,753,033, has one medical college, the Medical Department of the University of Arkansas, located in Little Rock, a city of 57,343.

To secure licenses to practice medicine in Arkansas, students matriculating in the session of 1918-19 and thereafter must have completed two years of collegiate work, including college courses in physics, chemistry, biology and a modern language before beginning the study of medicine. This applies to all graduates of 1922 and thereafter.

Little Rock

UNIVERSITY OF ARKANSAS MEDICAL DEPARTMENT, Markham and Center Streets.—Organized in 1879 as the Medical Department of Arkansas Industrial University. It assumed the present title in 1899. In 1911 the College of Physicians and Surgeons united with it and the new school was made an integral part of the University of Arkansas. The first class was graduated in 1880. The faculty consists of 20 professors and 36 lecturers and assistants, total 56. Entrance requirements are two years of collegiate work beyond a four-year high school course. The course of study covers four years of thirty-two weeks each. The fees are \$50 each year. The Dean is Dr. Morgan Smith. Total registration 1917-1918 was 52; graduates, 21. The fortieth session begins Sept. 16, 1918, and ends June 4, 1919.

CALIFORNIA

California, population 2,983,843, has five medical colleges. Three are located in San Francisco, a city of 463,516 inhabitants. They are Leland Stanford Junior University School

of Medicine, College of Medicine of the University of California, and the College of Physicians and Surgeons. The College of Physicians and Surgeons, Medical Department of the University of Southern California is situated in Los Angeles, population 503,812. The College of Medical Evangelists is located at Loma Linda and Los Angeles.

To secure licenses to practice medicine in California under the "physician's and surgeon's" certificate, students matriculating in medical colleges in and after the session of 1915-16, prior to such matriculation, must have completed at least one year of recognized collegiate work including college courses in physics, chemistry, biology and a modern language. This applies to all graduates of 1919 and thereafter.

Berkeley-San Francisco

UNIVERSITY OF CALIFORNIA MEDICAL SCHOOL, University Campus, Berkeley; Second and Parnassus Avenues, San Francisco.—Organized in 1863 as the Toland Medical College. The first class graduated in 1865. In 1872 it became the Medical Department of the University of California. In 1909 the College of Medicine of the University of Southern California, at Los Angeles, by legislative enactment, became a clinical department. This Los Angeles portion was changed to a graduate school in 1914. In 1915 the Hahnemann Medical College of the Pacific was merged, and elective chairs in homeopathic materia medica and therapeutics were provided for. Two years of collegiate work are required for admission. The work of the first year and a half is given at Berkeley and the work of the last two and a half years at San Francisco. The faculty is composed of 45 professors and 100 associates and assistants, a total of 137. The course covers five years of nine months each, the fifth year to consist of an internship or of special work in a department of the medical school. Fees for the four years, respectively, are \$200, \$155, \$150 and \$150. The Dean is Dr. Herbert C. Moffitt, San Francisco. Total registration for 1917-1918 was 150; no graduates this year; 22 students who completed their fourth year work required to complete senior year as hospital intern before medical degree is granted. The forty-sixth session begins Oct. 1, 1918, and ends June 4, 1919.

Loma Linda-Los Angeles

COLLEGE OF MEDICAL EVANGELISTS.—Organized in 1909. The faculty numbers 50. The first class graduated in 1914. The course extends over four years of nine months each. Two years of college work are required for admission. The total fees for the four years, respectively, are \$166, \$161, \$161 and \$161. The Dean is Dr. P. T. Magan. The total registration for 1917-18 was 62; graduates, 21. The tenth session begins Sept. 1, 1918, and ends May 29, 1919.

Los Angeles

COLLEGE OF PHYSICIANS AND SURGEONS, MEDICAL DEPARTMENT OF THE UNIVERSITY OF SOUTHERN CALIFORNIA, 516 East Washington Street.—Organized in 1903, first class graduated in 1905; became Medical Department, University of Southern California, Aug. 11, 1909. The course covers four years of nine months each. Two years of collegiate work are required for admission. The faculty consists of 21 professors and 82 associate professors, lecturers and instructors, a total of 103. The fees for the four years, respectively, are \$220, \$217, \$202 and \$227. The Dean is Dr. Charles W. Bryson. The registration for 1917-18 was 92, graduates, 28. The next session begins Sept. 3, 1918, and ends June 12, 1919.

San Francisco

COLLEGE OF PHYSICIANS AND SURGEONS, 344 Fourteenth Street.—Organized in 1896. The first class graduated in 1897. The faculty numbers 40. The course covers four years of nine months each. The fees for each of the first three years are \$192.50 and \$217.50 for the fourth year. The Dean is Dr. H. D'Arcy Power. Registration for 1917-18 was 56; graduates, 16. The twenty-second session begins Aug. 12, 1918, and ends June 5, 1919. *Reported not recognized by licensing boards of thirty-six states.*

San Francisco-Palo Alto

LELAND STANFORD JUNIOR UNIVERSITY SCHOOL OF MEDICINE, University Campus, Palo Alto, and Sacramento and Webster Streets, San Francisco.—Organized in 1908 when, by an agreement, the interests of Cooper Medical College were taken over. The first class was graduated in 1913. The faculty consists of 33 professors and 39 lecturers, assistants, etc., a total of 72. Three years of collegiate work are required for admission. The school has the quarter system and the completion of any three quarters constitutes a college year. The course covers five years of nine months each, including a year of practical or intern work. The total fees for the first four years, respectively, are \$200, \$155, \$150 and \$150. The Dean is Dr. W. Ophüls, San Francisco. The total registration for 1917-18 was 82; graduates, 7. The ninth session begins Oct. 1, 1918, and ends June 17, 1919.

COLORADO

Colorado, with a population of 975,190, has one medical college, the University of Colorado School of Medicine. The first two years of the course are given at Boulder, the seat of the university, while the last two, or clinical years, are given in Denver, which has a population of 260,800.

The Colorado State Board of Medical Examiners will register without further examination graduates of medical

colleges in good standing who present licenses issued after examination by any other licensing board. The law permits any one, graduate or nongraduate, to try the board's written examination. No graduate of 1914 or thereafter is eligible to obtain a license in Colorado, or indorsement of his credentials, unless he graduated from a medical college which, at the time he matriculated, required at least two years' study, without conditions, in an accredited college of liberal arts, and this work must have included courses in physics, chemistry, biology and one modern language.

Boulder-Denver

UNIVERSITY OF COLORADO SCHOOL OF MEDICINE.—Organized in 1883. Classes were graduated in 1885 and in all subsequent years except 1898 and 1899. Denver and Gross College of Medicine was merged Jan. 1, 1911. The faculty embraces 11 professors, 19 associate and assistant professors, and 36 lecturers, instructors and assistants, a total of 66. The work embraces a graded course of four years of nine months each. The entrance requirements are two years of college work counting toward a degree in arts in an accredited college or university. The tuition is \$75 per year for residents of Colorado, \$100 for nonresidents. Laboratory fees are \$10 for each of the first two years. The Dean is Dr. Charles N. Meader. The total registration for 1917-18 was 77; graduates, 8. The thirty-seventh session for the Denver division, comprising the last two years, began June 17, 1918, and ends Feb. 7, 1919. The session of the Boulder division, for the first two years begins Sept. 30, 1918, and ends June 4, 1919.

CONNECTICUT

Connecticut, with a population of 1,254,926, has one medical college, Yale University, School of Medicine, located in New Haven, population 149,685.

Candidates for license to practice medicine in Connecticut who graduate in 1914 or thereafter are not eligible unless, prior to entering on the study of medicine, they had completed, in addition to an accredited four-year high school education, at least nine months of collegiate work including college courses in physics, chemistry and general biology.

New Haven

YALE UNIVERSITY SCHOOL OF MEDICINE, 150 York Street and Congress Avenue and Cedar Street.—Chartered in 1810 as the Medical Institution of Yale College. Organized in 1812; instruction began in 1813; first class graduated in 1814. A new charter in 1879 changed the name to the Medical Department of Yale College. In 1884, the Connecticut Medical Society surrendered such authority as had been granted by the first charter. In 1887, Yale College became Yale University. The faculty consists of 23 professors and 61 lecturers and assistants, a total of 84. The requirements for admission are two years of collegiate work plus evidence of satisfactory completion of courses in general physics, general inorganic chemistry, general biology, organic chemistry and physical chemistry or laboratory physics, all reasonably equivalent to the courses in these subjects in Yale University. The student also must have a reading knowledge of German. The course covers four years of nine months each. The fees for the four years, respectively, are approximately \$205, \$200, \$200 and \$210. The Dean is Dr. George Blumer. The total registration for 1917-18 was 71; graduates, 8. The 106th session begins Sept. 26, 1918, and ends June 18, 1919.

DISTRICT OF COLUMBIA

The District of Columbia, population 366,631, has three medical colleges; George Washington University Medical School, Georgetown University, School of Medicine and Howard University, School of Medicine.

Washington

GEORGE WASHINGTON UNIVERSITY MEDICAL SCHOOL, 1325 H Street, N.W.—Organized in 1825 as the Medical Department of Columbian College. Also authorized to use the name National Medical College. Classes were graduated in 1826 and in all subsequent years, except 1834 to 1838, and 1861 to 1863, inclusive. The original title was changed to Medical Department of Columbian University in 1873. In 1903 it absorbed the National University Medical Department. In 1904, by an act of Congress, the title of George Washington University was granted to the institution. The faculty is composed of 40 professors and 55 instructors, demonstrators and assistants, a total of 95. Two years of collegiate work are required for admission. The course covers four years of thirty-two weeks each. The total fees are \$175 each year. The Dean is Dr. William C. Borden. The total registration for 1917-18 was 107; graduates, 13. The ninety-seventh session begins Sept. 25, 1918, and ends June 11, 1919.

GEORGETOWN UNIVERSITY SCHOOL OF MEDICINE, 920 H Street, N.W.—Organized in 1851. The first class graduated in 1852. The faculty contains 23 professors, 67 instructors and assistants; total, 90. Two years of collegiate work are required for entrance. The course of study covers four terms of eight and one-half months each. The fees for the first year are \$190, and for each of the other three years, \$175. The Dean is Dr. George M. Kober. The registration for 1917-18 was 69; graduates, 17. The sixty-eighth session begins Sept. 24, 1918, and ends June 11, 1919.

HOWARD UNIVERSITY SCHOOL OF MEDICINE, Fifth and W Streets, N.W.—Chartered in 1867. Organized in 1869. The first class graduated in 1871. Colored students compose a majority of those in attendance. The faculty comprises 16 professors and 22 lecturers and assistants, 38 in all. The admission requirements are two years of collegiate work, including physics, chemistry, botany and zoology, English and two years of French or German. The course covers four years of thirty-two weeks each. The fees of each of the four sessions, respectively, are \$140, \$130, \$130 and \$137. The Dean is Dr. Edward A. Balloch. Registration for 1917-18 was 114; graduates, 27. The fifty-first session begins Oct. 1, 1918, and ends June 4, 1919.

GEORGIA

Georgia, population 2,875,953, has two medical colleges, University of Georgia, Medical Department, located in Augusta, population 50,245, and the Emory University School of Medicine in Atlanta, a city of 190,558.

Atlanta

EMORY UNIVERSITY SCHOOL OF MEDICINE, 94 N. Butler Street.—Organized in 1854. Classes graduated 1855 to 1861, when it suspended. Reorganized in 1865. A class graduated in 1865 and each subsequent year except 1874. In 1898 it merged with the Southern Medical College (organized in 1878), taking the name of Atlanta College of Physicians and Surgeons. In 1913 it merged with the Atlanta School of Medicine (organized in 1905), reassuming the name of Atlanta Medical College. Became the Medical Department of Emory University in 1915; assumed present title in 1917. Two years of collegiate work are required for entrance. The faculty numbers 106. The course of study is four years of thirty-two weeks each. The fees for each of the four years, respectively, are \$172, \$160, \$155 and \$180. The Dean is Dr. W. S. Elkin. Total registration for 1917-18 was 128; graduates, 27. The next session begins Sept. 23, 1918, and ends June 1, 1919.

Augusta

UNIVERSITY OF GEORGIA, MEDICAL DEPARTMENT, University Place.—Organized in 1828 as the Medical Academy of Georgia, the name being changed to the Medical College of Georgia in 1829. Since 1873 it has been known as the Medical Department of the University of Georgia. Entire property transferred to the university in 1911. Classes were graduated in 1833 and in all subsequent years except 1862 and 1863. The faculty includes 18 professors and 35 assistants, 53 in all. Two years of collegiate work are required for entrance. The course is four years of thirty-four weeks each. Fees are \$150 each year for nonresidents of Georgia, for residents the total fees for each of the four years are \$60. The Dean is Dr. W. H. Doughty, Jr. The total registration for 1917-18 was 70; graduates, 6. The Eighty-seventh session begins Sept. 8, 1918, and ends June 5, 1919.

ILLINOIS

Illinois, population 6,193,626, has six medical colleges, two of which give instruction at night, all located in Chicago, a city of 2,497,722 inhabitants, and are as follows: Rush Medical College, Northwestern University Medical School, University of Illinois College of Medicine, Hahnemann Medical College and Hospital, Chicago College of Medicine and Surgery (School of Medicine of Loyola University), and the Chicago Hospital College of Medicine.

To be eligible for license to practice medicine in Illinois, students matriculating in the sessions of 1915-16 and of 1918-19, in addition to an accredited four-year high school education, must have completed, respectively, one year and two years of collegiate work including courses in physics, chemistry, biology and a modern language, to be taken either in a preliminary year given by a recognized medical college, or in an approved college of liberal arts. Graduates of 1923 and thereafter must have completed also a year's internship in a hospital.

Chicago

RUSH MEDICAL COLLEGE.—This school was founded in 1837, organized in 1843, was the medical department of Lake Forest University from 1887 until 1898, when it became affiliated with the University of Chicago. The first class graduated in 1844. The faculty is composed of 107 professors, 167 associates, instructors, etc., a total of 274. The requirements for admission are two years of college work, including courses in college chemistry, physics and biology, and a reading knowledge of German or French. Classes are limited to 100 students in each of the freshman and sophomore classes, and to 120 students in each of the clinical years. No application for admission is accepted after September 1. The school operates under the "quarter system" in which the year is divided into four quarters of twelve weeks each; the completion of the work of these quarters gives credit for a college year. The course covers four years of eight and a half months each, and a fifth year, consisting of a hospital internship or of a fellowship in one of the departments. All freshman and sophomore studies are given at the University of Chicago. The clinical years are given in the building at the corner of Wood and Harrison streets. The tuition fees are \$180 each year. A matriculation fee of \$5 is paid but once, and there are incidentals amounting to from \$5 to \$7 annually. The Dean is Dr.

John M. Dodson. Total registration 1917-18 was 550; graduates, 42. Seventy-seven other students completed the work of the fourth year but will not receive their degrees till the hospital internship has been completed. The seventy-fifth session begins Oct. 1, 1918, and ends June 14, 1919.

NORTHWESTERN UNIVERSITY MEDICAL SCHOOL, 2421 South Dearborn Street.—Organized in 1859 as the Medical Department of Lind University. First class graduated in 1860. In 1864 it became independent as the Chicago Medical College. It united with Northwestern University in 1869, but retained the name of Chicago Medical College until 1891, when the present name was taken. Became an integral part of Northwestern University in 1905. The faculty comprises 70 professors and 100 lecturers and assistants, a total of 170. The requirements for admission are such as will admit to the College of Liberal Arts of Northwestern University, plus two years of college work, including courses in physics, chemistry, biology and a modern language. The course covers four years of eight months each. The fees for the four years, respectively, are \$190, \$195, \$190 and \$206. The Dean is Dr. Arthur I. Kendall. The total registration for 1917-18 was 281; graduates, 62. The fifty-ninth session begins Oct. 1, 1918, and ends June 7, 1919.

UNIVERSITY OF ILLINOIS COLLEGE OF MEDICINE, Honore and Congress Streets.—Organized in 1882 as the College of Physicians and Surgeons. The first class graduated in 1883. It became the Medical Department of the University of Illinois by affiliation in 1897 and an integral part in 1910. The relationship with the university was canceled in June, 1912, but restored in March, 1913, when the present title was assumed. The American Medical Missionary College was absorbed in 1910. Two years of collegiate work are required for admission. The year is divided into three divisions of four months each, the completion of the work of any two divisions counting as a college year. The faculty is composed of 29 professors, 75 assistants and instructors, a total of 104. The total fees for the four years, respectively, are \$165, \$160, \$150 and \$165. The Dean is Dr. Albert C. Eycleshymer. The total registration for 1917-18 was 270; graduates, 30. The thirty-seventh session begins Oct. 1, 1918, and ends June 1, 1919.

CHICAGO COLLEGE OF MEDICINE AND SURGERY, SCHOOL OF MEDICINE OF LOYOLA UNIVERSITY, Chicago.—Organized in 1868 as the Bennett College of Eclectic Medicine and Surgery. Eclecticism dropped and title of Bennett Medical College assumed in 1909. First class graduated in 1870, and a class graduated each subsequent year. Absorbed the Illinois Medical College in 1910 and the Reliance Medical College in 1911. In 1910 it became by affiliation the School of Medicine of Loyola University; the university assumed full control in 1915. Took over by purchase the Chicago College of Medicine and Surgery in 1917 and assumed present title. Two years of college work are required for admission. The dean is Dr. Lawrence Ryan. The total enrollment for 1917-18 was 448; graduates, 115. The next session begins Oct. 1, 1918, and ends May 31, 1919.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF CHICAGO, 2811 Cottage Grove Avenue.—Organized in 1859. The first class was graduated in 1861. Absorbed the Chicago Homeopathic Medical College in 1904. The faculty includes 57 professors and 29 lecturers, assistants, etc., a total of 86. Two years of collegiate work are required for admission. The course extends over four years of eight months each. The tuition fees for the four years, respectively, are \$176, \$161.50, \$176.50 and \$191.50. The Dean is Dr. Joseph P. Cobb. The total registration for 1917-18 was 51; graduates, 15. The fifty-ninth session begins June 3, 1918, and ends June 1, 1919.

CHICAGO HOSPITAL COLLEGE OF MEDICINE, an afternoon and night school, located at 3832 Rhodes Avenue.—Organized in 1911; chartered in 1912. In December, 1917, the classes of the Jenner Medical College were transferred to it. Not recognized by the Illinois Department of Registration and Education. Total registration for 1917-18 was 95; graduates, about 45. *Official reports indicate that the diplomas from this college are not recognized by the licensing boards of thirty-seven states.*

INDIANA

Indiana, population 2,826,154, has one medical college, the Indiana University School of Medicine, located at Indianapolis, a city of 271,708 people, except that the work of the first year is offered also at Bloomington, the seat of the University.

Candidates for license to practice medicine in Indiana who matriculated between Jan. 11, 1910, and Jan. 1, 1911, must have completed one year of collegiate work, in addition to an accredited four-year high school course, prior to beginning the study of medicine. Those matriculating subsequent to Jan. 1, 1911, must have completed two years of work in a recognized college of liberal arts.

Bloomington and Indianapolis

INDIANA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1903, but did not give all of the work of the first two years of the medical course until 1905. In 1907, by union with the State College of Physicians and Surgeons, the complete course in medicine was offered. In 1908 the Indiana Medical College, which was formed in 1905 by the merger of the Medical College of Indiana (organized in 1878), the Central College of Physicians and Surgeons (organized in 1879), and the Fort Wayne College of Medicine (organized in 1879), merged into it. The first class was graduated in 1908. The faculty consists of 68 professors and 95 lecturers, associates and assistants, a total of 163. Two years of collegiate work are required for admission. The work of the first year is

emphasized only at Bloomington. The work of the other three years is all at Indianapolis. The fees for the four years, respectively, are \$100, \$100, \$130 and \$130. A fifth optional intern year leading to the "M.D. cum laude" has been added. The Secretary at Bloomington is Dr. B. D. Myers; the Dean is Dr. Charles P. Emerson, Indianapolis. The total registration for 1917-18 was 215; graduates, 35. The next session begins Sept. 15, 1918, and ends May 31, 1919.

IOWA

Iowa, population 2,224,771, has two medical colleges. The College of Medicine and the College of Homeopathic Medicine of the State University of Iowa, both located in Iowa City, population 12,033.

Candidates for license to practice medicine in Iowa who graduated subsequent to Jan. 1, 1915, must have completed two years of work in an approved college of liberal arts prior to beginning the study of medicine, this preliminary college work to have included courses in physics, chemistry, biology and a foreign language.

Iowa City

STATE UNIVERSITY OF IOWA COLLEGE OF MEDICINE, University Campus.—Organized in 1869. First session began in 1870. First class graduated in 1871. Absorbed Drake University College of Medicine in 1913. The faculty is made up of 28 professors, 23 lecturers, demonstrators and assistants, a total of 51. Two years of collegiate work, including courses in physics, chemistry, biology and French or German, are required for admission. The course of study covers four years of thirty-six weeks each. The tuition fee for residents of Iowa is \$85 per year and for nonresidents \$100, plus a matriculation fee of \$10 and a graduation fee of \$10. The Dean is Dr. Lee Wallace Dean, Iowa City. Total registration for 1917-18 was 189; graduates, 27. The forty-ninth session begins Sept. 16, 1918, and ends June 6, 1919.

STATE UNIVERSITY OF IOWA COLLEGE OF HOMEOPATHIC MEDICINE.—Organized in 1877. The first class graduated in 1878. Class each subsequent year except 1914. The faculty is composed of 14 professors and 8 lecturers and assistants, a total of 22. The work of the first two years is taken in classes with the students of the College of Medicine of the State University of Iowa, and it has the same entrance and fee requirements. The Dean is Dr. George Royal. Total registration for 1917-18 was 9; graduates, 3. The forty-first session begins Sept. 16, 1918, and ends June 6, 1919.

KANSAS

Kansas, population 1,840,707, has one medical college. The School of Medicine of the University of Kansas gives its first two years in Lawrence, population 12,915, and the last two years in Rosedale, a suburb of the two Kansas Cities, which together have a population of 397,284.

Candidates for license to practice medicine in Kansas who matriculated in the session of 1910-11 and thereafter must present credentials showing that they matriculated in and graduated from a medical college which required for admission at least one year of collegiate work including college courses in physics, chemistry and biology in addition to an accredited four-year high school course. This applies to graduates of 1914 and thereafter. Students matriculating in 1918-19 (graduates of 1922) and thereafter will be required to have completed two years of premedical college work.

Lawrence and Rosedale

UNIVERSITY OF KANSAS SCHOOL OF MEDICINE.—Organized in 1880. It offered only the first two years of the medical course until in 1905, when it merged with the Kansas City (Mo.) Medical College, founded in 1869, the College of Physicians and Surgeons, founded in 1894, and the Medico-Chirurgical College, founded in 1897. First class graduated in 1906. The clinical courses are given at Rosedale. Absorbed Kansas Medical College in 1913. The faculty, including lecturers and clinical assistants, numbers 65. The requirements for admission are two years of collegiate work. The course covers four years of nine months each. The total fees are, for each of the first two years, \$60, and for the last two years \$100, and for nonresidents, \$80 for each of the first two years. The Dean is Dr. S. J. Crumrine; Associate Dean, Dr. M. T. Sudler. The total registration for 1917-18 was 145; graduates, 18. The thirty-ninth session begins Sept. 16, 1918, and ends June 11, 1919.

KENTUCKY

Kentucky, population 2,386,866, has one medical college, the University of Louisville Medical Department, situated in Louisville, a city of 238,910 inhabitants.

To be eligible for license to practice medicine in Kentucky all students matriculating in and after the session of 1914-15 must have completed, in addition to an accredited four-year high school course, at least one year's work in an approved college of liberal arts, including college courses in physics, chemistry, biology and a modern language.

Louisville

UNIVERSITY OF LOUISVILLE MEDICAL DEPARTMENT, First and Chestnut Streets.—Organized in 1837 as the Louisville Medical Institute. The first class graduated in 1838, and a class graduated in each subsequent year except in 1863. In 1846 the present name was assumed. In 1907 it absorbed the Kentucky University Medical Department. In 1908 it absorbed the Louisville Medical College, the Hospital College of Medicine and the Kentucky School of Medicine. One year of collegiate work is required for admission. It has a faculty of 31 professors and 81 lecturers and assistants, a total of 112. The course covers four years of thirty-two weeks each. The fees for each of the four years, respectively, are \$175, \$176, \$179.25 and \$182.35. The Dean is Dr. Henry Enos Tuley. The total registration for 1917-18 was 99; graduates, 16. The next session begins Sept. 24, 1918, and ends June 5, 1919.

LOUISIANA

Louisiana, having a population of 1,843,042, contains one medical college, the School of Medicine of the Tulane University of Louisiana, situated in New Orleans, a city of 371,747.

Candidates for license to practice medicine in Louisiana who graduate in 1919 and 1922 must present evidence that they have successfully completed, at an approved college or university, respectively, one year and two years of work including biology, physics, chemistry and a modern language, before entering on the study of medicine. These requirements apply to all students who matriculated, respectively, in 1915 and 1918.

New Orleans

TULANE UNIVERSITY OF LOUISIANA SCHOOL OF MEDICINE, University Campus and 1551 Canal Street.—Organized in 1834 as the Medical College of Louisiana. Classes were graduated in 1835 and in all subsequent years except 1863-65, inclusive. It was transferred to the Medical Department of the University of Louisiana in 1847 and became the Medical Department of the Tulane University of Louisiana in 1884. Present name in 1913, when it became the School of Medicine of the College of Medicine of the Tulane University of Louisiana. The faculty has 50 professors and 81 assistant professors, instructors, demonstrators, etc., a total of 131. The course covers four years of thirty-two weeks each. Two years of collegiate work are required for admission. Total fees for each of the four years, respectively, are \$200, \$200, \$200 and \$230. The Dean is Dr. Isadore Dyer. The total registration for 1917-18 was 275; graduates, 63. The eighty-fourth session begins Sept. 23, 1918, and ends June 4, 1919, for freshmen and sophomores. Junior and senior classes began in June, 1918, and will end in February, 1919.

MAINE

Maine, population 774,914, has one medical college, the Bowdoin Medical School, located in Brunswick and Portland, the latter having a population of 68,867.

Brunswick-Portland

BOWDOIN MEDICAL SCHOOL. The Medical Department of Bowdoin College. The first two years are given at Bowdoin College, Brunswick, the last two at Portland, building located on Chadwick Street.—Organized in 1820 as the Medical School of Maine. The first class graduated in 1821. Present title assumed in 1915. The faculty numbers 57. Two years of collegiate work, including courses in physics, chemistry and biology are required for admission. The course covers four years of eight months each. The total fees for each of the four years, respectively, are \$130, \$126, \$110 and \$105. The Dean is Dr. Addison S. Thayer, 10 Deering Street, Portland. The total number of students in 1917-18 was 54; graduates, 18. The ninety-eighth session begins Oct. 10, 1918, and ends June 1, 1919.

MARYLAND

Maryland, with a population of 1,368,240, contains two medical colleges, located in Baltimore, a city with 589,621 inhabitants. They are as follows: Johns Hopkins University Medical Department, and the University of Maryland School of Medicine and College of Physicians and Surgeons, the last two having been merged.

To be eligible to practice medicine in Maryland, all students matriculating in the session of 1914-15 and 1918-19, in addition to a four-year high school education, must have completed, respectively, one year and two years of college work including courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Baltimore

JOHNS HOPKINS UNIVERSITY MEDICAL DEPARTMENT, Washington and Monument Streets.—Organized in 1893. The first class graduated in 1897. The faculty consists of 50 professors and 131 clinical professors, etc., a total of 181. The requirements for admission demand that the applicant either has (a) completed the chemical-biologic course which leads to the A.B. degree in the university, or (b) graduated at an approved college or scientific school and has a knowledge of French and German, physics, chemistry and biology, such as may be obtained from

a year's course. The course extends over four years of eight and one-half months each. The total fees are \$257 each year. The Dean is Dr. J. Whitridge Williams. Total registration for 1917-18 was 375; graduates, 87. The twenty-sixth sessions begins Oct. 1, 1918, and ends June 10, 1919.

UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE AND THE COLLEGE OF PHYSICIANS AND SURGEONS, Lombard and Green Streets.—Organized in 1807 as the College of Medicine of Maryland. The first class graduated in 1810. In 1812 it became the University of Maryland School of Medicine. Baltimore Medical College was merged into it in 1913. In 1915 the College of Physicians and Surgeons was merged and the present name assumed. The combined faculty numbers 189. Two years of collegiate work are required for admission. The course covers four years of eight months each. The total fees are \$185 each year; graduation fee, \$30. The Dean is Dr. J. M. H. Rowland. Total registration for 1917-18 was 266; graduates, 49. The one-hundred and twelfth session begins Oct. 1, 1918, and ends June 2, 1919.

MASSACHUSETTS

Massachusetts, population 3,747,564, has five medical colleges: Medical School of Harvard University, Boston University School of Medicine, Tufts College Medical School, College of Physicians and Surgeons and the Middlesex College of Medicine and Surgery. They are all situated in Boston, a city of 756,476, except the last named which is in Cambridge.

Boston

MEDICAL SCHOOL OF HARVARD UNIVERSITY, 240 Longwood Avenue.—Organized in 1782. The first class graduated in 1788. It has a faculty of 76 professors and 139 instructors and assistants, a total of 215. Candidates for admission must present a college degree or two years of work leading to such a degree with standing in the upper third of the class. The college work must include a year of physics, biology, general chemistry, a half year of organic chemistry, and a reading knowledge of French or German. The total fees for each of the four years are \$230, \$225, \$225 and \$225. The Dean is Dr. David L. Edsall. The total registration for 1917-18 was 384; graduates, 106. The one hundred and thirty-seventh sessions begins Sept. 23, 1918, and ends May 31, 1919.

BOSTON UNIVERSITY SCHOOL OF MEDICINE, 80 East Concord Street.—Organized in 1873. In 1874 the New England Female Medical College, founded in 1848, was merged into it. The first class graduated in 1874. Became nonsectarian in 1918. Two years of collegiate work are required for admission. The faculty includes 23 professors, 46 associates, etc., making a total of 69. The course covers four years of eight months each. Total fees for each of the four years, respectively, are \$175, \$162, \$160 and \$180. The Dean is Dr. John P. Sutherland. Total registration for 1917-18 was 58; graduates, 15. The forty-sixth session begins for the first three classes Oct. 3, 1918, and ends June 4, 1919. For the senior class the session began June 3, 1918, and will end about Feb. 1, 1919.

TUFTS COLLEGE MEDICAL SCHOOL, 416 Huntington Avenue.—Organized in 1893 as the Medical Department of Tufts College. The first class graduated in 1894. It has a faculty of 43 professors and 81 assistants, lecturers, etc., a total of 124. One year of collegiate work is required for admission. Two years of college work will be required for the session of 1918-19 and thereafter. The course covers four years of eight months each. The total fees for each of the four years are \$175, \$164, \$155 and \$155. The Dean is Dr. Charles F. Painter. Total registration for 1917-18 was 372; graduates, 79. The twenty-third session begins Sept. 23, 1918, and ends May 29, 1919.

COLLEGE OF PHYSICIANS AND SURGEONS, 517 Shawmut Avenue.—Organized in 1880. The first class graduated in 1882. Total attendance of medical students during 1916-17 was about 53. There were 11 graduates. *This college has been reported not recognized by the Massachusetts Medical Society and by the licensing boards of thirty-nine states.*

Cambridge

MIDDLESEX COLLEGE OF MEDICINE AND SURGERY, Cambridge.—Organized in 1914 under the charter of the Worcester Medical College, which became extinct in 1859. A class was graduated in 1915 and each subsequent year. Was closely related in its interests with an osteopathic college and granted a liberal advanced standing for work done in that and other osteopathic colleges. During 1917-18 it had a total enrollment of 84; graduates, 25. *This college has been reported as not recognized by the licensing boards of thirty-one states.*

MICHIGAN

Michigan, population 3,074,560, has three medical colleges. Two of these, the University of Michigan Department of Medicine and Surgery and the Homeopathic Medical College of the University of Michigan, are located at Ann Arbor, a city of 14,979 people. The Detroit College of Medicine and Surgery is located at Detroit, a city of 571,784 inhabitants.

To be eligible for license to practice medicine in Michigan, all students matriculating in and after the sessions of 1914-15 and 1918-19, in addition to an accredited four-year high school education, must have completed, respectively, one year and two years of work in an approved college of liberal arts, including college courses in physics, chemistry, biology and French or German, prior to beginning the study of medicine.

Ann Arbor

UNIVERSITY OF MICHIGAN MEDICAL SCHOOL.—Organized in 1850 as the University of Michigan Department of Medicine and Surgery. The first class graduated in 1851. Present title assumed in 1915. It has a faculty composed of 25 professors and 74 associates, instructors, etc., a total of 99. The entrance requirements are two years of college work, including courses in chemistry, physics and biology, with laboratory work, and a reading knowledge of one modern language. The curriculum embraces four years of nine months each. The total fees for Michigan students for each of the four years, respectively, are \$115, \$105, \$105 and \$115, and for nonresidents, respectively, \$150, \$125, \$125 and \$135. The Dean is Dr. Victor C. Vaughan. The total registration for 1917-18 was 339; graduates, 66. The sixty-ninth session begins Oct. 1, 1918, and ends June 26, 1919.

UNIVERSITY OF MICHIGAN HOMEOPATHIC MEDICAL SCHOOL.—Organized in 1875. The first class graduated in 1877. The work of the first two years is taken in the same classes with the Medical School of the University of Michigan, and the fees charged are the same. The entrance requirements are two years of collegiate work. The Dean is Dr. W. B. Hinsdale. The total registration for 1917-18 was 36; graduates, 14. The next session begins Oct. 1, 1918, and ends June 26, 1919.

Detroit

DETROIT COLLEGE OF MEDICINE AND SURGERY, 250 St. Antoine Street.—Organized as the Detroit College of Medicine in 1885 by consolidation of Detroit Medical College, organized in 1868, and the Michigan College of Medicine, organized in 1880. Reorganized with present title in 1913. The first class graduated in 1886. In 1918 it became a municipal institution under the control of the Detroit Board of Education. Entrance requirements are two years of collegiate work. The faculty embraces 21 professors, 140 lecturers, etc., a total of 161. The course covers four years of eight months each. The fees for the four years, respectively, are \$155, \$150, \$150 and \$175. The Dean is Dr. W. H. MacCracken. The total registration for 1917-18 was 166; graduates, 20. The thirty-fourth session begins Oct. 12, 1918, and ends June 7, 1919.

MINNESOTA

Minnesota, population 2,296,024, contains one medical school, the University of Minnesota Medical School, situated in Minneapolis, a city of 363,454 inhabitants.

Candidates for license to practice medicine in Minnesota who graduated subsequent to June 1, 1912, in addition to an accredited four-year high school education, must have completed two years of work the equivalent of that done in the liberal arts department of the University of Minnesota, including courses in physics, chemistry and biology, prior to beginning the study of medicine.

Minneapolis

UNIVERSITY OF MINNESOTA MEDICAL SCHOOL.—Organized in 1883 as the University of Minnesota College of Medicine and Surgery, reorganized in 1888 by absorption of St. Paul Medical College and Minnesota Hospital College. The first class graduated in 1889. In 1908 the Minneapolis College of Physicians and Surgeons, organized in 1883, was merged. In 1909 the Homeopathic College of Medicine and Surgery was merged. Present title in 1913. The faculty includes 65 professors and 94 instructors and assistants, a total of 159. The curriculum covers four years of nine months each and a year's internship in an approved hospital. The entrance requirements are two years of university work, which must include one year each of physics, general chemistry, qualitative analysis, zoology or botany, and French or German, all in addition to a four-year high school course, including two years of Latin. Students entering hereafter will be required to secure a degree of B.S. or A.B. before the M.D. is granted. Total fees are \$150 each year. The Dean is Dr. E. P. Lyon. The total registration for 1917-18 was 280; graduates, 38. The thirtieth session begins Sept. 10, 1918, and ends June 12, 1919.

MISSISSIPPI

Mississippi, population 1,964,122, has one medical college, the Department of Medicine of the University of Mississippi, which is located at Oxford, a city of 2,014 inhabitants.

Candidates for license to practice medicine in Mississippi who matriculate in the sessions of 1915-16 and of 1919-20 and thereafter, in addition to a standard four-year high school education, must have completed, respectively, one year and two years of work in an approved college or university, including courses in physics, chemistry, biology and a modern language, before entering on the study of medicine.

Oxford

UNIVERSITY OF MISSISSIPPI SCHOOL OF MEDICINE.—Organized in 1903. Gives only the first two years of the medical course. In 1908 a clinical department was established at Vicksburg, but was discontinued in 1910 after graduating one class. The session extends over eight and a half months. Entrance requirements for 1917-18 are one year of collegiate work in addition to an accredited four-year high school education; thereafter, two years of college work will be required. The total fees each year are \$122. The faculty numbers 18. The Dean is Dr. W. S. Leathers. The total registration for 1917-18 was 57. The sixteenth session begins Sept. 18, 1918, and ends June 3, 1919.

MISSOURI

Missouri, population 3,420,143, has six medical colleges. St. Louis, population 757,309, contains three of these, viz., the School of Medicine of St. Louis University, Washington University Medical School, and the St. Louis College of Physicians and Surgeons. Kansas City, with a population of 297,847, has two colleges, the Kansas City College of Medicine and Surgery and the Kansas City University of Physicians and Surgeons. The School of Medicine of the University of Missouri is at Columbia, a town of 12,103 people.

Columbia

UNIVERSITY OF MISSOURI SCHOOL OF MEDICINE.—Organized at St. Louis in 1845; was discontinued in 1855, but was reorganized at Columbia in 1872. Teaching of the clinical years was suspended in 1909. The faculty includes 10 professors and 15 assistant professors, lecturers, etc., a total of 25. The course covers two years of nine months each. The entrance requirements are two years of college work including French or German, 8 hours; general zoology, 8 hours; physics, 8 hours; inorganic chemistry, 8 hours, and general bacteriology, 3 hours. Total fees are \$73 for the first and \$45 for the second year. The acting Dean is Dr. Guy L. Noyes. Total registration for 1917-18 was 78. The next session begins Sept. 17, 1918, and ends June 5, 1919.

Kansas City

KANSAS CITY COLLEGE OF MEDICINE AND SURGERY, Eclectic, Twenty-Third and Holmes Streets.—Organized in 1915 as an offshoot of the Eclectic Medical University, a Class C medical school, now extinct. Total registration for 1917-18 was 96; graduates, 23. Since this school is an offshoot of a Class C medical college and is *reported not recognized by the Missouri State Board of Health and by the licensing boards of thirty-one other states*, no higher rating can be granted to it, pending an inspection which it has refused.

KANSAS CITY UNIVERSITY OF PHYSICIANS AND SURGEONS, 729 Troost Street.—Originally chartered in 1903 as the Central College of Osteopathy; charter amended in 1917, by which it obtained the right to grant degrees in medicine, and the name was changed to the Central College Medical Department. Present title in 1918. Very liberal advanced standing allowed for work done in osteopathic colleges. There were 45 medical students enrolled in 1917-18, of whom 12 graduated. Rated in Class C by the Council on Medical Education. *Reported not recognized by the licensing boards of Missouri and of twenty-seven other states.*

St. Louis

WASHINGTON UNIVERSITY MEDICAL SCHOOL, Kingshighway and Euclid Avenue.—Organized in 1842 as the Medical Department of St. Louis University. In 1835 it was chartered as an independent institution under the name of St. Louis Medical College. The first class graduated in 1843. In 1891 it became the Medical Department of Washington University. In 1899 it absorbed the Missouri Medical College. The faculty comprises 31 professors and 74 lecturers, instructors, etc., a total of 105. Two full years of college work are required for admission, including courses in English, physics, chemistry and biology and a reading knowledge of German. The course is four years of eight months each. The total fees for the four years are, respectively, \$205, \$200, \$200 and \$205. The Dean is Dr. Philip A. Shaffer. The total registration for 1917-18 was 136; graduates, 30. The next session begins Sept. 6, 1918, and ends June 12, 1919.

ST. LOUIS UNIVERSITY SCHOOL OF MEDICINE, 1402 South Grand Avenue.—Organized in 1901 as the Marion-Sims-Beaumont Medical College by union of Marion Sims Medical College, organized in 1890, and Beaumont Hospital Medical College, organized in 1886. First class graduated in 1902. It became the Medical Department of St. Louis University in 1903. The faculty is composed of 44 professors, 77 lecturers and assistants, a total of 121. One year of college subjects preliminary to the four years of medical subjects is given in the medical school. Two years of collegiate work are required for admission. The curriculum covers four years of thirty-two weeks each. Summer semester optional. The total fees are \$175 each year. The Dean is Dr. Hanau W. Loeb. The total registration for 1917-18 was 276; graduates, 58. The next session begins Oct. 1, 1918, and ends June 1, 1919.

ST. LOUIS COLLEGE OF PHYSICIANS AND SURGEONS, Jefferson and Gamble Streets.—Organized in 1869. Classes graduated in 1870 and each subsequent year until 1873, when it suspended. Reorganized in 1879. Classes graduated in 1880 and subsequent years until 1915 when it merged with the Medical Department of the National University of Arts and Sciences. Reestablished in 1916. Total fees each year are \$140; graduation fee, \$25. The dean is Dr. Waldo Briggs. Registration during 1917-18 was 72; graduates, 40. The next session begins Oct. 1, 1918, and ends June 3, 1919. *This college is reported as not recognized by the licensing boards of Missouri and thirty-four other states.*

NEBRASKA

Nebraska, population 1,277,750, has three medical colleges. The University of Nebraska College of Medicine and the John A. Creighton Medical College of Omaha, population 165,470, and the Lincoln Medical College at Lincoln, population 46,515.

Lincoln

LINCOLN MEDICAL COLLEGE, Eclectic, corner Thirteenth and P Streets, Lincoln.—Organized in 1890 as the Lincoln Medical College. The first

class graduated in 1891. Became Cotner University Medical College in 1911. Affiliation with Cotner University canceled and present title resumed in 1915. The Dean is Dr. F. L. Wilmeth. The total registration for 1917-18 was about 16; graduates, 3. *Official reports indicate that this college is not recognized by the licensing boards of Nebraska and thirty-one other states.*

Omaha

JOHN A. CREIGHTON MEDICAL COLLEGE, Fourteenth and Davenport Streets.—It is the Medical Department of Creighton University. Organized in 1892. The first class graduated in 1893. It has a faculty of 19 professors and 41 associates, lecturers and assistants, a total of 60. Two years of collegiate work are required for admission. The course of study embraces four years of eight months each. Continuous session adopted for seniors only. The total fees each year for the four years are, respectively, \$157, \$147, \$147 and \$152. The Dean is Dr. Herman von W. Schulte. Total registration for 1917-18 was 90; graduates, 16. The thirty-seventh session begins Sept. 23, 1918, and ends May 31, 1919.

UNIVERSITY OF NEBRASKA COLLEGE OF MEDICINE, Forty-Second Street and Dewey Avenue.—Organized in 1881 as the Omaha Medical College. The first class graduated in 1882. It became the Medical Department of Omaha University in 1891. In 1902 it affiliated with the University of Nebraska, with the present title. The first two years were given at Lincoln and the last two in Omaha until 1913, when all four years were transferred to Omaha. The faculty is composed of 22 professors and 42 lecturers and instructors, total 64. Two years of collegiate work are required for admission, including courses in physics, chemistry, zoology and a modern language. The fees for each of the four years, respectively, are \$135, \$130, \$120 and \$120. The Dean is Dr. Irving S. Cutter. Total registration for 1917-18 was 180; graduates, 27. The next session begins Sept. 20, 1918, and ends May 26, 1919.

NEW HAMPSHIRE

New Hampshire, population 443,467, has one medical college, located at Hanover, population 2,075.

To be eligible for license to practice medicine in New Hampshire, all students matriculating in and after the session of 1915-16, in addition to a four-year high school education, must have completed at least two years of work in an approved college of liberal arts, prior to beginning the study of medicine.

DARTMOUTH MEDICAL SCHOOL.—Organized as New Hampshire Medical Institute in 1797. The first class graduated in 1798. It is under the control of the trustees of Dartmouth College. Clinical teaching was discontinued in 1914. The faculty is made up of 10 professors and 2 instructors, a total of 12. Two years of collegiate work are required for admission. The course covers nine calendar months in each year, or eight months of actual teaching. Candidates for the B.S. degree in Dartmouth College may substitute the work of the first two years in medicine for that of the junior and senior years in the academic department. Candidates for the A.B. degree may make a similar saving of one year. The fees for the two years in medicine are, respectively, \$172 and \$173. Dean, Dr. John M. Gile; Secretary, Colin C. Stewart. The total registration for 1917-18 was 31. The next session opens Sept. 19, 1918, and ends June 8, 1919.

NEW YORK

New York State, population 10,366,778, has nine medical colleges. Six of these, College of Physicians and Surgeons (Columbia University), Long Island College Hospital, New York Homeopathic Medical College and Hospital, Cornell University Medical College, the University and Bellevue Hospital Medical College and Fordham University School of Medicine, are located in New York City, population 5,602,841. Albany Medical College is located in Albany, a city of 110,199 people. The University of Buffalo Medical Department is situated in Buffalo, population 468,558. The College of Medicine, Syracuse University, is in Syracuse, a city of 155,624 inhabitants.

To be eligible to receive a license to practice in New York, students matriculating in 1918-19 and thereafter must have completed two years of college work before entering on the study of medicine. This applies to graduates of 1922 and thereafter.

Albany

ALBANY MEDICAL COLLEGE, 58-64 Eagle Street.—Organized in 1838. The first class graduated in 1839. It became the Medical Department of Union University in 1873. In 1915 Union University assumed full control. The faculty is composed of 8 professors and 52 instructors, assistants, etc., a total of 60. One year of collegiate work, including college courses in physics, chemistry, biology, English, and French or German, is required for admission. Two years of college work are required for admission. The curriculum covers four years of eight months each. The fees for the four years, respectively, are \$195, \$180, \$165 and \$165. The Dean is Dr. Thomas Ordway. The total registration for 1917-18 was 81; graduates, 11. The eighty-eighth session begins Sept. 23, 1918, and ends June 9, 1919.

Buffalo

UNIVERSITY OF BUFFALO MEDICAL DEPARTMENT, High Street, near Main.—Organized in 1846. The first class graduated in 1847. It absorbed the Medical Department of Niagara University in 1898. The faculty is composed of 30 professors and 77 lecturers, assistants etc., a total of 107. Two years of collegiate work, including college courses in physics, chemistry, biology, English and French or German are required for admission. The course covers four years of eight months each. The total fees for each of the four years are \$200, matriculation fee \$5. The Dean is Dr. C. Sumner Jones. Total registration for 1917-18 was 215; graduates, 26. The seventy-third session begins Sept. 23, 1918, and ends June 6, 1919.

New York

COLUMBIA UNIVERSITY COLLEGE OF PHYSICIANS AND SURGEONS, 437 West Fifty-Ninth Street.—Organized in 1807 by the regents of the University of the State of New York as their medical department. The first class graduated in 1811. In 1860 it became, by affiliation, the Medical Department of Columbia College. It was made a permanent part of Columbia College by legislative enactment in 1891. That institution became Columbia University in 1896. The faculty is composed of 89 professors and 172 instructors, demonstrators, etc., a total of 261. Two years of collegiate work, including courses in physics, chemistry, biology, English and either French or German are required for admission. The work covers four years of eight months each. Continuous sessions adopted for seniors only. The Dean is Dr. Samuel W. Lambert. The total fees for the four years, respectively, are \$265, \$251, \$250 and \$275. Total registration for 1917-18 was 589; graduates, 113. The one hundred and eleventh session begins Sept. 25, 1918, and ends June 5, 1919.

CORNELL UNIVERSITY MEDICAL COLLEGE, First Avenue and Twenty-Eighth Street, New York City, and Ithaca.—Organized in 1898. The first class was graduated in 1899. The work of the first year may be taken either in Ithaca or New York. The faculty is composed of 51 professors and 77 assistants, lecturers, instructors, etc., a total of 128. All candidates for admission must be graduates of approved colleges or scientific schools or seniors of approved colleges which will permit them to substitute the first year of this medical school for the fourth year of their college course and will confer on them the Bachelor degree on the completion of the year's work. The candidate must also have such knowledge of physics, inorganic chemistry and biology as may be obtained in college by a year's course in these subjects when accompanied by laboratory work. The fees for each of the four years are, respectively, \$190, \$185, \$185 and \$200. The Dean is Dr. William M. Polk. Total registration for 1917-18 was 187; graduates, 32. The twenty-first session begins Oct. 1, 1918, and ends June 13, 1919.

FORDHAM UNIVERSITY SCHOOL OF MEDICINE, Bathgate Avenue and Fordham Road.—Organized in 1905 as the School of Medicine of St. John's College. Present title assumed in 1907. First class graduated in 1909. The faculty consists of 60 professors and 70 lecturers and assistants, a total of 130. The course of instruction covers four years of eight and a half months each. Continuous session for seniors only. Total fees for the four years, respectively, are \$256, \$241, \$235 and \$235. Two years' work in a recognized college of liberal arts, including college courses in physics, chemistry and biology, are required for admission. The Dean is Dr. Joseph Byrne. The total registration for 1917-18 was 279; graduates, 63. The fourteenth session begins Sept. 27, 1918, and ends June 10, 1919.

LONG ISLAND COLLEGE HOSPITAL, Henry and Amity Streets, Brooklyn.—Organized in 1858. The first class graduated in 1860. It has a faculty of 20 professors and 108 assistants, instructors, etc., a total of 128. Two years of collegiate work, including college courses in physics, chemistry and biology, are required for admission. The course covers four years of eight months each. Fees: first year, \$255; second year, \$250; third, \$250, and \$275 for the fourth year. The secretary is Dr. Otto V. Huffman. Total registration for 1917-18 was 345; graduates, 46. The sixty-first session begins Sept. 23, 1918, and ends May 29, 1919.

NEW YORK HOMEOPATHIC MEDICAL COLLEGE AND FLOWER HOSPITAL, Eastern Boulevard, between Sixty-Third and Sixty-Fourth Streets.—Organized in 1858. Incorporated in 1860 as the Homeopathic Medical College of the State of New York. The title, New York Homeopathic Medical College, was assumed in 1869. Present title assumed in 1908. The first class graduated in 1861. Total registration for 1917-18 was 170; graduates, 26. The fifty-ninth session begins Sept. 25, 1918, and ends May 23, 1919.

UNIVERSITY AND BELLEVUE HOSPITAL MEDICAL COLLEGE, 338 East Twenty-Sixth Street.—Organized in 1898 by the union of the New York University Medical College, organized in 1841, and the Bellevue Hospital Medical College, organized in 1861. It is the Medical Department of New York University. First class graduated in 1899. The faculty is composed of 61 professors and 85 instructors, etc., in all 146. The course covers four years of eight months each. Entrance requirements are two years of collegiate work, in addition to a standard four-year high school course, including college courses in physics, chemistry and biology. The fees are \$225 per year. The Dean is Dr. Samuel A. Brown. Total registration for 1917-18 was 491; graduates, 92. The next session begins Sept. 25, 1918, and ends June 11, 1919.

Syracuse

SYRACUSE UNIVERSITY COLLEGE OF MEDICINE, 307-311 Orange Street.—Organized in 1872, when the Geneva Medical College, chartered in 1834, was removed to Syracuse, under the title "The College of Physicians and Surgeons of Syracuse University." Present title assumed in 1875, when a compulsory three-year graded course was established. The first class graduated in 1873 and a class graduated each subsequent year. In 1889 the amalgamation with the university was made complete. Course extended to four years in 1896. Two years of a recognized college

course are required for admission. The course covers four years of thirty-five weeks each. The fees are \$210 annually; graduation fee, \$10. The faculty is composed of 28 professors and 57 associate and assistant professors, lecturers and instructors. The Dean is Dr. John L. Heffron. The total enrolment for 1917-18 was 125; graduates, 24. The forty-eighth session begins Oct. 1, 1918, and ends June 11, 1919.

NORTH CAROLINA

North Carolina, population 2,418,559, has three medical schools, each of which gives only the first two years of the medical course. The School of Medicine of the University of North Carolina is located at Chapel Hill, population 1,149. The Leonard Medical School is at Raleigh, population 19,980. Wake Forest College School of Medicine is at Wake Forest, population 1,443.

To be eligible for a license to practice medicine in North Carolina, graduates of 1918 and 1922 must have completed, respectively, one year and two years of college work including courses in physics, chemistry and biology in addition to 14 units of high school work before beginning the study of medicine.

Chapel Hill

UNIVERSITY OF NORTH CAROLINA SCHOOL OF MEDICINE.—Organized in 1890. Until 1902 this school gave only the work of the first two years, when the course was extended to four years by the establishment of a department at Raleigh. The first class graduated in 1903. A class was graduated each subsequent year, including 1910, when the clinical department at Raleigh was discontinued. Two years of collegiate work are required for admission. The faculty is composed of 7 professors and 8 lecturers, assistants, etc., a total of 15. The fees for each year are \$132. The Dean is Dr. I. H. Manning. The total registration for 1917-18 was 57. The thirty-third session begins Sept. 2, 1918, and ends May 30, 1919.

Raleigh

LEONARD MEDICAL SCHOOL.—Colored. This department of Shaw University was established in 1882. Classes were graduated in 1886, 1888 and in all subsequent years, including 1914, when clinical teaching was discontinued. Two years of collegiate work are required for admission. It has a faculty of 12. The course covers two years of eight months each. The total fees for each year are \$115. The Dean is Dr. George H. Stoddard. Total registration for 1917-18 was 5. The thirty-seventh session begins Oct. 1, 1918, and ends May 29, 1919.

Wake Forest

WAKE FOREST COLLEGE SCHOOL OF MEDICINE.—This school was organized in 1902. The faculty, including the professors of chemistry, physics and biology, numbers 11. Only the first two years of the medical course are offered after the completion of freshman and sophomore college work, and on this combined course the B.S. degree is conferred. Each annual course extends over nine months. The fees for each year aggregate \$115. The Secretary is E. B. Earnshaw. The total registration for 1917-18 was 35. The seventeenth session begins Sept. 3, 1918, and ends May 30, 1919.

NORTH DAKOTA

North Dakota, population 752,260, has one medical college, the School of Medicine of the University of North Dakota, which is situated at University, a suburb of Grand Forks, a city of 15,332 people. It gives only the first two years of the medical course.

Candidates for license to practice medicine in North Dakota who graduated in 1912 and thereafter, in addition to a four-year high school education, must have completed two years of work in an approved college of liberal arts including courses in Latin, physics, chemistry, botany and zoology, prior to beginning the study of medicine. Beginning in 1918 every applicant for a license must show evidence of having spent at least one year as an intern in a hospital.

University

UNIVERSITY OF NORTH DAKOTA SCHOOL OF MEDICINE.—Organized in 1905. Offers only the first two years of the medical course. Two years' work in a college of liberal arts is required for admission. The fees are \$50 each year. The faculty consists of 4 professors and 6 instructors, a total of 10. The Dean is Dr. Harley E. French. The total registration for 1917-18 was 30. The thirteenth session begins Sept. 22, 1918, and ends June 12, 1919.

OHIO

Ohio, population 5,181,220, has five medical colleges. Two of these, the Medical College of the University of Cincinnati and the Eclectic Medical College, are located in Cincinnati, a city of 410,476 inhabitants. Cleveland, population 674,073, contains one medical school, Western Reserve University School of Medicine. Columbus, population 214,878, contains

the two departments of the Ohio State University, the College of Medicine and the College of Homeopathic Medicine.

Cincinnati

UNIVERSITY OF CINCINNATI COLLEGE OF MEDICINE, Eden Avenue, Cincinnati General Hospital.—Organized in 1909 by the union of the Medical College of Ohio (founded in 1819) with the Miami Medical College (founded in 1852). The Medical College of Ohio became the Medical Department of the University of Cincinnati in 1896. Under a similar agreement, March 2, 1909, the Miami Medical College also merged into the University, when the title of Ohio-Miami Medical College of the University of Cincinnati was taken. Present title assumed in 1915. Two years of college work are required for admission. The faculty consists of 43 professors, 113 associates, assistants, etc., a total of 156. The course covers four years of eight months each. The fees for each of the first three years are \$150 and for the fourth year, \$170. The Dean is Dr. Christian R. Holmes. The total registration for 1917-18 was 140; graduates, 23. The next session begins Oct. 1, 1918, and ends June 14, 1919.

ECLECTIC MEDICAL COLLEGE, 630 West Sixth Street.—Organized in 1833 at Worthington as the Worthington Medical College. Removed to Cincinnati in 1843. In 1845 it was chartered as the Eclectic Medical Institute. In 1857 the American Medical College, organized in 1839, was merged into it, and in 1859 the Eclectic College of Medicine and Surgery, organized in 1856, was merged into it. In 1910 it assumed its present title. Classes were graduated in 1833 and in all subsequent years except 1839 to 1843, inclusive. It has a faculty of 27 professors and 9 lecturers and assistants, a total of 36. Two years of college work are required for admission. The course covers four years of eight months each. The fees are \$120 for each year; matriculation fee, \$5. The Secretary is Dr. John K. Scudder. Total registration for 1917-18 was 88; graduates, 22. The next session begins Sept. 12, 1918, and ends May 12, 1919.

Cleveland

WESTERN RESERVE UNIVERSITY SCHOOL OF MEDICINE, 1353 East Ninth Street.—Organized in 1843 as the Cleveland Medical College. The first class graduated in 1844. It assumed the present title in 1881. In 1910 it absorbed the Cleveland College of Physicians and Surgeons. The faculty includes 18 professors and 93 lecturers, assistants, etc., a total of 111. The curriculum embraces four years of eight and one-half months each. Three years of college work are required for admission. The total fees for each of the four years are, respectively, \$175, \$160, \$154 and \$155. The Dean is Dr. C. A. Hamann. The total registration for 1917-18 was 181; graduates, 46. The seventy-sixth session begins Sept. 26, 1918, and ends June 12, 1919, for the first three year classes; for seniors the session began July 1, 1918, and ends about March 1, 1919.

Columbus

OHIO STATE UNIVERSITY COLLEGE OF MEDICINE, 710 North Park Street.—Organized in 1907 as the Starling-Ohio Medical College by the union of Starling Medical College (organized 1847) with the Ohio Medical University (organized 1890). In 1914 it became an integral part of the Ohio State University with its present title. The faculty consists of 32 professors and 60 lecturers, demonstrators, etc., a total of 92. Two years of collegiate work are required for admission. The course covers four years of eight months each. Tuition fees are \$152 each year. The Acting Dean is Francis L. Landaere. The total registration for 1917-18 was 124; graduates, 23. The next session begins Sept. 7, 1918, and ends June 17, 1919.

OHIO STATE UNIVERSITY COLLEGE OF HOMEOPATHIC MEDICINE.—Organized in 1914, when the property of the Cleveland-Pulte Medical College of Cleveland was transferred to the Ohio State University. The faculty numbers 23. Two years of college work are required for admission. The students are taught largely in the same classes and by the same teachers as students of the College of Medicine during the first two years. Tuition fees are \$152 each year. The Dean is Dr. Claude A. Burrett. The total registration for 1917-18 was 38; graduates, 14. The fourth session begins Sept. 7, 1918, and ends June 12, 1919.

OKLAHOMA

Oklahoma, population 2,245,968, has one medical college, the School of Medicine of the University of Oklahoma. The work of the first and second years is given in the academic laboratories at Norman, a city of 3,724 inhabitants. The work of the third and fourth years is given in Oklahoma City, which has a population of 92,943 and which is eighteen miles north of Norman.

To be eligible for license to practice medicine in Oklahoma, all students matriculating in 1914-15 and in 1917-18, in addition to a four-year high school education, must have completed, respectively, one year and two years of work in an approved college of liberal arts, including courses in physics, chemistry, biology and a modern language prior to beginning the study of medicine.

Norman and Oklahoma City

UNIVERSITY OF OKLAHOMA SCHOOL OF MEDICINE.—Organized in 1900. Gave only the first two years of the medical course at Norman until 1910, when a clinical department was established at Oklahoma City. It has a faculty of 49 professors and 16 instructors, a total of 65. Two years of collegiate work are required for admission. The course is four years of nine months each. An optional course of six years is offered

for the degree of B.S. and M.D. The total fees for the four years are, respectively, \$58, \$40, \$20 and \$20. The Dean is Dr. Leroy Long, 325 East Fourth Street, Oklahoma City. The total registration for 1917-18 was 73; graduates, 13. The nineteenth session begins Sept. 17, 1918, and ends June 3, 1919.

OREGON

Oregon, population 848,866, has one medical college, the University of Oregon Medical School, located in Portland, a city of 295,463 population.

Portland

UNIVERSITY OF OREGON MEDICAL SCHOOL, Lovejoy and Twenty-Third Streets.—Organized in 1887. The first class graduated in 1888. A class graduated each subsequent year except 1898. Became an integral part of the University of Oregon in 1910. The Willamette University Medical Department was merged in 1913. It has a faculty of 17 professors and 65 lecturers, assistants, etc., a total of 82. Entrance requirements are two years of college work or its equivalent. The course is four years of eight months each. Fees: Matriculation, \$5; tuition, \$150 each year. The Dean is Dr. K. A. J. Mackenzie. The total registration for 1917-18 was 75; graduates, 21. The thirty-second session begins Oct. 1, 1918, and ends May 31, 1919.

PENNSYLVANIA

Pennsylvania, population 8,591,029, has six medical colleges. Of these, Philadelphia, having a population of 1,709,518, contains five, as follows: University of Pennsylvania School of Medicine, Jefferson Medical College, Hahnemann Medical College and Hospital, Woman's Medical College of Pennsylvania and Temple University Department of Medicine. The other school, the School of Medicine of the University of Pittsburgh, is situated in Pittsburgh, a city of 579,090.

To be eligible for license to practice medicine in Pennsylvania, students matriculating in the session 1914-15 and thereafter, in addition to a four-year high school education, must have completed a year's work either in an approved college of liberal arts or in a preliminary year in the medical college, including college courses in physics, chemistry and biology, before beginning the study of medicine. He must also have completed an internship of at least one year in an approved hospital.

Philadelphia

UNIVERSITY OF PENNSYLVANIA SCHOOL OF MEDICINE, Thirty-Sixth Street and Hamilton Walk.—Organized in 1765. Classes were graduated in 1768 and in all subsequent years except 1772-79, inclusive. The original title was the Department of Medicine, College of Philadelphia. The present title, School of Medicine of the University of Pennsylvania, was adopted in 1909. It granted the first medical diploma issued in America. In 1916 it took over the Medico-Chirurgical College of Philadelphia to develop it as a graduate school. The faculty consists of 55 professors, associate, adjunct and assistant professors, and 149 lecturers, associates, instructors, etc., a total of 204. The minimum requirements for admission are a standard four-year high school course or its equivalent, plus two years of work in an approved College of Arts and Science, including courses in French or German, and in physics, chemistry and general biology or zoology, with appropriate laboratory exercises. The course embraces four years of study of thirty-four weeks each. The total fees for each of the four years are, respectively, \$233, \$210, \$210 and \$214. The Dean is Dr. William Pepper. Total registration for 1917-18 was 479; graduates, 115. The one hundred and fifty-third session begins Sept. 27, 1918, and ends June 18, 1919.

JEFFERSON MEDICAL COLLEGE, Tenth and Walnut Streets.—Organized in 1825 with its present title as the Medical Department of Jefferson College, Cannonsburg, Pa. Classes have been graduated annually since 1826. In 1838 a separate university charter was granted without change of title, since which time it has continued under the direction of its own board of trustees. It has a faculty of 27 professors, associate and assistant professors, and 146 associates, lecturers, demonstrators and instructors, a total of 173. Entrance requirements are a completed standard four-year high school or college preparatory course, or the equivalent, and in addition two years of work in an approved college of arts and science amounting to at least 60 semester hours, including specified courses in physics, chemistry and biology, with laboratory work amounting to 8 semester hours each. The course of study covers graded work of four years of eight and a half months each. The tuition is \$210 a year with a matriculation fee of \$5 paid on admission. The Dean is Dr. Ross V. Patterson. The total registration for 1917-18 was 466; graduates, 102. The ninety-fourth session begins Sept. 23, 1918, and ends June 7, 1919.

WOMAN'S MEDICAL COLLEGE OF PENNSYLVANIA, Twenty-First and N. College Avenue.—Organized in 1850. Classes were graduated in 1852 and in all subsequent years except 1862. It has a faculty of 17 professors and 41 assistants, lecturers, etc., in all 68. Entrance requirements are a completed course in a standard secondary school, and in addition two years of collegiate work, including courses in physics, chemistry, biology and two foreign languages, one of which must be French, German or Spanish, physics, chemistry and biology. It has a each. Fees for each of the four years are, respectively, \$197, \$176,

\$183 and \$179.50. The Dean is Dr. Martha Tracy. The total registration for 1917-18 was 43; graduates, 8. The seventy-ninth session begins Sept. 18, 1918, and ends June 4, 1919.

HAHNEMANN MEDICAL COLLEGE AND HOSPITAL OF PHILADELPHIA, 226 North Broad Street.—Organized in 1848 as the Homeopathic Medical College of Pennsylvania. In 1869 it united with the Hahnemann Medical College of Philadelphia, taking the latter title. Assumed present title in 1885. The first class graduated in 1849. Entrance requirements are a completed course in a standard secondary school and in addition two years devoted to college course, including English and either French, German or Spanish, physics, chemistry and biology. It has a faculty of 24 professors and 60 lecturers, instructors, etc., in all 84. The work covers four years of eight and a half months each. Total fees for each of the first years are \$180 and for the fourth year \$195. The Dean is Dr. William A. Pearson. The total registration for the college year 1917-18 was 140; graduates, 12. The seventy-first session begins Sept. 30, 1918, and ends May 30, 1919.

THE TEMPLE UNIVERSITY DEPARTMENT OF MEDICINE, Eighteenth and Buttonwood Streets.—Organized in 1901. The first class graduated in 1904. The faculty numbers 93. Two years of college work are required for admission. The fees for each of the four years, respectively, are \$175, \$170, \$160 and \$161. The Dean is Dr. Frank C. Hammond. The total registration for 1917-18 was 106; graduates, 22. The eighteenth session begins Sept. 26, 1918, and ends June 1, 1919.

Pittsburgh

UNIVERSITY OF PITTSBURGH SCHOOL OF MEDICINE, Bigelow Boulevard.—Organized in 1886, as the Western Pennsylvania Medical College and in 1908 became an integral part of the University of Pittsburgh, removing to the university campus in 1910. The first class graduated in 1887. The faculty is composed of 17 professors and 113 associates, assistants, etc., 130 in all. Entrance requirements are two years of recognized college work, to have included essentially courses in English, chemistry (inorganic and organic), physics, biology and a reading knowledge of French or German, Italian or Spanish. It is possible for students to get the degree of B.S. and M.D. in six years. The course of study for medicine alone is four years of eight and a half months each. The tuition fee is \$250 a year; matriculation fee, \$15; diploma fee, \$5. The Dean is Dr. Ogden M. Edwards, Jr. The total registration for 1917-18 was 147; graduates, 27. The thirty-third session begins Sept. 23, 1918, and ends June 6, 1919.

SOUTH CAROLINA

South Carolina, population 1,634,340, has one medical college, situated in Charleston, a city of 60,734 people.

Graduates of 1922 (matriculants of 1918-19) and thereafter, to be eligible for license to practice medicine in South Carolina must have completed, in addition to 14 units of high school work, two years in an approved college, including courses in English, physics, chemistry and biology.

Charleston

THE MEDICAL COLLEGE OF THE STATE OF SOUTH CAROLINA, 16 Lucas Street.—Organized in 1823 as the Medical College of South Carolina. The first class graduated in 1825. In 1832 a medical college bearing the present title was chartered and the two schools continued as separate institutions until they were merged in 1838. Classes were graduated in all years except 1862 to 1865, inclusive. In 1913, by legislative enactment, it became a state institution. It has a faculty of 34 professors and 27 lecturers, instructors, etc., a total of 61. The course covers four years of eight months each. Two years of collegiate work including courses in physics, chemistry, biology and a modern foreign language are required for admission, in addition to a standard high school preparation. The total fees are \$150 for each of the first three years and \$145 for the last year. The Dean is Dr. Robert Wilson, Jr. Total enrolment for 1917-18 was 55; graduates, 9. The ninetieth session begins Sept. 27, 1918, and ends June 5, 1919.

SOUTH DAKOTA

South Dakota, population 707,740, has one medical college, the University of South Dakota College of Medicine, located at Vermilion, a town of 2,376 people.

To be eligible for license to practice medicine in South Dakota, graduates of 1915 and thereafter must show that they matriculated in and graduated from medical colleges which required at least two years of collegiate work for admission, including courses in physics, chemistry, biology and a modern language. This affects all students who matriculated in the session of 1911-1912 and thereafter.

Vermilion

UNIVERSITY OF SOUTH DAKOTA COLLEGE OF MEDICINE.—Organized in 1907. Offers only the first two years of the medical course. Two years' work in a college of liberal arts are required for admission. The fees are \$60 each year. The faculty numbers 10. The Dean is Christian P. Lommen, B.S. The total registration for 1917-18 was 19. The twelfth session begins Sept. 17, 1918, and ends June 11, 1919.

TENNESSEE

Tennessee, population 2,296,316, has four medical colleges. Of these, Vanderbilt University Medical Department and

Meharry Medical College are situated in Nashville, a city with a population of 117,057. The College of Medicine of the University of Tennessee and the University of West Tennessee College of Medicine and Surgery are located in Memphis, population 148,995.

To be eligible for a license to practice medicine in Tennessee students matriculating in the session of 1914-1915 and of 1918-1919 must have completed, respectively, one year of collegiate work, including courses in physics, chemistry, biology and a modern language, in addition to a four-year high school course before entering on the study of medicine.

Memphis

UNIVERSITY OF TENNESSEE COLLEGE OF MEDICINE, three buildings, 879 Madison Avenue.—Organized in 1876 at Nashville as Nashville Medical College. First class graduated 1877, and a class graduated each subsequent year. Became Medical Department of University of Tennessee 1879. In 1909 it united with the Medical Department of the University of Nashville to form the joint Medical Department of the Universities of Nashville and Tennessee. This union was dissolved in 1911. The trustees of the University of Nashville by formal action of that board named the University of Tennessee College of Medicine as its legal successor. In 1911 it moved to Memphis, where it united with the College of Physicians and Surgeons. The Memphis Hospital Medical College was merged in 1913. Lincoln Memorial University Medical Department was merged in 1914. The faculty includes 31 professors and 80 assistants, instructors, etc., a total of 111. Entrance requirements are a completed secondary education plus two years of collegiate work. Students taking the two-year premedical course in Knoxville may secure the B.S. and M.D. degrees. The total fees for the four years, respectively, are \$107, \$102, \$102 and \$127 for bona fide residents of the state, and \$50 more each year for nonresidents. The Dean is Dr. A. H. Wittenborg. Total registration for 1917-18 was 84; graduates, 18. The next session begins Sept. 1, 1918, and ends June 4, 1919.

UNIVERSITY OF WEST TENNESSEE COLLEGE OF MEDICINE AND SURGERY, Colored. 1190 South Phillips Place.—Organized in 1900. The first class graduated in 1904, and a class graduated each subsequent year. It has a faculty of 22. The course covers four years. Two years of college work are required for admission. The fees are \$65 per year; graduation, \$10 extra. The Dean is Dr. M. V. Lynk. Registration for 1917-18 was 21; graduates, 8. The nineteenth session begins Sept. 23, 1918, and ends about May 20, 1919. *Official reports indicate that the diplomas of this college are not recognized as an acceptable qualification for the license by the licensing boards of thirty-seven states.*

Nashville

VANDERBILT UNIVERSITY SCHOOL OF MEDICINE.—This school was founded in 1874. The first class graduated in 1875. The faculty consists of 25 professors and 54 lecturers, a total of 79. One year of collegiate work is required for admission. The course covers four years of nearly eight and a half months each. The total fees for the four years respectively are \$156, \$150, \$150 and \$175. The acting Dean is Dr. B. F. Hambleton. The total registration for 1917-18 was 115; graduates, 23. The forty-fifth session begins Sept. 30, 1918, and ends June 11, 1919.

MEHARRY MEDICAL COLLEGE. Colored. 1118 First Avenue, South.—This school was organized in 1876 as the Medical Department of Central Tennessee College, which became Walden University in 1900. First class graduated in 1877. Obtained new charter independent of Walden University in 1916. The faculty is made up of 13 professors and 13 instructors, demonstrators, etc., 26 in all. The work embraces four years of thirty weeks each. The total fees for each of the first three years are \$70 and for the fourth year, \$80. The President is Dr. G. W. Hubbard. Total registration for 1917-18 was 206; graduates, 77. The forty-third session begins Oct. 8, 1918, and ends May 22, 1919.

TEXAS

Texas, population 4,472,494, has two medical colleges. The University of Texas Department of Medicine is located at Galveston, a city of 41,863 inhabitants. The Baylor University College of Medicine is located in Dallas, population 124,527.

To be eligible for a license to practice medicine in Texas, students matriculating in the session of 1914-1915 and thereafter must have completed a year of collegiate work, including courses in physics, chemistry, biology and modern language, in addition to a standard four-year high school course, before entering on the study of medicine.

Dallas

BAYLOR UNIVERSITY COLLEGE OF MEDICINE, 720 College Avenue.—Organized in 1900 as the University of Dallas Medical Department. In 1903 it took its present name and became the Medical Department of Baylor University at Waco. It acquired the charter of Dallas Medical College in 1904. The first class graduated in 1901. The faculty numbers 58. Entrance requirement is one year of college work in addition to a four-year high school education. For the session of 1918-19 and thereafter two years of collegiate work will be required for admission. The course is four years of eight months each. The fees are \$155 each year; matriculation fee of \$5, paid but once; graduation fee, \$25. The Dean is Dr. E. H. Cary. Total registration for

1917-18 was 68; graduates, 13. The nineteenth session begins Sept. 30, 1918, and ends May 29, 1919.

Galveston

UNIVERSITY OF TEXAS DEPARTMENT OF MEDICINE, Avenue B, between Ninth and Tenth Streets.—Organized in 1891. The first class graduated in 1892. It has a faculty of 18 professors and 22 lecturers, a total of 42. The curriculum embraces four years of eight months each. The entrance requirement is two years of collegiate work in addition to a four-year high school education. The total fees for the four years, respectively, are \$78, \$48, \$30.50 and \$18. The Dean is Dr. William S. Carter. Total registration for 1917-18 was 209; graduates, 40. The twenty-eighth session begins Oct. 1, 1918, and ends May 31, 1919.

UTAH

Utah, population 438,974, has one medical college, the School of Medicine of the University of Utah, situated at Salt Lake City, which has 117,399 people.

To be eligible to secure licenses to practice medicine in Utah, students matriculating in and after the session of 1912-1913, in addition to a four-year high school education, must have completed at least one year of collegiate work prior to beginning the study of medicine, this preliminary college work to have included college courses in physics, chemistry and biology.

Salt Lake City

UNIVERSITY OF UTAH SCHOOL OF MEDICINE.—Organized in 1906. Gives only first two years of medical course. Each course covers thirty-six weeks. Two years of collegiate work are required for admission. The medical faculty consists of 10 professors and 13 lecturers and assistants, a total of 23. The fees are \$95 each year for residents, and \$120 each year for nonresidents. The Dean is Dr. Perry G. Snow. Total registration for 1917-18 was 34. The twelfth session begins Sept. 30, 1918, and ends June 7, 1919.

VERMONT

Vermont, population 364,322, has one medical school, located at Burlington, a town of 21,432 people.

Students matriculating in and after the sessions 1912-1913 and of 1918-1919 who desire to practice medicine in Vermont must have obtained a preliminary training, respectively, of one year and of two years of collegiate work, in addition to a standard four-year high school education, this additional years's work to include college courses in physics, chemistry and biology.

Burlington

UNIVERSITY OF VERMONT COLLEGE OF MEDICINE, Pearl Street, College Park.—Organized with complete course in 1822. Classes graduated in 1823 to 1836, inclusive, when the school was suspended. It was reorganized in 1853 and classes were graduated in 1854 and in all subsequent years. The faculty numbers 38. Two years of college work in addition to a four-year high school education are required for admission. The course of study covers four years of nine months each. Continuous session for seniors only. The total fees for each of the first three years are \$145, and \$170 for the fourth year. The Dean is Dr. H. C. Tinkham. The total registration for 1917-18 was 95; graduates, 22. The next session begins Oct. 9, 1918, and ends June 4, 1919.

VIRGINIA

Virginia, population 2,202,522, has two medical colleges, one, the Department of Medicine of the University of Virginia, situated in Charlottesville, population 12,500, and the Medical College of Virginia at Richmond, population 156,687.

Only graduates of medical colleges registered by the Virginia State Board of Medical Examiners are eligible to obtain licenses to practice medicine in this state. Medical colleges to be so registered must require of all students admitted in the session of 1914-1915, completion of at least one year, and in the session of 1917-1918 and thereafter two years of collegiate work, including courses in physics, chemistry, biology and a modern language, preferably German, in addition to a four-year high school education.

Charlottesville

UNIVERSITY OF VIRGINIA DEPARTMENT OF MEDICINE.—Organized in 1827. Classes were graduated in 1828 and in all subsequent years except 1865. It has a faculty of 16 professors and 19 lecturers, instructors, assistants, etc., a total of 35. The requirements for admission are the completion of a four-year high school course, or its equivalent, and two years of college work devoted to English, mathematics, chemistry, physics and biology, and French or German. Continuous session adopted for seniors only. Total fees for each year are \$150; matriculation fee, \$10. The Dean is Dr. Theodore Hough. The total registration for 1917-18 was 100; graduates, 22. The ninetieth session begins Sept. 12, 1918, and ends June 11, 1919.

Richmond

MEDICAL COLLEGE OF VIRGINIA, Marshall and College Streets.—Organized in 1838 as the Medical Department of Hampden Sydney College. Present title was taken in 1854. In 1913 the University College of Medicine was merged. In 1914 the North Carolina Medical College was merged. Classes were graduated in 1840 and in all subsequent years. It has a faculty of 42 professors and 90 lecturers, instructors, etc., a total of 132. The requirement for admission is a four-year high school education and in addition two years of collegiate work, including courses in physics, chemistry, biology and French or German. The course embraces four years of eight months each. Fees, \$169 for each of the first three years and \$201 for the fourth. The Dean is Dr. Stuart McGuire. The total registration for 1917-18 was 137; graduates, 43, including 2 students of the North Carolina Medical College, who were granted degrees by the latter. The ninetieth session begins Sept. 18, 1918, and ends June 5, 1919.

WEST VIRGINIA

West Virginia, population 1,399,320, has one medical college, the School of Medicine of West Virginia University, which offers the first two years of the medical course. It is located at Morgantown, a city of 12,974 population.

Graduates of 1921 (matriculants of 1917-1918) and thereafter, in order to secure licenses to practice medicine in West Virginia, must have completed, in addition to a high school education, one year of collegiate work, including courses in physics, chemistry and biology, before entering on the study of medicine.

Morgantown

WEST VIRGINIA UNIVERSITY SCHOOL OF MEDICINE.—Organized in 1902, and gives only the first two years of the medical course. Two years of college work are required for admission and the Bachelor's degree will be granted to those who finish the two years in medicine. Session extends through nine months. The faculty numbers 12. Fees: For residents of the state, tuition \$25 each year, matriculation, \$5; for non-residents, tuition, \$40; matriculation fee, \$10. The Dean is Dr. John N. Simpson. The total registration for 1917-18 was 36. The next session begins Sept. 23, 1918, and ends June 11, 1919.

WISCONSIN

Wisconsin, population 2,513,758, has two medical colleges, the Medical School of the University of Wisconsin, which teaches the first two years of the medical course, and is located at Madison, a city of 30,699 people, and the Marquette University School of Medicine, located at Milwaukee, a city of 436,535 people.

To be eligible for licenses to practice medicine in Wisconsin, students matriculating in the session of 1915-1916 (graduates of 1919) and thereafter, prior to entering a medical school, must have completed, besides a four-year high school course, two years of collegiate work, including courses in physics, chemistry, biology and a modern language.

Madison

UNIVERSITY OF WISCONSIN MEDICAL SCHOOL.—Organized in 1907. Gives only the first two years of the medical course. For matriculation at least two years in a college of arts and science or an equivalent training are required, including two years of Latin, a reading knowledge of French or German, and at least a year's work in physics, chemistry and biology. It has a faculty of 15 professors and 13 lecturers, instructors, etc., a total of 30. Tuition fees: For residents of the state, \$70 each year; for nonresidents, \$195. The Dean is Dr. Charles R. Bardeen. The registration for 1917-18 was 120. The eleventh session begins Oct. 1, 1918, and ends June 25, 1919.

Milwaukee

MARQUETTE UNIVERSITY SCHOOL OF MEDICINE, Fourth Street and Reservoir Avenue.—Organized in December, 1912, by the merger of the Milwaukee Medical College and the Wisconsin College of Physicians and Surgeons. It has a faculty of 51 professors and 50 assistants, instructors, etc., a total of 101. The entrance requirements include, in addition to a four-year high school education, two years of college work, including courses in physics, chemistry, biology and a modern language. The curriculum is for four years of thirty-four weeks each. The total fees for the four years, respectively, are \$195, \$195, \$195 and \$225. The Dean is Dr. Louis F. Jermain. The registration for 1917-18 was 67; graduates, 7. The seventh session begins Sept. 17, 1918, and ends June 17, 1919.

PHILIPPINE ISLANDS

The Philippine Archipelago, having a population (estimated 1917) of 8,879,999, has two medical colleges, the University of the Philippines College of Medicine and Surgery and the Medical Faculty of the University of St. Thomas. They are located in the city of Manila, which in 1910 had a population of 234,409.

Manila

UNIVERSITY OF THE PHILIPPINES COLLEGE OF MEDICINE AND SURGERY, Manila.—Organized in 1907 as the Philippine Medical School, under the support of the government of the Philippine Islands. Present title in 1910. The faculty includes 33 professors and 44 lecturers, assistants, etc., a total of 77. Two years of collegiate work leading to the degree of Bachelor of Arts are required for admission. The course extends over five years of nine months each with an additional sixth year of

intern service. The Dean is Dr. Fernando Calderon. The total registration for 1917-18 was 205; graduates, 23. The twelfth session began July 1, 1918, and ends April 4, 1919.

CANADA

The Dominion of Canada has nine medical colleges, all but one of which require a five-year course, including in the first year courses in physics, chemistry and biology. This course is practically equal to that in the colleges of the United States which require one year of college work for admission, including the science courses named. None of the Canadian colleges has a minimum requirement of two years of collegiate work, or its equivalent, preliminary to or as a part of the medical course. The medical school at Edmonton, Alberta, gives only the first two years of the medical course, or three years, including the preliminary science year.

Alberta

UNIVERSITY OF ALBERTA, FACULTY OF MEDICINE, Strathcona.—Organized in 1913. Offers only the first three years of the five-year medical course, including the preliminary science year. The faculty numbers 19. Fees for the first year are \$63; for the second and third years, each \$88. The registrar is Cecil E. Race, B.A. The registration for 1917-18 was 48. The sixth session begins Oct. 1, 1918, and ends May 15, 1919.

Manitoba

MANITOBA MEDICAL COLLEGE, Winnipeg.—It is the Medical Faculty of the University of Manitoba. Organized in 1883, first class graduated in 1886 and a class graduated each subsequent year. The faculty numbers 59. The fees are \$175 for the first year and \$160 for each subsequent year. The entire course covers five years, the first year including premedical courses in physics, chemistry and biology. The Dean is Dr. S. Willis Prowse. Total registration for 1917-18 was 128, graduates, 32. The next session begins Oct. 1, 1918, and ends May 9, 1919.

Nova Scotia

DALHOUSIE UNIVERSITY, FACULTY OF MEDICINE, Halifax, N. S.—Organized in 1867. Incorporated as the Halifax Medical College in 1875. Reorganized as an examining faculty, separate from the Halifax Medical College in 1855. In 1911, in accordance with an agreement between the Governors of Dalhousie University and the Corporation of the Halifax Medical College, the work of the latter institution was discontinued and a full teaching faculty was established by the University. By an arrangement between Dalhousie University and the Provincial Medical Board of Nova Scotia, the final professional examinations are conducted conjointly by the university and the board, and candidates may qualify at the same time for their academic degrees and the provincial license. First class graduated in 1872. It has a faculty of 36 professors, lecturers and demonstrators. Requires matriculation examination and a graded course of five years, including premedical courses in physics, chemistry and biology. The fees are \$110 for each of the first two years and \$120 for each of the other three. Total registration for 1917-18 was 77; graduates 7. The Secretary is Prof. D. Fraser Harris. The next session begins Oct. 1, 1918, and ends May 29, 1919.

Ontario

UNIVERSITY OF TORONTO, FACULTY OF MEDICINE, Toronto.—Organized in 1843 as the Medical Faculty of King's College. Abolished in 1853. Reestablished in 1887. In 1902 it absorbed Victoria University, Medical Department, and in 1903 absorbed Trinity Medical College. The course of study covers five years of eight months each, the first year including premedical courses in physics, chemistry and biology. It has a faculty of 51 professors and 154 lecturers, associates, etc., a total of 205. The fees are \$150 each year; graduation fee, \$20. The Secretary is Dr. A. Primrose. The total registration for 1917-18 was 522; graduates, 74. The next session begins Sept. 24, 1918, and ends June 1, 1919.

QUEEN'S UNIVERSITY FACULTY OF MEDICINE, Kingston.—Organized 1854, first class graduated in 1855, and a class graduated each subsequent year. The faculty was originally a department of the university, but a separation took place in 1866, when the school was conducted under the charter of the Royal College of Physicians and Surgeons at Kingston. In 1892 the school again became an integral part of Queen's University. The faculty includes 17 professors and 32 assistants, instructors, etc., a total of 49. The fees amount to \$115 each year; fee for M.D., C.M. degrees, \$30. The course covers five years of thirty teaching weeks each, the first year including courses in physics, chemistry and biology. The total registration in 1917-18 was 180; graduates, 22. The Dean is Dr. J. C. Connell. The next session begins Sept. 30, 1918, and ends June 6, 1919.

WESTERN UNIVERSITY, FACULTY OF MEDICINE, London.—Organized in 1881, first class graduated in 1883, and a class graduated each year subsequently. The Faculty of Medicine became an integral part of Western University in 1913. The faculty numbers 54. The course is five years of eight months each, the first year including premedical courses in physics, chemistry and biology. The total fees each year are \$115; matriculation fee, \$5; graduation fee, \$25. The Dean is Dr. H. A. McCallum. Total registration for 1917-18 was 68; graduates, 11. The next session begins Oct. 1, 1918, and ends May 30, 1919.

Montreal

MCGILL UNIVERSITY, FACULTY OF MEDICINE.—Founded 1824 as Montreal Medical Institution; became the Medical Faculty of McGill University in 1829; first class graduated under the university auspices in 1833. No session between 1836-39 owing to political troubles. In 1905 it absorbed the Faculty of Medicine of the University of Bishop College. The course extends over five years of eight months each, including the preliminary year devoted largely to physics, chemistry and biology. The faculty numbers 174. The total fees for the five years, respectively, are \$174, \$174, \$174, \$174 and \$204. The total registration for 1917-18 was 365; graduates, 62. The Registrar is Dr. John W. Scane. The next session begins Oct. 1, 1918, and ends May 30, 1919.

MONTREAL SCHOOL OF MEDICINE AND SURGERY, Montreal.—Organized in 1843, incorporated in 1845. In 1891, by act of parliament, the Medical Faculty of Laval University (organized in 1878) was absorbed.

Present name assumed in 1911. A class was graduated in 1843 and in each subsequent year. The faculty numbers 80. The course extends over five years, including premedical courses in physics, chemistry and biology. The total fees for the five years, respectively, are \$110, \$118, \$126, \$126 and \$138. The Dean is Dr. E. P. Lachapelle. The total registration for 1917-18 was 231; graduates 43. The next session begins Oct. 3, 1918, and ends June 30, 1919.

Quebec

LAVAL UNIVERSITY FACULTY OF MEDICINE, Quebec.—The Quebec School of Medicine, organized in 1848, became in 1852 the Medical Department of Laval University; first class graduated in 1855, and a class graduated each subsequent year. The faculty numbers 35. The fees are \$90 each year. The course extends over five years, the first year including courses in physics, chemistry and biology. The Dean is Dr. Edwin Turcot, Quebec. Total registration for 1917-18 was 103; graduates, 19. The next session begins June 4, 1918, and ends December, 1918.

THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES

The requirements for admission to and graduation from colleges holding membership in this association are 14 units of high school work and two years (60 semester hours) of college work.

THE HIGH SCHOOL REQUIREMENT

(A) Required, 7 units.	Units
Mathematics (minimum 2 years, maximum 3 years), algebra and plane geometry	2
English (minimum 2 years, maximum 4 years).....	2
One foreign language (minimum 2 years, maximum 4 years)	2
History and civics	1
Total number of required units.....	7

(B) Elective, 7 units.

To be selected from the following:

	Units
English language and literature (in addition to the required work)	1 to 2
Foreign languages, additional, Latin, German, Italian, French, Spanish or Greek (not less than 1 year in any one).....	1 to 4
Advanced mathematics, advanced algebra, solid geometry and trigonometry ($\frac{1}{2}$ year each)....	1
Natural science, chemistry 1 year, physics 1 year, and biology, botany, physiology and zoology ($\frac{1}{2}$ to 1 year each)	$\frac{1}{2}$ to 2
Earth science, physical geography, geology and agriculture ($\frac{1}{2}$ year to 1 year each).....	$\frac{1}{2}$ to 1
Astronomy ($\frac{1}{2}$ year)	$\frac{1}{2}$
Drawing ($\frac{1}{2}$ to 1 year).....	$\frac{1}{2}$ to 1
History, ancient, medieval and modern, and English (1 year each).....	1 to 3
Economics ($\frac{1}{2}$ year)	$\frac{1}{2}$
Manual training (1 year).....	1
Bookkeeping ($\frac{1}{2}$ to 1 year).....	$\frac{1}{2}$ to 1

One unit in any subject is the equivalent of work in that subject for four or five periods per week for a year of at least thirty-six weeks, periods to be not less than forty-five minutes in length. One unit is equivalent to 2 semester credits or 2 points.

PREMEDICAL COLLEGE COURSE

(See paragraph "II. Premedical College Course" in the standards of the Council on Medical Education on page 543.)

MEDICAL CURRICULUM

DIVISION 1.—ANATOMY, 720 HOURS (18 per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab.	Wk.
(a) Gross anatomy (including applied anatomy)	510		120			390
(b) Histologic and microscopic anatomy	135		30			105
(c) Embryology	75		30			45

DIVISION 2.—PHYSIOLOGY AND CHEMISTRY, 600 HOURS (15 per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab.	Wk.
(a) Inorganic chemistry	180		60			120
(b) Organic chemistry	75		30			45
(c) Physiologic chemistry	104		30			75
(d) Physiology	240		140			100

DIVISION 3.—PATHOLOGY, BACTERIOLOGY AND HYGIENE, 450 HOURS (11.25 per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab.	Wk.
(a) Bacteriology	135		30			105
(b) Hygiene and general dietetics	45		45			...
(c) Pathology	270		60			210

DIVISION 4.—PHARMACOLOGY, MATERIA MEDICA AND THERAPEUTICS, 240 HOURS (6 per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab.	Wk.
(a) Pharmacology	105		40			65
(b) Materia medica and pharmacology	80		...			...
(c) Therapeutics	55		...			...

DIVISION 5.—MEDICINE AND MEDICAL SPECIALTIES, 970 HOURS (24.25 per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab.	Wk.
(a) General medicine (including clinical microscopy)	640		...			...
(b) Pediatrics	150		...			...
(c) Nervous and mental diseases	105		...			...
(d) Jurisprudence, ethics and economics	30		...			...
(e) Dermatology and syphilis....	45		...			...

DIVISION 6.—SURGERY AND SURGICAL SPECIALTIES, 720 HOURS (18 per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab.	Wk.
(a) General surgery	510		...			...
(b) Orthopedic surgery	45		...			...
(c) Genito-urinary diseases.....	45		...			...
(d) Eye	60		...			...
(e) Ear, nose and throat.....	60		...			...

DIVISION 7.—OBSTETRICS AND GYNECOLOGY, 300 HOURS (7.5 per Cent.)

	Hours.	Lect.	Rec.	Dem.	Lab.	Wk.
(a) Obstetrics	195		...			...
(b) Gynecology (including some abdominal surgery)	105		...			...

Colleges may reduce the number of hours in any subject not more than 20 per cent. provided that the total number of hours in a division is not reduced. Where the teaching conditions in a college are best subserved, the subject may be, for teaching purposes, transferred from one division to another. When didactic and laboratory hours are specified in any subject, laboratory hours may be substituted for didactic hours.

(NOTE.—At the 1916 meeting the Committee on Education and Pedagogics was instructed to revise this curriculum to meet the present requirements.)

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The secretary-treasurer of the Association is Dr. Fred C. Zapffe, 3431 Lexington Street, Chicago.

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SATURDAY, AUGUST 17, 1918

MEDICAL EDUCATION IN THE
UNITED STATES

We are publishing this week, for the eighteenth consecutive year, statistics regarding medical education in the United States. The great improvements that have been made during these eighteen years have been set forth in previous reports and are generally known to most of our readers. A study of the statistics will be well worth while, however, and, for those who may not have seen the previous reports, a few statements will be of interest.

Following the Civil War, the number of medical schools rapidly increased until in 1900 there were 160

Surgeon-General has to reject so many applicants for the Medical Reserve Corps because of their lack of professional training.

The campaign of publicity started by THE JOURNAL in 1900 led, in 1904, to the creation of the Council on Medical Education, which was placed in charge of the campaign for improvement. Minimal and ideal standards of education were drawn up; the merger of from two to five medical schools into one in each of various cities and states was advocated; annual conferences for the discussion of educational problems were held; the need of additional endowments for medical education was shown, and, finally, all medical schools were inspected and classified. A wide publicity in the columns of THE JOURNAL and in reports and pamphlets was given to the conditions found and to the Council's classifications, and improvements since then have been rapid. At present, largely through mergers, the number of colleges has been reduced to ninety; the number of students has been reduced to 13,630, and the number of graduates to 2,670.¹ These lower figures represent the normal decrease that was expected under the increased entrance requirements, and are not due to the war. As noted in Table 3 on page 542, the enrolments in the first three classes show an increase over previous years. Next year, therefore, unless the war makes an unexpected demand on the medical student body,

Entrance Requirements	Colleges				Students				Graduates			
	1904		1918		1904		1918		1904		1918	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Four-yr. high school ed. or less*.....	158	97.5	7	7.8	26,391	93.8	631	4.6	5,378	93.6	258	9.7
One year of college work.....	.....	....	34	37.8	.....	....	5,944	43.6	.....	....	1,147	43.0
Two years of college work.....	4	2.5	49	54.4	1,761	6.2	7,055	51.8	369	6.4	1,265	47.3
Totals.....	162	....	90	....	28,142	....	13,630	....	5,747	....	2,670 ¹	....

* It is not probable that in 1904 more than about thirty colleges (20 per cent.) were actually requiring a four-year high school education as a minimum for admission.

medical schools in the United States—more than in all the rest of the world. Most of the schools were dependent on the students' fees for maintenance, and some were making profits from that source. Medical teaching was largely overshadowed by the energy expended to secure large enrolments. It was a common practice to issue pretentious announcements and extravagantly worded circulars, and even to send out solicitors who were paid commissions for such students as should be enrolled. Number, not quality, was sought; few students were so grossly ignorant that they could not gain admission. In fact, statistics show that in 1904 only four medical colleges were requiring any college work for admission, and only from 20 to 25 per cent. were actually requiring a four-year high school education. Under the methods pursued, it is not surprising that in 1904 the number of medical students reached the amazing total of 28,142, and that in that year there were graduated 5,747 physicians; nor is it a wonder that at the present time the

the total enrolment in all medical schools and the total number of graduates should show an increase over the present year.

While in the totals of all colleges, students and graduates there has been a decrease, on the other hand, as shown in the accompanying tabulation, there has been a decided increase in the number of colleges that have enforced higher entrance requirements and in the numbers of students and graduates who possessed the higher entrance qualifications.

Instead of four (2.5 per cent.) medical schools which in 1904 required any college work for admission, now eighty-three (92.2 per cent.) are requiring one or two years of such work; instead of only 1,761 (6.2 per cent.) students enrolled in the higher standard colleges in 1904, during the year 12,999 (95.3 per cent.) students were enrolled in

1. Altogether 2,807 students successfully completed the courses of the senior year. From 137, however, in the Universities of California and Minnesota and in Rush Medical College, the degrees have been withheld pending the completion of a hospital internship.

the higher standard colleges, and instead of only 369 (6.4 per cent.) graduates who were turned out by the higher standard colleges in 1904, at the end of the last session 2,412 (90.3 per cent.) graduated from those institutions. In addition to the improvement in preliminary qualifications, which represents only one of the improvements brought about in medical education, it should also be stated that greatly increased endowments have been secured, many schools having received hundreds of thousands of dollars, while a score or more have received gifts of millions; most of the medical schools have erected new buildings, have established better equipped laboratories, have obtained more abundant clinical facilities, and, still more important, have employed larger numbers of skilled full-time teachers and developed better methods of teaching in both the laboratory and the clinical portions of the school. Instead of the large proportion of lectures or lecture clinics that constituted so great a part of the former curriculum, now the student gets most of his clinical training at the bedside of the patient, in small group clinics or in having patients individually assigned to him.

Since the proportion of physicians to population in the United States is still one to every 739 people, as compared with one to every 1,500 to 2,500 in the European countries, it is evident that the reduction in the output of physicians each year has not been serious. On the contrary, there has been a large increase in the number of those who are much better qualified, both by preliminary education and medical training, to care adequately for the sick, and to take a more active part in the prevention of disease and the promotion of public health.

NEW OBSERVATIONS ON VITAMINS

As a corollary to the investigation of deficiencies in the diet and their relation to the so-called deficiency diseases, students of nutrition are beginning to summarize those positive properties of foods which give them special value as stimulants of growth, as anti-neuritic or antiscorbutic substances or as promoters of well-being from the metabolic standpoint. These properties or advantageous physiologic attributes include the character of the protein, that is, its capacity for yielding all of the amino-acids requisite for the body's needs, the digestibility of the nutrients, the amount and more particularly the suitability of the inorganic components, and, most recently, the content of vitamins of different types.

Not long ago, Osborne and Mendel,¹ who have been engaged under the auspices of the Carnegie Institution of Washington in extensive studies of the nutritive factors in animal tissues, demonstrated that ordinary butcher's meat, beef skeletal muscle, furnishes protein entirely adequate for the needs of

growing animals. This tissue, however, was found to contain a far smaller proportion of the water-soluble vitamin than occurs in the liver tissue of the pig, or such now familiar tested sources of this essential dietary constituent as yeast, corn germ, wheat embryo, or milk. In view of this it was surprising to find, in Osborne and Mendel's² latest researches, that heart muscle, in contrast with the skeletal variety just mentioned, furnishes considerable of the water-soluble vitamin so essential to nutritive welfare. Glandular tissues, such as the pancreas, kidney and liver, had been shown to be relatively rich in this vitamin. We are now assured that it is likewise present in the brain tissue.² Furthermore, all of these gland foods contain proteins suitable for the nutrition of growing animals. In this sense their protein quality is "complete" from the amino-acid standpoint.

It is not without related interest that such derivatives of the meat industry have some virtues at least that are not associated with the muscular tissue. Perhaps this will serve to give them a more dignified place in dietetics, in which they have at times received some unfavorable reputation as sources of purins and therefore as precursors of uric acid. The latter no longer holds the spell over medicine that it once had.

Osborne and Mendel² have pointed out that their various observations of the unlike value of different animal tissues as sources of the water-soluble vitamin closely parallel the findings of Cooper³ with respect to the effectiveness of different tissues in postponing the development of polyneuritis in pigeons fed on a diet of polished rice. He found that the liver, cardiac muscle, and cerebrum of the ox were much more efficient in preventing the onset of this disease than was the ox voluntary muscle.

In 1914, Osborne and Mendel⁴ showed that cod liver oil contains the fat-soluble vitamin comparable with that in milk fat or butter and egg yolk fat, and now associated with the promotion of growth. They have now reported it to be present in the liver oil of mammals, from which it was removed in the case of the pig by extraction with ether. This likewise adds a new property to the liver as a source of vitamins.

The apparent need of certain bacteria for substances of the vitamin type has been referred to in THE JOURNAL. Pacini and Russell⁵ seem to have demonstrated that the typhoid bacillus, in growing, produces a vitamin that can be isolated and identified by proper biologic methods. It is not radically surprising that this should be so, when the richness of another micro-biotic form—the yeast—in vitamin is recalled. One naturally inquires how this may effect the general metabolism and nutritive condition of typhoid patients.

2. Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, II, Jour. Biol. Chem., 1918, **34**, 17.

3. Cooper, E. A.: Jour. Hyg., 1912, **12**, 436; 1914, **14**, 12.

4. Osborne, T. B., and Mendel, L. B.: Jour. Biol. Chem., 1914, **17**, 401.

5. Pacini, A. J. P., and Russell, Dorothy W.: The Presence of a Growth-Producing Substance in Cultures of Typhoid Bacilli, Jour. Biol. Chem., 1918, **34**, 43.

1. Osborne, T. B., and Mendel, L. B.: Nutritive Factors in Animal Tissues, I, Jour. Biol. Chem., 1917, **32**, 309.

THE SELECTIVE SERVICE APPLIED TO PHYSICIANS

The proposed Selective Service Law, if the age limit is raised to 45, will affect 75,000 physicians. The bill as introduced by Senator Chamberlain and Mr. Dent, August 5, makes no mention of physicians as a class; there is nothing to indicate that a physician will be treated differently from any other man. Such speculation as has been made on the subject, and it would fill reams of paper, has concerned itself chiefly with the views advanced by Secretary Baker, Provost Marshal-General Crowder and Chief of Staff Peyton March. As stated by Secretary Baker, it is desired to prevent "the disruption of the industry of the country and the impairment of the efficiency of the various governmental agencies which would feel the indiscriminate enlistment of men up to the age of 45."

It has been suggested that the new law will provide for the utilization of the man power of the nation to the best advantage, although there is nothing in the bill, as we read it, that provides for any different method of applying the selective service principles than that which has heretofore governed the disposition of those under 31 years of age. In any event, as the matter affects physicians, certain points are clear: It is quite probable that physicians on local and district boards will be exempted during the continuance of such service; in fact, the Provost Marshal-General has so intimated. It is also obvious that physicians under 45 years of age, physically fit, without dependents, will be subject to conscription, as is now the case. It is likely that physicians with dependents, who have independent means, and whose families are therefore not dependent on the physicians' professional income for support, will be subject to conscription.

It is not so obvious what will be done with the physician under 45 years of age, physically fit, whose social conditions are such as, for an ordinary man, would warrant claim for exemption on account of dependency. It has been repeatedly suggested that physicians could not advance a plea for exemption on the grounds of dependency since they are eligible for a commission and the salary of a commissioned officer is sufficient to support a family. As a matter of fact, it is reported that local boards in some communities have refused to exempt physicians on the ground of dependency for this very reason. On the other hand, Col. J. S. Easby-Smith¹ of the Provost Marshal-General's Office, at the meeting on the selective service regulations at the last annual session of the American Medical Association, said:

You are considering his case not from the standpoint of a man that is to be commissioned in the Medical Reserve Corps. You are considering him as a man, a drafted man who will get \$30 a month and that the government will allow \$15 and add to it \$15 for a wife. You cannot consider the probability

that a medical man who is drafted is going to get a commission. I think you would have to treat him as you would any other registrant from that standpoint.

The proposed increase of the draft ages will perhaps not solve the medical problems of the civilian community and of the Army as easily as they have apparently been solved in England by the application of selective service. In that country, as was pointed out last week, all physicians are called up by the Central Medical War Committee and given the option of taking such civilian medical service as the Central Medical War Committee may assign to them, or of being turned over to the military authorities for commission. In that way the civilian needs of the community, as well as those of the Army, are provided for. While Great Britain is small in area as compared with the United States, at the same time there seems to be no serious obstacle to putting into effect practically the same general scheme here. Of course, it must be remembered that owing to the lax methods of education and licensure in the past, there are some physicians who, although licensed to practice in the state in which they reside, are not able to meet the professional requirements of the Surgeon-General's Office for a commission in the Medical Department of the Army. It is quite probable, however, that there are comparatively few of these within the proposed draft age. It would seem possible, therefore, to formulate regulations which would receive the approval of the Surgeon-General of the Army and of the Provost Marshal-General which would practically place all physicians of draft age under the jurisdiction of the Surgeon-General of the Army. It is the Medical Department of the Army that is primarily interested. The Navy has all the men it needs, and it is the policy of the Bureau of Medicine and Surgery of the Navy not to commission more men than can be put into active service. Placing all the physicians of the country, under 45, at the disposal of the Surgeon-General of the Army would make easy the solution of the problem of securing the required number of medical officers without seriously interfering with the needs of the civilian population, institutions, colleges and hospitals.

IN DEFENSE OF VENEREAL NOSTRUMS

The accusation that the medical profession generally and the American Medical Association in particular is opposed to the sale of all medicaments of the "home-remedy" type, THE JOURNAL has repeatedly denied. It has stated that it believes that under present economic conditions there is a place for remedies of this sort and has suggested certain fundamental principles which should govern the sale of products of this kind. One of these principles is that no preparation should be sold for the treatment of those diseases that are so dangerous to the individual or to the community that they should not be self-treated.

1. Physical Examinations Under the Selective Service, THE JOURNAL A. M. A., July 13, 1918, p. 118.

The reasonableness of this requirement is so obvious that one would imagine it would be accepted without question.

The raising of the new army has brought to public attention certain facts that, under normal conditions, might be less patent. Those dealing with the problem of the control of venereal diseases are some of them. In the attempt to prevent the spread of venereal disease and to minimize the danger to health of those suffering from it, it has long been urged that the self-treatment of gonorrhea and syphilis is unjustified, and, *ergo*, that the sale of products for such self-treatment is unwarranted. The majority of decent druggists agree wholly with this stand. Not so that spokesman of the "patent medicine" interests, the *National Druggist*. In its July issue this publication thrashes itself into a verbal fury nearly four pages long against the suggestion which, it claims, emanates from a "Prussianized clique of medical autocrats." Says this representative of the nostrum interests:

But the latest and, perhaps, the most insidious, application of their knowledge of popular psychology, of their policy of opportunism, is seen in the effort which is now being made to prohibit the sale by druggists of medicines for the treatment of the so-called "private" diseases. There is, of course, not the slightest valid reason why a person, if he so elects, should be deprived of the right to buy and use, or why the druggist should be forbidden to sell, a remedy for one of these diseases than for any other disease or class of diseases.

There is, of course, the best and most obvious of reasons why the public should not attempt to self-treat contagious diseases that are a menace both to the individual and to the community. But any law looking to that result would put the exploiters of the venereal nostrums out of business! The *National Druggist*, after denouncing the American Medical Association and the medical profession, then goes on to explain what the druggists may do should laws be enacted by the various legislatures and be sustained by the courts. Says this drug journal:

Suppose, which is inconceivable and we believe impossible, the courts should sustain these laws? Even then they could not extend to and embrace any stock of such preparations that the druggist may have on hand at the time the law is enacted. In short, the Legislature cannot make a retroactive law of the kind, so as to destroy property in existence at the time of its passage. This principle is so well established that the druggists may confidently accept and act upon it. There would be, therefore, nothing to prevent his going right ahead and disposing of such of these remedies as he has in stock.

And, apparently, the *National Druggist* sees a way whereby, even when such laws are enacted, they may be evaded by the druggist. Thus:

But we do not see how such laws can very materially interfere with the sale of remedies for the specified diseases that may be purchased *after* their passage (even granting, for the sake of argument, that they constitute a valid exercise of the police power) provided the druggist sticks to his last, so to speak—by which we mean, if he does not prescribe, recommend or actually sell the remedies *knowingly* for the

specified diseases. Take any of these remedies. There is scarcely one of them that is not indicated and prescribed and designed and used for the treatment of various other conditions than those for which it is chiefly intended; and, so, unless the purchaser explicitly states to the druggist that he wants them for, let us say, some venereal disease, there is absolutely nothing to prevent the druggist from supplying them.

What though the druggist may know that the medicine is customarily used for one of the proscribed diseases—he has no right to *assume* that every purchaser wants it for such a purpose. Indeed, the person calling for it may be only a messenger or an errand boy for some one else. [The italics appear in the original.—Ed.]

We wonder how the decent druggists of the country feel after reading such suggestions as those just given. From the large amount of advertising carried by the *National Druggist*—which includes, by the way, in the current issue "Big G," "Knox-It," "C & C Remedy for Men," "Pabst's Okay Specific," etc.—one might get the impression that the publication has more influence in the drug world than seems possible from the editorial pabulum it serves its readers. One thing is certain, if the *National Druggist* does not represent the attitude of the druggists of the country, and we feel sure that it does not, the sooner the druggists repudiate it the better it will be for the honor of that profession.

Current Comment

MEDICAL EDUCATION AND THE WAR

When the selective service law was enacted in 1917, medical students were not exempted and there was much concern lest many, if not all, of our medical schools would be forced to close, and that as a result there would be a serious dearth of physicians. Statistics collected by the Council on Medical Education indicated that the first three calls under the draft law would take from 60 to 75 per cent. of all medical students, and series of editorial comments on the subject were published in THE JOURNAL.¹ A solution to this problem was found in the National Defense Act of 1915 providing for the Medical Officers' Reserve Corps and also for an Enlisted Medical Reserve Corps in which medical students could be enrolled and retained in the medical schools until they had graduated and completed their hospital intern year. These students are subject to assignment to active duty should an emergency require it. Later it was revealed that unless means of exempting premedical students could be found, the supply of medical students would be curtailed. The proposed Students' Army Training Corps, to be established in colleges and universities, now appears to provide the means of retaining premedical students at their work. Although they will be enlisted men and subject to call in emergency, the policy of the government is to have them stay in college until they complete their training as medical officers. If they do not enter medical schools before they are

1. Medical Students and Conscription, Current Comment, THE JOURNAL A. M. A., Aug. 11, 1917, p. 475; Aug. 1, 1917, p. 570; Aug. 25, 1917, pp. 649, 650; Sept. 1, 1917, p. 735, and Sept. 8, 1917, p. 827.

21 years of age—and become enrolled in the Enlisted Reserve Corps—they must register under the selective service and respond to their call. When called, it is planned, their record will be examined and if satisfactory the students will be returned to college so as to complete their premedical and medical work. A third and more vital problem is that relating to the threatened dearth of medical teachers due to the loss of many by enlistment. A solution to this problem appears to have been found in the rule providing for the exemption of those engaged in “essential industries.” To meet the situation, each college has been requested by the Surgeon-General to furnish a list of its essential teachers who, it is planned, will not be called to active duty even though they shall enlist, but shall be left at their teaching duties on the ground that they are engaged in an “essential industry.”

UNIFICATION OF THE ARMY

A general order was issued under date of August 7 to discontinue the use of distinctive appellations for the various branches of the service, such as Regular Army, Reserve Corps, National Army, National Guard, etc., and to use exclusively the single term, U. S. Army. The insignia now prescribed for the Regular Army is hereafter to be worn by all members of the United States Army. In the same way all commissions in various branches shall be regarded as commissions in the United States Army, divided into permanent, provisional or temporary, as fixed by the conditions of their issue. The number of commissions in each grade and in each staff corps are to be kept within the limits fixed by law, but officers are to be assigned without reference to the term of their commissions, solely in the interest of the service. Promotion is to be by selection, except that permanent promotions in the regular Army will continue to be made as prescribed by law. This affects the Medical Department of the Army only to the extent that all medical officers will wear as insignia the U. S. and the caduceus, discontinuing the use of the U. S. R. In the same way, correspondence, orders and articles referring to medical officers will hereafter refer to them only as officers of the Medical Department, U. S. Army.

CANNING WITHOUT SUGAR

We have been so accustomed to using large quantities of sugar in the home canning of fruits that the present sugar shortage may lead many to think that sugar is necessary for such preservation. As a matter of fact, commercial canners have for a long time often used only very thin syrups, and in some cases no sugar at all, in the preservation of fruit. The whole problem is simply one of adequate sterilization. While no thoroughly satisfactory method of home canning has yet been devised, particularly for fruit already distributed in cans or jars, wide experience has taught the housewife practical methods of solving her problem. It is to be hoped that some one will be able to develop a satisfactory home pressure cooker so that in the home canning there may be obtained the more

complete sterilization that is now possible in commercial establishments. Fruits that are preserved without sugar may have the sugar added at any time. If, before consumption, the fruit is heated up at the same time that the sugar is added, an additional factor of safety will be obtained. Such toxins as that causing botulism are not thermostable. The recent work on botulism indicating the heat resisting power of the spores of the *Bacillus botulinus* demonstrates the wisdom of boiling all canned vegetables and fruits just before they are consumed, particularly if there is any suggestion of fermentation, or if they have a sour butyric acid smell. Considerable work is being done by the Department of Agriculture and in the agricultural colleges and some university laboratories on improvements in the methods of canning, and it is to be hoped that standardized methods can soon be obtained that will have general application in our homes. Too much emphasis cannot be placed on using canning processes based on the well known facts of bacteriology. A slight error in a purely empiric method may lead to a large percentage of spoiling with consequent waste of human food and labor. During the war, particularly, we are anxious to save both.

WELL DONE, MINNESOTA

For many years the organized medical profession of Minnesota was satisfied to have the *Journal-Lancet* for its official organ. As time went by, however, the physicians of Minnesota, evidently believing that that great state should be in the vanguard rather than the rear guard of medical journalism, decided to look into the question of publishing its own official organ so that it would have direct control over both editorial and advertising pages. The advertising standard of the *Journal-Lancet* was, and is today, characteristic of nineteenth rather than twentieth century American medical journalism in that it accepts for its advertising pages such “patent medicines” as Pluto Water, Angier’s Emulsion, Sal Hepatica, Pepto-Mangan, Fellows’ Syrup of Hypophosphites, Listerine, etc., and such pseudoscientific atrocities as Ergoapiol (Smith), Henry’s Tri-Iodides, Campho-Phenique, Antiphlogistine, Cystogen, etc. At the annual meeting of the Minnesota State Medical Association in 1916, the House of Delegates of that body appointed a committee to consider and report on the advisability of the association’s publishing its own journal. The committee consisted of five members; four of these members brought in a report unfavorable to making the change that would put Minnesota in control of its own journal. The fifth member looked into the matter with a good deal of thoroughness, got together a large amount of data showing not only the advantages, ethical and professional, that would accrue to the Minnesota State Medical Association in having its own publication, but also pointing out the highly objectionable advertising carried by the *Journal-Lancet*, which at that time was the journal of the association, and this member of the committee favored the change. It speaks well for the good sense and high standard of the Minnesota physicians when it is stated that the House of Delegates adopted

the minority report and decided that Minnesota should have its own journal commencing with January, 1918. *Minnesota Medicine* was the result, and up to date eight numbers have been issued. The journal is a credit, not only to Minnesota, but to the medical journalism of the country. Its advertising pages are clean (it takes advertisements of no proprietary remedies that have not been passed on by the Council on Pharmacy and Chemistry and accepted for inclusion in New and Nonofficial Remedies), the standard of its reading pages is high and, being independent of nostrum domination, it gives its readers the facts regarding the nostrum evil as it affects both the medical profession and the public. In a word, Minnesota now has a medical journal of which any state association might be proud.

ARSPHENAMIN ELIMINATION

Danysz¹ has presented what appears to be a plausible explanation of the manner in which arsphenamin is eliminated after its intravenous injection, and along with this an explanation of the causes of serious or fatal reactions. If the simple explanation given is correct that accidents can be largely eliminated by the use of the proper amount of alkali in making up the solutions, and that most of the different types of reaction are explained on the basis of the same mechanism, the observations of Danysz will prove of inestimable value. While we can hardly hope that reactions can be prevented to the extent indicated by this author, nevertheless his suggestions deserve careful consideration, and it is hoped that experimental data will be forthcoming that will disprove or prove the conclusions of Danysz on this important subject.

COEDUCATION IN MEDICINE

The world war has given added impetus to the tendency on the part of medical colleges to throw open their doors to women students. During the last three or four years this action has been taken by several of the largest medical schools in the United States and Canada: in 1914 by the Medical School of the University of Pennsylvania; in 1915 by the Tulane University of Louisiana; in 1916 by the Columbia University College of Physicians and Surgeons; in 1917 by the University and Bellevue Hospital Medical College, by the University of Maryland and the Medical College of Virginia, and in the present year by Harvard University Medical School and by the Medical Faculty of McGill University. The idea of granting equal opportunities for the two sexes in medical schools, however, had already made rapid advancement before the world war. More than forty years ago the University of Michigan made its courses in medicine coeducational, and practically all state universities have followed the example. From the time of its organization in 1893, the Medical Department of Johns Hopkins University has admitted women. In New York City the Women's Medical College of the New York Infirmary closed its doors only after Cornell

University in 1898 had established its medical school and admitted women students. In 1902 Rush Medical College, which had formed a close affiliation with the University of Chicago, became coeducational. At the present time, therefore, of the ninety colleges existing in the United States, sixty admit both sexes. The general adoption of coeducation by medical schools is a fitting recognition of the splendid work toward winning the war which is being done by women, both in medical and other lines.

CHIROPRACTORS—QUACKERY BY WHOLESALE

The public is rapidly becoming rid of quacks from the medical profession through merciless exposure by the medical and lay press and through prosecution in many states under the medical practice laws. A more dangerous type of quackery, however, is represented by the various pseudomedical cults—more dangerous because they are built on fallacies, misrepresentations and extravagant claims in regard to the cure of diseases. Most flagrant is "chiropractic." Followers of this cult are sending circulars through the mails and publishing advertisements in newspapers—sometimes utilizing whole pages—claiming that by a simple manipulation of a portion of the spine they can cure all diseases from toothache and felons to apoplexy, locomotor ataxia, nephritis and epilepsy. The menace of their pretensions is shown in their claim to cure infantile paralysis—a serious disease even in the hands of the most skilled and thoroughly trained physician. The utter absurdity of their claims is indicated by the fact that they are not trained in the simplest rudiments of medical knowledge, and avowedly turn their backs on all modern scientific methods. A prominent representative of chiropractic, as revealed in the investigation by Mr. Justice Hodgins, whose report on Medical Education in Ontario was recently commented on,¹ stated that "chiropractors have no earthly use for diagnosis"; that bacteriology was of "no value to the chiropractor"; that it was "not worth the while to spend time, energy and money to microscopically examine the infinitesimal mites"; that chiropractors "abhor the very name of drugs and repudiate their use," and that chemistry "has nothing in common with chiropractic and cannot be made an adjunct to it." B. J. Palmer, the "founder of chiropractic," also stated in the same investigation that he did not believe in bacteria and that "bacteriology was the greatest of all gigantic farces ever invented for ignorance and incompetency," and as to analysis of blood and urine, he considered it of no value. This is the man who terms his college "the fountain head of chiropractic"! That such bigoted and egotistic incompetence should be permitted to practice the healing art and to prey on a credulous public is as astounding as it is contrary to common sense. It is deplorable that hordes of these ignorant practitioners are being turned out each year from institutions representing this and other cults—institutions which would not exist were it not for the lack of ample safeguards over the chartering of edu-

1. Danysz, J.: Ann. d. l'Inst. Pasteur, 1917, 31, 114; abstr., THE JOURNAL A. M. A., this issue, p. 596.

1. Medical Education in Ontario, editorial, THE JOURNAL A. M. A., July 6, 1918, p. 42.

cational institutions. If these practitioners were physicians they would be subject to early and severe prosecution under the medical practice laws and to severe arraignment by the medical press as violators of all the rules of medical ethics and medical decency. But in some states they have secured exemption from medical practice laws under another fallacious claim, that they are "not practicing medicine." It is high time that the sick should be protected from such dangerous incompetents and that those who prey on the afflicted, under the pretense of having discovered new methods of treatment, should be prosecuted for obtaining money under false pretenses.

Medical Mobilization and the War

Physicians May Still Enroll in the Medical Reserve Corps

The newspapers of August 14 carry an announcement that on August 13 the Secretary of War issued an order "prohibiting the granting of commissions in the Army to men in civil life between the proposed draft ages of 18 to 45. Students in officers' training camps will be permitted to complete their courses and civilians not in training camps whose applications were approved before the order was issued will be given commissions." Presumably this does not apply to the commissioning of physicians in the Medical Reserve Corps and the Medical Reserve Force of the Navy any more than did the order under date of August 8 which suspended further volunteering and the receipt of candidates for officers' training camps, which, it has been announced, did not apply to commissioning of physicians.

Personnel of the Medical Department

For the week ending Aug. 9, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 933, including 1 major-general, 64 colonels, 112 lieutenant-colonels, 296 majors and 460 lieutenants.

MEDICAL RESERVE CORPS: 23,063, including 1 colonel, 4 lieutenant-colonels, 1,531 majors, 6,894 captains and 14,633 lieutenants. On active duty: 22,706, including 1 colonel, 2 lieutenant-colonels, 1,516 majors, 6,737 captains and 14,450 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,195, including 22 lieutenant-colonels, 263 majors, 257 captains and 653 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 362, including 6 brigadier-generals, 87 colonels, 259 lieutenant-colonels, 9 majors and 1 captain.

THE DISCHARGES to date are:

Causes—	Number		
	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	760	56
Inaptitude	0	285	22
Other branches of service	3	645	75
Resignations	0	200	34
Domestic troubles.....	0	61	1
Needed by community.....	1	49	0
Deaths	1	102	7
Dismissals	0	17	4
Duty completed	0	3	0
No reason given.....	0	15	1
	5	2,137	200

War Department Does Not Authorize Raising of Hospital Funds by Individuals

The War Department announces that it does not authorize the collection of money by individuals for the erection of military hospitals, since it has sufficient funds for the building of all hospitals needed to care for sick and wounded soldiers. Congress has appropriated all money required for this purpose up to the present time, and it is reasonable to assume that it will continue to do so.

Proportion of Various Types of Disability

In a recent issue the *Vocational Summary*, published by the Federal Board for Vocational Education, quotes the following interesting statistics of the character of the wounds and diseases of disabled men pensioned by the British government. These were given in the House of Commons on May 28, by Mr. Hodge, minister of pensions. Up to the end

of April, 1918, Mr. Hodge said the number of disabled men who had received pensions was 341,025. He had worked out the percentages of different forms of disablement, and these were as follows:

	Per Cent.
Eyesight cases	2.8
Wounds and injuries to legs necessitating amputation	2.6
Wounds and injuries to arms necessitating amputation	1.4
Wounds, etc., to legs not necessitating amputation	11.9
Wounds, etc., to arms not necessitating amputation	8.45
Wounds, etc., to hands not necessitating amputation	4.45
Wounds, etc., to head	4.0
Hernia .....	.8
Miscellaneous wounds and injuries	5.55
Chest complaints and tuberculosis	11.60
Rheumatism	6.5
Heart disease	10.3
Epilepsy	1.0
Nervous diseases, shell shock, etc.	6.0
Insanity .....	.75
Deafness	2.0
Frostbite, including cases of amputation of feet or legs.....	.9
Miscellaneous diseases	18.36

Mr. Hodge further said that in the employment of disabled soldiers an armless man would probably in future be their greatest difficulty. Out of seventy messengers in the ministry of pensions, fifty-five were one-armed men.

Military Mobilization of the Medical Profession

The War Committee of the Nebraska State Medical Association has developed and is putting into practice a plan which originated from suggestions made at the conference of state secretaries held at the headquarters of the Association, April 30, 1918. This plan was formulated after some consultation with the Association office and is, we believe, feasible and practicable. Moreover, it is a plan that can readily be adapted to the conditions which prevail in each of the states. The *Nebraska State Medical Journal* for July, 1918, contains this announcement of the Nebraska State Medical Association.

MEDICAL RESERVE PLAN

In consequence of a decided misapprehension which seems to be prevalent among the members of the profession in the state relative to the councilor-district plan of designating medical men for the Medical Reserve Corps of the Army, the following statement is published. The plan referred to is simply this:

The councilor of each district, and one member of each county society in the district, will constitute a board for the selection of the members of the profession in such district, who shall report for examination for the Medical Reserve Corps. The number to be selected will be in accordance with the number required to fill the quota of the district. Those selected in this way will be designated for examination and their names will be sent by the councilor of the district to Col. J. M. Banister, U. S. Army, chairman of the State War Board. The necessary instructions will be given them by Colonel Banister, blanks sent to them, and a date appointed for the examination of each. No one in the district will be examined except those specifically designated by the board having jurisdiction in each case.

This provision will have no bearing on members of the profession who may desire to volunteer and enter the service directly. Such physicians can always have an opportunity to enter the service as heretofore.

Col. J. M. Banister, Chairman; Dr. John E. Summers, Dr. Ewing Brown, Dr. Charles L. Mullins, Dr. Joseph M. Aikin, War Committee of the Nebraska State Medical Association.

The details of the proposition are that:

1. A war committee is to be constituted in each councilor district. This committee is made up of a representative elected by the physicians of each of the counties included in the councilor district. The councilor of the district is the chairman of the committee.

2. All physicians under 55 years of age agree each with the other that each of them files out an application for a commission in the Medical Reserve Corps of the Army or the Medical Reserve forces of the Navy, and pledge themselves to accept the commission, if it is awarded.

3. The war committee of the council or district collects the applications and indicates the order in which the applicants are to be called.

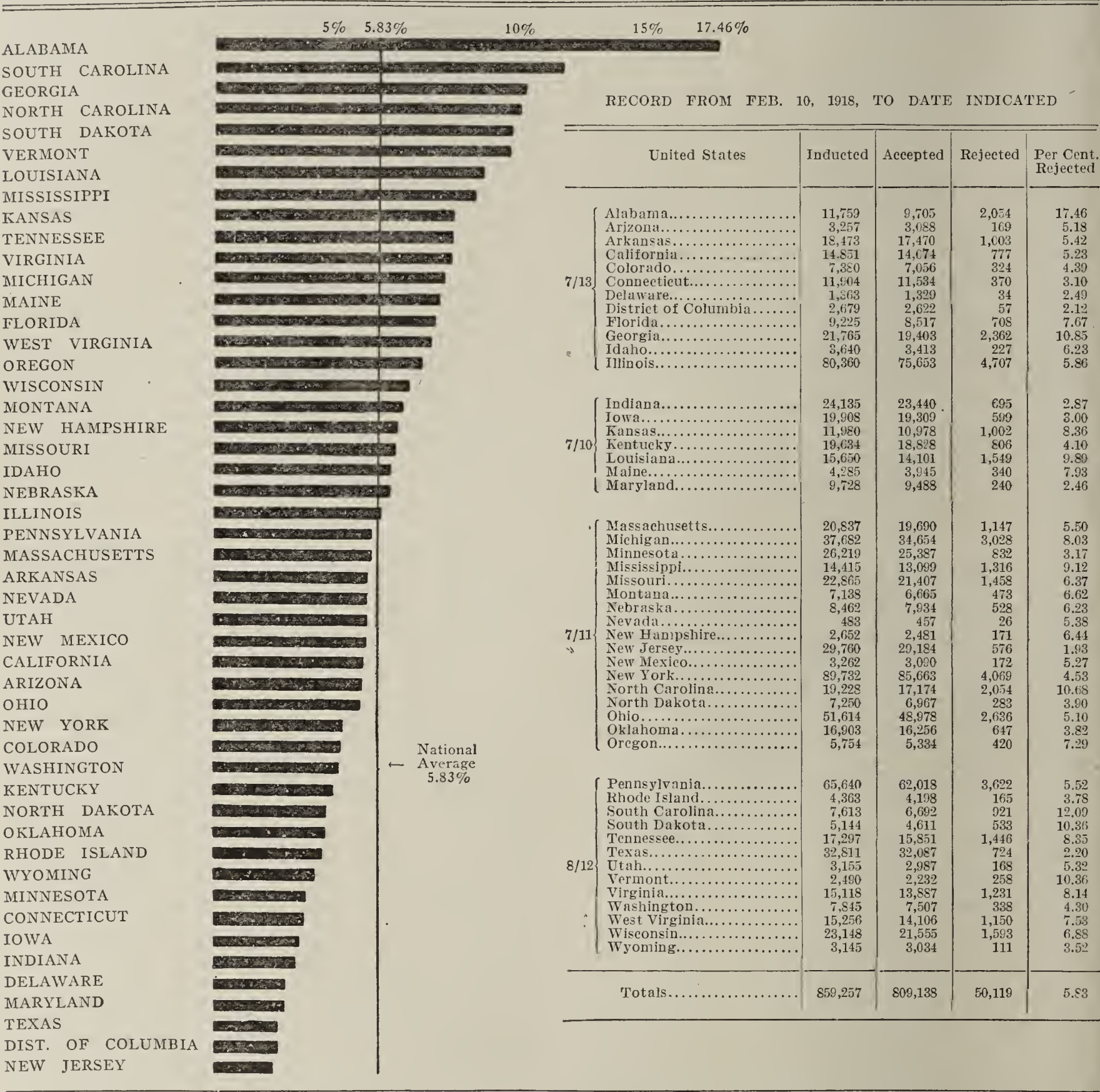
4. The war committee of the state association files these applications for the following disposition:

(a) If the quota of physicians from the district, needed for military service, is not supplied, the applicants shall be called in sufficient numbers and in order to present themselves for examination.

(b) If the quota is provided, the applications are held until another increment is called for by the Surgeon-General, when the number of applicants required to meet the new demand shall be called for examination.

PERCENTAGE OF REGISTRANTS INDUCTED AND REJECTED

The following chart and table prepared by the Office of the Provost Marshal-General indicate the relative number of registrants inducted and rejected in the various states for the period from Feb. 10 to July 10, 1918:



COMMISSIONS ACCEPTED, MEDICAL RESERVE
CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and
29, July 13, 20 and 27, August 3 and 10.

ALABAMA

Courtland—Ussery, J. A.
Ensley—Sparks, D. H.
Montgomery—McConnico, F. H.

ARKANSAS

Crossett—Mathews, W.
Matthews, W. M.
Ft. Smith—Dorente, F. R.
Little Rock—Norwood, F. A.

CALIFORNIA

Downey—Haygood, A. G.
Los Angeles—Byron, R. L.
Ross, M. H.
Oakland—Clark, J. E.
Drucks, E. S.
Smith, A. M.
Pomona—Smith, R. L.
San Francisco—Calvi, P. J.
Santa Monica—Reed, E. N.
Stockton—Priestly, W. F.
Taft—Jones, A. A.

COLORADO

Cripple Creek—Brinton, W. T.
Greeley—Woodcock, B.

CONNECTICUT

Bridgeport—Foley, M. J.

DISTRICT OF COLUMBIA

Washington—Eichenlaub, F. J.

FLORIDA

Jacksonville—Holden, G. R.

GEORGIA

Athens—Stewart, J. S., Jr.
Ballicoch—Reed, C.
Bronwood—Bowman, R. E.
Canton—Coker, N. J.
Chipley—Avery, R. M.
Columbus—Baker, E. L.
Griffith, R. P.
Douglas—Clark, T. H.
Touchten, G. L.
Kingston—Ellis, C. L.
Macon—Daniel, O.
Diehl, J. E.
Marshallville—Frederick, D. B.
Rome—Garrard, J. L.
Simmons, R. O.
Savannah—Waring, A. J.
Williams, L. W.

IDAHO

Orofino—Fairly, J. M.

ILLINOIS

Auburn—White, J. V.
Buffalo—Lutyons, G. B.
Canton—Scholes, P. S.
Charleston—Greer, C. E.
Chicago—Davis, J. F.
Furno, P. H.
Goldstine, M. T.
Holinger, O.
Hurwitz, E.
Krohn, W. O.
Loewenberg, L. A.
McMullen, C. J.
Meyer, J. T.
Miller, H. C.
Monaco, D. F.
Norton, F. J.
Scheier, A. M.
Springwater, S. A.
Washburn, J. M.
Cicero—Maha, F. J.
Fossiland—Colwell, J. B.
Harvard—Eaton, H. D.
McLeansboro—Johnson, J. A.
Moline—Beam, H. A.
Oak Park—Sylvester, F. M.
Peoria—Ernst, J. R.
Rockton—Maurican, V. B.
Springfield—Bierly, J. R.
Paton, C. L.
Trapp, A. R.
Zeigler—Moore, J. B.

INDIANA

Bluffton—Redding, J. L.
Evansville—Barnes, W. E.
Fairmont—Aldrich, H.
Fishers—Black, V. G.
Fortville—Hervey, S. W.
Gary—King, E. P.
Hebron—Kleinman, F.
Indianapolis—Brauchla, H. C.
Caymack, J. W.
Devaney, M. O.

Indianapolis—Miliken, R. A.
Stafford, L. H.
Jeffersonville—Funk, A.
Threlkeld, G. W.
La Porte—Thompson, H. J.
Petersburg—Clark, S. R.
Richmond—Fouts, J. M.
Terre Haute—Hewitt, J. H.
Yung, J. R.
West Point—Roweland, C. L.

IOWA

Dubuque—Mehlhop, C. W.
Mason City—Smith, A. D.
Nevada—Houston, B.
Newton—Wood, R. W.
Reinbeck—Bartruff, C. H.
Waterloo—Sage, F. C.

KANSAS

Atchison—McKechan, L. R., Sr.
Emporia—Corbett, O. J.
Wichita—Cheney, J. W.
Davidson, H. T.
Ebright, E. D.

KENTUCKY

Bradford—Comer, B. N.
Calvert City—Edleman, O. A.
Kirbyton—Pease, T. A.
Louisville—Brzozowski, G. S.
Liggett, H. T.
Ramey, C.
Water Valley—Bard, C. B.

MAINE

Bangor—Taylor, C. J.

MARYLAND

Baltimore—Baylor, J. W.
Fenby, J. S.
Johnson, H. H.
Nachlas, I. W.
Hagerstown—Grove, G. H.
Rising Sun—Dodson, R. C.
Westminster—Sullivan, E. M.

MASSACHUSETTS

Boston—Ceconi, J. A.
Felch, G. A.
Sturgis, C. C.
Wright, W. L.
Brockton—Cloudman, H. R.
Mara, J. L.
Fitchburg—Grieumard, G. A.
Holyoke—St. George, F. M.
Lawrence—Murphy, T. W.
Lynn—Courtemanche, J. A.
Marblehead—Eveleth, S. C.
Melrose—Sims, F. R.

MICHIGAN

Brown City—Waltz, J.
Detroit—Ashley, L. B.
Carey, C.
Droock, V.
Hathaway, J. D. H.
Merrill, W. O.
Simons, W. N.
Young, R. K.
Grand Lodge—Schilz, E. A.
Lansing—Murphy, C. H.
Rulison, J. G.
Muskegon—Hannum, F. W.
Orion—Hathaway, C. L.
Port Huron—Patterson, D. W.

MINNESOTA

Bricelyn—Gussixson, A.
Duluth—Linneman, N. L.
Glenville—Freeman, J. P.
Hallock—Shaleen, A. W.
Mantorville—Adams, R. T.
Minneapolis—Dahl, J. A.
Schmidt, K. H.
Schmitt, S. G.
Ulrich, H. L.
St. Paul—Hilger, A. W.

MISSISSIPPI

Hattiesburg—Ross, T. E., Jr.
Indianola—Bernard, B. C.
Loun—Montgomery, G. W.
Richton—Graves, W. R.
Tonnolen—Ruff, C.

MISSOURI

Berger—Wagner, W. H.
Creighton—Levens, W. B.
Fair Grove—Edmondson, M. T.
Gower—Reynolds, S. D.

Helena—Carpenter, E. H.
Holcomb—Drace, C. C.
Joplin—Chapman, T. E.
Kansas City—McCartney, O. P.
Middleton, J.
Lowry City—Peeler, E. C.
Monett—West, W. M.
Newark—Pierce, D.
Otterville—Fogle, R. L.
Sedalia—Walker, E. R.
Springfield—Horst, O. C.
St. Louis—Farrell, J. A.
Gross, J. H.
Hoberecht, C. A.
McIntire, J. C.
Salisbury, W. J.
Senseney, E. T.
Westlake, S. B.
Urich—McDonald, J. G.

NEBRASKA

Beatrice—Buckley, F. W.
Beldon—Fletcher, F. W.
Fremont—Reeder, G. S.

NEW HAMPSHIRE

Lancaster—Carpenter, H. B.
Manchester—Wilkins, G. C.
Portsmouth—Johnston, C. E.

NEW JERSEY

Millville—Sheppard, F. R.
Newark—Blumberg, L. S.
Ponollo, J. N.
Paterson—Botbyl, B. W.
Golding, H. N.
Red Bank—Magee, D. M. P.
Trenton—Treiber, B. A.

NEW MEXICO

Albuquerque—Sheridan, W. M.
Roswell—Pressley, T. E.
Swearingen, D. D.

NEW YORK

Albany—Bellin, M.
Bedford Hills—Briggs, E. F.
Brooklyn—Grossman, A.
Johnson, A. A. J.
Leahy, S. R.
Stone, A.
Volk, L. D.
Ft. Wright—Lindeman, C. E.
Little Valley—Hillsman, M. L.
Moers—Taylor, A. B.
New York—Adams, E.
Beck, B. J.
Davidson, L. R.
Diamond, B.
Farr, C. E.
Frankfeldt, F. M.
Harrington, J. J.
Lowry, D.
Rogowitz, C. S.
Ryan, T. J.
Oswego—Halsey, W. M.
Ringland, J. B.
Owasco—Ford, N. B.
Poughkeepsie—Krieger, W. A.
Waverly—McNamara, J. J.

NORTH CAROLINA

Hope Mills—Bradford, B. M.

NORTH DAKOTA

Devils Lake—Moeller, T. O. E.

OHIO

Akron—Wells, J. J.
Cambridge—Wells, H. L.
Cleveland—Berr, A. H.
Cable, C. H.
Konrad, E. C.
Lyle, J. A.
MacLachlan, J.
Motto, M. P.
Thompson, H. S.
Columbus—Waite, H. C.
Delphos—Tillotson, J. R.
Mt. Gilead—Johnston, T. P.
Ridgeville Corners—Slosser, D. J.
Salem—Deraus, L. F.
Shelby—Busby, J. L.
Southington—Kennedy, S. V.
Toledo—Bowman, G.
Wright, G. N.
Van Wert—Sampsell, J. B.
Youngstown—Parillo, G. A.

OKLAHOMA

Boswell—McPherson, V. L. D.
Chelsea—Howard, W. A.
El Reno—Runkel, R. E.
Haileyville—Browning, R. L.
Kingston—Gordon, T. M.
Oklahoma City—Cooper, J. M.
Shawnee—Gallagher, W. M.
Tulsa—Price, H. P.
Wilburton—Munn, J. A.

PENNSYLVANIA

Easton—Correll, P. R.
Edgewood—Moreland, G. B.
Chambersburg—Wright, F. G.
Columbus—Reeser, R.
Heckscherville—Sweeney, J. J.
Iselin—Nevins, H.
Lewisburg—Gundy, C. A.
Mincerville—McGurl, T. J.
Moon Run—Burkett, J. W.
New Kensington—Koontz, D. M.
Philadelphia—Barry, W. D.
McCandlish, H. S.
Smyth, C. M.
Thoen, C. L.
Pittsburgh—Anderson, J. H. W.
Behan, R. J.
Kamens, A. F.
Lasday, L.
Magoffin, M. B.
Shaw, J. P.
Utley, F. B.
Williams, I.
Reading—Alexander, R. M.
Ridgeway—Shal, W. C.
Selinsgrove—Johnston, R. W.
Sharon—Massy, H. E.
Stoneboro—Ferrer, J. E.
Stroudsburg—Levinger, W. R.
Sunbury—Gass, H. W.
Uniontown—Griffin, G. H.
Wapwallopen—Santee, C. L.
Weatherby—Freyman, I. E.
Wilkes-Barre—Laux, L. J.
Williamsport—Harley, J. P.
Willock—Lake, H. S.

SOUTH CAROLINA

Abbeville—Gambrell, C. O.
McCormick—Fuller, R. M.
Mullins—Martine, F. L.
Pickens—Valley, J. L.
St. Matthews—Raysor, H. C.
Union—Sarratt, S. G.

SOUTH DAKOTA

Mitchell—Gillis, F. D.
Yankton—Hohf, S. M.

TENNESSEE

Knoxville—Bomar, F. H.
Lexington—Davidson, C. L.
Memphis—Chilton, C. M.
Nashville—Davis, M. B.
Sikes, A. T.
Neptune—Frazier, R. P.
Ripley—Sanford, W. V.

TEXAS

Antelope—Hilburn, R. E.
Canadian—Teas, F. D.
Dallas—Ferguson, R. C.
El Paso—Armistad, E. K.
Rheinheimer, E. W.
Gonzales—Penrod, L.
Handley—Lorimer, W. S.
Houston—Dickson, T. A.
Paris—Ramsey, F. D.
Victoria—Borden, J. L.
Waco—Brooks, C. H.

UTAH

Ogden—Ingebreetsen, P.

VERMONT

Burlington—Avery, R. E.
Crossman, E. O.
Randolph—Gifford, J. P.
Windsor—Martin, S. S.

VIRGINIA

Quantico—Smith, E. D.
Roanoke—Keyser, L. D.
Richmond—Sycle, M. C.

WASHINGTON

Arlington—Harris, J. E.
Kennewick—Crosby, F. M.
Kent—Taylor, O.
Seattle—Jordan, A.
Waitsburg—Mount, H. A.

WEST VIRGINIA

Fairmont—Peters, A. L.
Newburg—Fortney, F. D.
Newell—Turk, H. A.

WISCONSIN

Fond du Lac—Harris, F. M.
Lander—Cooper, A. H.
Milwaukee—Grotjan, W. F.
Salinko, S.
Monroe—Collentine, G. E.
Princeton—Doyle, J. N.
Superior—Sanders, A. O.

WYOMING

Sheridan—Newell, M. A.

CORRECTION

In the issue of August 3, under the heading "Orders to Officers of the Medical Reserve Corps," appears the order of Lieut. GEORGE M. SMITH, of Waterbury, Conn., to Camp Shelby, Hattiesburg, Miss., base hospital, from the Mayo Clinic. This item should have appeared under the Wisconsin orders, since Lieutenant Smith's home is at Chippewa Falls, Wis.

Under "Commissions Accepted in the United States Naval Reserve Force," the name of H. S. Brown, Adah, Pa., is listed. Dr. Brown of Adah informs us that he has not applied for a commission in the Navy.

ORDERS TO OFFICERS OF THE MEDICAL CORPS; MEDICAL CORPS, NATIONAL ARMY, AND MEDICAL CORPS, NATIONAL GUARD

To Camp Beauregard, Alexandria, La., to examine the command for nervous and mental diseases, from Camp Wheeler, Major R. N. GREENE.

To Camp Custer, Battle Creek, Mich., for duty, from Northwestern Department, Capt. D. M. STEWART, Lieut. H. T. BIBBER.

To Camp Devens, Ayer, Mass., base hospital, from New York, Major A. B. DAVIS.

To Camp Dix, Wrightstown, N. J., for duty, from Camp Gordon, Lieut. A. E. PAGAN.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Northeastern Department, Capt. J. W. SWEENEY, Lieut. F. H. BECKETT; from Southeastern Department, Lieuts. J. P. JONES, W. O. WRIGHTSON.

To Camp Fremont, Palo Alto, Calif., as commanding officer of base hospital, from San Francisco, Lieut.-Col. W. H. WINTERBERG.

To Camp Lewis, American Lake, Wash., for duty, from Camp Kearney, Major H. ROGERS.

To Camp Meade, Admiral, Md., as assistant to camp surgeon, from Fort Constitution, Major O. H. STANLEY.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Shelby, Major R. H. SKILLERN.

To Camp Wheeler, Macon, Ga., base hospital, from Washington, D. C., Col. L. T. HESS.

To Canal Zone for duty, from Fort Snelling, Col. H. S. GREEN-LEAF.

To Chicago, Ill., for duty, from Canal Zone, Col. F. T. WOODBURY.

To Corpus Christi, Texas, for duty, from Southern Department, Major H. B. McMURDO.

To Fort Oglethorpe for instruction, Lieut. P. McDERMID.

To Fort Riley as commanding officer of base hospital, from Camp Fremont, Col. E. B. FRICK.

To Governors Island, N. Y., for physical examination, Major H. P. HARRIS.

To Hoboken, N. J., for duty, from Army Medical School, Lieuts. M. R. BROMAN, D. A. GREGORY, E. B. SAYE, from Camp Bowie, Lieut. W. P. FITE.

To New Haven, Conn., Yale Army Laboratory School, for duty, from Fort Leavenworth, Major W. E. CHAMBERS.

To Rockefeller Institute for special instruction, from Army Medical School, Lieut. S. H. CURTIS.

To Washington, D. C., for duty, from Fort Riley, Col. F. R. KEEFER. For duty in the Surgeon-General's Office, from Fort Riley, Col. E. R. SCHREINER.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. M. B. HOLZMAN.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Camp Bowie, Fort Worth, Tex., for duty, from Camp Hancock, Lieut. J. K. LEGARE, Forkland, from Western Department, Lieut. J. F. HUGHES, Athens.

To Camp Crane, Allentown, Pa., for duty, from Camp Meade, Lieut. M. ROWE, Mobile.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Northeastern Department, Lieut. H. BOXER, Birmingham.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, Lieut. J. T. ELLIS, Dothan.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. P. M. KYSER, Birmingham. Base hospital, Lieut. D. J. LONG, Birmingham.

To Camp Pike, Little Rock, Ark., for duty, from Camp McClellan, Lieut. N. I. WOOD, Birmingham; from Camp Sheridan, Capt. T. B. HUBBARD, Montgomery.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Gordon, Capt. A. C. CAMERON, Birmingham. For duty, Capt. C. J. WAT-TERSON, Birmingham.

To Fort Oglethorpe for instruction, Capt. J. M. BARFIELD, Lineville; L. JONES, Selma; Lieuts. W. H. ANDERSON, Athens; J. O. GRIFFIN, Goodwater; E. M. NORTON, Valley Head; B. C. RUDDER, Walker Springs.

To Fort Slocum, N. Y., for duty, from New Haven, Lieut. A. D. McFADDEN, Arlton.

To Hoboken, N. J., for duty, from Camp Crane, Capt. J. L. BOOTH, Buhl.

To Newport News, Va., for duty, from Fort Oglethorpe, Capt. J. McP. LOWREY, Birmingham.

To report to the governor of Alabama for duty as medical aide, Lieut. M. D. SMITH, Prattsville.

The following order has been revoked: To Hoboken, N. J., base hospital, from New York, Capt. R. D. BROWN, Whistler.

Arizona

To Camp Grant, Rockford, Ill., for duty, from Chicago, Lieut. J. L. PRITCHARD, Winsboro.

To Fort Oglethorpe for instruction, from Camp Shelby, Lieut. E. B. THOMPSON, Benson.

To Fort Riley for instruction, Lieuts. T. P. MANNING, Flagstaff; R. E. POOLE, Mayer.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. J. E. BACON, Miami.

Arkansas

To Camp Gordon, Atlanta, Ga., as orthopedic surgeon, from Fort McPherson, Lieut. R. A. WOLFF, Little Rock.

To Camp MacArthur, Waco, Texas, base hospital, from Camp Sheridan, Capt. J. J. SHERRILL, Warren.

To Fort Oglethorpe for instruction, Lieuts. W. D. LASSITER, Bierne; E. C. MOULTON, Fort Smith; F. A. NORWOOD, Little Rock.

To Fort Ontario, N. Y., base hospital, from Fort McPherson, Lieut. F. S. WATSON, Amity.

To Fort Riley for instruction, Capt. F. O. ROGERS, Little Rock; Lieuts. W. M. MATTHEWS, Crossett; E. BAKER, Dermott; J. R. REINBERGER, Pine Bluff; C. V. POWELL, Round Pond.

California

To Camp Bowie, Fort Worth, Texas, for duty, from Camp Kearney, Capt. J. H. FRANKLIN, Guadalupe; R. HAGAN, Los Angeles; from Western Department, Capt. S. M. ALTER, Los Angeles; E. H. JORDAN, Tecate; Lieut. O. W. BUTLER, Los Angeles.

To Camp Crane, Allentown, Pa., for duty, from Camp Kearney, Capt. W. P. MILLIKEN, Oakland; from Camp Travis, Capt. S. Y. VAN METER, Los Angeles.

To Camp Dodge, Des Moines, Ia., for duty, from Western Department, Lieuts. F. M. WHITING, Oroville; P. K. JACKSON, San Luis Obispo.

To Camp Fremont, Palo Alto, Calif., base hospital, Capt. R. W. O'BANNON, Hollister; W. E. McLAUGHLIN, Los Angeles; B. F. MILLER, Whittier; Lieuts. C. D. SWEET, Fresno; E. E. ENDICOTT, Jackson; E. PURCELL, Oakland. For duty, from Western Department, Majors J. A. PARKS, San Diego; W. R. P. CLARK, San Francisco; Capt. O. O. YOUNG, Garden Grove; J. E. FAHY, Los Angeles; H. A. HOIT, Pasadena.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. W. V. CHALMERS-FRANCIS, Los Angeles.

To Camp Hancock, Augusta, Ga., base hospital, from Army Medical School, Lieut. F. E. HERZER, Loma Linda.

To Camp Kearney, Linda Vista, Calif., base hospital, Capt. J. H. PETTIS, Fresno; A. W. TEEL, Glendale; C. E. CURDTS, Oakland; H. A. FISKE, Pasadena; Lieuts. B. W. JOHNSON, Dos Palos; E. H. HALL, Los Angeles; R. G. VAN NUYS, Piedmont; W. T. McNEIL, Tracy. For duty, from Portland, Ore., Lieut. J. THORNTON, Los Angeles.

To Camp Lewis, American Lake, Wash., base hospital, Capt. A. A. ATKINSON, Dorris; C. O. MITCHELL, Fresno; M. L. LOOMIS, Los Angeles; N. C. BISSELL, Modesto; J. K. SWINDT, Pomona; Lieut. C. WAYLAND, Watsonville; from San Francisco, Capt. E. N. GREENWOOD, San Francisco.

To Camp Logan, Houston, Texas, base hospital, from Camp Kearney, Lieut. W. D. BISHOP, Sawtelle.

To Camp MacArthur, Waco, Texas, base hospital, from Fort Riley, Major B. F. ALDEN, San Francisco. For duty, from Camp Kearney, Capt. C. P. CONROY, Los Angeles; from Fort Oglethorpe, Lieut. G. T. WILHELM, Porterville; from Western Department, Lieut. G. M. DUNNE, San Francisco.

To Camp Meade, Admiral, Md., base hospital, from New York, Lieut. F. B. WEST, Los Angeles.

To Camp Pike, Little Rock, Ark., base hospital, from Camp Kearney, Capt. J. A. BALSLEY, Santa Monica; from Fort Logan H. Roots, Lieut. J. L. MILLER, Jr., Los Angeles; from San Francisco, Major W. C. CHIDESTER, San Mateo. For duty, from Western Department, Capt. J. A. JACKSON, San Diego.

To Camp Sherman, Chillicothe, Ohio, base hospital, from New York, Lieut. B. Y. MILLER, San Luis Obispo.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Sam Houston, Lieut. J. H. SCHAEFER, Los Angeles.

To Camp Upton, L. I., N. Y., base hospital, from New Haven, Major C. J. HARBECK, Hayward.

To Camp Wheeler, Macon, Ga., base hospital, from New York, Lieut. C. M. MILLER, Oakley.

To Fort McHenry, Md., base hospital, from Camp Zachary Taylor, Lieut. J. C. IRWIN, Los Angeles; from New York, Lieut. J. SAYLIN, El Monte.

To Fort Oglethorpe for instruction, Capt. H. M. GRIFFITH, Pasadena; Lieut. D. E. SHEA, Los Angeles.

To Fort Ontario, N. Y., base hospital, from Camp Cody, Capt. L. L. RIGGIN, Pasadena.

To Fort Riley for instruction, Capt. J. V. BROWN, Glendale; M. CAMPBELL, D. W. SKEEL, Los Angeles; J. U. HALL, San Jose; R. B. DEMPSEY, Vallejo; B. PALMER, Venice; L. GRAHAM, Wagner; Lieuts. R. N. BRAMHALL, Fair Oaks; A. E. SKEENBERG, Fresno; F. C. SWEARINGEN, Pomona; V. A. MULLER, San Francisco; from Camp Fremont, Capt. J. T. FISHER, Los Angeles.

To Lee Hall, Va., for duty, from Camp Greene, Lieut. W. B. THOMPSON, San Francisco.

To New Haven, Conn., Yale Army Laboratory School, for duty, from Philadelphia, Major F. P. GAY, Berkeley.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Grant, Rockford, Ill., base hospital, Capt. C. A. JOHNSON, Los Angeles.

To San Francisco, Calif., for instruction, and on completion to his proper station, from Camp Kearney, Capt. H. L. THORPE, Los Angeles; P. M. SAVAGE, San Bernardino; Lieut. E. EAMES, San Francisco; from Camp Lewis, Lieut. W. T. ROTHWELL, Los Angeles.

To Letterman General Hospital, for duty, Capt. F. K. COLLINS, Hollywood; Lieut. ROSCOE A. WHIFFEN, San Jose.

To report to the commanding general, Western Department, for assignment to duty, Major H. C. MOFFITT, San Francisco; Capt. C. A. TILLOTSON, Dinuba; F. W. HANFORD, Los Angeles.

To the inactive list, from Fort McHenry, Capt. L. W. ELY, San Francisco.

Honorably discharged, Capt. L. DEVILLE, San Diego.

Resignation of Lieut. V. H. PODSTATA, Livermore, accepted.

Canal Zone

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. B. M. M. PHELPS, Ancon.

Colorado

To Camp Crane, Allentown, Pa., for duty, from Fort Bliss, Lieut. C. R. FULLER, Salida.

To Camp Grant, Rockford, Ill., base hospital, Capt. J. H. WOOD-BRIDGE, Pueblo. For duty, from Fort Riley, Lieut. A. E. GILL, Sopris.

To Camp Logan, Houston, Texas, base hospital, from Army Medical School, Lieut. R. A. PAINE, Denver; from Camp Devens, Lieut. W. A. MCGUGAN, Denver.

To Camp Pike, Little Rock, Ark., for duty, from Fort Riley, Lieut. O. A. DUNCAN, Crawford.

To Fort Des Moines, Iowa, base hospital, from Camp Custer, Lieut. F. H. CARPENTER, Denver.

To Fort Oglethorpe, base hospital, from New York, Lieut. W. C. HOTCHKISS, Brighton. For instruction, Capt. W. A. KICKLAND, Fort Collins; Lieut. P. B. WALLACE, Eagle.

To Fort Riley for instruction, Capt. H. J. HOLLISON, C. G. McEACHERN, Denver; F. H. HARRISON, Gilman; B. B. BLOTZ, Rocky Ford; Lieuts. W. G. BENAWA, Fort Morgan; J. H. McKNIGHT, Haxtum.

To Hoboken, N. J., base hospital, from Camp Crane, Capt. L. M. VAN METER, Lieut. R. W. JOHNSON, Denver.

To Mineola, L. I., N. Y., for instruction, from Camp Lewis, Capt. F. L. DENNIS, Colorado Springs.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. R. SCHACHET, Denver.

To Otisville, N. Y., for duty, from New Haven, Capt. W. P. HARLOW, Boulder.

To report to the commanding general, Central Department, for assignment to duty, Capt. T. C. TAYLOR, Fort Collins.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Dodge, Capt. J. R. ESPEY, Trinidad.

To San Francisco, Calif., for instruction, and on completion to his proper station, from Camp Lewis, Capt. A. W. METCALF, JR., Henderson.

Connecticut

To Camp A. A. Humphreys, Accotink, Va., for duty, from Eastern Department, Lieut. J. F. SAGARINO, Hartford.

To Camp Crane, Allentown, Pa., for duty, from Camp Jackson, Lieut. R. A. RICHARDSON, Bristol.

To Camp Devens, Ayer, Mass., base hospital, from Capt. May, Capt. A. A. CRANE, Waterbury.

To Camp Jackson, Columbia, S. C., base hospital, from Walter Reed General Hospital, Lieut. M. CLIMAN, Hartford.

To Camp Meade, Admiral, Md., base hospital, from New Haven, Capt. E. M. BLAKE, New Haven.

To Camp Pike, Little Rock, Ark., for duty, from Camp Shelby, Capt. R. D. ROLLER, JR., Bridgeport.

To Camp Sheridan, Montgomery, Ala., with the board examining the troops for cardiovascular diseases, from Camp Wheeler, Capt. R. S. STARR, Hartford.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Sam Houston, Capt. C. J. LEVERTY, Bridgeport.

To Camp Upton, L. I., N. Y., base hospital, from Camp MacArthur, Lieut. E. L. DOUGLASS, Groton.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Gordon, Lieut. J. C. O'CONNELL, Bridgeport.

To Fort Oglethorpe for instruction, Lieuts. C. N. WOODFORD, Nangatuck; T. J. SULLIVAN, New Haven; E. L. SMITH, Waterbury; J. A. MAXWELL, Winsted.

To Fort Ontario, N. Y., base hospital, from Camp Upton, Lieut. E. J. WHALEN, Hartford.

To Hoboken, N. J., for duty, from New York City, Lieuts. H. G. JARVIS, Hartford; R. B. STREET, Suffield.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. H. R. MULLER, Darien.

To report to the commanding general, Northeastern Department, for assignment to duty, Lieut. H. D. MOORE, Danbury.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Lee, Capt. J. B. SULLIVAN, New Haven.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. S. MAISLEN, Hartford; from Mineola, Capt. A. E. BRIDES, New Haven.

To Washington, D. C., for duty in the Surgeon-General's Office, from Camp Devens, Lieut. W. C. SANDY, Middleton.

The following order has been revoked: *To Fort Oglethorpe* for instruction, Lieut. L. G. BEARDSLEY, Bridgeport.

District of Columbia

To Army Medical School for duty, Lieut. B. M. PUCKETT, Washington.

To Camp A. A. Humphreys, Accotink, Va., for duty, from Fort Myer, Capt. W. A. FRANKLAND, Washington.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Meade, Capt. W. VAN SWERINGEN, Washington.

To Camp McClellan, Anniston, Ala., base hospital, from Camp Wadsworth, Lieut. L. C. ROSENBERG, Washington.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Capt. S. N. MOSKOWITZ, Washington.

To Lakewood, N. J., for duty, Lieut. F. D. ADAMS, Washington.

To Plattsburg Barracks, N. Y., for duty, Capt. V. T. MOORE, Brookland; from New York, Lieut. D. G. DICKERSON, Washington.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Washington, Major T. E. NEILL, Washington.

To South Baltimore, Md., for duty, from Camp Meade, Capt. W. O. WETMORE, Washington.

To Walter Reed General Hospital, Takoma Park, D. C. for duty, from Army Medical School, Lieuts. H. F. DUNN, L. NEUMAN, Washington.

Florida

To Camp A. A. Humphreys, Accotink, Va., for duty, from Southeastern Department, Capt. R. C. HUBBARD, Bushnell.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Joseph E. Johnston, Major H. A. PEYTON, Jacksonville.

To Camp MacArthur, Waco, Texas, for duty, from Southeastern Department, Capt. J. Y. PORTER, Key West Barracks.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Gordon, Capt. A. B. PARROTT, Jacksonville.

To Camp Upton, L. I., N. Y., for duty from Southeastern Department, Capt. E. LONG, Madison.

To Fort McHenry, Md., base hospital, from Camp Gordon, Capt. A. H. FREEMAN, Starke.

To Fort Oglethorpe for instruction, Lieuts. E. R. ACKLEY, Bartow; W. H. SPIERS, Chattahoochee; from duty as a private, Lieuts. I. E. MARTIN, Fort Ogden; G. F. HIGHSMITH, Nocatec.

To Fort Ontario, N. Y., base hospital, from Fort Oglethorpe, Lieut. I. E. MARTIN, Fort Ogden.

Georgia

To Camp Crane, Allentown, Pa., for duty, from Camp Gordon, Lieut. C. K. SHARP, Arlington.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Dodge, Lieut. W. M. TAPPAN, Augusta.

To Camp Devens, Ayer, Mass., base hospital, from Camp Zachary Taylor, Lieut. P. P. LANE, Waycross.

To Camp Jackson, Columbia, S. C., base hospital, from Army Medical School, Lieut. E. B. ANDERSON, Atlanta.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. L. G. PARHAM, Chipley.

To Camp Pike, Little Rock, Ark., for duty, from Camp Gordon, T. L. DAVIS, Augusta; Lieut. G. S. BROOKE, Alpharetta.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Gordon, Capt. J. C. McDOUGALL, Atlanta.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Southeastern Department, Lieut. C. J. HIND, JR., Atlanta.

To Fort McPherson, Ga., for instruction, Lieut. H. G. CARTER, Atlanta.

To Fort Oglethorpe for instruction, Capt. J. H. CRAWFORD, Martin; Lieuts. W. J. TURNER, Ashburn; W. A. DEAN, C. L. PEACOCK, Atlanta; C. C. FITTS, Carrolton; W. R. SCHWANSS, Cecil;

O. G. McKENZIE, Cordele; W. A. SIBBITT, Douglas; W. A. N. JONES, Gainesville; S. T. B. REVELL, Louisville; J. L. SUMMERLIN, Meigs; C. L. DAVIS, Patterson; A. F. ROUTLEDGE, Rome;

D. L. DEAL, Statesboro; from Camp Sevier, Lieut. H. B. BRADFORD, Atlanta.

To Montgomery, Ala., for duty, from Camp Greene, Major W. A. JACKSON, Atlanta.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. E. A. MOODY, Atkinson.

To Rockefeller Institute for instruction in bacteriology, and on completion to Army Medical School, from Camp Gordon, Lieut. E. R. ANTHONY, JR., Griffin.

To Syracuse, N. Y., with the board examining the troops for cardiovascular diseases, from Camp Meade, Lieut. V. B. WILLIAMS, Odessadale.

Hawaii

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. V. E. M. OSORIO, Hilo.

Idaho

To Mineola, L. I., N. Y., for instruction, from Fort Omaha, Major F. H. POOLE, Pocatello.

Illinois

To Camp Bowie, Fort Worth, Texas, for duty, from Camp Dodge, Major H. C. WOLTMAN, Jacksonville; from Western Department, Major P. G. CAPPS, Herrin; Lieut. G. A. TANKERSLEY, Owaneco.

To Camp Cody, Deming, N. M., base hospital, Capt. H. A. MIL-LARD, Minonk.

To Camp Crane, Allentown, Pa., for duty, from Camp Beauregard, Lieut. J. A. EASTMAN, La Rose; from Camp Grant, Lieut. C. H. BARTLING, Oak Park.

To Camp Custer, Battle Creek, Mich., base hospital, Major C. E. KAHLKE, Chicago. For duty, from Central Department, Major C. H. LOVEWELL, Chicago; from Chicago, Lieut. O. J. SCHOTT, Chicago;

from Northeastern Department, Lieut. L. C. SONDEL, Columbia.

To Camp Devens, Ayer, Mass., base hospital, Lieut. LEROY H. SLOAN, Chicago.

To Camp Dodge, Des Moines, Iowa, for duty, from Camp Perry, Capt. M. A. WIESE, Chicago; from Fort Benjamin Harrison, Capt. M. W. SNELL, Litchfield; from Western Department, Capt. L. M. FIELD, Brownfield.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Central Department, Major T. P. FOLEY, Chicago.

To Camp Fremont, Palo Alto, Calif., base hospital, from Camp Kearney, Lieut. E. L. CROUCH, Jacksonville.

To Camp Gordon, Atlanta, Ga., as orthopedic surgeon, from Fort McPherson, Lieut. C. M. DE BECK, Chicago.

To Camp Grant, Rockford, Ill., base hospital, Lieut. A. A. MERTZ, Pawnee. For duty, from Camp Dodge, Lieut. D. O. MEAD, Pinckneyville; from Fort Riley, Capt. F. W. MERRITT, Chicago; Lieut. L. H. GREEN, Johnston City.

To Camp Greene, Charlotte, N. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. DEW. WISE, Champaign.

To Camp Joseph E. Johnston, Jacksonville, Fla., base hospital, Capt. E. B. PACKER, Toulon; Lieut. C. P. LAPIN, Chicago.

To Camp Kearney, Linda Vista, Calif., for duty, from Fort Oglethorpe, Capt. G. H. MUSSELMAN, Chicago.

To Camp Lee, Petersburg, Va., base hospital, from Fort Oglethorpe, Lieut. E. H. W. KUPKE, Chicago.

To Camp Meade, Admiral, Md., for duty, from Fort McHenry, Lieut. R. S. SALK, Chicago; from Fort Oglethorpe, Lieuts. W. B. KILTON, Harvel; K. E. MONTGOMERY, Lawrenceville.

To Camp Pike, Little Rock, Ark., for duty, Lieut. E. H. WARS-ZEWSKI, Chicago; from Camp McClellan, Capt. W. T. DOWDALL, East St. Louis; from Camp Travis, Lieut. I. D. KELSHEIMER, Paxton; from Camp Zachary Taylor, Lieut. H. W. BAU, Chicago; from Western Department, Lieut. E. F. TATE, Homer.

To Camp Sevier, Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. C. M. TAYLOR, Decatur.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Jackson, Lieut. F. A. ANDERSON, Chicago; from Fort Oglethorpe, Lieut. H. McB. GILLIS, Wood River.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Dodge, Capt. B. C. SYVERSON, Chicago; from Camp Gordon, Capt. G. M. LOEWE, Chicago; from New York, Capt. C. FORD, Waggoner.

To Camp Upton, L. I., N. Y., base hospital, Capt. A. B. YUDELSON, Chicago. With the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. S. B. LEISER, Chicago.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Lee, Lieut. E. E. HOWARD, Rossville; from Fort Oglethorpe, Lieut. W. H. CONSER, Cambridge; from Northeastern Department, Capt. M. L. PUFFER, Downer's Grove.

To Camp Wheeler, Macon, Ga., base hospital, from New York, Lieut. L. L. TURNER, Chicago.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. T. V. DAGNAULT, Chicago.

To *Cape May, N. J.*, for duty, Lieut. A. A. LEBEAU, Chicago.
To *Fort Des Moines, Iowa*, base hospital, from Camp Grant, Lieut. W. J. PICKETT, Chicago; from Camp Shelby, Capt. J. H. EVANS, Chicago.

To *Fort McHenry, Md.*, base hospital, from New York, Lieut. P. G. KITTERMAN, Chicago.

To *Fort Oglethorpe* as instructor, from Fort Riley, Capt. D. B. POND, Chicago; Lieut. G. P. GILL, Rockford. For instruction, Capt. G. H. MOORE, Aledo; F. W. JONES, Alton; T. C. HAYS, Canton; F. M. EDWARDS, Centralia; M. T. GOLDSTINE, J. W. HALL, J. LANSKI, H. H. MERRELL, D. C. PHILLIPS, Chicago; J. A. S. HOWELL, Elgin; J. H. LANGSTAFF, Fairburg; J. M. PALMER, Grayslake; R. C. DANFORD, Pana; J. R. ERNST, Peoria; W. R. FRINGER, Rockford; L. OSTROM, Rock Island; C. P. COLBY, C. L. PATTON, W. W. VAN WORMER, Springfield; Lieut. G. B. LUTYENS, Buffalo; F. L. BROWN, G. GUCA, A. W. HAEFFNER, O. HOLLINGER, S. G. KUBALA, E. W. MOSLEY, A. M. SCHEIER, C. G. SHANNON, R. R. L. STURGES, A. K. SUTCH, L. TABENSKI, W. T. WELCH, J. P. ZALESKI, Chicago; S. NAIKELIS, Cicero; R. W. JOHNSON, Findlay; R. D. LUSTER, H. C. SCHROEDER, Granite City; R. D. DUGAN, Illinois; C. D. SNIVELY, Ipava; L. ENOS, Jerseyville; A. H. FAHRNER, Joliet; M. L. DOLLAHAN, Lawrenceville; G. A. KERR, McConnell; W. E. CLAY, Mt. Carroll; A. A. WALKLING, Ottawa; L. C. IVES, E. W. SEABURG, Peoria; F. R. MORGAN, Quincy; A. C. C. WIEBUSCH, Steeleville; from Camp Gordon, Lieut. P. E. GREENLEAF, Bloomington; from Chicago, Lieut. J. MITCHELL, Chicago.

To *Fort Ontario, N. Y.*, base hospital, from Camp Upton, Lieut. F. W. FIEDLER, Batchtown; from Fort McPherson, Capt. A. D. WEST, Moline.

To *Fort Riley* for temporary duty, from Army Medical School, Lieut. J. C. SMALL, Chicago. For instruction, Capt. M. PFEIFFERBERGER, Alton; R. A. ROACH, Chicago; J. H. ELLINGSWORTH, East Moline; E. F. HERDIEN, Martinton; Lieut. A. A. CALKINS, Chadwick; R. L. BORCHERT, A. G. EVERHART, J. J. LEACH, P. P. O'CONNER, E. L. WRIGHT, Chicago; W. P. CANNON, Kankakee; J. A. JOHNSON, McLeansboro; W. A. SIMMONS, Magnolia; G. D. LOCKIE, D. ZAPHYRIADES, Springfield; H. A. TERRY, Tampico; W. O'REILLY, Winchester.

To *Fort Sill, Okla.*, for duty, from Mineola, Lieut. P. H. ROWE, Chicago.

To *Fort Thomas, Ky.*, for duty, from Camp Greene, Lieut. E. R. HERRMAN, Stanford.

To *Hoboken, N. J.*, for duty, Lieut. H. T. SWANSON, Chicago.

To *New Haven, Conn.*, for duty, Capt. A. T. TRAPP, Springfield; Lieut. R. W. HARRELL, Chicago; G. K. FENN, Chicago Heights; from Camp Jackson, Capt. T. A. HOGAN, Chicago. To *Yale Army Laboratory School*, for instruction, Lieut. C. S. BOWMAN, Alsey.

To *New York, Neurological Institute*, for instruction, Capt. H. A. BEAM, Moline.

To report to the commanding general Central Department, for assignment to duty, Lieut. B. B. DUNN, Perry.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Dodge, Lieut. M. S. COFFLER, Chicago; from Camp Pike, Lieut. J. D. McCULLOUGH, Jr., Aurora.

To *Syracuse, N. Y.*, for duty, from New Haven, Lieut. J. SCHLESINGER, Oak Forest.

To *Walter Reed General Hospital*, Takoma Park, D. C., for duty, from Army Medical School, Lieut. A. L. BEYERLEIN, Chicago; from Camp Cody, Capt. St. E. M. SALA, Rock Island.

The following orders have been revoked: To *Douglas, Ariz.*, from Fort Riley, Capt. J. A. BORTZ, Nauvoo. To *Fort Oglethorpe* for duty, from Fort Riley, Lieut. K. E. MONTGOMERY, Lawrenceville.

Indiana

To *Army Medical School* for instruction, from Fort Oglethorpe, Lieut. J. R. YOUNG, Cumberland.

To *Camp Beauregard*, Alexandria, La., for duty, from Camp Travis, Lieut. H. L. COOPER, South Bend.

To *Camp Bowie*, Fort Worth, Texas, base hospital, from Fort Oglethorpe, Capt. D. COHEN, Jeffersonville. For duty, from Western Department, Lieut. T. B. JOHNSON, Jamestown.

To *Camp Custer*, Battle Creek, Mich., base hospital, Capt. G. C. JOHNSON, Evansville; Lieut. C. H. MEAD, Bluffton; J. A. M. ASPEY, Hope. For duty, from Camp Dodge, Capt. G. H. PENDLETON, Indianapolis. With the board examining the command for nervous and mental diseases, Lieut. P. S. JOHNSON, Sheridan.

To *Camp Dodge*, Des Moines, Iowa, base hospital, Lieut. B. L. CODY, Evansville. For duty, from Fort Benjamin Harrison, Lieut. L. A. SALB, Jasper.

To *Camp Grant*, Rockford, Ill., base hospital, Capt. A. B. MORGAN, LaFayette; Lieut. V. GORDON, Blountsville; J. F. SWAYNE, Mecca. To *Camp Greene*, Charlotte, N. C., base hospital, Capt. J. R. YUNG, Terre Haute.

To *Camp Jackson*, Columbia, S. C., base hospital, Capt. W. N. CULMER, Bloomington.

To *Camp Lee*, Petersburg, Va., base hospital, Lieut. J. L. REDDING, Bluffton.

To *Camp MacArthur*, Waco, Texas, base hospital, from Camp Shelby, Lieut. C. V. DAVIDSON, West LaFayette. For duty, Lieut. I. H. SONNE, Corydon.

To *Camp Travis*, Fort Sam Houston, Texas, for duty Lieut. A. A. YOUNG, Hammond.

To *Camp Upton, L. I., N. Y.*, for duty, from Fort Oglethorpe, Lieut. K. C. FITZGERALD, New Harmony.

To *Camp Wheeler*, Macon, Ga., base hospital, from Camp Gordon, Lieut. W. G. THORNE, Columbus; from Camp McClellan, Lieut. H. H. MARTIN, La Porte.

To *Fort Benjamin Harrison, Ind.*, for duty, from Central Department, Lieut. C. J. COOK, Indianapolis.

To *Fort Des Moines, Ia.*, base hospital, from Camp Custer, Capt. J. C. GLACKMAN, Hatfield.

To *Fort McHenry, Md.*, base hospital, from Camp Greene, Lieut. G. C. PRICE, Judson; J. E. FREED, Terre Haute.

To *Fort Oglethorpe* for duty, from New York City, Lieut. C. A. MARSH, Newcastle. For instruction, Capt. S. C. NORRIS, Anderson; W. R. DAVIDSON, Evansville; J. P. SEALE, Fairmont; I. E. MORRIS, Fort Wayne; B. W. CHIDLAU, Hammond; S. McGAUGHEY, Indianapolis; H. N. SWEZEY, LaFayette; H. J. THOMPSON, La Porte; C. M. DUPUY, Riley; R. D. BLOUNT, Valparaiso; R. V. MURRAY, Zanesville; Lieut. B. A. KING, Cicero; D. R. GOOD, Greenwood; E. RUPEL, L. H. STAFFORD, Indianapolis; E. M. BENNETT, Jamestown; D. HART, Montgomery; M. L. WAGNER, Peru; J. C. STAFFORD, Plainfield; W. S. COLEMAN,

Rushville; J. H. HEWITT, Terre Haute; F. M. RUBY, Union City; C. S. ALBERTSON, Walton.

To *Fort Ontario, N. Y.*, base hospital, from Camp Sheridan, Lieut. F. L. REESE, Bicknell.

To *Fort Riley* for instruction, Capt. R. E. JONES, Clayton; P. O. ENGLERTH, North Judson; S. A. CLARK, South Bend; C. L. ROWLAND, West Point; Lieut. W. E. BARNES, Evansville; J. M. TITUS, Hebron; J. H. EBERWEIN, L. C. HICKS, H. R. WILLAN, Indianapolis; C. J. BROCKWAY, F. L. PYKE, LaFayette; J. C. ROSS, Marion; M. A. McDOWELL, Peru; A. H. RHODES, Princeton.

To *Lee Hall, Va.*, for duty, from Camp Greene, Lieut. G. W. KIMBALL, La Porte.

To report to the commanding general, Central Department, for assignment to duty, Capt. S. R. CLARK, Petersburg.

The following order has been revoked: To *Camp Dodge*, Des Moines, Iowa, for duty, from Fort Benjamin Harrison, Lieut. C. J. COOK, Indianapolis.

To *Camp Dodge*, Des Moines, Iowa, base hospital, Lieut. R. W. WOOD, Newton. For duty from Western Department, Lieut. J. B. OWEN, Central City.

To *Camp Gordon*, Atlanta, Ga., base hospital, Capt. J. B. KEOGH, Dubuque.

To *Camp Grant*, Rockford, Ill., for duty, from Chicago, Lieut. B. C. HAMILTON, Jr., Jefferson.

To *Camp McClellan*, Anniston, Ala., base hospital, from New York, Lieut. B. T. WHITAKER, Boone.

To *Camp Pike*, Little Rock, Ark., for duty, from Camp Travis, Capt. W. A. BATES, Neola.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, from New York, Lieut. W. S. CHESTER, Britt.

To *Camp Sheridan*, Montgomery, Ala., base hospital, from Camp Dix, Major A. R. HOOVER, Des Moines.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, from Camp Zachary Taylor, Lieut. L. B. AMICK, Millersburg.

To *Camp Upton, L. I., N. Y.*, base hospital, from Camp Grant, Lieut. J. E. EDGINGTON, Washington; from Camp Zachary Taylor, Lieut. C. E. MOORE, Newton.

To *Fort Oglethorpe* for instruction, Capt. B. J. CALLAHAN, Livermore; J. D. BROWNSON, Monona; Lieut. V. H. HASEK, East Cedar Rapids; T. F. E. BESS, Fort Madison; C. E. CHENOWETH, Iowa City; F. L. SECOY, Sioux City.

To *Fort Riley* for instruction, Capt. E. I. WOODBURY, Burlington; N. W. JOHNSON, Cedar Rapids; F. E. CRESSLER, Churdon; A. M. SHERMAN, Clarinda; J. E. KESSELL, Des Moines; C. D. HARLAN, Keswick; H. M. HOAG, Mason City; Lieut. W. DIVEN, Atlantic; W. F. AMDOR, Carbon; R. J. MATTHEWS, Clarinda; C. C. BOWIE, Dedham; C. A. McGUIRE, Dubuque; W. H. MOTT, Farmington; J. L. CRUZEN, Lacona; C. A. MILLER, Nevinville; E. L. HOLLIS, Rolfe; C. H. GRAENING, Waverly; J. T. CARMODY, Wesley.

To *Fort Sill, Okla.*, for duty, from Camp Greene, Capt. T. L. LONG, Woodward.

To *Fort Thomas, Ky.*, for duty, from Chicago, Capt. A. B. PHILLIPS, Clear Lake.

To *Hoboken, N. J.*, base hospital, from Camp Crane, Lieut. I. J. GIBSON, Fontanelle. For duty, from Camp Crane, Capt. N. McP. WHITEHILL, Boone; E. D. TOMPKINS, Clarion; from Fort Oglethorpe, Lieut. E. P. WEIH, Clinton.

To *New Haven, Conn.*, for duty, Capt. J. T. PADGHAM, Grinnell. To *Yale Army Laboratory School*, for duty, from Fort Leavenworth, Lieut. D. M. NYQUIST, Eldora.

To report to the commanding general, Central Department, for assignment to duty, Capt. F. N. MEADE, F. L. VANDERVEER, Cedar Falls; Lieut. H. H. HUNT, Hazleton.

To *Waynesville, N. C.*, for duty, from New Haven, Lieut. M. D. JEWELL, Decorah.

To *Willoughby, Ohio*, for duty, from Camp Sherman, Capt. G. A. PLUMMER, Cresco.

Kansas

To *Camp Crane*, Allentown, Pa., base hospital, from New York, Lieut. C. E. SHEPPARD, Baldwin City. For duty, from Camp Travis, Lieut. C. E. YATES, Vinland.

To *Camp Grant*, Rockford, Ill., for duty, from Fort Riley, Capt. C. H. KOONTZ, Onaga; Lieut. J. L. PEPPERS, Newton.

To *Camp Jackson*, Columbia, S. C., base hospital, from Camp Crane, Capt. G. I. THACHER, Waterville.

To *Camp Kearney*, Linda Vista, Calif., for duty, from Portland, Ore., Lieut. J. C. McKINNON, Caldwell.

To *Camp Las Casas*, San Juan, P. R., base hospital, from Fort Riley, Major J. D. RIDDELL, Salina.

To *Camp Lee*, Petersburg, Va., base hospital, from New York, Lieut. J. A. H. WEBB, Stafford.

To *Camp McClellan*, Anniston, Ala., for duty, from Camp Upton, Capt. F. T. JOHNSON, Jr., Elmdale.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, from Camp Dix, Lieut. C. W. HALL, Hutchinson.

To *Camp Upton, L. I., N. Y.*, base hospital, from Fort Oglethorpe, Lieut. J. M. MARKS, Valley Falls.

To *Camp Wadsworth*, Spartanburg, S. C., base hospital, from New York, Lieut. F. B. SHELDON, Manhattan.

To *Fort Oglethorpe*, base hospital, from New York, Lieut. E. J. FROST, Wichita. For instruction, Lieut. M. F. RUSSELL, Great Bend.

To *Fort Riley* for instruction, Capt. A. A. SHELLEY, Galena; J. W. NIXON, Girard; G. R. GAGE, Hutchinson; E. A. REEVES, Kansas City; H. G. HUNSBARGER, Mount Hope; C. L. RANDALL, Neodesha; A. E. BILLINGS, Topeka; J. C. CALDWELL, W. M. MARTIN, Wellington; Lieut. D. PETERSON, Atlanta; W. J. LOWIS, Colby; A. J. TURNER, Garnett; W. S. HUDIBURG, Independence; C. W. LONGENECKER, Kingman; W. B. BURR, Longton; E. C. LIGHTFOOT, Mineral; H. A. VINCENT, Perth; W. V. HARTMAN, Pittsburg; H. T. DAVIDSON, Wichita.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. T. M. AKNEW, Wichita.

To report to the commanding general, Central Department, for assignment to duty, Capt. B. H. JORDAN, Medicine Lodge.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Zachary Taylor, Capt. G. M. GAFFORD, Kinsley.

The following order has been revoked: To *Camp Logan*, Houston, Texas, base hospital, from Camp MacArthur, Lieut. A. B. SCOTT, Bucklin.

Kentucky

To Azalea, N. C., for duty, from Markleton, Major B. F. VAN METER, Lexington.
To Camp Beauregard, Alexandria, La., base hospital, Lieut. D. H. COLEMAN, Harrodsburg.
To Camp Dodge, Des Moines, Iowa, for duty, from Central Department, Lieut. W. M. EWING, Cave City.
To Camp Gordon, Atlanta, Ga., for duty, from Camp Greene, Lieut. J. M. STAUGHTON, Covington.
To Camp Lee, Petersburg, Va., base hospital, Lieut. C. T. WILFONG, Louisville.
To Camp MacArthur, Waco, Texas, base hospital, from Fort Riley, Lieut. F. G. AUD, Louisville.
To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Zachary Taylor, Capt. M. FLEXNER, Louisville; from New York, Capt. V. BLYTHE, Paducah.
To Camp Sherman, Chillicothe, Ohio, base hospital, from Camp Zachary Taylor, Lieut. W. H. NEEL, Bowling Green.
To Fort Oglethorpe for instruction, Capt. J. G. GAITHER, Hopkinsville; F. L. JUETT, J. D. MAGUIRE, Lexington; Lieuts. T. A. PEASE, Bardwell; J. F. DUNCAN, Bowling Green; B. N. COMER, Bradford; W. E. MCWILLIAMS, Brodhead; H. F. MANN, Demossville; K. W. WEATHERS, Elkton; G. B. BROWN, JR., Georgetown; J. W. WHITE, Holland; M. H. MATHEWSIAN, Louisville.
To Houston, Texas, Ellington Field, for duty, from Camp MacArthur, Lieut. L. CHAMPION, Cadiz.
To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Leavenworth, Lieuts. W. H. COMBS, Kirksville; G. S. BRZOZOWSKI, Louisville.
To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Fort McPherson, Lieut. W. G. ECKMAN, Covington.

Louisiana

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Capt. S. O. TURNER, DeRidder.
To Camp Crane, Allentown, Pa., for duty, from Camp Dix, Lieut. R. J. MAILHES, New Orleans.
To Camp Dix, Wrightstown, N. J., for duty, from Camp Crane, Lieut. A. S. COOPER, Mansfield.
To Camp Dodge, Des Moines, Iowa, for duty, from Cookeville, Tenn., Capt. W. J. ROBERTS, Colfax.
To Camp Logan, Houston, Texas, base hospital, from Camp Beauregard, Lieut. T. T. BATSON, New Orleans.
To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. J. R. STAMPER, Caspiana.
To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. S. M. BLACKSHEAR, New Orleans.
To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Major T. P. LLOYD, Shreveport.
To Camp Travis, Fort Sam Houston, Texas, base hospital, from Fort Sam Houston, Major E. MOSS, New Orleans.
To Camp Wadsworth, Spartanburg, S. C., for duty, from Southeastern Department, Major R. HUNT, Shreveport.
To Fort Oglethorpe for instruction, Capt. L. O. CLARK, Lafayette; D. C. ILES, Lake Charles; Lieuts. F. S. TARLETON, Jeanerette; F. T. FRAZAR, Merryville; R. C. WEBB, Rayne.
To Fort Sill, Okla., for duty, Lieut. J. K. GRIFFITH, Slidell.
To Hoboken, N. J., for duty, from Fort Oglethorpe, Major K. W. NEY, New Orleans.
To Newport News, Va., for duty, from Fort Oglethorpe, Lieuts. W. E. BARKER, W. L. BENDEL, E. J. BERANGER, J. S. STELL, New Orleans.
To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Army Medical School, Lieut. H. T. SIMON, New Orleans.
The resignation of Capt. C. G. SALLES, Thibodaux, accepted.

Maine

To Camp McClellan, Anniston, Ala., as orthopedic surgeon, from Fort McPherson, Lieut. W. E. CLARKE, Damariscotta Mills.
To Camp Sheridan, Montgomery, Ala., base hospital, from Fort Oglethorpe, Capt. H. H. CRANE, Bangor.
To Fort Oglethorpe for instruction, Capt. L. M. HOWES, Bangor; Lieuts. H. C. BUNDY, Lake View; M. S. KUPELIAN, Portland; A. J. STIMPSON, Watford.
To Fort Ontario, N. Y., base hospital, from Camp Upton, Capt. H. V. TWEEDIE, Bucksport.
To Hoboken, N. J., base hospital, from Camp Crane, Capt. H. E. E. STEVENS, Lewiston.
To New Haven, Conn., for duty, and on completion to Azalea, N. C., for duty, from Rockefeller Institute, Capt. L. ADAMS, Bangor.
To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. L. W. HADLEY, Union.

Maryland

To Baltimore, Md., Johns Hopkins, Hospital, as instructor, from New York, Major F. H. BAETJER, Cantonville.
To Camp Crane, Allentown, Pa., for duty, from Camp Meade, Capt. T. J. COONAN, Westminster.
To Camp Gordon, Atlanta, Ga., base hospital, Capt. H. O. MOSENTHAL, Baltimore.
To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Major, M. L. TODD, Galloways.
To Camp Meade, Admiral, Md., base hospital, from Army Medical School, Lieut. L. A. M. KRAUSE, Baltimore. For duty, from Fort Oglethorpe, Lieut. J. KOTZ, Baltimore. To examine the command for nervous and mental diseases, from Fort McHenry, Lieut. F. N. OGDEN, Sykesville. With the board examining the troops for cardiovascular diseases, from Fort McHenry, and from Station, Camp Lee, Capt. A. D. ATKINSON, Baltimore.
To Camp Shelby, Hattiesburg, Miss., with the board examining the troops for tuberculosis, from New Haven, Lieut. P. W. CHRISTMAN, Baltimore.
To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Greene, Lieut. V. H. CONDON, Baltimore; from Southeastern Department, Capt. E. D. ELLIS, Baltimore.
To Fort Oglethorpe for instruction, Capt. P. WORTH, Hagerstown; Lieuts. C. L. BATES, W. L. DENNY, J. S. FENBY, J. G. HUCK, E. NOVAK, J. E. TALBOTT, Baltimore; F. D. WORTHINGTON, Del Air; G. B. LYNCH, Hillsdale; from Camp Hancock, Lieut. M. RASKIN, Baltimore.
To Fort Riley for duty, from Camp Lee, Lieut. T. M. RIVERS, Baltimore.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Southern Department, Capt. P. L. DAVIS, Baltimore.
To Hoboken, N. J., for duty, from Fort Oglethorpe, Lieut. M. J. EGAN, Jr., Baltimore.
To Mineola, L. I., N. Y., for instruction, Lieut. F. H. LINTHICUP, Baltimore.
To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. A. B. MORAN, Baltimore.
To New York, Neurological Institute, for instruction, Lieuts. J. H. BAIRD, H. A. GAILEY, Baltimore.
To Plattsburg Barracks, N. Y., for duty, from Camp Lee, Lieut. C. A. NEYMANN, Baltimore.
Honorably discharged on account of physical disability incurred in line of duty, Major G. WILSON, Baltimore.
The following orders have been revoked: *To Fort Oglethorpe* for instruction, Lieuts. J. H. BAIRD, J. P. SHEARER, Baltimore. *To Walter Reed General Hospital*, Takoma Park, D. C., Lieut. H. M. BANKS, Baltimore.

Massachusetts

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Lieut. J. D. SPAULDING, Boston.
To Camp Crane, Allentown, Pa., for duty, from Camp Travis, Lieut. G. H. CROFTON, Worcester.
To Camp Custer, Battle Creek, Mich., with the board examining the command for nervous and mental diseases, Lieut. J. L. McAUSLAN, Gardner.
To Camp Devens, Ayer, Mass., base hospital, Major D. F. JONES, Capt. S. H. BLODGETT, Boston; from Baltimore, Capt. A. W. SELLARDS, Boston. For duty, Lieut. H. B. STEVENS, Boston.
To Camp Dix, Wrightstown, N. J., base hospital, Lieut. H. B. McWILLIAMS, Williamstown. For duty, Capt. G. M. ALBEE, Worcester; from Camp Crane, Capt. A. C. SMITH, Brockton.
To Camp Gordon, Atlanta, Ga., for duty, from Camp Greene, Capt. W. C. SHEEHY, New Bedford.
To Camp Greene, Charlotte, N. C., base hospital, from Williamsbridge, Capt. F. H. LAHEY, Boston.
To Camp Lee, Petersburg, Va., base hospital, from Camp Devens, Lieut. A. J. CHOATE, Gloucester. To examine the command for nervous and mental diseases, from Camp Meade, Lieut. M. W. PECK, Marblehead.
To Camp MacArthur, Waco, Texas, for duty, from Camp MacArthur, Lieut. W. A. JILLSON, Westborough.
To Camp Pike, Little Rock, Ark., for duty, from Camp MacArthur, Lieut. N. M. COHEN, Boston.
To Camp Sevier, Greenville, S. C., as camp psychiatrist, from Camp Jackson, Lieut. C. B. PARTINGTON, Framingham.
To Camp Upton, L. I., N. Y., base hospital, Capt. H. R. CLOUDMAN, Brockton; Lieut. J. D. SPAULDING, Boston; from Camp Hancock, Lieut. J. H. DOYLE, Fall River. For duty, from Fort Oglethorpe, Lieut. P. A. SHURTLEFF, Blandford.
To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieuts. R. H. PHILBRICK, East Northfield; C. T. COBB, Northampton. For duty, from Southeastern Department, Lieut. A. K. YOOSUF, Worcester.
To Camp Wheeler, Macon, Ga., base hospital, from Camp Jackson, Capt. M. T. CAVANAUGH, Great Barrington; from Camp McClellan, Lieut. G. C. BERGERON, Springfield.
To Fort Oglethorpe for instruction, Capt. G. C. ROBERT, Holyoke; Lieuts. H. V. HYDE, D. S. KING, Boston; J. E. BURNETTE, Brockton; F. L. GIBSON, Holyoke; A. M. O'CONNOR, Housatonic; F. C. ATKINSON, Methuen; T. H. KENNEY, Northampton; E. J. MEYER, Somerville; D. J. BOLAND, J. H. FALVEY, Worcester.
To Fort Ontario, N. Y., base hospital, from Camp Devens, Lieut. E. A. MESERVE, Boston.
To Hoboken, N. J., for duty, Lieuts. G. A. FELCH, Boston; F. H. COFFIN, Haverhill.
To Lake Charles, La., for duty, from Mineola, Lieut. C. H. BIRDSALL, Boston.
To Mineola, L. I., N. Y., for instruction, from Boston, Lieut. H. L. BABCOCK, Boston.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. H. W. NEWELL, Boston; F. A. STANWOOD, Wellesley Hills.
To Newport News, for duty, from Fort Oglethorpe, Lieut. I. F. ARMSTRONG, Marlboro.
To New York City, Bellevue Hospital, for instruction, from Williamsbridge, Capt. T. F. CARROLL, Brookline.
To Rantoul, Ill., Signal Corps Aviation School, for duty, from Mineola, Capt. J. G. JENNINGS, Boston.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to their proper stations, from Camp Meade, Lieut. H. E. MAYNARD, Winchester; from Camp Wheeler, Lieut. J. H. COOK, Quincy.
To Syracuse, N. Y., as orthopedic surgeon, from Fort McPherson, Lieut. K. JOHNSON, Pittsfield.
To Walter Reed General Hospital, Takoma Park, D. C., for observation and treatment, from Camp Travis, Major E. B. Bigelow, Worcester.
To Washington, D. C., for duty, from New York, Major P. BROWN, Boston.
Resignation of Capt. H. MOORE, Newton, accepted.

Michigan

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Capt. T. S. CROSBY, Wakefield.
To Camp Crane, Allentown, Pa., for duty, from Camp Lee, Capt. K. F. MAXEY, Detroit.
To Camp Dix, Wrightstown, N. J., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. B. A. O'HARA, Detroit.
To Camp Dodge, Des Moines, Iowa, base hospital, Capt. R. D. McCLURE, Detroit. For duty, from Camp Perry, Lieut. G. G. ALWAY, Whitmore Lake.
To Camp Forrest, Chickamauga Park, Ga., for duty, from Camp A. A. Humphreys, Lieut. H. L. HURLEY, Jackson.
To Camp Grant, Rockford, Ill., base hospital, Lieut. A. C. McPHERSON, Grand Rapids.
To Camp Kearney, Linda Vista, Calif., for duty, from Portland, Ore., Lieut. H. B. McCORRY, Birch Run.
To Camp Meade, Admiral, Md., base hospital, from New York, Lieut. Z. L. KAMINSKI, Detroit.
To Camp Pike, Little Rock, Ark., for duty, from Camp Hancock, Lieut. I. S. GELLERT, Detroit; from Camp Sheridan, Lieut. O.

ROAN, Grand Rapids; from Western Department, Lieut. J. W. HAWKINS, Detroit. With the board examining the troops for cardiovascular diseases, Lieut. L. T. CRANE, Detroit.

To Camp Raritan, Metuchen, N. J., as orthopedic surgeon, from Fort McPherson, Capt. L. A. FARNHAM, Pontiac.

To Camp Upton, L. I., N. Y., base hospital, from Camp Devens, Capt. M. KOLLIG, Saginaw; from Fort Oglethorpe, Lieuts. R. R. MILLER, Harbor Springs; W. L. MACCANI, Ironwood.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Capt. J. H. HOUSTON, Swartz Creek.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Sheridan, Capt. F. C. KINSEY, Grand Rapids.

To Fort Leavenworth, Kan., for duty, from Fort Porter, Capt. H. E. SAFFORD, Detroit.

To Fort Oglethorpe as instructor, from Fort Riley, Capt. H. S. COLE, Whitchall. For instruction, Capt. H. E. McLENNAN, Bellevue; H. H. MERRIMAN, Deckerville; A. D. McALPINE, F. T. F. STEPHENSON, Detroit; J. G. MANWARING, Flint; F. A. BOOT, J. F. X. GENDRON, Grand Rapids; CLARENCE L. HATHAWAY, Orion; Lieuts. C. W. SELLERS, Akron; S. L. BALLARD, Bay City; R. E. VAN DUSEN, Breckenridge; H. L. CHARLES, Calumet; L. E. BOVIK, Crystal Falls; A. H. LANGE, E. J. LYNCH, Detroit; L. A. LEWIS, Manistee; F. N. MORFORD, Muskegon.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieuts. M. M. HYMAN, Detroit; D. C. EISELE, Gwinn.

To Mincola, L. I., N. Y., for duty, from Fort Oglethorpe, Capt. M. J. SCHWANZ, Detroit.

To New Haven, Conn., for duty, from Fort Sam Houston, Capt. H. B. HARKNESS, Houghton.

To report to the commanding general, Central Department, for assignment to duty, Lieut. A. N. HOWE, Boyne Falls.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Custer, Capt. S. VAN BARMAN, Coloma.

To San Francisco, Calif., for instruction, and on completion to his proper station, from Camp Kearney, Lieut. W. G. JENKINS, Newberry.

To Syracuse, N. Y., as orthopedic surgeon, from Fort McPherson, Lieut. H. R. LEIBINGER, Detroit.

To Washington, D. C., for duty in the Surgeon-General's Office, Capt. J. H. HATHAWAY, Highland Park.

To the inactive list, from Walter Reed General Hospital, Major U. J. WILE, Ann Arbor.

Honorably discharged, Capt. L. BARTH, Grand Rapids; Lieut. G. W. WILSON, Detroit. On account of physical disability existing prior to entrance into the service, Capt. B. T. GOODFELLOW, Chio; Lieut. G. L. KOESSLER, Detroit.

Resignation of Major M. R. SUTTON, Flint, accepted.

The following order has been revoked: To Douglas, Ariz., for duty, from Fort Riley, Lieut. H. C. HACKMAN, Flint.

Minnesota

To Army Medical School as orthopedic surgeon, from New York, Lieut. P. BLANCO, Rochester. For instruction, and on completion to Fort Oglethorpe for instruction, from Chicago, Lieut. B. T. BOTTELFSON, Halstead.

To Camp A. A. Humphreys, Accotink, Va., as orthopedic surgeon, from Chicago, Lieut. W. H. HALLORAN, St. Paul.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Wadsworth, Capt. W. F. PLUMLEY, Rochester.

To Camp Custer, Battle Creek, Mich., for duty, from Camp Dodge, Lieut. M. C. PIPER, Sanborn.

To Camp Devens, Ayer, Mass., base hospital, Lieut. O. A. GROEBNER, Minneapolis; from New York, Lieut. J. B. CLAIR, Winstead.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. T. T. MANN, Minneapolis.

To Camp Gordon, Atlanta, Ga., as orthopedic surgeon, from Fort Riley, Lieut. O. L. WINTER, St. Paul.

To Camp Grant, Rockford, Ill., for duty, from Camp Dodge, Lieut. D. F. McCANN, Bemidji.

To Camp Kearney, Linda Vista, Calif., for duty, from Portland, Ore., Lieut. N. P. ANDERSON, Dunnell.

To Camp Lee, Petersburg, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. G. B. LYNCH, Winona.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. R. S. FORBES, Duluth.

To Camp Travis, Fort Sam Houston, Texas, with the board examining the troops for tuberculosis, Lieut. J. F. TRAXLER, Henderson.

To Fort Des Moines, Iowa, base hospital, from Camp Grant, Capt. I. R. MAERCKLEIN, Renville.

To Fort McPherson, Ga., for duty, from Washington, Major W. M. CHOWNING, Minneapolis.

To Fort Oglethorpe, base hospital, from New York, Lieut. C. SANSING, Duluth. For instruction, Major A. R. COLVIN, St. Paul; Capt. A. MacLAREN, St. Paul; C. A. LESTER, Winona; Lieuts. G. McCREIGHT, J. R. NANNSTAD, Albert Lea; G. W. DAHLQUIST, Lancaster; F. L. GILLES, E. G. GILLMORE, Minneapolis; C. C. HOKE, Rochester; C. E. KRUGMEIER, St. Paul; A. W. DREW, Swanville.

To Fort Riley for duty, from Hoboken, Capt. F. G. BLAKE, Minneapolis. For instruction, Capt. J. P. FREEMAN, Glenville; C. C. WALKER, Lambert; C. L. WARREN, Le Roy; J. V. JOHNSON, New Duluth; M. J. KERN, St. Cloud; Lieuts. E. W. ARNOLD, Adrian; F. W. DAVIS, Alden; H. J. SHELVER, Appleton; G. J. DIERKES, Foley; D. A. MacDONALD, G. L. MERKERT, Minneapolis; F. J. SCHATZ, Rosemount.

To Hoboken, N. J., base hospital, from Camp Upton, Lieut. L. H. REDELINGS, Rochester; from Fort Oglethorpe, Lieut. B. N. SOROSE, Detroit.

To New Haven, Conn., for duty, Capt. J. M. CONROY, Nopeming. To report to the commanding general, Central Department, for assignment to duty, Capt. I. McC. ROADMAN, Canmia.

Mississippi

To Camp A. A. Humphreys, Accotink, Va., for duty, from Eastern Department, Lieut. J. G. ARCHER, Jr., Greenville.

To Camp Crane, Allentown, Pa., for duty, from Camp Beauregard, Lieut. A. L. LEWIS, Natchez.

To Camp McClellan, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. W. C. NORRIS, De Sota.

To Fort Des Moines, Iowa, base hospital, from Camp Shelby, Major W. W. CRAWFORD, Hattiesburg.

To Fort Oglethorpe for instruction, Capt. O. N. ARRINGTON, Brookhaven; H. R. MILLER, Lamont; Lieuts. M. E. BRIDGES,

Bobo; A. D. CHESTER, Cruger; J. B. HIRSCH, Greenville; J. P. WIGGINS, Merigold; C. P. PITTMAN, Ruleville; D. T. SAYLE, Torrance; C. J. EDWARDS, Vicksburg.

To Fort Ontario, N. Y., base hospital, from Camp McClellan, Lieut. J. S. ADAMS, DeKalb.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Capt. J. C. McNAIR, Fayette; Lieut. J. L. WHITE, Pinola.

To Lakewood, N. J., for duty, Lieut. R. L. BEADLES, Coffeeville.

To Newport News, Va., for duty, from Camp Sevier, Lieut. R. L. PEYTON, Jackson.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Sherman, Capt. J. C. ARMSTRONG, Water Valley.

Resignation of Lieut. F. S. HILL, Grenada, accepted.

The following order has been revoked: To Hoboken, N. J., base hospital, from Camp Sevier, Lieut. K. T. KLEIN, Meridian.

Missouri

To Camp Beauregard, Alexandria, La., for duty, from Camp Travis, Lieut. H. C. BRASHEAR, St. Louis.

To Camp Bowie, Fort Worth, Tex., base hospital, from Fort Oglethorpe, Lieut. C. D. MENEFEY, Perry; from Fort Sill, Lieut. W. E. WEST, Trenton.

To Camp Custer, Battle Creek, Mich., base hospital, Major J. R. CLEMENS, Clayton.

To Camp Dodge, Des Moines, Ia., Base hospital, Lieut. J. L. SWARTS, St. Louis; from Cape May, Lieut. C. B. HUDSON, Montgomery City.

To Camp Logan, Fort Sam Houston, Tex., base hospital, from Camp Travis, Lieut. G. DAHMS, St. Louis.

To Camp MacArthur, Waco, Texas, base hospital Lieut. J. L. OWENS, Kansas City.

To Camp Meade, Admiral, Md., base hospital, from Fort McHenry, Lieut. H. K. WALLACE, St. Joseph.

To Camp Perry, Ohio, for duty, from Fort Leavenworth, Major F. W. SHAW, Mt. Vernon.

To Camp Pike, Little Rock, Ark., for duty, from Camp Travis, Lieut. R. B. PLATT, Kansas City; from Fort Riley, Lieut. B. H. EMERSON, Stockton. To examine the command for nervous and mental diseases, Capt. M. L. UNDERWOOD, St. Joseph.

To Camp Shelby, Hattiesburg, Miss., with the board examining the troops for tuberculosis, from New Haven, Lieut. H. S. THOMAS, Kansas City.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. M. W. JACOBS, St. Louis.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. S. B. WESTLAKE, St. Louis; from Camp Gordon, Lieut. E. D. McCARTY, St. Louis.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Capt. J. M. DEAN, St. Louis.

To Fort Constitution, N. M., for duty, from Camp Dodge, Capt. E. F. COOK, St. Joseph.

To Fort Des Moines, Ia., base hospital, from Fort Riley, Capt. J. G. CALHOUN, St. Louis.

To Fort McHenry, Md., base hospital, from Camp Greene, Major R. BURNS, Jr., St. Louis.

To Fort Oglethorpe, as instructor, from Fort Riley, Capt. D. E. SCHMALHORST, St. Louis. Base hospital, from New York, Lieut. E. R. DEWESE, Kansas City. For duty, from Fort Riley, Lieut. J. G. MONTGOMERY, Kansas City; from New York, Capt. L. O. NICKELL, Macon; Lieut. W. C. VERNON, Kansas City. For instruction, Capt. J. R. GREEN, Independence; L. C. LEWIS, J. S. LICHTENBERG, J. L. MYERS, W. A. SHELTON, Kansas City; E. H. BRADLEY, Springfield; H. E. HAPPEL, W. F. McNARY, St. Louis; Lieuts. G. G. BRAGG, Huntsville; G. A. SCHNEIDER, Island Falls; A. M. GREGG, Joplin; J. D. BOEHM, Monett; P. A. BRISKEY, W. J. SPARHAWK, St. Louis.

To Fort Riley for duty, from St. Louis, Major E. L. OPIE, St. Louis. For instruction, Capt. M. L. PETERS, Cameron; J. F. GRACE, Excelsior Springs; A. C. KNOX, Independence; C. C. PRICE, Kansas City; W. G. JONES, Lincoln; P. SCHUCH, St. Louis; J. G. McDONALD, Ulrich; Lieuts. J. G. TURLEY, Desloge; E. D. JAMES, Joplin; O. P. McCARTNEY, L. P. McKEEHAN, Kansas City; C. A. ORR, Mendon; D. PIERCE, Newark; J. B. WILLIS, Pattensburg; C. A. TUCKER, Springfield; S. F. ABRAMS, E. A. BURST, C. T. EBER, D. L. GOLDBERG, H. T. RANDLE, S. S. STEWART, J. B. STOKES, St. Louis; C. E. BENHAM, Tarkio; G. W. CARPENTER, Utica.

To Fort Sill, Okla., base hospital, Capt. HERLUF C. LUND, St. Louis; Lieut. T. E. CHAPMAN, Joplin.

To Hoboken, N. J., for duty, from Camp Crane, Major W. E. LEIGHTON, St. Louis; from New York, Lieut. S. F. WENNERMANN, St. Louis.

To New Haven, Conn., for duty, Lieut. J. L. MARDER, St. Louis. Yale Army Laboratory School, for instruction, Lieut. G. C. RODEBAUGH, Springfield; from Army Medical School, Capt. P. G. HURFORD, St. Louis.

To report to the commanding general, Central Department, for assignment to duty, Capt. A. H. HAMEL, St. Louis; Lieut. F. E. DeHONEY, Fredericktown.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Fort Riley, Lieut. G. W. SMITH, Kansas City.

To Sacramento, Calif., Mather Field, for duty, from Portland, Capt. N. W. SHARPE, St. Louis.

To Washington, D. C., for duty in the Surgeon-General's Office, from Waco, Capt. D. T. JOSEPH, St. Louis.

Honorably discharged, Capt. W. L. KENNEY, St. Joseph. On account of physical disability existing prior to entrance into the service, Lieut. G. H. TARR, Poplar Bluff.

Montana

To Camp Lewis, American Lake, Wash., base hospital, Capt. T. W. WELSH, Roundup; Lieut. L. P. GAERTNER, Three Forks.

To Camp MacArthur, Waco, Texas, for duty, from Western Department, Lieut. W. O. UNGHERINI, Butte.

To Fort Oglethorpe, as instructor, from Fort Riley, Capt. A. L. WARD, Havre. For instruction, Capt. T. B. MARQUIS, Livingston.

To Fort Riley for instruction, Capt. R. E. SEITZ, Bozeman; A. N. CURRIE, Nashua; Lieuts. J. E. STUART, Livingston; F. LACKNER, C. T. PIGOT, Roundup.

To New Haven, Conn., Yale Laboratory School, for duty, from Fort Riley, Lieut. J. D. HOBSON, Missoula.

Nebraska

To *Camp Custer*, Battle Creek, Mich., for duty, from Chicago, Capt. F. L. FRINK, Newman Grove.

To *Camp Gordon*, Atlanta, Ga., base hospital, Capt. E. O. WEBER, Wahoo, Neb.

To *Camp Grant*, Rockford, Ill., for duty, from Fort Riley, Capt. F. D. BURGESS, Cedar Rapids.

To *Camp Lee*, Petersburg, Va., base hospital, from Camp Dodge, Lieut. T. E. ATKINSON, Mullen.

To *Camp Meade*, Admiral, Md., base hospital, Capt. A. E. BUCHANAN, Freemont.

To *Camp Pike*, Little Rock, Ark., for duty, from Camp Travis, Lieut. R. E. ROCHE, Sidney.

To *Camp Sheridan*, Montgomery, Ala., with the board examining the troops for tuberculosis, from Fort Riley, Lieut. E. O. WILSON, Madison.

To *Camp Sevier*, Greenville, S. C., base hospital, from New York, Lieut. E. W. FETTER, North Platte.

To *Cape May*, N. J., for duty, from New York, Major E. C. HENRY, Omaha.

To *Fort Kcogh*, Mont., for duty, from Portland, Ore., Lieut. W. E. DOANE, North Bend.

To *Fort Oglethorpe*, as instructor, from Fort Riley, Lieut. F. A. WILMOT, Bertram. For instruction, Capt. I. W. HAUGHEY, Aurora; L. C. BLEICK, W. P. HANEY, Omaha; Lieuts. A. J. BOREN, Hastings; E. C. SAGE, Omaha.

To *Fort Riley*, for duty from Camp Dodge, Major W. J. REDFIELD, Grand Island. For instruction, Capt. E. E. RIDER, Bertrand; Lieuts. F. N. TOWNLEY, Kenesaw; J. J. FOSSLER, Millard; W. P. HYNES, Potter.

To *Hoboken*, N. J., base hospital, Capt. G. H. WALKER, Lincoln.

To *New Haven*, Conn., for duty, Lieut. G. S. REEDER, Fremont.

Yale Army Laboratory School, for duty, Lieut. W. A. DANIELSON, Osceola.

To *Picron*, Ark., for duty, from Southern Department, Capt. J. M. WOODARD, Lincoln.

To report to the commanding general, Central Department, for assignment to duty, Lieut. A. H. ISSAKIAN, Niobrara.

To *Rochester*, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Pike, Capt. H. A. JOHNSON, Tekamah.

To *San Francisco*, Calif., for instruction, and on completion to his proper station, from Camp Cody, Lieut. H. J. JENKINS, Omaha.

The following order has been revoked: To *Douglas*, Ariz., for duty, from Fort Riley, Lieut. T. LAHNERS, Belvidere.

New Hampshire

To *Camp Upton*, L. I., N. Y., base hospital, Capt. D. E. SULLIVAN, Concord.

To *Fort Leavenworth*, Kan., to examine the command for nervous and mental diseases, from Camp Pike, Capt. H. W. CLEASBY, Lancaster.

To *Fort Oglethorpe* for instruction, Capt. F. C. SWEENEY, East Jaffrey; A. J. MONGE, Newmarket; C. H. QUINN, West Concord; Lieuts. W. E. SMITH, Franklin; L. R. BROWN, Laconia; J. M. PAGE, Littleton; H. S. PLATTS, Troy; F. E. CLOW, Wolfsboro.

To *Walter Reed General Hospital*, Takoma Park, D. C., for duty, Capt. F. S. TOWLE, Portsmouth.

The following order has been revoked: To *Camp Las Casas*, San Juan, Porto Rico, base hospital, Lieut. J. C. ECKHART, Sanbornville.

New Jersey

To *Camp A. A. Humphreys*, Accotink, Va., for duty, from Eastern Department, Lieuts. G. V. MORSE, Bloomfield; C. F. VORRHIS, Palmyra.

To *Camp Devens*, Ayer, Mass., base hospital, from Camp McClellan, Capt. W. JAMES, German Valley; from Camp Sherman, Lieut. N. FURST, Newark.

To *Camp Dix*, Wrightstown, N. J., base hospital, Lieut. N. H. PROBASCO, Plainfield.

To *Camp Gordon*, Atlanta, Ga., base hospital, Lieut. J. S. VANNAMAN, Princeton.

To *Camp Holabird*, Baltimore, Md., for duty, Lieut. B. W. BOTHYL, Paterson.

To *Camp Lee*, Petersburg, Va., base hospital, Lieut. J. L. FARDEN, Irvington.

To *Camp MacArthur*, Waco, Tex., for duty, from Fort Oglethorpe, Lieut. L. M. COLLINS, Greystone.

To *Camp Meade*, Admiral, Md., for duty, from Fort Oglethorpe, Capt. H. G. MACDONALD, Hackensack. To examine the command for nervous and mental diseases, Lieut. R. STEWART, Sacausus.

To *Camp Pike*, Little Rock, Ark., for duty, from Camp Wheeler, Lieut. L. S. KELLEY, Newark; from Fort Oglethorpe, Lieut. M. CHESLER, Atlantic City.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, from Camp Dix, Capt. A. F. McBRIDE, Paterson.

To *Camp Upton*, L. I., N. Y., base hospital, from Williamsbridge, Major W. A. SHERWOOD, Jersey City.

To *Camp Wadsworth*, Spartanburg, S. C., for duty, from Camp Upton, Lieut. C. H. PRATT, Plainfield; from Fort Oglethorpe, Lieut. L. J. BOHL, Paterson; from Hampton, Lieut. J. G. COLEMAN, Hamburg; from Southeastern Department, Lieut. M. B. KIRKPATRICK, Trenton.

To *Fort Des Moines*, Ia., base hospital, from Fort McPherson, Major W. L. VROOM, Ridgewood.

To *Fort McHenry*, Md., base hospital, from Camp Dix, Capt. L. E. POOLE, West Hoboken; from Camp Greene, Lieut. L. M. KALAHER, Jersey City.

To *Fort Oglethorpe* for instruction, Capt. W. J. ARLITZ, Hoboken; H. V. HUBBARD, C. B. LUFBURROW, Plainfield; Lieuts. H. S. JONES, Arlington; J. S. MARK, Chrome; C. C. FERGUSON, Jersey City; L. S. BLUMBERG, R. D. SWAIN, F. C. WEBER, Newark; from Camp Devens, Lieut. J. J. O'CONNOR, Newark; from Camp Lee, Capt. W. A. NORVAL, Paterson.

To *Hoboken*, N. J., for duty, from Camp Crane, Capt. J. A. HOLLAND, Montclair.

To *New Haven*, Conn., for duty, from Camp Gordon, Lieut. G. E. HAHNEN, Newark.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Dix*, Wrightstown, N. J., base hospital, Capt. J. F. HAGERTY, Newark.

Resignation of Lieut. P. MARVEL, Atlantic City, accepted.

New Mexico

To *Camp Cody*, Deming, N. M., base hospital, Capt. T. E. PRESLEY, Roswell.

To *Camp MacArthur*, Waco, Tex., for duty, from Camp Cody, Capt. O. J. WESTLAKE, Silver City.

To *Fort Riley* for instruction, Lieut. C. E. KINDALL, Burley.

The following order has been revoked: To *Camp Grant*, Rockford, Ill., for duty, from Camp Greene, Lieut. H. K. RIDDLE, Reserve.

New York

To *Biltmore*, N. C., for duty, Lieut. J. W. WALTHER, Brooklyn.

To *Camp Abraham Eustis*, Lee Hall, Va., camp hospital, from Williamsbridge, Capt. L. B. ROBINSON, New York. For duty, from Morrison, Capt. E. L. HAZELTINE, Jamestown.

To *Camp Bowie*, Fort Worth, Texas, base hospital, from Fort Oglethorpe, Capt. H. L. PURDY, New York.

To *Camp Crane*, Allentown, Pa., for duty, from Camp Dix, Capt. G. S. SHIBLEY, Lieut. W. FRIEDMAN, New York; from Camp Hancock, Lieuts. F. GLUCKSMAN, New York; H. D. MacFARLAND, Westerville; from Camp Jackson, Capt. G. M. PARKHURST, Bath; from New York, Major L. JACHES, New York.

To *Camp Custer*, Battle Creek, Mich., for duty, from Eastern Department, Lieut. A. S. KATZMAN, Floral Park.

To *Camp Devens*, Ayer, Mass., as assistant, to the division surgeon, from Eastern Department, Capt. L. W. FALKNER, Youngstown. With the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. J. J. KEATING, New York.

To *Camp Dix*, Wrightstown, N. J., base hospital, Capt. G. W. BEATTY, Brooklyn.

To *Camp Dodge*, Des Moines, Ia., base hospital, from Camp Grant, Lieut. D. M. NATANSON, New York.

To *Camp Forrest*, Chickamauga Park, Ga., for duty, from Eastern Department, Capt. R. B. MORRIS, Olean.

To *Camp Gordon*, Atlanta, Ga., for duty, from Camp Greene, Lieut. W. H. TAYLOR, Brooklyn.

To *Camp Greene*, Charlotte, N. C., base hospital, Capt. R. M. JONES, New York; from Fort McPherson, Capt. T. S. WEST, Yonkers.

To *Camp Harry L. Jones*, Douglas, Ariz., for duty, from Vancouver Barracks, Lieut. A. H. WHEELER, Albany.

To *Camp Lee*, Petersburg, Va., base hospital, from Army Medical School, Lieut. H. BAKWIN, New York; from Camp Devens, Lieut. C. F. BOVE, Catskill.

To *Camp Logan*, Houston, Tex., base hospital, from Camp Beauregard, Capt. J. F. LONG, Brooklyn.

To *Camp MacArthur*, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. D. J. TILLON, Elmira; from Southeastern Department, Major T. W. MALONEY, Geneva.

To *Camp McClellan*, Anniston, Ala., base hospital, from Fort Oglethorpe, Lieut. W. J. O'CONNELL, Brooklyn.

To *Camp Meade*, Admiral, Md., base hospital, Capt. S. J. KEYES, New York; from Fort Oglethorpe, Lieut. H. S. VAN NOSTRAND, Little Neck. For duty, from Camp Upton, Lieut. L. L. GOLDBLATT, New York; from Fort Oglethorpe, Lieut. E. J. LORENZE, New York. With the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. S. KAHN, New York.

To *Camp Newton D. Baker*, El Paso, Texas, base hospital, from Camp Travis, Major J. E. DAUGHERTY, Brooklyn.

To *Camp Pike*, Little Rock, Ark., for duty, from Camp Gordon, Capt. W. N. BARNHARDT, Central Islip; from Fort Oglethorpe, Lieut. A. B. SULLIVAN, New York.

To *Camp Sevier*, Greenville, S. C., base hospital, from Fort Oglethorpe, Lieut. G. B. THAXTON, New York.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, from New York, Lieut. H. E. SCHOOVER, New York.

To *Camp Sheridan*, Montgomery, Ala., base hospital, from Camp Dix, Lieut. H. C. JOHNSTON, New York; from Camp Shelby, Lieuts. H. M. VANN, Brooklyn; A. E. VAN NESS, New York; from Camp Wadsworth, Lieut. F. V. HOEHN, Waterloo; from Richmond College, Va., Capt. C. T. GRAHAM, Rochester.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, Lieut. H. M. GOODYEAR, New York.

To *Camp Upton*, L. I., N. Y., base hospital, Capt. C. F. CLAASSEN, Brooklyn; E. FULLER, New York; Lieut. M. C. FISCHMAN, New York; from Hoboken, Major D. BOVAIRD, New York; from Walter Reed General Hospital, Capt. F. E. BROWN, Brooklyn; Lieut. J. L. FAGAN, New York. For duty, Capt. W. J. McGRATH, Sylvan Beach.

To *Camp Wadsworth*, Spartanburg, S. C., for duty, from Camp Upton, Lieut. M. A. RAMIREZ, New York; from Fort Oglethorpe, Lieut. T. M. REID, Jr., Brooklyn; from Northwestern Department, Capt. J. RAPHAEL, Brooklyn.

To *Camp Wheeler*, Macon, Ga., base hospital, from Camp Sheridan, Lieut. G. J. SIGNORELLI, Brooklyn; from Fort Ontario, Major L. D. McVOY, New York.

To *Columbus Barracks*, O., for duty, from Fort Benjamin Harrison, Lieut. M. A. SAGOWITZ, New York.

To *Detroit*, Mich., for duty, from Eastern Department, Capt. E. E. GILICK, Niagara Falls.

To *Fort Benjamin Harrison*, Ind., for duty, from Camp Sherman, Lieut. A. M. MULHOLLAND, New York.

To *Fort Des Moines*, Ia., base hospital, from Camp Greene, Capt. C. H. BALDWIN, Utica.

To *Fort McHenry*, Md., base hospital, from Camp Hancock, Lieut. W. E. DIEFENBACH, Munde; from Camp Meade, Capt. R. L. CROCKETT, Oneida. For duty, Lieut. J. AIKMAN, Rochester.

To *Fort McPherson*, Ga., base hospital, from Camp Crane, Major W. E. BUTLER, New York.

To *Fort Omaha*, Neb., for duty, from Fort Worth, Lieut. A. G. COOK, Brooklyn.

To *Fort Oglethorpe*, base hospital, from New York City, Lieut. B. M. BERNSTEIN, Brooklyn. For duty, from Biltmore, Lieut. A. E. GORDIN, New York; from Chicago, Lieut. J. L. LINN, Brooklyn. For instruction, Major T. DARLINGTON, New York; Capt. G. F. CLARK, J. E. COSGROVE, I. M. HOLLY, Brooklyn; J. C. TEAS, Flushing; W. P. JACOBS, V. W. PERKINS, New York; E. W. JACKSON, Rochester; D. C. PATERSON, Yonkers; Lieuts. J. H. BOWERS, Albany; E. DAVIS, Blackwell's Island; J. A. BILLETO, G. FLAMM, G. KORNFELD, I. G. LORNER, S. SHAPIRO, I. E. SUMNER, S. TIRMAN, M. WEINBERGER, L. J. WOODWORTH, Brooklyn; V. W. DUTTON, Burlington Flatts; S. W. CLAUSON, Canandaigua; R. M. PALMER, Gloversville; A. WALKER, Irondequoit; G. A. DISTLER, L. M. ROHR, Jamaica; M. L. HILLAMAN, Little Valley; H. ACKERMAN, A. ANESH, A. S. BLUMGARTEN, F. C. COSTEN, S. M. HYMAN, N. B. JENKINS, M. KUPPERMAN,

L. LURIE, S. W. ROCK, C. RUDNICK, A. R. SHIRLEY, L. SIEGAL, W. STEINHAUSER, E. STERN, E. H. SUTLIFF, G. E. WURTZEL, New York; S. S. BULLEN, E. S. GREENE, Rochester; M. SHIMBERG, F. S. WETHERELL, Syracuse; H. G. BALDWIN, Tannersville; T. B. HENRY, Tompkinsville; E. W. WILKINS, West Albany; from Camp Dix, Lieut. H. C. JOHNSTON, New York; from Camp Hancock, Lieut. R. W. TURNER, Albany; from Camp McClellan, Lieut. J. J. BOLAND, New York.

To Fort Ontario, N. Y., base hospital, from Camp McClellan, Lieut. W. L. WEEDON, Clifton Springs.

To Fort Sam Houston, Texas, base hospital, Lieut. A. RAVICHI, Brooklyn. For duty, from Houston, Capt. G. W. CRISSEY, Mechanicsville.

To Fort Sill, Okla., base hospital, from Walter Reed General Hospital, Lieut. A. W. JACOBS, New York.

To Fort Thomas, Ky., for duty, Lieut. M. L. FUCHS, New York.

To Fort Worth, Texas, for duty, from Fort Oglethorpe, Lieuts. L. K. STELLE, Kingston; E. C. WINSOR, Syracuse.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Capt. G. D. DARE, Morrisville; Lieut. F. BRANCATO, New York. For duty, from Camp Bowie, Lieut. M. J. HOY, Yonkers; from Camp Crane, Lieut. H. E. GAK, South Onondaga; from Fort Riley, Capt. O. E. UTZINGER, Ithaca; from Wichita Falls, Lieut. B. ARENSON, Brooklyn.

To Lakewood, N. J., for duty, Capt. G. G. STRAUB, Brooklyn.

To Mineola, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. F. B. MAGUIRE, Albany; from Fort Sill, Capt. J. D. GULICK, Schenectady. Signal Corps Aviation School, for instruction, from New York, Capt. W. A. SCRUTON, New York.

To New Haven, Conn., as instructor, from Fort Slocum, Capt. F. B. TRUDEAU, Saranac Lake. For duty, from Camp Devens, Capt. H. JUDOWITZ, Brooklyn; from Camp Joseph E. Johnston, Capt. R. E. PLUNKETT, Whitehall. Yale Army Laboratory School, for instruction, from Army Medical School, Lieuts. R. P. DOBBIE, F. W. PALMER, Buffalo; from Fort Leavenworth, Lieut. E. J. PELLINI, New York.

To Newport News, Va., for duty, from Camp Gordon, Lieut. A. E. SMITH, Cohoes; from Camp Jackson, Capt. C. F. YERDON, Brooklyn; from Fort Oglethorpe, Lieuts. K. A. SMITH, Lackawanna; M. ALEXANDERS, New York; G. B. GILMORE, Staten Island.

To New York, Bellevue Hospital, for instruction, and on completion *to Camp Greene, Charlotte, N. C.,* base hospital, from duty as a private, Lieut. A. MILICI, New York. Neurological Institute, for instruction, Lieut. S. SILBERT, New York.

To Ogdensburg, N. Y., for duty, and on completion *to the inactive list,* Capt. E. J. WYNKOOP, Syracuse.

To Philippine Department for duty, from Washington, Major F. J. ELSEMAN, New York.

To Rantoul, Ill., for duty, from Mineola, Capt. T. F. BRIDGMAN, New York.

To report to the commanding general, Eastern Department, for assignment to duty, Major W. T. HELMUTH, New York.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Camp Sherman, Lieut. J. A. CAMPBELL, New York.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion *to Fort Oglethorpe* for instruction, Capt. E. K. TANNER, Brooklyn. On completion *to his proper station,* from Camp Dix, Lieut. F. S. SCHOONOVER, Rochester; from Camp Greene, Capt. W. S. COOKE, Otego; Lieut. W. L. MUNSON, Granville.

To Syracuse, N. Y., as orthopedic surgeon, from Fort McPherson, Lieut. F. N. POTTS, Buffalo. For duty, from Camp Devens, Capt. M. A. ROTHSCCHILD, New York; from New Haven, Lieuts. J. J. RANDALL, Albany; F. C. BALDERREY, Ithaca; B. R. KELLEY, New York.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Capt. I. KETTERLE, Brooklyn; Lieut. R. G. FOWLER, Buffalo.

To Washington, D. C., for duty, from Eastern Department, Capt. E. L. AYME, New York.

To Waynesville, N. C., for duty, from New Haven, Capt. M. E. LEARY, Rochester.

To Williamsbridge, N. Y., for duty, Lieut. D. S. FETTES, Brooklyn.

Honorably discharged on account of physical disability existing prior to entrance into the service, Major T. W. HASTINGS, New York.

Resignations of Major R. A. HIBBS, New York, Capt. M. McDANIELS, Ithaca; Lieut. T. BELL, Brooklyn, accepted.

The following orders have been revoked: *To Fort Oglethorpe* for instruction, Lieuts. G. S. DUDLEY, New York; F. A. KNOPE, Rochester. *To Hoboken, N. J.,* base hospital, from Camp Upton, Lieut. W. H. SEWARD, Amsterdam. *To Newport News, Va.,* for duty, from Camp A. A. Humphreys, Lieut. D. PASHMAN, Brooklyn.

North Carolina

To Camp A. A. Humphreys, Accotink, Va., for duty, from Eastern Department, Lieut. B. B. STURDIVANT, Sunburst.

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Capt. R. B. HAYES, Hillsboro.

To Camp Dodge, Des Moines, Ia., for duty, from Camp Perry, Lieut. J. C. DYE, Statesville.

To Camp Pike, Little Rock, Ark., for duty, from Camp Travis, Lieut. E. M. McIVER, Jonesboro; from Western Department, Capt. O. L. STRINGFIELD, Jr., Mars Hill.

To Camp Sevier, Greenville, S. C., for duty, from Camp Wheeler, Lieut. E. S. BARR, Asheville.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. C. P. MANGAM, Kinston.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. P. S. EASLEY, Statesville; from Southeastern Department, Lieut. M. R. FARRAR, Greensboro.

To Fort McHenry, Md., base hospital, from Biltmore, N. C., Major W. L. DUNN, Asheville.

To Fort Oglethorpe for instruction, Capt. H. D. STEWART, Monroe; M. A. BOWERS, Thomasville; Lieuts. G. C. BATTLE, Asheville; J. L. RAWLS, Gatesville; W. B. MEARES, Jr., Linwood; W. W. JOHNSTON, Nanteo; H. E. ROWE, Newton; W. C. THOMAS, Raeford.

To Hoboken, N. J., base hospital, from duty as aide to the governor of North Carolina, Major J. W. LONG, Greensboro.

To New Haven, Conn., for duty, Lieut. W. T. LONG, Roxboro.

Resignation of Lieut. S. R. THOMPSON, Charlotte, accepted.

North Dakota

To Camp Custer, Battle Creek, Mich., for duty, from Camp Dodge, Lieut. J. R. MACKENZIE, Carrington.

To Camp Dodge, Des Moines, Ia., for duty, from Camp Beauregard, Capt. G. V. JAMIESON, Devils Lake.

To Camp McClellan, Anniston, Ala., base hospital, from New York, Lieut. J. A. D. ENGESATHIER, Bocket.

To Camp Pike, Little Rock, Ark., for duty, from Fort Douglas, Lieut. J. R. BRECKLE, Kulm.

To Fort Des Moines, Ia., base hospital, from Camp Grant, Capt. R. D. CAMPBELL, Grand Forks.

To Fort Oglethorpe for instruction, Capt. G. P. SHEPARD, Jamestown; Lieut. J. B. TYRRELL, Underwood.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Fort Riley, Capt. O. W. McCLUSKY, Carrington.

Ohio

To Azalea, N. C., for duty from Markleton, Capt. H. K. DUNHAM, Cincinnati.

To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Lieut. C. D. TODD, McComb.

To Camp Crane, Allentown, Pa., base hospital, from Camp Zachary Taylor, Lieut. G. S. MYTINGER, Portsmouth. For duty, from Camp Beauregard, Lieut. J. E. McCLELLAND, Cleveland; from Camp Sherman, Capt. J. T. MERWIN, Athens.

To Camp Custer, Battle Creek, Mich., base hospital, Lieut. G. T. MEADE, Columbus.

To Camp Forrest, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. H. N. ERVIN, Dayton.

To Camp Gordon, Atlanta, Ga., for duty, from Camp Greene, Lieut. G. E. FLINN, Amesville.

To Camp Grant, Rockford, Ill., base hospital, Lieut. E. H. McDONALD, Bloomington.

To Camp Lee, Petersburg, Va., base hospital, from Army Medical School, Lieut. F. C. PAYNE, Dayton; from New York, Lieut. R. C. ASH, Ashland.

To Camp Meade, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. M. MAHRER, Cleveland; W. DEERHAK, St. Mary's. With the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. J. C. MONNIER, Cleveland.

To Camp Pike, Little Rock, Ark., for duty, from Fort Logan H. Roots, Lieut. F. E. SOLIER, Bryan. To examine the command for nervous and mental diseases, from Fort Logan, Lieut. G. R. REEVE, Cleveland.

To Camp Sevier, Greenville, S. C., base hospital, Capt. W. M. AYRES, Cincinnati.

To Camp Sheridan, Montgomery, Ala., base hospital, Lieut. J. J. JENNIE, Cincinnati.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Sherman, Lieut. T. S. KEYSER, Springfield. For duty, from Fort Oglethorpe, Capt. W. T. GATCHELL, Ravenna; Lieut. J. C. McCLESTER, Harrisville; from Southern Department, Capt. L. H. McALLISTER, Highland.

To Camp Wheeler, Macon, Ga., base hospital, from Camp Gordon, Lieut. J. J. VEGA, National Military Home.

To Fort Oglethorpe, base hospital, from Camp Wheeler, Capt. F. S. GIBSON, Cleveland; from New York City, Lieut. B. H. NICHOLS, Ravenna. For duty, from Chicago, Lieut. R. B. BOWEN, Toledo. For instruction, Capt. C. A. DIXON, Akron; E. A. MURBACH, Archbold; J. FRIDLIE, Ashland; A. H. STALL, Barberton; A. E. IBERSHOFF, H. G. SLOAN, C. B. THOMAS, Cleveland; H. J. HERRICK, Hudson; A. H. HERR, Lima; H. M. FLOWER, Toledo; Lieuts. E. B. TAYLOR, Arcadia; C. R. JOHNSON, Cambridge; C. H. CABLE, Canton; J. S. PODESTA, Cincinnati; W. P. LOWRY, P. M. SPURNEY, Cleveland; J. L. BUSBY, W. E. DUFFEE, J. H. VORHES, Columbus; C. M. TREFFINGER, Eaton; M. H. SCOTT, Harrison; L. A. HAYS, Johnston; E. C. YINGLING, Lima; P. G. SMITH, Oxford; S. V. KENNEDY, Phalanx Station; I. P. SEILER, Piketon; R. F. WHITACRE, Prairie Depot; S. E. EAGON, Salesville; H. GRAFFE, Sandusky; J. H. RILEY, Springfield; R. B. CURL, E. G. MAY, A. J. RICHIE, G. M. WRIGHT, Toledo; W. H. STRATHMANN, West Toledo; N. N. MEYER, Youngstown.

To Fort Riley for duty, from Army Medical School, Major A. W. FREEMAN, Columbus.

To Fort Sill, Okla., for duty, Capt. S. IGLAUER, Cincinnati.

To Hoboken, N. J., for duty, from Camp Crane, Capt. A. E. SNYDER, Byron.

To New Haven, Conn., for duty, Capt. A. FALLOR, Cincinnati. Yale Army Laboratory School, for duty, Lieut. D. J. SLOSSER, Ridgeville Corners; from Fort Leavenworth, Capt. H. R. WAHL, Cleveland; from Rockefeller Institute, Lieut. R. H. MARKWITH, Columbus.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieuts. D. L. REES, Cleveland; H. W. RECK, Gettysburg.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion *to his proper station,* from Fort Riley, Lieut. C. F. WHARTON, Akron.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion, *to his proper station,* from Camp Sherman, Capt. W. C. GATES, Bucyrus.

To Washington, D. C., for consultation, and on completion *to Carlisle, Pa.,* for duty, from Camp Devens, Capt. A. C. BACHMAYER, Cincinnati. For duty, from Camp Meade, Lieut. L. A. MITCHELL, Newark.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. I. W. MATUSKA, Cleveland; J. W. CLARKE, Vinton.

The following order has been revoked: *To Camp Las Cascas, San Juan, P. R.,* base hospital, from Camp Lee, Lieut. R. A. THORNTON, Columbus.

Oklahoma

To Camp Crane, Allentown, Pa., for duty, from Camp Grant, Lieut. J. L. ROCK, Lexington; from Fort Bliss, Lieut. B. H. WATKINS, Gotebo.

To Camp Jackson, Columbia, S. C., for duty, from Eastern Department, Capt. J. H. STOLPER, Muskogee.

To Camp Logan, Houston, Texas, base hospital, Capt. L. M. WESTFALL, Oklahoma.

To Camp MacArthur, Waco, Texas, for duty, from San Antonio, Capt. S. R. EVANS, Stilwell.

To Camp Pike, Little Rock, Ark., base hospital, from Camp MacArthur, Lieut. J. W. HENRY, Oklahoma.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Southern Department, Capt. G. L. HARKER, Elk City.

To Fort Logan H. Roots, Ark., base hospital, from Corpus Christi, Major F. H. CLARK, El Reno.

To Fort Oglethorpe for instruction, Capt. T. F. WOOD, Sallisaw; Lieuts. I. MULLINS, Hominy; B. HARRIS, Jenks; R. I. ALLEN, Nowata; R. A. DOUGLAS, R. W. DUNLAP, Tulsa; from Camp Greene, Capt. J. H. WHITE, Muskogee.

To Fort Riley for instruction, Capt. H. C. BROWN, Okarcha; Lieuts. P. E. WRIGHT, Albion; R. C. BAKER, Arcadia; J. T. LOWE, Blair; B. W. BAKER, Cloudchief; W. M. RIVERS, Douthat; C. O. WILLIAMS, McAlester; W. G. RAMSAY, McCurtain; F. MOSELEY, Millerton; D. D. ROBERTS, Nash; J. H. NOAH, Oilton; H. BLENDER, Okcene; J. F. KELLY, Oklahoma; A. S. SPANGLER, Pauls Valley; J. D. WINTER, Poteau; J. T. SANDLIN, Vian.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. C. C. SHAW, McAlester. For duty, from Camp Bowie, Capt. R. G. BOLEND, Oklahoma City; from Camp Crane, Lieut. H. S. DRUMMOND, Haileyville.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieuts. B. G. JONES, Oklahoma City; L. H. CARLETON, Tulsa.

To report to the commanding general, Southern Department, for assignment to duty, Lieuts. I. L. GENTRY, Bonnington; T. L. ARTZ, Kiefer, R. D. LOWTHER, Norman.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. C. G. CONLEY, Frederick.

Oregon

To Camp Abraham Eustis, Lee Hall, Va., sanitary personnel, Lieut. E. J. GAMBEE, Portland.

To Camp Dodge, Des Moines, Ia., for duty, from Western Department, Lieut. F. C. HART, Portland.

To Camp Grant, Rockford, Ill., for duty, from Fort Riley, Capt. B. F. SCAIEFE, Eugene.

To Camp Kearney, Linda Vista, Calif., for duty, from Portland, Lieut. E. E. ANDERSON, Portland.

To Camp Lewis, American Lake, Wash., base hospital, Lieut. G. L. BOYDEN, Pendleton.

To Camp Logan, Houston, Tex., base hospital, from Camp Kearney, Lieut. H. J. ANDERSON, Carvallie.

To Camp MacArthur, Waco, Tex., base hospital, from Camp Kearney, Lieut. R. W. CAHILL, Portland.

To Camp Pike, Little Rock, Ark., for duty, from Western Department, Lieuts. W. E. HEDGES, Juntura.

To Fort Des Moines, Ia., base hospital, from Camp Sheridan, Lieut. B. N. WADE, Portland.

To Fort Oglethorpe, as instructor, from Fort Riley, Capt. R. R. HAMILTON, Klamath Falls. For instruction, Lieuts. R. E. WATKINS, K. H. MARTZLOFF, Portland.

To San Francisco, Calif., for instruction, and on completion to his proper station, from Camp Lewis, Capt. E. A. SOMMER, Portland.

To Letterman General Hospital, for duty, from Fort Gordon, Capt. G. MACCRACKEN, Ashland.

Pennsylvania

To Azalea, N. C., for duty, from New Haven, Capt. W. G. TURNBULL, Cresson.

To Camp A. A. Humphreys, Aecotink, Va., for duty, from Eastern Department, Lieut. W. J. LYNCH, Philadelphia.

To Camp Bowie, Fort Worth, Texas, base hospital, from Camp Zachary Taylor, Lieut. H. P. PROWITT, Washington; from Fort Sam Houston, Lieut. D. M. AIKMAN, Brockwayville. For duty, from New York, Lieut. E. P. WICKERHAM, Pittsburgh.

To Camp Crane, Allentown, Pa., for duty, from Camp Dix, Lieut. F. GUILLARD, Breezewood; from Camp Hancock, Capt. T. I. O'DRAIN, Philadelphia.

To Camp Custer, Battle Creek, Mich., base hospital, Major J. D. MILLIGAN, Pittsburgh.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Porter, Capt. W. S. RUCH, Carlisle.

To Camp Fremont, Palo Alto, Calif., for duty, from Camp Cody, Capt. E. E. JOHNSON, Philadelphia.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. B. A. MONTGOMERY, Grove City.

To Camp Hancock, Augusta, Ga., base hospital, Capt. R. C. TORREY, Philadelphia; Lieut. L. H. STUART, Pittsburgh; from Camp Sevier, Major G. FETTEROLF, Philadelphia.

To Camp Lee, Petersburg, Va., base hospital, Capt. A. E. THOMPSON, Washington; from Fort Oglethorpe, Capt. M. E. STOVER, Pittsburgh; from Fort Sereven, Capt. A. C. MORGAN, Philadelphia. For duty, from Fort Oglethorpe, Lieut. R. L. LANGDON, Philadelphia.

To Camp Logan, Houston, Texas, base hospital, from Camp Beauregard, Capt. L. M. JACOBS, Philadelphia.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. R. J. FORD, Pittsburgh.

To Camp McClellan, Anniston, Ala., base hospital, from Lakewood, Capt. J. C. KEELER, Philadelphia.

To Camp Meade, Admiral, Md., for duty, from Army Medical School, Lieut. J. L. MESSMORE, Masontown; from Camp Dix, Lieut. R. H. KISTLER, Lansford; from Camp Upton, Lieut. H. C. KINZER, Lancaster; from Fort Oglethorpe, Lieuts. J. R. PARKER, Chester; D. E. SZABO, Duquesne.

To Camp Pike, Little Rock, Ark., for duty, Lieut. D. I. KIRK, Pittsburgh; from Camp Gordon, Lieut. D. J. LANGTON, Philadelphia; from Camp Wheeler, Lieut. A. BERNSTEIN, Philadelphia; from Camp Zachary Taylor, Lieut. A. H. YARNALL, Pittsburgh.

To Camp Raritan, Metuchen, N. J., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. J. L. STHEL, Pittsburgh.

To Camp Sevier, Greenville, S. C., for duty, from Southeastern Department, Capt. W. H. NIX, Indiana.

To Camp Sheridan, Montgomery, Ala., base hospital, from Camp Shelby, Lieut. W. P. NOLAN, New Kensington. With the board examining troops for tuberculosis, from Fort Benjamin Harrison, Lieut. J. H. GOLDSTEIN, Pittsburgh.

To Camp Sherman, Chillicothe, Ohio, as camp psychiatrist, from Camp Meade, Lieut. F. FRALEY, Philadelphia. Base hospital, from Camp Gordon, Major J. P. KERR, Pittsburgh.

To Camp Upton, L. I., N. Y., base hospital, Lieuts. F. G. PATTERSON, DuBois; J. W. BARR, Nanty Glo; from Walter Reed General Hospital, Lieut. E. N. HAGIN, Sharon.

To Camp Wadsworth, Spartanburg, S. C., for duty, from Camp Dix, Capt. C. F. M. LEIDY, Philadelphia; from Fort Porter, Capt. W. S. RUCH, Carlisle; from Northeastern Department, Lieuts. W. L. CRAWFORD, Dillsburg; G. A. PARKER, South Bethlehem. With the

board examining the troops for cardiovascular diseases, from Lakewood, Lieut. M. FRISHMAN, Pittsburgh.

To Camp Wheeler, Macon, Ga., as division tuberculosis specialist, from Camp Jackson, Major J. W. BOYCE, Pittsburgh. As orthopedic surgeon, from Fort McPherson, Lieut. M. A. COHEN, Pittsburgh. Base hospital, from Camp Grant, Lieut. C. J. STAMM, Philadelphia.

To Fort Logan H. Roots, Ark., base hospital, from New York, Lieut. F. R. WISE, York.

To Fort McHenry, Md., base hospital, from Camp Hancock, Lieut. W. L. SNYDER, Brookville; from Camp McClellan, Lieut. L. J. LEAMY, Philadelphia, from Camp Shelby, Capt. E. PAINE, Heights.

To Fort Oglethorpe for duty, from New York, Capt. W. VAN KORB, Philadelphia. For instruction, Major E. LAPLACE, Philadelphia; Capt. J. A. LYNCH, Cresson; W. R. DICKSON, W. A. LAROSS, McDonald; T. A. STEELE, McKeesport; W. L. CAMPBELL, New Castle; G. H. DENNEY, H. W. MILLER, H. M. O'REILLY, W. B. SMALL, Philadelphia; T. EVANS, Jr., A. F. B. MORRIS, Pittsburgh; W. C. SHAW, Ridgway; C. C. STANTON, Sharpsburg; J. L. GALLAGHER, Steelton; H. W. GASS, J. W. SCHOFSTALL, Sunbury; J. H. HASLETT, Vanderbilt; Lieuts. J. K. WAGENSELLER, Bloomsburg; C. M. THOMAS, Garrick; G. A. SHUMAN, Catawissa; W. L. COLEMAN, Easton; C. C. KEMBLE, Erie; R. T. KLINE, Evans City; W. S. BELL, Greensburg; J. M. ROBBINS, Harrisburg; H. B. BUTERBAUGH, Indiana; K. A. BOWMAN, Johnstown; U. G. BICKELL, Kennett Square; L. LASHER, Kittanning; H. R. THORNTON, Lewisburg; J. A. LAFFERTY, McKees Rocks; D. N. KOONTZ, New Kensington; C. W. RICE, Northumberland; E. G. HENRY, Oil City; O. H. STROUSE, Perkasio; C. R. HAIG, W. H. OSTRUM, L. G. SMITH, Philadelphia; C. A. YOCUM, Phoenixville; W. T. BURLEIGH, J. O. DONALDSON, L. LASDAY, A. M. MILLIGAN, Pittsburgh; W. G. MOYER, J. A. WEIRBACH, Quakertown; R. J. HAWS, Reading; H. T. RYAN, Schuylkill Haven; C. R. MORSS, Scranton; G. M. B. BRADSHAW, Sugar Grove; R. C. HUGHES, Tredyffrin; F. G. SCHULER, Warren; C. E. LERCH, D. G. MOYER, Wyomissing.

To Fort Ontario, N. Y., base hospital, from Camp Dix, Lieut. M. A. BLUMER, Pittsburgh; from Fort Oglethorpe, Lieut. L. C. DRUFFNER, Avoca; from New York, Lieut. G. L. LAVERTY, Harrisburg.

To Fort Porter, N. Y., for duty, from Camp Pike, Lieut. W. W. MILLS, Duquesne.

To Fort Sill, Okla., base hospital, from Walter Reed General Hospital, Capt. F. W. DAVIS, Scranton.

To Fort Worth, Texas, for duty, from Garden City, Capt. B. C. GILE, Philadelphia.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Capt. J. S. WINTERSTEEN, Moorestown; M. SOLIS-COHEN, Philadelphia; Lieut. F. L. ALEXANITIS, Wilkes-Barre. For duty, from Cape May, Lieut. J. H. ARNETT, Philadelphia; from Fort Oglethorpe, Lieut. S. KALLAWAY, Homestead.

To Houston, Texas, for duty, from Fort Oglethorpe, Lieut. G. B. SICKEL, Chester.

To Mineola, L. I., N. Y., for duty, from Fort Oglethorpe, Lieut. M. A. BRADFORD, Pittsburgh. For instruction, from Fort Worth, Capt. E. E. CAMPBELL, Butter.

To New Haven, Conn., for duty, Capt. J. WALSH, Philadelphia. Yale Army Laboratory School, for duty, Lieut. G. A. DAPP, Harrisburg.

To Newport News, Va., for duty, from Fort Oglethorpe, Lieut. B. B. SMITH, Philadelphia.

To Plattsburg Barracks, N. Y., for duty, from New York, Lieut. H. B. MIKELBERG, Philadelphia.

To Richmond, Va., for duty, from Newport News, Major G. C. BOUGHTON, Erie.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Sherman, Lieut. G. GINSBURG, Philadelphia.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Meade, Lieut. J. H. BARTLEY, Jr., Philadelphia. On completion to Williamsbridge, N. Y., for duty, from Camp Humphreys, Capt. D. F. JACKSON, Pittsburgh.

To Syracuse, N. Y., for duty, from New Haven, Capt. J. B. CRAWFORD, Pittsburgh.

To Washington, D. C., for duty, from Eastern Department, Capt. W. S. STEWART, McDonald. For duty in the Surgeon-General's Office, from Fort Oglethorpe, Lieut. S. B. PEARCE, Pittsburgh. St. Elizabeth's Hospital, for intensive training, Lieut. W. L. HAIR, Roaring Springs.

To Willoughby, Ohio, for duty, from Lakehurst, Lieut. M. M. WOLFE, New Kensington.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieuts. W. K. SHEA, P. A. TRAU, Philadelphia.

The following orders have been revoked: To Camp Raritan, Metuchen, N. J., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. W. D. STROUD, Philadelphia. To Camp Upton, L. I., N. Y., for duty, from Camp Holabird, Lieut. H. S. BUSLER, Philadelphia.

Porto Rico

To Camp Las Casas, San Juan, P. R., for duty, Lieut. P. J. ZAMERA, Aquadilla; J. S. MORALES, Camupy; from Camp Dodge, Lieut. A. D. LANGIER, San Juan; from duty as a cadet, Lieut. J. LASTRA, Ponce.

To San Diego, Calif., for duty, from Mineola, Major E. I. VAUGHN, Central Aguirre.

Rhode Island

To Camp Custer, Battle Creek, Mich., for duty, from Northeastern Department, Lieut. R. METCALFE, Providence.

To Camp Devens, Ayer, Mass., base hospital, Capt. W. A. RISK, Providence.

To Camp Dodge, Des Moines, Iowa, base hospital, from Army Medical School, Capt. W. G. DWINNELL, Providence.

To Camp MacArthur, Waco, Texas, for duty, from Fort Oglethorpe, Lieut. T. S. FLYNN, Woonsocket.

To Camp Meade, Admiral, Md., base hospital, Capt. P. W. HESS, Pawtucket.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Sherman, Capt. H. E. BLANCHARD, Providence.

To Camp Sherman, Chillicothe, Ohio, base hospital, from Rockefeller Institute, Capt. H. C. PITTS, Providence.

To Cape May, N. J., for duty, Lieut. F. N. BIGELOW, Providence.

To Fort McHenry, Md., base hospital, from Camp Dix, Capt. J. B. FERGUSON, Providence.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. H. J. GALLAGHER, Providence.

South Carolina

To *Camp Bowie*, Fort Worth, Texas, base hospital, from Fort Logan H. Roots, Lieut. J. M. WALLACE, Greenville. For duty, from Western Department, Lieut. W. S. McMURRAY, Lockhart.

To *Camp Crane*, Allentown, Pa., for duty, from Camp Wadsworth, Lieut. M. C. SMITH, Simpsonville.

To *Camp MacArthur*, Waco, Texas, base hospital, from Camp Joseph E. Johnston, Lieut. J. D. VERNER, Jr., Walhalla.

To *Camp Meade*, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. V. M. ROBERTS, Blacksburg.

To *Camp Upton*, L. I., N. Y., base hospital, from Camp Dix, Lieut. H. B. THOMAS, Chester.

To *Camp Wadsworth*, Spartanburg, S. C., for duty, from Southeastern Department, Capt. W. A. SMITH, Charleston.

To *Camp Zachary Taylor*, Louisville, Ky., base hospital, from Fort Logan H. Roots, Capt. J. WALLACE, Easley.

To *Fort Oglethorpe* for instruction, Capt. C. C. GAMBRELL, Abbeville; M. CROOK, Spartanburg; S. G. SARRATT, Union; Lieuts. J. C. MITCHELL, W. H. PRICE, Charleston; C. M. SCOTT, Darlington; H. T. BOOZER, Saluda.

To *Fort Riley* for instruction, Lieut. J. H. MILLS, Mayesville.

To *New Haven, Conn.*, for duty, Capt. H. B. MALONE, Chester.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Custer, Capt. L. PETERS, Columbia.

South Dakota

To *Camp Pike*, Little Rock, Ark., base hospital, Capt. B. A. BOBB, Mitchell.

To *Camp Wheeler*, Macon, Ga., base hospital, from Camp Grant, Major J. A. MATTISON, Hot Springs.

To *Fort Des Moines, Ia.*, base hospital, from Camp Custer, Lieut. C. N. HARRIS, Wilnot; from Camp Grant, Lieut. R. R. FISK, Brookings.

To *Fort Oglethorpe* for instruction, Capt. S. M. HOHF, Yaukon.

To *Fort Riley* for instruction, Capt. H. A. GUEFFROY, Frankfort.

The following order has been revoked: To *Camp Dodge*, Des Moines, Ia., base hospital, Capt. J. D. WHITESIDE, Aberdeen.

Tennessee

To *Camp Abraham Eustis*, Lee Hall, Va., for duty, from Fort Oglethorpe, Lieut. G. C. THOMAS, Greenfield.

To *Camp Devens*, Aver, Mass., base hospital, from Camp Zachary Taylor, Lieut. A. D. SHARP, Murfreesboro.

To *Camp Forrest*, Chickamauga Park, Ga., for duty, from Eastern Department, Lieut. J. P. DELANCY, Arrington.

To *Camp Lee*, Petersburg, Va., base hospital, Lieuts. J. M. STEWART, Martin; C. COLLIER, Memphis; from Fort Oglethorpe, Major W. G. SOMERVILLE, Memphis.

To *Camp MacArthur*, Waco, Texas, base hospital, from New York, Lieut. R. E. SEMMES, Memphis.

To *Camp Meade*, Admiral, Md., for duty, from Fort Oglethorpe, Lieut. L. O. WILKERSON, Stanton; from the Surgeon-General's Office, Capt. L. A. STONE, Memphis.

To *Camp Pike*, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. H. REESE, Gallatin; from Fort Riley, Lieut. H. O. ANDERSON, Williamsport.

To *Camp Wadsworth*, Spartanburg, S. C., base hospital, from New York, Lieut. W. P. LAW, Westmoreland.

To *Camp Wheeler*, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. C. T. RICHARDSON, Memphis.

To *Fort Oglethorpe* for instruction, Capt. S. MEEKER, Memphis; W. M. JOHNSON, Sparta; J. W. WALLACE, Watauga; Lieut. G. M. WAMPLER, South Pittsburgh.

To *Fort Ontario*, N. Y., base hospital, from Fort Oglethorpe, Lieut. O. N. LATEN, Memphis.

To *Fort Riley* for instruction, Capt. S. R. TEACHOUT, Nashville.

To *Hoboken, N. J.*, base hospital, from Camp Crane, Capt. J. H. McSWAIN, Paris.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. C. L. DAVIDSON, Lexington.

Honorably discharged, Lieut. L. M. DYKES, Johnson City.

The following order has been revoked: To *Camp Upton*, L. I., N. Y., for duty, from Camp Meigs, Lieut. W. V. PRUETT, Brownsville.

Texas

To *Camp A. A. Humphreys*, Acetotink, Va., for duty, from Eastern Department, Lieut. R. ATKINSON, Pleasanton.

To *Camp Beauregard*, Alexandria, La., for duty, from Camp Travis, Lieut. D. W. CARTER, Jr., Georgetown; from Southern Department, Major T. E. PENROSE, Marathon.

To *Camp Bowie*, Fort Worth, Texas, base hospital, from Camp MacArthur, Capt. R. D. GIST, Amarillo. For duty, from Southern Department, Capt. T. R. BURNETT, Carrollton; F. F. FOWLER, Round Rock.

To *Camp Dix*, Wrightstown, N. J., as orthopedic surgeon, from Walter Reed General Hospital, Lieut. C. F. FOWLER, Austin.

To *Camp Dodge*, Des Moines, Ia., for duty, from Central Department, Major C. R. BYARS, Brownsville.

To *Camp Forrest*, Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. D. E. MONROE, Cameron.

To *Camp Las Casas*, San Juan, Porto Rico, base hospital, from Fort McPherson, Lieut. E. L. LAWRENCE, Thorndale.

To *Camp Meade*, Admiral, Md., for duty, from Fort Oglethorpe, Capt. J. S. MICHAEL, Lieuts. A. J. MYNATT, Houston; J. R. MURCHISON, Marshall; from Lakewood, Lieut. H. D. WHITTINGTON, Eastland.

To *Camp Pike*, Little Rock, Ark., base hospital, Lieut. H. D. HARLAN, Beaumont.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, from Camp Dodge, Lieut. L. B. KLINE, Houston.

To *Camp Upton*, L. I., N. Y., base hospital, from Fort McHenry, Lieut. W. R. JOHNSON, Snyder. For duty, from Camp MacArthur, Major S. NORMAN, Texas City.

To *Camp Wadsworth*, Spartanburg, S. C., for duty, from Camp Greene, Capt. F. D. SHEPHERD, Byers.

To *Corpus Christi, Texas*, for duty, Lieuts. T. W. GRACE, El Paso; J. D. CARROLL, Uvalde.

To *Fort Des Moines, Ia.*, base hospital, from Camp Shelby, Capt. H. H. OGILVIE, San Antonio.

To *Fort McHenry, Md.*, base hospital, from Camp Devens, Lieut. M. O. REA, Pottsville.

To *Fort Oglethorpe* for instruction, Capt. J. M. F. GILL, Austin; J. A. HARDY, El Paso; R. F. SAUNDERS, I. A. WITHERS, Fort Worth; A. P. HOWARD, Houston; Lieuts. A. H. GALLOWAY, Lancaster; E. D. RICE, Tyler; H. E. HOKE, Waco; W. C. TENERY, Waxahachie; from Camp Bowie, Lieut. E. W. JONES, Wellington; from Camp Logan, Capt. W. P. BARTON, Overton; from duty as a private, Lieut. W. L. ASKEW, Amarillo.

To *Fort Riley* for instruction, Lieuts. P. C. PLUENNEKE, Cranfills Gap; E. K. ARMISTEAD, El Paso; L. C. BARRETT, Garner; J. B. KNIGHT, Meridian; J. H. MCCOY, Tahoka; S. J. PATE, Woodville.

To *Fort Sam Houston, Texas*, base hospital, Capt. S. J. WILSON, Fort Worth.

To *Fort Worth, Texas*, for duty, Lieut. J. W. ELLIS, Lampasas; from Fort McIntosh, Lieut. W. H. COOLEY, Santo.

To *Hoboken, N. J.*, base hospital, from Camp Crane, Lieut. J. W. BALKE, Rosenberg; from Cape May, Lieut. J. E. QUAY, Waco.

To *New Haven, Conn.*, for duty, from Camp MacArthur, Lieut. A. J. STREIT, Marlin. Yale Army Laboratory School, for duty, from Fort Leavenworth, Capt. W. F. THOMSON, Beaumont. For instruction, Lieuts. J. D. MARTIN, Call; C. N. HENDRY, Galveston.

To *Newport News, Va.*, for duty, from Camp Wadsworth, Lieut. R. L. DINWIDDLE, San Antonio.

To *Princeton, N. Y.*, Princeton University, for duty, Capt. F. E. PRESTLEY, Galveston.

To *Washington Barracks*, Washington, D. C., for duty, from Army Medical School, Lieut. E. D. MILLS, Galveston.

To *Waynesville, N. C.*, for observation and treatment, from Arcadia, Lieut. J. W. REID, Maysfield.

To report to the commanding general, Southern Department, for assignment to duty, Lieut. J. L. BORDEN, Victoria.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Greene, Lieut. C. C. CLEVELAND, Hamilton.

The following order has been revoked: To *Fort Oglethorpe* for instruction, from Washington, Lieut. J. W. GOODE, San Antonio.

Utah

To *Camp Custer*, Battle Creek, Mich., for duty, from Central Department, Capt. R. T. MERRILL, Smithfield.

To *Camp Fremont*, Palo Alto, Calif., base hospital, Capt. A. R. IRVINE, Salt Lake City.

To *Fort Douglas, Utah*, for duty, from Western Department, Capt. G. C. EMERY, Holliday.

To *Fort Oglethorpe* for instruction, Lieut. G. J. FIELD, Salt Lake City.

To *Fort Riley* for instruction, Lieuts. C. E. HENNEBERGER, Bingham Canyon; E. A. WEYMULLER, Geneva; B. C. MacNEIL, White Rocks.

Vermont

To *Camp Crane*, Allentown, Pa., for duty, from Camp Gordon, Lieut. J. P. TIERNEY, St. Johnsbury.

To *Camp Devens*, Ayer, Mass., base hospital, Capt. O. V. HEFFLON, Wardsboro.

To *Fort McPherson, Ga.*, for duty, from Camp Kearney, Capt. S. M. BUNKER, Burlington.

To *Fort Oglethorpe* for instruction, Capt. J. W. COURTNEY, Burlington; Lieut. E. N. BIBBY, Craftsbury.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. G. H. PARMENTER, Montpelier; from Fort Leavenworth, Lieut. A. L. FOGG, Underhill.

Virginia

To *Camp Abraham Eustis*, Lee Hall, Va., camp hospital, from Camp Lee, Major P. C. RILEY, Markham.

To *Camp Custer*, Battle Creek, Mich., for duty, from Mineola, Major H. C. Mallory, Greenbackville.

To *Camp Forrest*, Chickamauga Park, Ga., for duty, from Eastern Department, Capt. H. J. HAGAN, Roanoke.

To *Camp Pike*, Little Rock, Ark., for duty, from Camp Logan, Lieut. E. M. HICKS, Roanoke.

To *Fort McHenry, Md.*, base hospital, from Camp Greene, Lieut. J. O. MUNDY, Jr., Raccoon Ford.

To *Fort Oglethorpe* for instruction, Capt. A. L. WILSON, Lynchburg; Lieuts. C. J. DEVINE, Lexington; E. P. KENNEDY, Richmond; R. R. NEVITTE, Temperanceville.

To *Fort Ontario*, N. Y., base hospital, from Fort Oglethorpe, Lieut. R. G. WIATT, Richmond.

To *Hampton, Va.*, for duty, from Fort Worth, Major A. G. COUMBE, Vienna.

To *Hoboken, N. J.*, base hospital, from Fort Oglethorpe, Lieut. P. E. TUCKER, Buckingham.

To *Memphis, Tenn.*, Park Field, for duty, from Camp Sevier, Capt. S. E. BROWN, Norfolk.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. C. H. IDEN, Berryville.

To *Philadelphia, Pa.*, for duty, from Northwestern Department, Capt. J. W. H. POLLARD, Lexington.

To *Syracuse, N. Y.*, as orthopedic surgeon, from Camp Pike, Capt. H. FLETCHER, Fairfax.

To *Waynesville, N. C.*, for duty, from New Haven, Lieut. J. L. STRINGFELLOW, Norfolk.

Washington

To *Camp Abraham Eustis*, Lee Hall, Va., sanitary personnel, Capt. F. H. COLLINS, Goldendale.

To *Camp Bowie*, Fort Worth, Tex., for duty, from Western Department, Capt. J. A. MAPES, Seattle.

To *Camp Crane*, Allentown, Pa., for duty, from Camp Lewis, Lieut. H. D. JONES, Tacoma.

To *Camp Dodge*, Des Moines, Ia., for duty, from Fort Thomas, Major R. W. NEWTON, Fort George Wright.

To *Camp Harry L. Jones*, Douglas, Ariz., for duty, from Portland, Ore., Lieuts. J. HIETT, Metairie Falls; C. Y. LAPIDENSKY, Seattle.

To *Camp Lewis*, American Lake, Wash., base hospital, Capt. J. R. BOOTH, A. JORDAN, Seattle; Lieuts. W. L. JACKSON, Burlington; J. L. HARRIS, Pullman; A. W. WISE, Wellpinit. For duty, from Western Department, Lieut. C. E. MONTGOMERY, Walla Walla.

To *Camp Logan*, Houston, Tex., base hospital, from Camp Cody, Capt. R. T. BURKE, North Bend.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Personal.—Dr. Richard S. Anthony, Los Gatos, has been appointed for the medical staff of the Red Chevron Society, an organization to identify all men unable to enter active service and to hold them during the period of the war in organization to render to the country whatever assistance they may be able to render as volunteers.—Dr. Arthur Hieronymus, city physician and head of the health department of Alameda, was operated on at the Alameda Sanitarium, July 28, and is reported to be doing well.

New Tuberculosis Hospital.—A new hospital for diseases of the lungs has just been completed on a site overlooking the Mission Valley, near San Diego, at a cost of \$35,000. The institution will house forty-eight patients. While the building was started with \$24,000 bequeathed by Mr. Vauclain, to be used for tent houses for consumptives, the trustees and the county supervisor contend that the purpose of the giver would best be served by turning over the fund to the County Tuberculosis Hospital building. On account of the conflict of opinion between the Anti-Tuberculosis Society and the county supervisor, this matter will be settled by the decision of the judge of the superior court.

ILLINOIS

Typhoid Fever.—One hundred and thirty-five cases of typhoid fever have been reported in Moline.

Infantile Paralysis.—The second case of infantile paralysis in Edwardsville this year was reported, July 28.

Personal.—At the international convention of the Catholic Order of Foresters, held in Duluth, July 29, Dr. Joseph P. Smyth, Chicago, was elected high medical examiner.—Dr. Henry I. Wilson, Oak Forest, has been appointed health officer of Racine.

Farewell to Medical Officers.—The Sangamon County Medical Society gave a farewell dinner at the Sangamon Club, July 29, in honor of Drs. John F. Deal, A. G. Aschauer, Charles L. Colby and Charles L. Patton, who have accepted commissions in the Medical Reserve Corps, U. S. Army, and have been ordered to active duty. Each of the guests of honor was presented with a remembrance from the society. The presentation speeches were made by Drs. George N. Kreider, Lewis C. Taylor and Frank P. Norbury, all of Springfield.

Chicago

McArthur Unit Safely Landed.—The Base Hospital Unit No. 14, St. Luke's Unit, was announced, August 2, to have been safely landed in Europe. Capt. Lawrence H. Mayers, M. R. C., U. S. Army, is director of the unit.

IOWA

Medical Student Drowned.—John L. Cannon, a senior medical student in the State University of Iowa, Iowa City, was drowned in the Cedar River, near the lower Palisades, July 28.

Personal.—Dr. Edward C. Rosenow, who went from his home in Rochester, Minn., to Dubuque, in response to the appeal at the time of the outbreak of infantile paralysis in the latter city, returned home, July 25.—Dr. Fred J. Jarvis, Oskaloosa, suffered the fracture of a collar bone and other injuries in an automobile accident near Fremont.

Quarantine Lifted at Dubuque.—August 3, the quarantine that was placed on Dubuque a month before on account of the prevalence of infantile paralysis was raised by the state board of health. No new cases have been reported, and the number of recoveries is steadily increasing.—Out of seventy-one cases of paralysis reported to the state board of health up to July 22, there have been only nine deaths.

LOUISIANA

Personal.—Dr. Jerome E. Landry has been appointed house surgeon of the Charity Hospital, New Orleans, succeeding Dr. Hiram W. Kostmayer, resigned to accept a position with the Illinois Central Hospital.

To *Camp MacArthur*, Waco, Tex., for duty, from Western Department, Capt. W. H. PAYNE, Fort Worden; A. E. HENRY, Seattle; N. E. ROBERTS, Olympia; H. W. SHRYOCK, Sumas; C. C. WILCOX, Vancouver.

To *Camp Travis*, Fort Sam Houston, Tex., for duty, from Fort Riley, Lieut. F. W. WICHMAN, Tenino.

To *Camp Wheeler*, Macon, Ga., base hospital, from Fort Monroe, Capt. H. G. WILLARD, Tacoma.

To *Fort Des Moines*, Iowa, base hospital, from Camp Lewis, Capt. E. C. WHEELER, Tacoma.

To *Fort Ontario*, N. Y., base hospital, from Camp Lewis, Capt. A. H. PEACOCK, Seattle; from Jefferson Barracks, Lieut. G. I. HURLEY, Hoquiam.

To *Fort Riley* for instruction, Capt. F. M. CROSBY, Kennewick; C. E. KEELER, Yakima; Lieut. C. E. GREASON, Skykomish.

To *Newport News*, Va., for duty, from Waynesville, Capt. K. WINSLOW, Seattle.

To *Rochester*, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Custer, Capt. J. M. HENDERSON, Seattle.

To *San Francisco*, Calif., Letterman General Hospital, for duty, Capt. E. E. BECKETT, F. N. CHESSMAN, Seattle.

To *Williamsbridge*, N. Y., for observation and treatment from Hoboken, Lieut. W. J. BOONE, North Yakima.

Honorably discharged on account of physical disability incurred in line of duty, Capt. F. L. WOOD, Lynden.

West Virginia

To *Camp Gordon*, Atlanta, Ga., base hospital, from Fort McPherson, Lieut. C. M. TRUSCHEL, Wheeling.

To *Camp Lee*, Petersburg, Va., base hospital, Capt. B. L. TRAYNHAM, Sweet Springs.

To *Camp Logan*, Houston, Tex., base hospital, from Fort Riley, Capt. O. D. BARKER, Parkersburg.

To *Camp Meigs*, Washington, D. C., for duty, Capt. C. N. BROWN, Elizabeth.

To *Camp Pike*, Little Rock, Ark., for duty, from Camp Shelby, Capt. L. P. JONES, Pennsboro; from Fort Oglethorpe, Capt. E. McELFRESH, Point Pleasant.

To *Camp Sheridan*, Montgomery, Ala., base hospital, from Camp Shelby, Lieut. G. C. PATTON, Harrisville.

To *Camp Wadsworth*, Spartanburg, S. C., for duty, from Fort Oglethorpe, Lieut. I. M. DEER, Henford.

To *Fort Oglethorpe* for instruction, Capt. P. W. McCLUNG, Elizabeth; Lieuts. T. L. HARRIS, Parkersburg; H. A. WHISLER, Wallace; A. L. COYLE, C. J. RYAN, Wheeling; from Camp McClellan, Capt. W. W. ORR, Worthington.

To *Fort Screven*, Ga., for temporary duty, Lieut. H. B. COPELAND, Wheeling.

To report to the commanding general, base hospital, Southern Department, from Camp Travis, Lieut. T. E. VASS, Bluefield.

Wisconsin

To *Army Medical School* for instruction, and on completion to *Fort Oglethorpe*, from Chicago, Capt. E. L. BOLTON, Chilton.

To *Camp Devens*, Ayer, Mass., base hospital, from Camp Custer, Capt. G. SENN, Green Bay; from Camp Sherman, Capt. S. W. DOOLITTLE, Lancaster.

To *Camp Dodge*, Des Moines, Iowa, for duty, from Fort Brady, Capt. G. R. RANDALL, Milwaukee.

To *Camp Grant*, Rockford, Ill., base hospital, Lieuts. J. T. KLEIN, H. J. KUHN, Milwaukee. For duty, from Fort Riley, Lieut. E. N. PFEFFER, Milwaukee.

To *Camp Lee*, Petersburg, Va., with the board examining the troops for cardiovascular diseases, from Lakewood, Lieut. E. S. GATTERDAM, La Crosse.

To *Camp MacArthur*, Waco, Tex., for duty, from Fort Oglethorpe, Lieut. C. M. SONNENBURG, Sheboygan.

To *Camp Meade*, Admiral, Md., base hospital, from New York, Lieut. C. C. BIRKELO, Rosholt.

To *Camp Pike*, Little Rock, Ark., for duty, Capt. A. L. C. BORCHARDT, New London; from Camp Zachary Taylor, Lieut. C. B. HAKE, Milwaukee.

To *Fort McHenry*, Md., base hospital, from Camp Dix, Lieut. E. R. F. MURPHY, Antigo.

To *Fort Oglethorpe*, as instructors, from Fort Riley, Capt. F. J. WOODHEAD, Merton; Lieut. E. I. MOQUIN, Fairwater. For instruction, Capt. J. W. POWERS, Burlington; Lieuts. E. K. THOMPSON, Cudahy; from duty as a private, Lieut. A. C. NUGENT, Milwaukee.

To *Fort Ontario*, N. Y., base hospital, from New York, Lieut. T. F. LAUGHLIN, Winneconne.

To *Fort Riley* for instruction, Lieuts. R. L. MACCORMACK, Alma Center; J. M. MECUM, Bagley; J. E. TWOHIG, Fond du Lac; J. ROSHOLT, LaCrosse; P. M. ROSS, E. A. SCHOLTER, W. A. SICKELS, Milwaukee.

To *New Haven*, Conn., Yale Army Laboratory School, for duty, Lieut. F. M. HARRIS, Fond du Lac.

To *Newport News*, Va., for duty, from Camp Wadsworth, Lieut. E. G. LINKMAN, Milwaukee; from Fort Oglethorpe, Lieut. G. G. WALLCHLAEGER, Milwaukee.

To report to the commanding general, Central Department, for assignment to duty, Capt. E. J. PHELPS, Elderon; F. WALTERS, Stevens Point; W. E. GROUND, Superior.

To *Rochester*, Minn., Mayo Clinic, for instruction, and on completion to *Jefferson Barracks*, Lieut. F. H. RUSSELL, Neenah.

To *Rockefeller Institute* for instruction in laboratory work, and on completion to *Army Medical School*, for duty, Capt. F. A. McJUNKIN, Milwaukee. For instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Dix, Lieut. T. C. H. ABELMANN, Watertown.

The following order has been revoked: To *Washington*, D. C., American University, for duty, from Fort Oglethorpe, Lieut. O. W. C. MAERCKLEIN, Wauwatose.

Wyoming

To *Camp Dodge*, Des Moines, Iowa, for duty, from Western Department, Lieut. N. C. GEIS, Casper.

To *Camp Sevier*, Greenville, S. C., base hospital, from New York, Lieut. A. H. BENSON, Sheridan.

To *Fort Riley* for instruction, Lieut. J. D. LEWELLEN, Powell.

New District Officers.—At the annual meeting of the Fifth District Medical Society held in Monroe, the following officers were elected: president, Dr. James B. Vaughan, Col-linston; vice presidents, Drs. Irby B. May, Columbia; Oliver H. Thompson, Marion, and Victor F. Carey, Downsville, and secretary-treasurer, Dr. James Q. Graves, Monroe.

MARYLAND

Personal.—Dr. Howard Bratton, Elkton, has been elected vice president of the Association of Medical Societies of the Eastern Shores of Maryland, Virginia and Delaware.

MINNESOTA

Trachoma in Itasca County.—As the result of a trachoma investigation recently made by federal government officials, and the state health authorities in Itasca County, thirty-eight cases have been found; seven in white people and thirty-one in Indians.

Guilty of Espionage.—"Dr." Christian P. Neumann, Princeton, is said to have been found guilty on three counts of violation of the espionage act and to have been sentenced by Judge Page Morris to four years imprisonment in the Leavenworth Penitentiary.

Personal.—Dr. Pearl M. Hall, formerly health commissioner of Minneapolis, was formally installed as superintendent of the State Tuberculosis Sanatorium, Walker, July 30 and 31.—Dr. Carl J. Holman has been appointed health commissioner of Mankato, succeeding Dr. Austin V. Denman, who has resigned to enter the military service.—Dr. Herbert O. Collins, for nine years superintendent of the Minneapolis City Hospital, has accepted the superintendency of the Winnipeg General Hospital, and will assume charge, September 1. Dr. Harry A. Britton has been appointed acting superintendent of the Minneapolis City Hospital, succeeding Dr. Collins.

MISSOURI

New Health Publication.—St. Joseph Health Department has begun the publication of a monthly bulletin for distribution among the citizens to inform the people about health conditions. Dr. Hasbrouck De Lamater, city health officer, will edit the publication.

Physician Fined.—Dr. W. D. Smith, Kansas City, who was arrested on the charge of the illegal sale of narcotics, is said to have been fined \$500, July 29, by Justice Charles H. H. Clark. Seven men and three women drug addicts who were arrested and held as witnesses against Dr. Smith were fined \$50 each and sent to the General Hospital.

Health Association Officers.—At the meeting for organization of the Missouri State Health Association in St. Louis, July 22, Dr. Hasbrouck De Lamater, St. Joseph, was elected president; Dr. George H. Jones, Jefferson City, secretary of the state board of health, secretary, and Drs. E. H. Bullock, Kansas City, and C. A. Jones, St. Louis, and Messrs. E. H. Smith, Springfield; Robert B. Tyler, Joplin, and Frank L. McCormick, Moberly, directors.

Personal.—Dr. Arthur R. McComas, Sturgeon, councilor of the ninth district has been called into active service as captain, M. R. C., U. S. Army. July 11, a farewell dinner was given Captain McComas.—Dr. Franklin E. Murphy, Kansas City, councilor of the thirteenth district, has been appointed chairman of the judicial council and the executive committee of the Missouri State Medical Association to fill the vacancy caused by Dr. McComas being called into active service.

State Health Board Appointments.—Governor Gardner has appointed Dr. Andrew W. McAlester of Columbia a member of the state board of health to take the place of Dr. Joseph W. Ferguson, St. Joseph, who has joined the Medical Reserve Corps, U. S. Army. The governor also reappointed Dr. Emmett P. North of St. Louis, Dr. Thomas A. Son of Bonne Terre, Dr. T. Hurley Wilcoxon of Bowling Green, whose terms expired, July 1. The other members of the board are: Drs. William A. Clark, Jefferson City; Tolman W. Cotton, VanBuren and George H. Jones, Jefferson City, secretary of the board.

NEBRASKA

Personal.—Drs. Francis and Emma Boose Tucker, Falls City, have arrived from Tehchow Tung, China, where they have been for seven years as medical missionaries.—Dr. Clarence B. Foltz has resigned as police surgeon of Omaha.

NEW YORK

New York City

More Ambulances for Women's Service.—The National League for Women's Service which is assisting the Surgeon-General in the removal of wounded men from the transports to the hospitals has been presented with four additional ambulances, valued at \$10,250, and funds for their maintenance for one year by the Cloak and Suit Trade. This makes eight ambulances now being operated by the motor corps of the league.

Women Doctors Need Help.—Dr. Barbara Hunt, Bangor, Me., director of the Women's Hospital No. 1 in France, has cabled that there is urgent need for women physicians in connection with the work of that hospital. The hospital has twenty-five beds for military patients and twenty-five beds for civilian patients, and is establishing dispensaries in nearby towns and villages. In this enterprise it is working in cooperation with the American Committee for Devastated France.

Red Cross Chapter Needs Physicians.—The New York Chapter of the American Red Cross has asked for additional physicians to offer their services in connection with the work performed by the Red Cross in providing medical attention to the families of soldiers and sailors. The number of such cases being treated each month has been steadily increasing, and the number of physicians offering their services has been decreasing. The need for additional physicians for this work is urgent.

Club for Red Cross Nurses.—The New York Chapter of the American Red Cross is fitting up a club house at 129 East Nineteenth Street, Manhattan, for the accommodation of nurses passing through the city on their way to the front. The house will be ready to receive guests about September 1. At first there will be accommodations for only twelve nurses, but provision will soon be made for a larger number. This house was called for by Col. James M. Kennedy of the Medical Corps, who is surgeon of the embarkation service of the port of New York.

Personal.—Dr. Lucius P. Brown, who, following an investigation of the health department by the Hylan administration, was tried on charges of neglect of duty and acquitted, has been unanimously reinstated as director of the bureau of foods and drugs of the New York Health Department.—Dr. Timothy D. Lehane, who for fifteen years was a coroner's physician, has been appointed police surgeon for the thirteenth and fourteenth districts.—Dr. Samuel P. Swetnick, Brooklyn, while bathing at Rockaway Beach, August 2, was carried out by a strong undertow and narrowly escaped drowning.—Dr. Patrick J. Murray has been appointed chief surgeon of the police department of Brooklyn, succeeding Dr. Edwin E. Higgins, who has resigned to enter the military service.

OHIO

Sellenings Goes to Italy.—Dr. Oscar H. Sellenings, Columbus, who was recently placed in charge of the work of the American Red Cross for the children of Marseilles, France, has been made head of the temporary commission sent by the American Red Cross to Italy.

New Hospital to Help in Tuberculosis Fight.—Ohio's seventh district tuberculosis hospital has been provided for by action of the commissioners of Wood, Hancock, Seneca and Crawford counties, appropriating \$100,000 jointly for the establishment of such an institution, the state department of health announced recently. The site for the hospital will be chosen later. Five district hospitals are now in operation and provision for a sixth one has been made by Ottawa, Sandusky, Erie and Lorain counties. There are three county hospitals, established under previous laws, and two municipal institutions. In all these institutions provide for thirty-five of the eighty-eight counties.

More Efficient Reports of Venereal Disease.—The former regulations for the reporting of venereal disease in effect prior to July 1, were less than 3 per cent efficient. As a result of the new regulations a great increase in reported cases is expected. If the ratio which prevails throughout the United States prevailed in Ohio, there were about 375,000 cases of venereal disease during these three years, 1915-1917, yet during these three years less than 8,500 cases were reported.

"The old regulations, which did not require the name or the source of infection, were valuable only for the compila-

tion of statistics. The new regulations, now in effect, provide a practical means of obtaining detailed information as to venereal disease prevalence and as to vice conditions, which will be immediately useful in obtaining the control over these diseases which is just now such a necessary military measure."

Cincinnati

New Board of Health.—Mayor Galvin reappointed, as members of the Cincinnati Board of Health, July 21, Dr. George A. Fackler for a term of ten years; Dr. E. Gustav Zinke for eight years; Samuel Prost for six years; Dr. Edward W. Walker for four years, and A. Clifford Shinkel for two years. Of these appointees, Drs. Fackler, Walker and Mr. Shinkel were originally appointed in 1908. Dr. John H. Landis, now health officer of Cincinnati, was a fourth member of the original board.

Personal.—Health Officer Dr. John H. Landis, who has been critically ill at Christ Hospital, is reported to be convalescent.—Capt. H. Kennon Dunham, M. R. C., U. S. Army, on duty at the U. S. Hospital No. 17, Markleton, Pa., suffered a fracture of the leg and other injuries when his automobile overturned near Frostburg, Md., recently.—Dr. William H. Peters has been made acting health officer of Cincinnati, pending the recovery of Dr. Landis.—Drs. James W. Rowe and Samuel Iglauer have been granted leaves of absence from the staff of the Cincinnati General Hospital for the period of the war.

PENNSYLVANIA

Personal.—Dr. David Nathan, Norristown, has been commissioned captain in the Canadian Army Medical Corps.—Dr. James C. Lyons, Chester, is under treatment in the Jefferson Hospital, Philadelphia.

Philadelphia

Personal.—Drs. Florence and Dorothy Child are caring for French children at the hospital at Evian.

A New Course for Doctors' Aids.—A new course for technicians under the direct supervision of Dr. Courtland Y. White, city bacteriologist and pathologist to the Episcopal Hospital and the Philadelphia Hospital for Contagious Diseases, will be opened September 4. The course will be conducted at the institutions with which Dr. White is connected. The course is open to women, but a high school education or its equivalent is required. Among the things which they study are examination of material from wounds and various other secretions for diagnosis; the preparation of culture mediums, serums and antitoxin; the study of bacteria, and the preparation and sectioning of pathologic tissue. Six hours a day for five days a week are required at the hospital. The department of public health charities through the Pennsylvania Department of the Council of National Defense offers the course.

TEXAS

Allowance for Antimalarial Work.—Dr. James G. Townsend, U. S. P. H. S., Fort Worth, has been informed that the government will allow an additional \$8,000 for antimalarial work in this zone.

State Leper Colony.—It is announced that the State Leper Colony may be located on the Guadalupe River, about 22 miles northwest of New Braunfels, Comal County. The abstract of the title of 333 acres of land has been submitted to the attorney-general by Dr. William B. Collins, Austin, the tract having been offered to the state for a leper colony.

Personal.—The mayor of Houston has appointed Surg. John M. Holt, U. S. P. H. S., city health officer for the period of the war with the approval of the Surgeon-General. Surgeon Holt's proper station is Cleveland.—Dr. Thomas B. Fisher, Dallas, has been appointed medical director of the Great Southern Life Insurance Company, succeeding Dr. John H. Florence, Houston, resigned; Dr. William E. Crow, Dallas, has been made assistant medical director.—A public health committee has been appointed for Belle County with Dr. John S. McCelvey, Temple, chairman, and Dr. Taylor Hudson, Belton, vice chairman. Drs. Ace H. Alsup, Little River, Olin F. Gober, Temple, and W. M. W. Splawn, Belton, are the other members of the committee, which will have charge of all matters relative to public health conservation.

WISCONSIN

Endowment Fund for Marquette.—The latest report indicates that Marquette University has raised \$450,448 toward the \$1,000,000 endowment fund for its medical school, leaving

\$216,000 still to be raised. The university is to raise two thirds of a million to receive the other one third which was offered by the Carnegie Foundation for the Advancement of Teaching.

CANADA

Pensions.—Up to and including May 31, 1918, the Canadian Pensions' Board had awarded 34,879 pensions, and 3,013 gratuities. The average number of pensions awarded daily is about 120. In some months over 3,000 have been issued.

Sanitary Inspectors Meet.—At the annual meeting of the Sanitary Inspectors Association of Western Canada, held in Winnipeg, July 19, Arthur Rigby, Winnipeg, was elected president; W. E. Stanley, Fort Williams, vice president for Western Ontario; D. Little, Winnipeg, for Manitoba; H. D. Mathias, Regina, for Saskatchewan; J. J. Dunn, Calgary, for Alberta, and F. S. Degray, Victoria, for British Columbia. Alexander Officer, Winnipeg, was reelected secretary-treasurer. The headquarters of the association will remain in Winnipeg.

Unit Medical Directors.—Canada has been divided into territorial units for the purpose of carrying out the work of the Invalided Soldiers' Commission. The director of the medical services, Lieut.-Col. F. McKelvey Bell, Ottawa, has appointed the following assistant medical directors: Maritime Provinces, Major Dugald Stewart, Bridgewater, N. S.; Ontario, Capt. Edward Ryan, Kingston, Ont.; Manitoba, Major Norman K. McIvor, Winnipeg, Man.; Saskatchewan, Capt. W. C. Arnold; Alberta, Major D. R. Johnson, and British Columbia, Major Arthur P. Proctor, Vancouver, B. C.

Amendment to License Act.—The Province of Ontario has recently amended its license act by granting wider powers to licensing boards in the control of preparations containing alcohol, including "patent medicines." Under this amendment license boards may submit samples of such preparations to the Provincial Board of Health for analysis and if that board finds that the medical ingredients are not sufficient to prevent the preparation from being consumed for the alcohol contained in them, their sale may be forbidden. All the well known "patent medicines" containing alcohol in any considerable proportion will be submitted for analysis.

Advance in Pay for Medical Officers.—Advice received from Ottawa states that the following rates of pay have been approved for professionally qualified officers of the Army Medical Corps, Canadian E. F., serving either in Canada or overseas. Colonel, \$8 a day; lieutenant-colonel, \$7; major, \$5.50; captain, \$4; lieutenant, \$2; and in addition an officer of the Army Medical Corps will receive a field allowance at the same rate as in other branches of the service, and officers in command of any hospital or institution, in which the number of personnel employed together with the number of patients equals or exceeds 500, will receive command pay at the rate of \$1 a day.

Personal.—Dr. Joseph A. Mathieu has recently returned from Europe and has located in Regina, Sask.—Major Ernest H. Young, Kingston, formerly in the insane hospital service in Ontario, but who has been overseas for two years, has returned to Canada, and has been appointed to take command of the Ontario Military Hospital at Coburg, Ont.—Dr. L. De Lotbiniere Harwood, Montreal, has been elected dean of the medical faculty of Laval University, Montreal, to succeed the late Dr. Emmanuel P. Lachapelle.—The Hon. Dr. Henri S. Beland, after serving three years in Germany as prisoner of war, has arrived home in Canada. It is his intention to return to the front in a medical capacity.—Capt. Morley E. Gorman, Postville, Ont., has been awarded the Military Cross.—Capt. Thomas Morrison, C. A. M. C., Hamilton, Ont., returned from overseas, has been appointed assistant director of medical services at Niagara Camp, Ontario.—Major Cluney MacPherson, St. Johns, director of military services in the Newfoundland Militia Department, has been made a C.M.G.—Dr. James C. Watt has been appointed an associate professor of anatomy at the University of Toronto, and Dr. W. G. Smith an associate in psychology.—Lieut.-Col. P. Walter H. McKeown, Toronto, who is now overseas, has been made a colonel, and is in command of the Kitchener Hospital, Brighton, England.—Dr. Duncan A. Carmichael, Oshawa, Ont., assistant superintendent of the Caldyor Sanatorium, Gravenhurst, Ont., has accepted the superintendency of the Jordan Memorial Sanatorium, New Brunswick, succeeding Dr. David Townsend, River Glade, N. B.—Major John G. Fitzgerald of the provincial health laboratories, Toronto, is now acting as a pathologist in France.—Capt. Henry Crassweller, Windsor, Ont., in the R. A. M. C., is reported missing.

GENERAL

Tri-State Society Meeting.—The third annual meeting of the Tri-State Medical Society will be held in Madison, Wis., August 19 to 22. Dr. William P. Peck, Madison, is president of the association.

Missouri Valley Society to Meet.—The thirty-first annual meeting of the Medical Society of Missouri Valley will be held in the Fontenelle Hotel, Omaha, September 19 and 20, under the presidency of Dr. Artemas I. MacKinnon, Lincoln.

Bequests and Donations.—The following bequests and Donations have recently been announced:

Anti-Tuberculosis League of Cincinnati, \$2,257.47; Associated Charities, \$2,000; Hospital Social Service, \$150; Children's Clinic, \$600, and Visiting Nurses' Association, \$500, by the distribution of funds of the budget committee of the Council of Social Agencies of Cincinnati.

Marquette Medical Dispensary, Milwaukee, Wis., \$33,000 by the will of Miss Helen Cudahy.

National Dental Association.—The twenty-second annual session of this association was held at the Auditorium Hotel, Chicago, Aug. 5-9, 1918.

At the first general meeting there was a symposium on the management of pulpless teeth, and up-to-date information was furnished on infections within the roots and periapical tissues. The relative and actual efficiency of medicaments for the sterilization of tooth structures was reviewed, and a report made on the efficiency of current methods employed for the sterilization of dental instruments and root filling materials. Laboratory investigations on the physical properties of root filling materials and the efficiency of root filling for blocking infection from sterile tooth structures were presented, and clinical data with reference to the efficiency of various root filling methods was furnished.

At the second general meeting the president, Col. W. H. G. Logan, discussed the dental profession's contribution to the present war. Major-Gen. William C. Gorgas delivered an address in which he pointed out some of the important changes that have been made in the Medical Department of the United States Army during the past four years. Brig.-Gen. Robert E. Noble followed with remarks on the plans of the Surgeon-General of the Army for maintaining the health of the soldiers. Col. Charles H. Mayo spoke on medical and surgical progress during the present war. Lieut.-Col. Horace D. Arnold, chairman of the Council on Medical Education of the American Medical Association, discussed the benefits to the medical and dental professions and schools from higher educational standards.

An interesting feature of the meeting was the presentation of a service flag to the National Dental Association by Dr. Donald M. Gallie, Chicago, which was accepted on behalf of the association by Major C. Victor Vignes of Louisiana. This flag showed that there are 5,981 dentists in the Dental Reserve Corps. Lieut. Vasile Stoica of the Roumanian Legation, Washington, D. C., recounted his experiences on the battle front as a soldier with the Roumanian Army. United States Senator William Borah delivered a patriotic address.

A luncheon was tendered to the former presidents of the association on the stage of the Auditorium Theater. Approximately 1,000 participated in this luncheon, at which speeches were made by Dr. Edwin T. Darby, Philadelphia; Dr. B. Holly Smith, Baltimore; Dr. Harvey J. Burkhart, New York, and Dr. Frank O. Hetrick, Ottawa, Kan., all ex-presidents of the association. They discussed the problems which confronted the dental profession in the year 1883 which led to the adoption of the present organization of the association and the benefits that have accrued as a result of this reorganization.

One of the outstanding features of this meeting was the oration by Dr. A. W. Thornton, Montreal, Canada, on "A Tribute to the Life Work of the Late G. V. Black." Following the oration of Dr. Thornton, members of the association went to Lincoln Park, where the Black Memorial exercises were held. Dr. Truman W. Brophy presented the Black Memorial to the Lincoln Park Board. The unveiling of the memorial was by the four granddaughters of the late Dr. Black. The memorial was accepted on behalf of the Lincoln Park Board by Mr. Bertram M. Winston. Dr. Thomas L. Gilmer, Chicago, who was intimately associated with Dr. Black for many years, cited some interesting reminiscences of this distinguished dentist.

The scientific work of the association was divided into seven sections. Many interesting papers were read before these sections on various topics which were freely discussed.

In the United States Army Dental School Section, under Lieut. William E. Henshaw, Lieut. C. R. Hollister and Lieut.-Col. J. H. Snapp, there was an interesting exhibit of charts and models used for teaching purposes at the schools for

Army dental surgeons, located at Camp Greenleaf, Chickamauga Park and Fort Oglethorpe. Surgery of the jaw was profusely illustrated and demonstrated by models, based on the experience of surgeons at the front.

The meeting was a great success both from a social and scientific standpoint, and the attendance was the largest in the history of the association.

FOREIGN

Nordau Elected to Spanish Academy.—The Academia de Medicina Real de Madrid has elected Dr. Max Nordau corresponding member. It will be remembered that he has been interned in Madrid since early in the war.

Italy Taboos German Drugs.—The Italian Medical Congress for Resistance, which met recently in Genoa, voted to urge its members to do everything possible to avoid the use of German drugs, chemicals and surgical instruments.

Outings of French Children in Spain.—The *Archives de médecine des enfants* mentions that a Spanish journal says that a committee has been formed at Barcelona to welcome fifty children from Paris at two nearby seashore resorts. The indignation against the German bombardments of women and children has inspired this manifestation of sympathy for *les petits Parisiens*, and as soon as the French-Spanish frontier is opened, two parties of twenty-five children each are to be sent to Spain.

Epidemic Diseases.—July 27, 111 cases and thirty-three suspected cases of Asiatic cholera were officially reported in Petrograd.—The Swiss government, July 31, ordered the Austrian frontier closed because of the reports of the prevalence of cholera.—Owing to the prevalence of Spanish grip in Rome, the municipality has forbidden performances at theaters, picture houses and music halls; concerts and church gatherings are forbidden until further orders; the penalty for infraction of these regulations will be \$1,000, or imprisonment for three months.

Deaths in the Profession Abroad.—J. Rapin, formerly assistant of Bourget at Lausanne, lately of Payerne, aged 34.—P. Delpech of Paris, fatally poisoned while tending gassed soldiers.—E. Paz y Gomez, founder of the *Cronica Medico-Quirurgica* de Habana in 1874.—J. Kollmann, professor of anatomy at the University of Basel.—G. Verriest, formerly professor of internal pathology at the University of Louvain, president of the Belgian Académie de médecine and of the international congress of neurology at Brussels in 1903.—E. Bonnaire, agrégé professor of obstetrics at the University of Paris, and one of the eight members of the editorial staff of the *Presse médicale*, aged 60.—Dr. Grasset, professor of general pathology and therapeutics at the University of Montpellier, aged 69.—Dr. J. E. Iranzo, professor of clinical medicine at the University of Zaragoza, Spain, and president of the Academia de Medicina y Cirugia.—J. B. Régis, the noted alienist, professor of psychiatry at the University of Bordeaux, one of the pioneers in psychology, author of the classic "Précis de psychiatrie." Honors had been showered on him in France and abroad.

SOUTH AND CENTRAL AMERICA, MEXICO
AND WEST INDIES

Warning Against Pseudomedical Conspiracy.—The *Vida Nueva* of Havana warns physicians elsewhere in Cuba and the sick that persons coming to a city to consult a physician must be one their guard against being taken by unscrupulous hackmen to physicians other than those to whom they were sent.

Personal.—Dr. B. Saenz has been appointed professor of diseases of the skin and syphilis at the University of Havana.—Drs. L. F. Rodriguez and J. A. Simpson and L. F. R. Molina were recently admitted to membership in the Academia de Ciencias at Havana. Dr. Simpson read a paper on hydrocyanic acid found in certain imported *frijoles*.

Monument to Cruz.—The members of the National Public Health Service of Brazil have erected a monument to Oswaldo Cruz on the grounds of the Public Health Building at Rio de Janeiro. The bronze portrait figure is seated in the professorial chair, with arms resting on a desk, in a peculiarly graceful and easy pose. The inscription reads: "A Oswaldo Cruz, Homenagem do pessoal da Directoria Geral de Saude Publica, 23-III-1903—19-VIII-1909," the dates marking the period of his most productive work, the eradication of yellow fever from Rio. The statue was unveiled with much ceremony recently in the presence of the highest officials of the country. The *Brasil Medico* of June 15 gives an illustration of the memorial.

BUENOS AIRES LETTER

BUENOS AIRES, July 1, 1918.

Prevention of Serum Sickness

Prof. J. Penna reported at the meeting of the Academia de Medicina, June 28, a method of warding off serum sickness by means of beef serum. His discovery of it was quite casual. He noticed in treating with normal beef serum 309 patients with anthrax, the almost complete absence of serum sickness or other disturbances from the serotherapy. No tendency to anything of the kind was noted except in 5 cases, that is, in 1.6 per cent. This result was confirmed in 40 cases of typhoid fever, injected with normal beef serum, none of the patients showing any signs of serum sickness. Encouraged by these results, Drs. Kraus and Penna, who together conducted this research, had antitetanus and antidiphtheria serums prepared with beef serum. The serums reached antitoxic values of 300 and 400 units within a short period. This was accomplished by using for the immunizing agents mixtures of diphtheria toxin and antitoxin neutral for guinea-pigs, or the toxoids of tetanus prepared with formol. These methods allowed the obtaining of serums of extremely high antitoxic value in the course of one or two months.

The antitoxic serums thus obtained against diphtheria and tetanus were injected in 38 cases of diphtheria (20 active cases and in 18 for passive immunization), without any symptoms of serum sickness in any instance. (These cases were in the Hospital Muñiz.) In the Children's Hospital, the injections were given to 9 children with diphtheria and to 32 as a preventive, and there were only 4 cases of transient urticaria. In 7 cases of tetanus, the antitetanus serum was injected in large doses, and there was only one case of urticaria. It is interesting to note also that 6 recovered of the 7 patients with established tetanus.

There were thus a total of 435 patients injected with beef serum and only 1.4 per cent. exhibited any signs of serum sickness. The next step was to determine whether beef serum was capable of warding off the by-effects of horse serum. For this purpose beef serum was injected in 20 patients who had previously been given an injection of horse diphtheria antitoxin, but serum sickness developed in 4, the usual proportion, 20 per cent., and there were 9 cases of urticaria, that is, in 45 per cent.

Then beef serum in amounts of from 100 to 700 c.c. were injected in 15 cases of typhoid, followed by injection of 10 or 30 c.c. of normal horse serum. No signs of serum sickness were apparent in any instance. The same absence of serum sickness was manifest when beef diphtheria antitoxin and horse diphtheria antitoxin were injected in 9 cases, with serum sickness in one the fifth day. One patient with bubonic plague was given an injection of 170 c.c. of beef serum and later 100 c.c. of horse serum; no signs of serum sickness became apparent. The total of all these cases is thus one instance of serum sickness in 24 cases, that is, in the proportion of 4.2 per cent. Then in a group of 11 cases, including 5 of diphtheria, 4 of typhoid and 2 of plague, injections were given of equal parts beef serum and horse serum, and serum sickness developed in 27.2 per cent. In another group of 20 patients, injections were made with both beef serum and horse serum, the former in the larger amounts, but serum sickness developed in 5 per cent.

These experiments apparently demonstrated that normal or antitoxic beef serum only exceptionally induces serum sickness. Used after horse serum, it has no prophylactic action against the latter. But it has a prophylactic action when injected before the horse serum. Mixed with the horse serum, with excess of the beef serum by at least one third, it materially reduces the accidents from serum treatment.

PARIS LETTER

PARIS, July 4, 1918.

Celebration of Fourth of July

All of France celebrated the American Independence Day. The homage of the French took expression in many ways. All the public schools and educational institutions of secondary and higher grades were closed.

At the American hospital at Neuilly, in which about 500 American and as many French wounded are being cared for, a solemn high mass was celebrated in the morning, and a sermon was preached in French and in English. Religious hymns and patriotic songs were sung by the wounded and by artists. The exercises were opened by singing the Star Spangled Banner, and closed by singing the Marseillaise.

The Rehabilitation of Disabled Soldiers

In a previous letter (THE JOURNAL, April 13, 1918, p. 1111) was described the evolution of the prostheses which the war has forced the nations to provide for the *mutilés*. No less interesting is the evolution of the vocational education which is placed within reach of these men. A most remarkable change has been made.

COMMERCIAL PURSUITS

First of all, commercial work was given attention for several reasons: In the first place, no vocation seemed so attractive to the maimed men as sedentary work, such as accounting, office work, typewriting; second, for the school itself, the teaching of accounting, typewriting, etc., is tempting because it is not onerous and accomplishes a great deal for the effort expended. One teacher can group together a whole class of students, and the initial cost of starting a school and of maintenance are not high. But, gradually, it has become apparent that these positions, never commanding more than mediocre salaries, are likely henceforth to be even less remunerative, as the number of applicants for these positions will be large, especially from among the women. As a matter of fact, these office and administrative positions should be reserved for men who have lost an arm, especially those who have had a shoulder disarticulation.

INDUSTRIAL WORK

In industrial reeducation, such as is now practiced in France, preference is given to manual labor which the artisans can carry on in their village at home or in a shop of their own, and still conserve their independence. Thus the man is trained to be a shoemaker, harnessmaker, carpenter, wood turner, basketmaker, tailor, etc. This makes it possible for these men to return to where they came from, to their village, their family, where they should feel at home. It is regarded as important to refrain from uprooting the men from their former environment.

AGRICULTURAL WORK

A very old proverb says that "agriculture, like the Venus de Milo, is minus the arms" (*manque de bras*). Unfortunately, it is certain that after the war arms will be lacking more than ever, therefore, it is essential to return to the soil the men, of whom there never were enough, even before the war, and to seek to favor agricultural reeducation. It seems, at first, that the hard work in the field is not compatible with these mutilations. In reality, nothing is further from the truth. Dr. Boureau, whose work has been mentioned before, has shown that vocational prostheses are more easily adapted to the men who work in the fields than for any other workers. Why? Because the lost movements that must be supplied are less complicated than those needed for urban labor. Without a doubt, of all the maimed, the one-armed or one-handed men are the ones whose professional orientation is the most delicate to decide, because of the shortness of the stump. It suffices to supply an apparatus which ensheathes the stump, a "godet (cup) de travail" or a mobile screw hook which will enable these men to use agricultural implements readily—the spade, the fork, the scythe, the plow. On the other hand, resort may be had to another method of readaptation. Instead of fitting a prosthesis to the man, it is possible to adapt the machine or the agricultural implement so as to meet the demands of the *mutilés*, in other words, instead of adapting the men to the machines by "arms" or "*mains de travail*" (work-hands) why not, in view of the large number of *mutilés*, adapt the machines to their needs, replacing a pedal by a handle, or vice versa.

Dr. Boureau is of the opinion that the man who before entering on military service was a farmer and who lost his arm at some level so that he cannot make use of it, will find better employment and a more assured existence by returning to his former work, than by taking up work in the city. With an outfit consisting of five apparatus, not very expensive, supported by his previous aptitude, he should be able to render very satisfactory service, as much as his fellow worker who has two arms.

Various schools of reeducation, l'Union des colonies étrangères, l'Union des Syndicats agricoles du Sud-Est, la Société des Agriculteurs de France, and still other welfare agencies have taken up this work. This systematic training of the *mutilés* in up-to-date methods of farming will be fruitful further in educating their less advanced countrymen. They can diffuse rational methods of culture, exploit the small farm products, initiate various improvements in breeding and in the dairy and cheese business.

AGRICULTURAL REEDUCATION OF THOSE BLINDED BY WAR

Even the war blinded (*aveugles de guerre*) can be given agricultural reeducation. Without doubt, at first, it appeared to be impossible to help the blind in this direction. Experience, however, has shown that this is not true. Among the tasks which these men can do are to bind sheaves, harvest beets, mow, take care of bees, take care of the garden and many others. It is far better to subject these men to vocational reeducation than to make them objects of maudlin sympathy. Nothing is more convincing than the results obtained in the farm run by the Trappists at Sept-Fons, in the département de l'Allier. The Association Valentin Haüy pour le bien des aveugles has secured for the Trappists the cooperation of a man who was an experienced farmer in Lorraine and for six years has been completely blind. Perseverance in his farm work has enabled this blind farmer to become much more skilful than was deemed possible for a blind man. This farmer has organized at Sept-Fons, the seeing attachés à l'Oeuvre et le trappiste, zouave aveugle de guerre, who, under his direction, are devoting themselves to the service of their comrades, those who before the war were landed proprietors, farmers or merely farm hands.

Dr. Thayer Elected to Membership in the Academy of Medicine

July 2, the Académie de médecine elected Dr. William S. Thayer of Baltimore, Md., U. S. A., a foreign associate member. Four others, Dr. Benoît of Montreal, Dr. Bordet of Brussels, Dr. César Roux of Lausanne and Dr. Ehlers of Copenhagen were also considered, but failed to secure election.

Deaths

Dr. Edouard Maurel, professor of experimental pathology in the Toulouse Faculty of Medicine, died at the age of 78. He had been a national corresponding member of the Académie de Médecine since 1911.

Dr. Jules Ehrmann of Nîmes, a native of Alsace, a national associate member of the Académie de médecine, died June 29, aged 83, from angina pectoris. He was known because of his work on the diseases of the palate.

DEATH OF DR. DUCHAUSSOY

Dr. Auguste Duchaussoy, formerly associate professor on the Paris Faculté de médecine, died, aged 91. He was founder and secretary general of the Association des Dames françaises, one of the three component societies of the French Red Cross. Thanks to him the ladies were called to aid in war welfare work. The Société française de secours aux blessés militaires was founded in 1864, but its membership consisted of men only. In 1879, Duchaussoy issued a stirring appeal and organized the Association des Dames françaises. In 1881, the Union des femmes de France was organized at his suggestion, and still later the Société française de secours aux blessés militaires decided to admit women to membership.

LONDON LETTER

LONDON, July 23, 1918.

The Future of the Medical Profession

If those German politicians who, with more malice than intelligence prophesied the approaching downfall of the British Empire were to read our journals, they would be painfully surprised to find that we are so little impressed by the efforts of their country that we continue to occupy ourselves with all sorts of domestic problems just as in times of peace. The future of the medical profession is now being discussed with great vigor, as it is recognized that we are on the verge of important changes. Notwithstanding the war, the formation of a ministry of health cannot be long deferred, as the centralization and coordination of the many government departments and authorities which deal with the prevention and treatment of disease is regarded as necessary. The insurance act, whatever its defects, has come to stay and is only a stepping stone to a more complete state control of medicine which, however, is bound to encounter a good deal of professional resistance, as did the insurance act. The British Medical Association is in favor of a ministry of health to be carried out by members representing on an equal footing the preventive and clinical sides of medicine with whole-time medical officers in each administrative area. It proposes that in each local area the medical staff should be of the following classes: (1) exclusively for administration and inspection; (2) resident medical officers to institutions and those in charge of special clinics; (3) pathologists, and (4) those engaged in giving

advice and treatment to individual persons otherwise than under Class 2. Class 1 should be whole-time salaried officers; Classes 2 and 3 should be salaried officers, either whole-time or part-time, while Class 4 should not be salaried officers, but should be remunerated either for actual items of work done or for the number of persons for whom they accept responsibility. There should be hospitals, clinics or treatment centers, and pathologic laboratories within each area, with possibilities of consultation open to all who are entitled to the advantages of the public scheme. Voluntary hospitals would be necessary and should be encouraged. Visiting practitioners and consultants at both public and voluntary hospitals should be paid for their services in proportion to the number of patients coming under the public scheme for whom they accept responsibility.

The Panel Medico-Political Union (an organization of the physicians who treat patients under the national insurance act) is in favor of a ministry of health but against any whole-time state medical service for physicians. It favors a large extension of hospitals and the formation of public clinics and treatment centers. The State Medical Service Association (an organization formed for the purpose of bringing about a state medical service) goes much further—to the extent of complete socialism. It advocates a state of clinical service, including physicians, specialists of all sorts, pathologists, dentists, midwives, and nurses who would give whole-time service, which should be free and open to all. In the *Lancet*, the president of the association, Dr. Benjamin Moore, gives the following reasons why the service should be free and open to all. 1. Health is of national importance, and likewise disease is a national danger. The health of the individual is consequently of national concern. 2. Health and not the purse is the factor determining the needs of the individual. Disease being no respecter of persons, science in dealing with its prevention and cure cannot afford to be so. 3. A service organized for the poor is bound to be unpopular and inefficient, even as the poor-law service has been in the past. 4. Modern methods of diagnosis and treatment are becoming so elaborate and costly that people of even considerable means are quite unable to afford them. 5. An enormous amount of disease remains undetected and untreated, as shown by medical inspection of schoolchildren and medical examination of recruits. 6. The service should be in a position to seek out disease in its beginnings and to watch over contacts in cases of infectious diseases, which is impossible under any system of private practice in which the physician has to await the call of the patient, who may be far advanced in illness before he thinks fit to send for him. In the same journal, Sir Bertrand Dawson, physician to the London Hospital, advocates a similar far-reaching scheme. He points out that there is an increasing necessity for team work. Investigations are becoming more and more technical and collective, and treatment is becoming increasingly specialized, with the result that the home is becoming less and less suitable for the sick. The insufficiency of the present organization denies to the physician the opportunities he should have for doing the best work. Hence he is apt to get disheartened and to deteriorate, as would a workman without the best tools or an adequate workshop. Organized equipment should be available to provide him with the means to help himself.

Marriages

LIEUT. ROY LEE LAIRD, M. R. C., U. S. Army, Spokane, Wash., on duty at Camp Greenleaf, Fort Oglethorpe, Ga., to Miss Ethel Paulison Minnard of Chattanooga, Tenn., May 25.

LIEUT. MERRILL CLARY SOSMAN, M. R. C., U. S. Army, on duty at the Army Medical School, Washington, D. C., to Miss Arline Clark Adams of Chillicothe, Ohio, June 27.

CAPT. EDWIN FREDERICK HIRSCH, M. R. C., U. S. Army, Chicago, on duty at Camp Grant, Rockford, Ill., to Miss Marian Sharp Lane of Beverly Hills, Chicago, August 3.

CAPT. ROBERT SIXTUS BERGHOFF, M. R. C., U. S. Army, Chicago, stationed at Camp Grant, Rockford, Ill., to Miss Mary Elizabeth Ford of Chicago, August 10.

ALVIN CHARLES TANNER, Minneapolis, Minn., to Miss Edith R. Parent of Boston, in St. Paul, recently.

LEO GERALD FLANNERY, Philadelphia, to Miss Anna F. Sheehan of Chestnut Hill, July 29.

JOHN CLOYD SOUDERS to Miss Clara Traenkenschuh, both of Rock Island, Ill., July 22.

Deaths

Capt. Maximilian Joseph Herzog, M. R. C., U. S. Army, Chicago; Medical College of Ohio, Cincinnati, 1890; aged 59; a Fellow of the American Medical Association; a pathologist of high rank; dean and professor of pathology, bacteriology and hygiene in Loyola University; who was commissioned captain in the Medical Reserve Corps, April 19, 1917, and honorably discharged for physical disability, April 24, 1918; author of a Textbook on General and Comparative Pathology; pathologist to the German and Maurice Porter hospitals; once president of the Chicago Pathological Society; in 1902-1903; for many years professor of pathology in the Chicago Polyclinic, and later director of the United States Government Laboratories, Manila, P. I.; director of laboratories and research at the Municipal Tuberculosis Sanatorium since 1916; died in that institution, August 9, from chronic interstitial nephritis.

Capt. Samuel Cobb Norris, M. R. C., U. S. Army, Anderson, Ind.; Miami Medical College, Cincinnati, 1894; aged 48; a Fellow of the American Medical Association; a specialist on diseases of the eye, ear, nose and throat; associate professor of Hygiene and Sanitary Science in Indiana University, Bloomington and Indianapolis; for several years city chemist; formerly editor of the Central State Medical Magazine; who was under orders to report for duty at Fort Oglethorpe, Ga., August 14; died at his home, August 4, from disease of the liver.

Lieut.-Col. Clarence LeRoy Cole, M. C., U. S. Army, San Antonio, Texas, Medical College, Topeka, 1903; aged 41; a Fellow of the American Medical Association; who entered the Army, May 10, 1905, and was in charge of the laboratory at Fort Sam Houston, Texas; who had recently been under treatment at the Walter Reed Hospital, Washington, D. C.; was found dead in his quarters, August 9, from a bullet wound of the head, self-inflicted, it is believed with suicidal intent, while suffering from mental depression.

Charles Woodward Gaylord, Branford, Conn.; Yale University, New Haven, Conn., 1872; aged 72; a Fellow of the American Medical Association; health officer and medical examiner (coroner), of the town and borough of Branford and of the town of North Branford; president of the board of trustees of the Blackstone Memorial Library; and a member of the board of education for many years; died in the New Haven Hospital, August 4, a short time after a surgical operation.

Lieut. Guy Austin Tull, M. R. C., U. S. Army, Kansas City, Mo.; on duty with the Three Hundred and Fifty-Third Infantry, Camp Funston, Kan.; Kansas Medical College, Topeka, 1895; aged 49; a Fellow of the American Medical Association; and of the American Academy of Medicine; once president of the Clay County (Kan.) Medical Society and surgeon for the Rock Island System; died at his home, July 13, from chronic interstitial nephritis.

Arthur Morrow, Kalispell, Mont.; University of Edinburgh, Scotland, 1886; aged 54; a member and president of the Montana State Medical Association in 1917; once president of the Flathead County Medical Society; health officer of Flathead County; commandant of the State Soldiers Home, Columbia Falls; at one time instructor in the Halifax, N. S., Medical College; was found dead in bed at his home, August 1.

Thaddeus M. Rohrer, Quarryville, Pa.; Jefferson Medical College, 1881; aged 63; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; for several years Burgess of Quarryville; medical examiner of schools for the southern part of Lancaster County and of the borough of board of health; died in the Lancaster General Hospital, July 30.

Joseph M. Creamer, Jr., New York City; Long Island College Hospital, Brooklyn; 1897; aged 48; a member of the Medical Society of the State of New York, and of the New York Branch of the American Urological Association; a member of the staff of Bellevue, St. Luke's and the Polyclinic hospitals; died at his summer home, Del Beach, N. J., July 28, from cerebral hemorrhage.

Harry Walker, Pawhuska, Okla.; Bellevue Hospital Medical College, 1884; aged 57; at one time a Fellow of the American Medical Association; a member of the Oklahoma State Medical Association; local surgeon of the Oil Fields and Santa Fe Railroad; for many years physician at the Osage Agency; died at his home, July 26.

David Townsend McKinney, Pittsburgh; University of Louisville, Ky., 1898; aged 43; a member of the Medical Society of the State of Pennsylvania; Acting Assistant Surgeon, U. S. Army, during the war with Spain; industrial surgeon on the relief force at the Westinghouse Electric and Manufacturing Company, East Pittsburgh; died in Pittsburgh, July 9, from angina pectoris.

Samuel Calhoun Stremmel, Macomb, Ill.; College of Physicians and Surgeons, Chicago, 1889; aged 55; a Fellow of the American Medical Association; surgeon in chief of the Marietta Phelps Hospital, Macomb; a member of the Macomb board of health for twenty years; died at his home, July 24, from carcinoma of the pancreas.

Louis Falge, Manitowoc, Wis.; Rush Medical College, 1887; aged 56; a Fellow of the American Medical Association; since 1908 coroner of Manitowoc County; a member of the county board of education since its organization; county physician at one time; died in the Manitowoc Hospital, August 4.

John Jacob Edic, Leavenworth, Kan.; Bellevue Hospital Medical College, 1867; aged 81; emeritus professor of principles and practice of medicine in the Kansas City (Mo.) Hahnemann Medical College; formerly president of the Homeopathic Medical Society of Kansas; died at his home, July 31.

Clayton Crawford Davis, Hillsboro, Texas; University of Alabama, Mobile, 1889; aged 59; a Fellow of the American Medical Association; a prominent surgeon of Central Texas; died in a sanatorium in Waco, Texas, July 31, from heart disease, a short time after an operation for removal of the tonsils.

Chase L. Ferris, Hamilton, Ohio; Medical College of Ohio, Cincinnati, 1903; aged 39; died at the home of his mother in Hamilton, July 27, from the effects of a bullet wound of the skull, self-inflicted, it is believed, with suicidal intent, while mentally irresponsible on account of despondency.

Forbes James Munson, Brooklyn; Long Island College Hospital, Brooklyn, 1897; aged 49; for more than twenty years a diagnostician of the Brooklyn Board of Health; assistant surgeon to the Bushwick Hospital; died at his home, July 27, from cerebral hemorrhage.

Harry Dare Jerwick, Hot Springs, Ark.; Tulane University, New Orleans, 1918; aged 24; an intern in Charity Hospital, New Orleans; and a member of the Enlisted Medical Reserve Corps, U. S. Army; died in Charity Hospital, July 16, from typhoid fever.

Clarence W. Goss, Lancaster, Ohio; Starling Medical College, Columbus, Ohio, 1889; aged 50; a Fellow of the American Medical Association; physician to the Boy's Industrial School, Lancaster; died at his home, July 29, from tuberculosis.

John E. Hamill, Phoenix, N. Y. (license, New York, 1880); aged 79; a member of the Medical Society of the State of New York; a practitioner for more than half a century; died at the Hospital of the Good Shepherd, Syracuse, July 25.

Ezra Smith Koons, Glouster, Ohio; Starling Medical College, Columbus, Ohio, 1890; aged 61; a Fellow of the American Medical Association; died in Grant Hospital, Columbus, July 31, from septicemia, following a mosquito bite.

William Aloysius Gillen, Jr., Brooklyn, College of Physicians and Surgeons in the City of New York, 1906; aged 35; assistant attending surgeon to St. Mary's Hospital, Brooklyn; died at his home, July 29, from typhoid fever.

Henry Burt Herrick, Cleveland, Ohio; Western Reserve University, Cleveland, 1891; aged 54; a Fellow of the American Medical Association; who had been engaged in Red Cross work in France; died in Brest, June 16.

Henry M. Lewis, New York City; Hahnemann Medical College, Philadelphia, 1870; aged 69; surgeon to the Metropolitan Hospital, Blackwell's Island, N. Y.; died at the home of his daughter in Chester, Pa., July 28.

Addis Bernard Gordy, Butler, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1899; aged 44; died in the City Hospital, Columbus, Ga., July 25, five days after an operation for appendicitis.

Andrew Pearson, Wakefield, Kan.; Rush Medical College, 1883; aged 58; resident physician at the Chiloco Indian Reservation; died in the Presbyterian Hospital, Chicago, July 14.

Augustus Francis McKay, Colorado Springs, Colo.; Georgetown University, Washington, D. C., 1872; aged 68; died in Pueblo, Colo., July 24, from cerebral hemorrhage.

Simon W. Simmons, Laurel, Ohio; Starling Medical College, Columbus, Ohio; 1884; aged 76; a veteran of the Civil War; died at the home of his daughter near Sidney, Ohio, July 30, from senile debility.

Leonidas H. C. Mintzer, Spokane, Wash.; Jefferson Medical College, 1898; aged 45; formerly chief sanitary officer in the health department of Spokane; died in San Diego, Calif., July 17, from tuberculosis.

Robert Stuart, Spiceland, Ind.; Jefferson Medical College, 1860; aged 80; at one time a member of the Indiana State Medical Association; died at the home of his daughter in Henderson, Ky., July 26.

Lyman S. Crotser, Petoskey, Mich.; University of Michigan, Ann Arbor, 1883; aged 60; a member of the Michigan State Medical Society; died in a hospital in Petoskey, July 25, from cerebral hemorrhage.

Ferdinand Lessing, Philadelphia; University of Pennsylvania, Philadelphia, 1869; aged 81; a surgeon of volunteers during the Civil War; also an apothecary; died at his home, July 10.

Henry C. Sommerville, White Post, Va.; University of Pennsylvania, Philadelphia, 1870; aged 84; a Confederate veteran; for fifty years presiding elder; died at his home, July 27.

John Webster Collins, Toronto, Ohio; Columbus (Ohio) Medical College, 1879; aged 74; a Fellow of the American Medical Association; died at his home, July 31.

Douglas Adolphus Shiley, Bloomfield, Ind.; Bellevue Hospital Medical College, 1872; formerly of Chicago; died at his summer home in Bloomfield, Ind., August 9.

Samuel Palmer Rawls, Altus, Okla.; Charity Hospital Medical College, New Orleans, 1873; a Fellow of the American Medical Association; died at his home, June 20.

Henry Herbert Reynolds, Malone, N. Y.; University of Vermont, Burlington, 1890; aged 56; a Fellow of the American Medical Association; died at his home, July 27.

James C. S. Harrod, Denning, Ark.; Memphis, Tenn., Hospital Medical College, 1891; aged 52; a member of the Arkansas Medical Society; died at his home, July 27.

Elisha P. Bomar, Ochopee, Ga.; Atlanta (Ga.) Medical College, 1894; aged 50; a Fellow of the American Medical Association; died at his home, April 27.

Thomas L. Bacon, Hopkinsville, Ky.; University of Louisville, Ky., 1855; University of Pennsylvania, Philadelphia, 1861; aged 85; died at his home, July 30.

John McGregor, Yankton, S. D.; University of Glasgow, Scotland, 1861; M. R. C. S., Edinburgh, 1865; aged 87; died at his home, June 18, from senile debility.

Charles E. Bauer, St. Louis, Missouri Medical College, St. Louis, 1879; aged 59; a Fellow of the American Medical Association; died at his home, July 30.

Charles H. Mann, Bridgeport, Pa.; Jefferson Medical College, 1874; aged 66; a Fellow of the American Medical Association; died at his home, August 3.

Georgia Anna Arbuckle Fix, Gering, Neb.; University of Nebraska, Homeopathic Department, Lincoln, 1885; aged 55; died in San Diego, Calif., July 26.

Charles R. F. Greene, Peekskill, N. Y.; New York Homeopathic Medical College, New York City, 1892; aged 50; died suddenly at his home, August 1.

William Alfred Hobday, Goldfield, Nev.; University of Buffalo, N. Y., 1881; aged 57; died at Palms, Calif., July 27, from carcinoma of the liver.

Charles A. Kiefer, Dayton, Ohio; Pulte Medical College, Cincinnati, 1876; aged 64; died at his home, July 22, from cirrhosis of the liver.

August W. Ringer, Cincinnati; Medical College of Ohio, Cincinnati, 1872; aged 70; died at his home, August 1, from cerebral hemorrhage.

Guernsey P. Waring, Alhambra, Calif.; Dunham Medical College, Chicago, 1897; aged 65; died at his home, July 29, from heart disease.

Charles Samuel Abbott, Providence, R. I.; Dartmouth Medical College, Hanover, N. H., 1880; aged 76; died at his home, June 23.

Harry Hall Woodward, Des Moines, Iowa; Drake University, Des Moines, 1887; aged 55; died at his home, July 6.

David Townsend McKinney, Pittsburgh; Jefferson Medical College, 1860; died at his home, July 9.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

MORE MAIL-ORDER FRAUDS

Four Concerns Are Debarred from the United States Mails

The public does not realize the wonderfully efficient work that the United States postal authorities are doing in protecting it against mail-order fakers of a medical or quasi-medical type. The task of the postal inspectors who investigate such concerns is a difficult and thankless one, for the exploiters of some of these frauds possess no little influence. Neither does the public fully realize the value of the painstaking and judicial reports made by Judge W. H. Lamar, the solicitor of the Post Office Department, who submits to the Postmaster-General the various memoranda based on the postal inspectors' reports. THE JOURNAL is practically the only publication that gives any extended account of the government's work in this direction. For some years the Propaganda Department has been publishing more or less complete reports of the cases in which the government has closed the mails to medical frauds. Following are some brief articles of this type:

Mrs. A. S. Hon.—Mrs. Hon conducted a medical mail-order business at South Bend, Indiana, advertising and selling various alleged remedies for the self-treatment of ailments peculiar to women. Mrs. Hon is of Polish descent and her husband, who was also interested in the business, was born in Poland and, although he had been in this country for twenty-five years, is, according to Mrs. Hon's testimony, practically unable either to read or to write English. Neither Mrs. Hon nor her husband have the slightest medical knowledge nor have any of her employees. The only physician who had anything to do with the business was one "Dr. Fears" who was said to visit the office from time to time when the nostrums were being compounded. The preparations were analyzed by the Bureau of Chemistry of the Department of Agriculture at the time of the investigation by the Post Office Department into this humbug. "Mrs. Hon's Healing Compound" was found to be a pinkish powder consisting chiefly of alum with small amounts of boric acid, zinc sulphate, thymol, coloring matter, etc. "Mrs. Hon's Womb Suppositories" had a fatty base resembling lard with some cocoa-butter and contained a considerable quantity of alum with small amounts of boric acid, zinc sulphate, morphin and coloring matter. "Mrs. Hon's Invigorator Pills" were black, sugar-coated, elliptical pills of the iron-quinin-strychnin type. "Mrs. Hon's Stomach Tablets" were bright red, sugar-coated tablets containing large amounts of bismuth subgallate and magnesium (calculated as Epsom salts) with small amounts of aloes, red pepper, etc. "Mrs. Hon's Womb Relief" was a coarsely ground powder of aromatic odor which under the microscope showed the presence of cloves, cinnamon, scullcap and unidentified root and bark. The claims made by Mrs. Hon for her nostrums were obviously and patently false and fraudulent. She, of course, submitted a number of testimonials in defense of her business. After considering all the evidence in the case, Judge Lamar, solicitor for the Post Office Department, declared the business a scheme for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises and he recommended that a fraud order be issued. This order was issued May 23, 1918.

The Publishers' Advertising Agency, Inc.—This rather imposingly named affair was promoted by one Clarence E. Worthen, Boston, Mass., who was called on by the federal

authorities to show cause why a fraud order should not be issued against the business. On the date set for the hearing, Abraham Goldberg, attorney for Worthen, asked that action in the matter be deferred until a reply to the charges could be prepared. This request was granted. Shortly afterward an answer was submitted denying the charges but stating that Worthen would be unable to appear before the department in person. The attorney indicated that Worthen would be willing to take steps looking to the dissolution of the business if the Post Office Department would drop the charges. The federal authorities, however, would not entertain this proposition. Judge Lamar, solicitor for the department reported the facts in the case to be, in part, as follows:

"The Publishers' Advertising Agency, Inc., is operated by Clarence E. Worthen who acts as its president and treasurer, for the sole purpose of securing space in various newspapers published throughout the country to be devoted to the advertising of a large number of proprietary articles compounded and sold by him through drug stores, and is not a bona fide advertising agency in that it does not handle advertising for any other concern or person. The mails are used in the transmission of letters written by Worthen on stationery on which appears the name The Publishers' Advertising Agency, Inc., and which are addressed to the publishers of newspapers with the view of contracting for the advertising space above referred to. The scheme is used to secure advertising on credit which is usually accorded to an advertising agency but denied to an individual. The post office inspector who conducted the investigation has submitted evidence showing conclusively that it is not Worthen's intention to pay for the advertising thus secured, nor does he as a matter of fact do so. One hundred and twenty-six publishers have complained to the department that they had run Worthen's advertising in accordance with the contract but that they were unable to obtain any money whatsoever from him. The total amount of these unpaid bills is \$4,161.77, and it is safe to assume that this is a mere trifle compared with the total amount which Mr. Worthen owes for advertising. He gives the address of the concern as 44 Bromfield Street, Boston, Massachusetts, but it is found that this is a blind address as Worthen does not even have desk room at that place. All of his mail so addressed is forwarded for delivery to 153 West Emerson Street, Melrose, Massachusetts, his place of business.

"The postmaster at Boston, Massachusetts, reports that on an average fifty letters and about two sacks of papers are daily received at his office addressed to this concern."

The solicitor declared that the scheme was one for obtaining property through the mails by means of false and fraudulent pretenses, representations and promises and recommended the issuance of a fraud order. It was issued.

L. A. Johnson, alias "Dr. George B. Williams" and "The Associated Doctors."—Post Office Inspector M. R. Martin of the St. Louis Division submitted evidence to the solicitor of the Post Office Department showing conclusively that L. A. Johnson was conducting a scheme for obtaining money through the mails by fraud. Johnson, it seems, is an ignorant negro about 35 years old who located at Lake Village, Ark., last November and has been operating ever since under the names "Dr. George B. Williams," "Dr. L. A. J. Johnson" and "The Associated Doctors." He has been twice prosecuted and fined in the local courts for practicing medicine without a license but after paying his fines continued his operations. In April Johnson was arrested on the charge of using the mails to defraud and was held under \$500 bail to await the action of the United States grand jury at the October term of court. Johnson did not furnish bail and is held in the Pulaski County Jail at Little Rock. His victims were mostly negroes to whom Johnson sent a circular telling of his alleged supernatural and superhuman powers describing himself as a "man of wonder" and a "revealer and controller of many things spiritual and material" alleging further that he was "born of a blessed mother" and "received the gift from Heaven according to the will of God," ending up with the claim that he would cure anything "you were not born with." Johnson modestly describes himself thus:

"Dr. L. A. J. Johnson, I. N. S. W. B. A., Master of Sixth and Seventh Book of Moses, Chiropractic, Phrenology, Philosophy, Anatomy, Telepathic Mentalist, Pathology, Chemistry, Spirit Binding; American

University of Kiropractic, Osteology, Arthrology, Neurology, Myology, Angiology, Splanchnology; Treatment of all kinds of diseases with the Hand, Mind and Herbs. Cure absolutely guaranteed or no pay. I Can Help You in all Things."

Judge W. H. Lamar, solicitor of the Post Office Department in his memorandum to the Postmaster-General said, in part:

"It will be noted from this circular that Johnson claims he is possessed of superhuman and supernatural knowledge and that he can cure anything 'you were not born with'; that he had accomplished wonders in hospitals, homes and courts, having practiced in Central America, West India, Cuba and Canada. The wording is so framed as to appeal to the superstition and ignorance of certain of the colored race. The falsity and absurdity of the pretensions and representations appearing therein are too apparent to require refutation. Although the circular sets out that if no cure is effected there will be no charge it has been ascertained that Johnson will not take up a case unless an advance fee of from \$10 to \$15 is paid."

Johnson admitted, when under oath, that, although posing as a doctor, he had never been granted a license to practice medicine in any state, that he had never attended any kind of a school except a country public school when a boy, that there was no meaning to a number of the abbreviations and phrases used in his circular but that he employed them for the purpose of giving a savor of mystery which the negroes did not understand. Johnson received mail and cashed money orders under both the names Williams and Johnson and as it seemed probable that he would be successful in furnishing bail and thereby secure his release from jail it was likely that he would continue his fraudulent practices. The amount of money filched from credulous negroes through the operation of this scheme is estimated at \$1,000. On May 20, 1918, a fraud order was issued against Johnson closing the mails to him.

Last Chance Medicine Company.—C. Frank Jones, a negro who kept a small drug store at Birmingham, Ala., did business under the names "The Last Chance Medicine Company" and "Dr. C. Frank Jones." Jones was without any medical education or training but held himself up to the public as a physician skilled in the diagnosis and treatment of disease and promised a cure to all who took his treatment. At the time Judge Lamar submitted his memorandum to the Postmaster-General recommending that Jones be denied the use of the United States mails, Jones was in the Birmingham city jail serving a sentence of ninety days following his conviction for practicing medicine without a license. In his memorandum Judge Lamar says:

"When his establishment was raided by the city authorities a number of letters from negroes requesting treatment for various ills were found bearing upon the envelopes notations showing the amounts requested to be sent in payment for the treatment. A very lengthy symptom blank similar to that employed by the ordinary medical mail order fake in which a great number of questions are asked is used by him in furtherance of the scheme. It has been repeatedly testified before this office by experts in the science of the treatment of disease that physicians of knowledge and experience cannot determine from the answers to such questions the nature of the trouble from which the patient is suffering or the cause thereof, but Jones, who has no such knowledge or experience, attempts to and does by false pretenses made to persons through the mails convince them that he is a skilled physician fully capable of determining the trouble from which they are suffering and is able to and will give to them a rational and effective remedy for such trouble. All the representations including the pretentious symptom blank are typical specimens of the literature employed by the usual mail order fraud and are used by him for the purpose of inducing persons who are sick or believe themselves to be sick to part with their money in payment for a treatment which the evidence fully shows and which he is well aware is without efficacy in giving them relief or restoring them to health.

"The evidence in this case is so conclusive of the fraud practiced that it was deemed unnecessary to issue a citation to show cause before recommending the issuance of a fraud order."

The mails were closed to Jones, May 29, 1918.

Correspondence

THE SIGNS OF SYPHILIS

To the Editor:—In the current number of the *American Journal of Syphilis*, Dr. A. S. Warthin of the University of Michigan contributes an extraordinary paper on the "New Pathology of Syphilis," in which he states that, as a result of microscopic methods, he has been able to demonstrate syphilitic changes in 40 per cent. of 750 subjects examined postmortem. Assuming that the population of the state of Michigan is neither more nor less venereally unfortunate than that of other localities, Dr. Warthin's statement naturally suggests that 40 per cent. of humanity is demonstrably if not dangerously syphilized. Happily for the individual as well as for a profession that is already sufficiently if not unduly impressed by the ubiquity of syphilis, the methods by which Dr. Warthin arrived at this remarkable and disquieting conclusion are not beyond dispute, identical methods in other hands having failed to yield comparable results. For example, Dr. Warthin, on the basis of a comparatively limited necropsy experience, makes the extraordinary statement that in "only a small number of cases are the gross lesions . . . typical enough to be recognized by the naked eye" and that "the pathologic diagnosis of syphilis is essentially microscopic."

I venture to suggest that the pathologist whose routine brings him in contact with one or several necropsies daily, and who is called on thousands of times in the course of every year to interpret microscopic alterations in tissues, will be slow to subscribe to these sentiments. Certain it is that the "sclerosis of connective tissue and plasma cell infiltration," so prominently depicted by Warthin as characterizing syphilitic lesions, are not so confidently interpreted by most pathologists. So, too, Warthin's measure of success in finding *Spirochaeta pallida* in apparently unchanged tissues or in small fibrotic foci in different organs has not fallen to the lot of certain other pathologists employing the same methods in search of the self-same truth, and bespeaks for the distinguished Michigan investigator an acuity of vision that is apparently vouchsafed to few. In fact, the demonstration of spiral micro-organisms in silver preparations of the older, sclerotic tissues of known syphilitic lesions is by no means an easy or common accomplishment, and even in active, vicious syphilis it is sometimes a fruitless task. Nor has the Wassermann reaction aided materially in the all-important determination of the incidence of syphilis. While a positive Wassermann reaction is a highly suggestive indication of syphilis, it is now almost universally admitted that the reaction has its limitations—an occasional enthusiast to the contrary—and that it sometimes occurs in conditions other than syphilis and that it does not always occur in syphilis.

All things being taken into consideration, it would seem that the most dependable signs of syphilis still are those which pathologic anatomists and properly trained clinicians have long known, the refinements of serology and of microscopic technic serving as additional considerations of undoubted value.

DOUGLAS SYMMERS, M.D., New York.

Acting Director of Laboratories, Bellevue and Allied Hospitals.

SODIUM INSTEAD OF POTASSIUM SALTS— WITH ONE EXCEPTION

To the Editor:—I am strictly in favor of the agitation which has for its purpose the replacement whenever possible of potassium salts by the corresponding sodium salts. Whenever the corresponding potassium and sodium salts are equivalent in their action, the sodium salt is practically always preferable. It is less depressing and less irritating to the gastro-intestinal tract.

There is, however, one exception. And that is the iodid. I would consider it a calamity if physicians were induced

to use on their tertiary syphilitic patients sodium iodid instead of potassium iodid.

It is a truism to say that a salt does not merely present the sum of actions of its component elements or ions. Chlorin in combination with hydrogen does not have the same effect as chlorin in combination with sodium. And iodin in combination with sodium has not the same effect as iodin in combination with potassium. Though the percentage of iodin in sodium iodid is considerably greater than in potassium iodid, nevertheless a certain dose of potassium iodid will exert a much more decided and intensive action than the same dose of sodium iodid. The action of the iodin ion seems to be greatly intensified by its combining with the potassium ion.

No syphilologist, no general practitioner, who had occasion to treat tertiary syphilis, ulcerative gummas or gumma of the brain would fail to bear testimony to the difference in effect between potassium and sodium iodid.

Let us all use sodium salts instead of their corresponding potassium salts, but let us bear in mind this one exception: not to substitute sodium iodid or ammonium iodid or any other iodid when potassium iodid is distinctly and unequivocally indicated.

WILLIAM J. ROBINSON, M.D., New York.

EGG-SHELLS AT ARMY HOSPITALS

To the Editor:—An experience in the Civil War at the Satterlee Hospital in West Philadelphia was described by Weir Mitchell in an address in Chicago not long before he died. At that one hospital of 3,000 beds the egg-shells were saved and sold. The revenue, if I remember rightly, was \$3,000 a year! They were used in the manufacture of face powder, as they are pure calcium carbonate. The revenue went into the hospital fund for the purchase of otherwise unobtainable luxuries for the sick. With our present immense armies the revenue from this one "by-product" should be correspondingly increased. Possibly this has already been done, but I have failed to see any statement to that effect.

W. W. KEEN, M.D., Philadelphia.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DI-CROTALIN TREATMENT OF EPILEPSY

To the Editor:—Do you have any literature or information relative to the Di-Crotalin treatment for epilepsy? I will be very grateful if you can furnish information as to method of preparation, rationale of the treatment, etc.

R. R. DECKER, Captain, M. R. C.,
U. S. Soldiers' Home, Washington, D. C.

ANSWER.—Di-Crotalin is a rattlesnake venom preparation sold by the Swan-Myers Company of Indianapolis as a "Treatment for Epilepsy, Chorea, Bronchial Asthma, Chronic or Hereditary Nervous Headache, Nervous Prostration Incident to Change of Life, Hysteria-Mania, Insomnia, Neurasthenia, etc." Dr. Thomas J. Mays of Philadelphia advocated the use of rattlesnake venom for tuberculosis. Later his former assistant, Dr. R. H. Spangler, used the same material in the treatment of epilepsy. That any measure of success sufficient to justify the adoption of the rattlesnake venom or crotalin treatment for epilepsy has resulted is not to be concluded from the available reports. Still less evidence is there for the use of rattlesnake venom in the list of conditions for which the Swan-Myers Company has recommended its preparation. There are a number of good reasons why a cautious physician will shun the administration of this treatment and advise against it. J. F. Anderson, working in the hygienic laboratory of the United States Public Health Service, reported a death from the crotalin treatment in consequence of infection, and reports that the market supply of crotalin solution and crotalin tablets is highly contaminated. He also found both crotalin and crotalin solution to vary in activity. The use of rattlesnake venom was discussed in THE JOURNAL, March 15, 1913, p. 850.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.
COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.
IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.
IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
MASSACHUSETTS: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.
MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.
MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.
MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

Methods of Chiropractors Included in the Practice of Medicine

Laying a patient down on his face and manipulating the vertebrae or twisting the neck with the hands or pressing on the spinal column with the hands and at times with the knees, as is done by chiropractors, constitutes the practice of medicine within the meaning of the Medical Practice Act. This is the gist of an opinion recently handed down by the Appellate Court of the Fourth District in the case of the *People of the State of Illinois v. J. H. Black*. Mr. Black is a graduate of the Davenport School of Chiropractic, and for about eighteen months prior to the beginning of the suit was located at Junction City in Gallatin County. He opened up an office, placed a sign thereon with the words "Dr. Black, Chiropractic," and carried on the practice of his profession in that office without being licensed by the Department of Registration and Education. On the trial of the case in the Circuit Court, the jury found that he was not guilty of violating the Medical Practice Act. The Appellate Court reversed the finding of the lower court and held that the verdict of the jury was manifestly against the evidence and the law. The Appellate Court holds that one of the instructions given by the lower court on behalf of Mr. Black was erroneous and misleading and should not have been given. This instruction is as follows:

And you are further instructed that if you believe by a preponderance of the evidence that the defendant did not practice medicine, but that his acts were, in fact, an adjustment of the human body for the purpose of adjusting the spinal column or other organs for the nerves for the purpose of causing the flow of blood to flow freely, and by so doing that the blood would flow freely, and thereby the cause removed, then the defendant would not be guilty of practicing medicine in violation of said statute, unless he held himself out or advertised himself as a doctor or physician.

The Appellate Court says that the foregoing instruction is in direct conflict with the section of the Medical Practice Act defining who are to be regarded as practicing medicine and also in direct conflict with the opinions of the Supreme Court on this subject.

The American Board for Ophthalmic Examinations

The American Board for Ophthalmic Examinations will hold its fifth examination at the New York Eye and Ear Infirmary, New York, Friday, Oct. 25, 1918. In addition to the general requirements for admission, the examinations in ophthalmology consist of case records, written examinations and clinical laboratory and oral examinations. Candidates are required to submit twenty-five complete case records. Ten of these should be cases of ocular diseases and defects of varied character, including errors of refraction or muscle balance, and external ocular diseases or diseases of the uveal tract or retina, or of the optic nerve or glaucoma. The reports should show especially the reasons for diagnosis and for the operative treatment and the technic of operations.

The written examination will test the candidate's knowledge of the underlying principles or science of ophthalmology,

including anatomy, embryology, physiology, physiologic optics, pathology, relations of the eye to other organs and diseases of the body. The oral examination will include the external examination of the eye; ophthalmoscopy (candidates are requested to bring their own ophthalmoscopes); measurements of errors of refraction; testing of the ocular movements and fields of vision; realtions of ocular conditions to diseases of other parts of the body and their treatment, and laboratory examination in the histology, pathology and bacteriology of the eye.

For further information address the secretary, Dr. W. H. Wilder, 122 South Michigan Avenue, Chicago, Ill.

Kansas June Examination

Dr. H. A. Dykes, secretary of the Kansas Board of Medical Registration and Examination, reports the written examination held at Topeka, June 18-19, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Sixteen candidates were examined, all of whom passed. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Total No. Licensed
Hahnemann Medical College and Hosp. of Chicago	(1918)		1
University of Kansas	(1918)		14
Washington University	(1917)		1

College	* LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Medical College	(1910)		Illinois
College of Phys and Surg., Chicago	(1912)		Illinois
Hahnemann Med. Coll. and Hosp. of Chicago	(1907)		Illinois
Jenner Medical College	(1912)		Illinois
Rush Medical College	(1916)		Illinois
Keokuk Medical College, Coll. of P. & S.	(1906)		Iowa
Hospital College of Medicine	(1902)		Illinois
Louisville Medical College	(1907)		Penna.
University of Louisville	(1909)		Illinois
Tulane University	(1913)		Oklahoma
Ensworth Medical College	(1909)		Missouri
St. Louis College of Physicians and Surgeons	(1910)		Oklahoma
Washington University	(1917)		Missouri
University of Oklahoma	(1917)		Oklahoma
Vanderbilt University	(1915)		Alabama

Maine July Examination

Dr. Frank W. Searle, secretary of the Maine Board of Registration of Medicine, reports the written examination held at Augusta, July 2-3, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 6 candidates examined, 5 passed and 1 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1908)		75.5
Bowdoin Medical School	(1918)		85
University of Maryland	(1914)		79
Harvard University	(1918)		78
Columbia College in the City of New York	(1892)		75

College	FAILED	Year Grad.	Per Cent.
Tufts College Medical School	(1898)		65

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Starling-Ohio Medical College	(1911)		Ohio
Montreal School of Medicine and Surgery	(1902)		Illinois

South Dakota July Examination

Dr. Park B. Jenkins, secretary of the South Dakota State Board of Health and Medical Examiners, reports the practical and written examination held at Deadwood, July 9-11, 1918. The examination covered 15 subjects and included 100 questions. An average of 75 per cent. was required to pass. Seven candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta Medical College	(1915)		84
College of Physicians and Surgeons, Chicago	(1907)		89
Loyola University	(1916)		86
University of Illinois	(1913)	85; (1915)	83
University of Nebraska	(1914)		90
McGill University	(1915)		83

Book Notices

ANIMAL PARASITES AND HUMAN DISEASE. By Asa C. Chandler, M.S., Ph.D., Instructor in Zoology, Oregon Agricultural College. Cloth. Price, \$4.50 net. Pp. 570, with 254 illustrations. New York: John Wiley & Sons, Inc., 1918.

In this work the rôle played by animal parasites in causing disease in man, either by direct invasion of the human host, or indirectly by serving as the carriers of the morbid agent, is clearly set forth. The author is a teacher of zoology, and naturally he lays special emphasis on the structure and biologic features of these animal parasites. The more strictly medical aspects, such as the clinical feature of the disease, the finer details of diagnosis, are often rather scantily treated. In the strict sense, therefore, it cannot be regarded as a textbook of medicine, nor is it the author's intention that it should be so regarded. He clearly states this in the preface. In a word, the book is more or less popular in character. Viewed from this standpoint, it may be commended. Information has been compiled from various sources and is presented in an orderly, readable style. While he is generally thoroughly reliable, one may note the tendency of the compiler occasionally to accept as true certain printed statements, perhaps because there is lacking the check that would have come from a healthy skepticism had there been personal laboratory, bedside or research experience. For instance, the statements regarding the diagnostic value of the Wassermann and luetin tests in syphilis and the curative effect of arsphenamin are much too optimistic according to the views of many competent men of experience. The relation of intestinal worms to appendicitis is also questionable. But, on the whole, the work is acceptable. It is freely illustrated with excellent cuts that are explanatory and helpful.

THE COMPOSITION OF CERTAIN PATENT AND PROPRIETARY MEDICINES. Compiled by John Phillips Street, Major, Sanitary Corps, N. A. Cloth. Price, \$1.25. Pp. 274. Chicago: American Medical Association, 1917.

It has been estimated that the American public spends annually \$150,000,000 for proprietary—"patent"—remedies, the great majority of which are secret in composition. This fact alone, Major Street suggests, makes the actual composition of such products of direct public interest. Although a large amount of information on this subject has been published by various organizations, particularly by the American Medical Association, by the federal government and by the inspection officials of some of the states, the records have been widely scattered and, in many instances, practically inaccessible to the public. The purpose of this compilation is to bring into one volume an accurate record of the hundreds of analyses scattered through some fifty publications. Mr. Street has done the work well. Although the great majority of the preparations whose analyses are given are of the "home remedy" or "patent medicine" type, there are not a few products that are sold, ostensibly at least, for physicians' prescriptions. Analyses of more than 2,500 proprietary medicines are given; and as several analyses of some of these remedies have been made at different times or by different sources, there are more than 3,100 analyses. No attempt is made to discuss the value or lack of value of the preparations dealt with, and the author specifically states that the matter is "published without comment and without prejudice." There is no doubt that the compact form in which they are put out will make the book a useful compendium to all those who are interested in the proprietary medicine problem.

INTERPRETATION OF DENTAL AND MAXILLARY ROENTGENOGRAMS. By Robert H. Ivy, M.D., D.D.S., Associate Surgeon, Columbia Hospital, Milwaukee. Cloth. Price, \$2.50. Pp. 146, with 259 illustrations. St. Louis: C. V. Mosby Company, 1918.

This is a helpful book for the dentist or physician who is not an expert in the interpretation of dental roentgenograms, but who desires to be able to read with reasonable accuracy the films of teeth that are now so frequently brought in by patients as aids in diagnosis. A brief outline is given of the

anatomy and pathology involved in the roentgenograms of the teeth and jaws, together with the bearing of the abnormal findings on clinical diagnosis, prognosis and treatment. Some technical points as to the methods of making stereoscopic plates are taken up, and then follow several pages of illustrations showing normal and pathologic conditions. These illustrations are for the most part good and the descriptive legends clear and to the point. The book is well printed and fulfils the purpose stated in the preface of presenting to members of the medical and dental professions the data necessary for making an intelligent diagnosis of pathologic conditions about the teeth and jaw bones in which roentgen examination plays a part.

ORAL SEPSIS IN ITS RELATIONSHIP TO SYSTEMIC DISEASE. By William W. Duke, M.D., Ph.B., Professor of Experimental Medicine in the University of Kansas School of Medicine. Cloth. Price, \$2.50. Pp. 124, with 170 illustrations. St. Louis: C. V. Mosby Company, 1918.

This excellent little volume deals with the question of dental sepsis and its effects on bodily health, both direct and remote. One chapter is devoted to pyorrhea, another to alveolar abscesses, another to metastatic infections, another to the subject of nonrelated infections as influenced by oral sepsis, and another chapter to the toxic effect of oral sepsis and its relation to headache. There is a good summary, and the conclusions drawn from the study are fundamental and vitally important in the diagnosis and treatment of many heretofore obscure and refractory systemic diseases. Roentgenograms of all dental septic conditions are shown and are replete with explanatory notes. At the end there is a complete bibliography. The book should be equally valuable to dentists and physicians.

A MANUAL OF HISTOLOGY. By Henry Erdmann Radasch, M.Sc., M.D., Assistant Professor of Histology and Embryology in the Jefferson Medical College. Cloth. Price, \$2.50 net. Pp. 580, with 307 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

Unnecessary theory and discussion have been avoided in this manual. The histology of the various tissues is described in systematic order. By arrangement of bold face type and italics the student may quickly refer to the descriptions which characterize the structure of any special tissue—an especially valuable feature when it is desirable to make a general review. The book is fully illustrated, with complete explanatory legends to each picture. The subject has been covered concisely, yet with sufficient thoroughness to make the book useful to the student who requires a more adequate presentation of the subject than is to be found in quiz compends, yet not so exhaustive as that given in the larger textbooks.

CANCER: ITS NATURE, CAUSES, DIAGNOSIS AND TREATMENT. By Robert Holmes Greene, A.M., M.D., F.A.C.S. Cloth. Price, \$1.50. Pp. 172. New York: James T. Dougherty, 1918.

This book discusses certain features of the topics mentioned in the title, for the most part conventionally, superficially and incompletely. The chief new matter is the emphasis laid on the observation by Dr. J. A. Killian that in the blood of cancer patients the total nonprotein sulphur content rises to two or three times the normal figure, while the total sulphates remain at the normal level. The urine shows an increase in the neutral sulphur compared to the oxidized sulphur, but the total amount of sulphur excreted is diminished. Considerable speculation as to etiology and treatment is indulged in on the basis of these changes in sulphur metabolism.

A SURGEON IN ARMS. By Captain R. J. Manion, M. C., of the Canadian Army Medical Corps. Cloth. Price, \$1.50 net. Pp. 310. New York: D. Appleton & Co., 1918.

As a medical officer on the West Front, Captain Manion was particularly able to study the morale of the Allied army under the most adverse conditions. His book represents not so much a diary of his progress as a series of chapters on various phases of his work. It has not the fine finish of careful literary preparation; but readers of war books are asking merely for red blood and adventure, not "style." Captain Manion was in "it" and he tells about "it" in his own language.

Social Medicine, Medical Economics and Miscellany

THE RECONSTRUCTION OF THE RACE*

FREDERICK PETERSON, M.D.
NEW YORK

I will present some views on education from the standpoint of the alienist. Pathology has, after all, taught us the most we know about the normal in biology. We learned physiology from our studies of function perverted by disease. We learned about the normal brain through investigation of diseased brains. The admired Montessori method of teaching normal children had its origin in the methods of Itard and Seguin in teaching idiots. So now in a world half mad, with all sorts of disorders in the body politic, perhaps an alienist may help, be it never so little, in some new adjustment toward the normal.

We have been suddenly awakened by the war from our complacent slumber. Pain, suffering, danger, stirring elements in the psychologic mechanism, rouse alarm, quicken alertness, light up all the old memories and powers of defense.

The horror and surprise of a nation of madmen broken loose on the world has brought a sudden consciousness among the peoples. We are appalled that our selective draft of young men who are to fight our battles in France and Flanders reveal defects in an average of nearly 30 per cent.—these young men who were the schoolchildren of yesterday. What was the matter with the schools of yesterday which took them in and returned to us only two thirds as able-bodied citizens? The answer is found in the schools of today.

Authorities show us that there are physical defects in 75 per cent. of the 20,000,000 schoolchildren of today, most of them preventable and remediable, heart and lung diseases, disorders of hearing and vision, malnutrition, diseased adenoids and tonsils, flatfoot, weak spines, imperfect teeth—and among them 1 per cent. of mental defect. The children in country schools are worse off than in city schools. We are sending the best we have to foreign battle fields. We are retaining the 30 per cent. of imperfect citizens to leaven the race of tomorrow. There is such a thing as the prepotence of inferiority. It is often said that we get what we deserve in the way of government, laws and institutions. Since it is possible in our democracy for a moron to be elected mayor of a city, and an imbecile to be made governor of a vast state, it may easily be imagined how the smaller offices in our legislatures, county boards and city councils overflow with the inferior and the unfit.

We have spent millions of dollars on swine plague, foot and mouth disease of cattle, pine blister, chestnut blight, gypsy moth, chicken cholera, and we have the annual "pork-barrel" of millions on millions of dollars devoted to all sorts of trivial and foolish exploitations of rural creeks and hamlets; but what have we spent on our greatest national asset—health of body in our schoolchildren? Body is the foundation on which mental structure must rise. It is of the first importance that the physical foundation be made and kept sound and strong. The mental structure is secondary to that. We are spending enormous sums on medical care of our insane and other defectives in institutions all over the country, and rightly so, to do what we can to repair our broken adults. This is relief work; but what we spend on preventive measures, on health education for our growing children is small by comparison.

The children are the state's best property, outranking lands, produce, mines, waterpower, live stock, forests, railways. Think of the billions of dollars spent on these secondary interests. Think of the indifference and opposition to the care of children, to 2-cent lunches to be paid for by the children themselves, to doing away with child labor in factory and mine, to the smallest health measures demanded for their

welfare. It needs, indeed, an alienist to direct attention to these facts.

Compulsory education we have—compulsory feeding and training of the mind. Compulsory health we must have—compulsory feeding and training of the body.

In the war against ignorance we have conscripted the schoolchildren. They are the vast draft army of our second line of defense. But in what sort of cantonments do we house them? What physical drill do we give them, what medical inspection and care, what sanitation, what remedial steps do we take to restore them quickly to the ranks when they are ill?

But enough of destructive criticism. Let us turn to the idea of a reconstruction of the race. Let us read the old books with new comprehension. It is almost a hundred generations ago that a teacher (Mencius) wrote:

The root of the empire is in the state. The root of the state is in the family. The root of the family is in the individual. So for the people—encourage them; lead them on; rectify them, straighten them; help them; give them wings!

We must set a standard. It might be that of Dr. Oliver Wendell Holmes, "to begin the education of the child a hundred years before it is born." That can be attained in a few generations. To accomplish it we must coordinate all the organizations now at work for the conservation of our citizenry—the maternity classes, the baby-saving societies, the mothers' committees, the kindergartens, the child welfare and physical training bodies, the seaside, the countryside and sunshine associations, all that have to do with preschool welfare, the public and private schools, the Child Labor Committee, the Mental Hygiene Association, the boards of education and the boards of health. The presidents of boards of health and boards of education should be ex officio members of these coordinated boards. This is a great undertaking, but we can begin by breaking into the curriculum of the public schools and establishing education in health, especially in food knowledge and food habits as a vital and essential part of the teaching. From the schools the health instruction will be carried home to the parents and younger children, and soon the whole movement of reconstruction will permeate the state.

PROGRAM FOR RECONSTRUCTION

The program is a large one, with several requirements:

1. The teachers themselves should be given better conditions for their own health and fuller instruction in all that has to do with the laws of health.

2. Every city and country school should be made sanitary and kept so, and the school and its grounds should be as beautiful as possible, not only for the benefit of the teachers and the pupils, but as an example to all other citizens who are beginning to use the school more and more as a community center.

3. Every child should be regularly weighed, measured and examined and a health record kept, which should accompany him throughout his school life. It should be the duty of the authorities to see that the defects of our young citizens are corrected, and disorders of growth and nutrition remedied. As malnutrition is one of the most serious conditions, a hot luncheon should be made available for every child and every teacher. The health examination should include dental inspection and treatment.

4. Each school should have adequate provision for physical training, gymnasiums, athletic fields, playgrounds, gardens and shops, together with especially qualified instructors in physical training and vocational fields.

5. Finally, with the foregoing foundations, there should be a thorough system of instruction in all matters pertaining to health with special emphasis on health problems rather than on disease, in physical and mental habits, in personal hygiene, in public health and sanitation, in methods to avoid communicable diseases, in the responsibilities of parenthood, and in all that relates to nutrition and growth, including foods and food values and food habits.

This is a large program, too large for the inequalities of conscience and consciousness of our multitudinous states. It might be carried out in a few states soon and in others only after generations.

* Read before the National Education Association, Pittsburgh, July 3, 1918.

This is a scheme for the reconstruction of the whole people. It is a federal program. It is an emergency program. It should have the immediate attention of our foremost teacher in the presidential chair. We need a Hoover for the children—a children's health administrator.

With all this in view and after months of careful planning, the National Child Health Organization has been formed, whose literature is being now distributed. Do the first practical thing for a beginning. The teachers can place scales and a measuring rod at once in every school and with the height and weight and age charts that will be sent on request, the campaign can be immediately started against one of the chief evils, namely, malnutrition. The Child Health Organization has some of the best teachers and educators in the country as members, and counts on its board the foremost medical specialists on children and public health. Its publications will be supplied on request to all who desire them. The office of the Child Health Organization is at 289 Fourth Avenue, New York. Dr. L. Emmett Holt is chairman. Some of the other medical members are Drs. S. McC. Hamill, G. R. Pisek, Victor G. Heiser, Thomas D. Wood, Bernard Sachs, Hermann M. Biggs, H. D. Chapin, Simon Flexner and William H. Welch. Among the educators are Charles W. Eliot, Cambridge, Mass.; Dean Thomas, Bryn Mawr, Pa.; Albert Shiels, Los Angeles; William Wirt, Gary, Ind., and John H. Finley, Albany, N. Y.

20 West Fiftieth Street.

PHYSIOCHEMICAL PROPERTIES OF PRODUCTS OF THE GROUP OF THE ARSENOBENZENES

Their Transformation in the Organism

In the *Annales de l'Institut Pasteur* (1917, **31**, 114-137), Danysz publishes the first instalment of the results from research work he has made on arsphenamin solution. He found that solutions of arsphenamin and similar preparations, prepared in the usual manner but with a small amount of calcium biphosphate added, soon change on exposure to the air and form precipitates which are readily soluble in sodium hydroxid. The solutions contained the arsenical in 1:5,000; calcium biphosphate 1:10,000, and sodium chlorid, 8:1,000. Danysz was impressed by the fact that the rate of precipitation depended on the amount of alkali used in making the solutions. He prepared solutions of luargol, which is essentially an antimony silver salt of the arsphenamin base differing from arsphenamin in its action only in minor details, as follows: Sodium hydroxid was added in amount sufficient (1) to form the monosodium salt, (2) to form a salt midway between the monosodium and disodium salts, (3) to form the disodium salt, and (4) one-half molecule of sodium hydroxid in excess. (The amount used in the second solution represents about the amount used, or perhaps a little more, in preparing the solutions for clinical use by most physicians.) When these solutions were allowed to stand in open tubes, the first became turbid within a few minutes, the second in from fifteen to twenty minutes, the third in from five to six hours, and the fourth only after more than twelve hours.

When injected into rabbits at the same rate, the monosodium solution (1) was found to be twice as toxic as the second solution, and the other two were less toxic than either of these. The hyperalkaline solution (4) caused pain on being injected; the veins sometimes became obstructed and later atrophied.

Danysz attributed the variations in toxicity to the precipitating out of the arsphenamin base in the blood stream, owing to the salts and carbonic acid present, just as it had been shown to do in test tube experiments. He found that in addition to the amount of alkali influencing the toxicity to a marked degree, the rate of injection also had a considerable influence. A dose of the monosodium salt that was certainly fatal if injected in one minute produced no ill effects when the injection was prolonged for fifteen minutes. He believed that the same explanation holds here, the base being precipitated in the latter case but slowly and in very fine particles. He also found that the amount of sodium chlorid used had a

bearing on the rate of precipitation, and that even when used in the amount mentioned above it caused a more rapid precipitation. He concluded that an arsphenamin solution is colloidal in nature and behaves as such in the presence of sodium chlorid, and that the monosodium solution was more colloidal than the disodium solution, while neopreparations behave more as salt solutions.

Danysz concluded partly from experimental data and partly from theoretical considerations that when an arsphenamin solution is injected into the blood stream, the sodium is split off, allowing the base to be precipitated, and that in order for it to be eliminated by the kidneys, there must be first formed compounds of the arsphenamin base with organic bases present in the blood, which are soluble in neutral medium. He believes that when the initial precipitation is rapid, death occurs quickly in experimental animals when large doses are given, and that the so-called "nitritoid crises" may occur in man after the usual dose, the explanation of the mechanism being the same in the two cases, and that this does not represent a true toxic action of the drug in the usual sense. Examinations of animals dying under these conditions show hemorrhages, thromboses, etc., and precipitated drug in the blood. He refers to these accidents as crises of the first degree, and states that if they occur in a person having a normal blood composition, the preparation of the solution is at fault.

Transient crises, or what most physicians would describe as mild or moderate reactions, Danysz believes are explained by the same mechanism, as well as the delayed crises that are the most serious and often end fatally. In order of frequency, the transient are most common; the crises of the first degree are seen only occasionally, and never end fatally, while the delayed crises fortunately are rare, perhaps one in several thousand cases, and always occur after the second or some subsequent injection, and then not immediately but within from one to three days after the injection. He believes that here as well as in the less serious reactions the mechanism is the same, differing only in time and degree. The arsphenamin does not precipitate rapidly enough to cause immediate effects, but is not reformed into soluble organic compounds that can be eliminated. He believes that as a rule, and he has animal experiments that appear to prove it, the first injection in a measure vaccinates the organism, probably by causing an increased production of organic bases, making the subsequent doses better tolerated than the first.

From the practical standpoint Danysz recommends that the treatment be begun by a very small injection, and that the results following the second injection, which should also be small, be carefully observed. If this dose is tolerated as well as or better than the first, the treatment may be continued and the doses increased without fear of complications. Should this not be the case, the treatment should be discontinued for from eight to fifteen days, or several vaccinating doses should be given.

HEALTH MATTERS IN PORTO RICO

The report of the commissioner of health of Porto Rico, W. F. Lippitt, for 1917 is not a cheerful or encouraging document so far as health conditions in the island are concerned. Lack of funds for salaries, equipment, supplies and transportation, with intimations of too much politics in some instances, are said to account for a backward state of things. In the municipality of San Juan it is said the service of *beneficencia municipal* is well cared for, and there is a good hospital, while among the other first class towns Ponce deserves the severest censure for lack of proper organization and attention to the sick. At Arecibo the hospital is well managed, but outdoor relief is neglected. Guayama, a small town, has a well managed hospital, credit being due to the enthusiasm of the medical inspector. Yauco and Humacao have good hospitals and good outdoor relief. Of the other towns of the island nothing good can be said. The salaries of municipal physicians range from \$50 to \$100 a month, with no chance to earn additional income outside. The hospital situation of the island is summed up thus: "The so-called

hospitals of the island, outside of those already specified, are so exceedingly bad, so unfitted for the reception of the sick, so lacking in everything needed for a hospital, that the sick prefer to die at home rather than to be taken to the hospital." Nevertheless, many sick are taken from the surrounding country and towns to hospital towns and left there, compelling the municipal authorities to take them in, thus throwing an unjust charge on the taxpayers. This is true of San Juan, which is especially mentioned. The health commissioner again calls attention to the alarming spread of tuberculosis and to the inadequacy of the appropriations to make any impression on this disease. More power for the health commissioner and greater appropriations, or funds raised by apportioned taxes, are essential to make any headway against this disease. The work against hookworm anemia is not being kept up as it should be for the same lack of funds and facilities. The remedy for the conditions described, the health commissioner says, is the organization of a bureau of charities under the department of health to have entire charge of the treatment of the sick in hospitals and outdoor relief. If this is not possible, with the exception of the municipal hospital of first class towns, all hospitals should be placed under the control of the department of health and sustained by funds secured by assessment from these municipalities. Furthermore, district hospitals should be organized, under the control of the department of health maintained by the insular government.

Medicolegal

Direction of Verdict to Sufficiency of Proof Under Medical Practice Act

(*State Board of Medical Examiners v. Giedroyc (N. J.)*, 102 Atl. R. 906)

The Supreme Court of New Jersey, in affirming a judgment of conviction of the defendant of practicing medicine and surgery without a license, in violation of Section 10 of the Medical Practice Act, as amended in 1915, holds that there was no error in directing a verdict for the plaintiff. A proceeding under that section is essentially a "civil suit," subject to the procedure peculiar to the civil jurisdiction of the court in which it is brought, and it is competent for the trial judge to direct a verdict for the plaintiff when the admitted facts conclusively show that the defendant violated the statute as charged. And sufficient was proved in this case. While under the statutory definition of the practice of medicine and surgery, which appears in section 8 of the act, the different acts or course of conduct which constitute the practice of medicine and surgery are stated in the disjunctive, the general rule is that where an offense may be committed by the doing of one of several things, the indictment may, in a single count, group them together by using the conjunctive "and" where "or" occurs in the statute, and so charge the defendant with having committed them all, and a conviction may be had on proof of any one of these things without proof of the commission of the others. So under sections 8 and 10, a complaint may charge that the defendant did, without license, practice medicine and surgery, in that he "did hold himself out as being able to diagnose, treat, operate and prescribe for a human disease, and did treat and prescribe for the same by means of a medicine," and thereunder the defendant may be convicted on proof of such holding out without proof of treatment and prescription by means of medicine. Consequently, if the admitted facts in this case conclusively showed that the defendant held himself out as being able to diagnose, treat, operate and prescribe for human diseases, the direction of a verdict was proper without regard to whether the undisputed evidence showed that he did actually treat and prescribe for such disease by means of a medicine. Now the plaintiff's testimony, so far as essential to a conviction, was corroborated by the defendant himself. The defendant admitted that he was a chiropractor; that he practiced hydropathy and naturopathy; that he made his living by treating people who were ill by the methods known as

chiropractic, hydropathy and naturopathy; that in order to treat them he first diagnosed their disease or illness and then gave them treatments consisting of manipulations, or electric or vapor baths. He admitted diagnosing one Sweth's illness, admitted receiving \$75 from Mrs. Sweth in advance for the treatment to be given Sweth, and did not deny that he told Mrs. Sweth that her husband was a very sick man, but that he, the defendant, could cure him if witness would pay him \$75. This showed conclusively that the defendant held himself out, not only as being able to diagnose and treat the disease from which Sweth was suffering, but as being able to diagnose and treat human disease generally.

Valid Law and Regulation for Protection of Water Supply.

(*Commonwealth v. Hyde (Mass.)*, 118 N. E. R. 643)

The Supreme Judicial Court of Massachusetts, in considering the statute of that state which empowers the state board of health to "make rules and regulations to prevent the pollution and to secure the sanitary protection of all such waters as are used as sources of water supply," with power to delegate the granting or withholding of permits to water commissioners, subject to investigation and revision by way of appeal to the board itself, holds that the delegation by the legislature of the right to make rules and regulations is within its power. The case is different from one wherein no power of delegation is conferred by the statute. The power of revising the conduct of the water commissioners reserved to the state board of health by the statute avoids the difficulty of vesting an untrammelled discretion in a subordinate board or officer.

The state board of health pursuant to the statute passed a regulation of which the pertinent part here was:

No person shall . . . unless permitted by a written permit of the board of water commissioners of the city of Haverhill fish in . . . Crystal Lake . . . so called in the city of Haverhill, . . . said lakes . . . being used by said city as sources of water supply.

The court is of the opinion that the regulation passed by the state board of health, in pursuance of the statutory authority, prohibiting fishing on a body of water used as a source of water supply for a municipality, cannot be pronounced unreasonable. It requires no discussion to demonstrate that the preservation of the purity of the water supply for the domestic uses of the people is within the police power. The absolute prohibition of fishing on such a source of water supply could not be said to be unreasonable under the circumstances here disclosed. It is not irrational for a public board to deem it likely or possible that sources of contamination and germs of disease might have a causal connection with the presence of fishermen on the ice or waters of a supply of drinking water.

Wherefore, the court overrules exceptions to a conviction of the defendant, who was charged with going on the ice of Crystal Lake and fishing therein, without a written permit of the water commissioners of the city of Haverhill, in violation of the rules and regulations of the state board of health.

Insanity and Not Intoxication a Defense to Crime

(*McCarter v. State (Okla.)*, 170 Pac. R. 712)

The Criminal Court of Appeals of Oklahoma, in affirming a judgment of conviction of defendant McCarter of assault with intent to kill, holding that the evidence offered by him to prove alcoholic insanity was insufficient, reaffirms what it has said before, that insanity, though superinduced by excessive and long-continued indulgence in alcoholic liquors, and known as "delirium tremens," or "mania à potu," renders a person so afflicted irresponsible for his acts, if it be of such a character as to deprive him of the mental capacity to distinguish between right and wrong, as applied to the particular act, whether he be under the influence of liquor at the time of the commission of the act or not; but, to do so, his affliction must be settled or fixed insanity, not a mere fit of drunkenness. A person, not previously laboring under such a disease or affliction, who voluntarily becomes intoxicated to such an extent and for such a period of time as to cause unconsciousness of his acts, is not irresponsible under the law for the acts done by him while in such mental condition.

Society Proceedings

COMING MEETINGS

- Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
Colorado State Medical Society, Estes Park, Sept. 9-11.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Kentucky State Medical Association, Louisville, Sept. 3-6.
Minnesota State Medical Association, Duluth, Aug. 28-30.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Tri-State District Medical Society, Madison, Wis., Aug. 20-22.
Utah State Medical Association, Salt Lake City, Sept. 10-11.
Vermont State Medical Society, Burlington, Oct. 10-11.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

July, 1918, 156, No. 1

- 1 *Ancient Factors in Relations Between Blood Plasma and Kidneys. A. B. Macallum, Toronto.—p. 1.
- 2 *Typhoid Vaccine in Case of Typhoid Spine. W. Allan and J. W. Squires, Charlotte, N. C.—p. 11.
- 3 Electrocardiographic Evidence of Abnormal Ventricular Preponderance and of Auricular Hypertrophy. P. D. White and A. V. Bock, Boston.—p. 17.
- 4 Cholesterohydrothorax; Report of Case. B. F. Weems, Jr., New York.—p. 20.
- 5 Chemotherapy (Potassium Cuprocyanid) of Leprosy and Tuberculosis. T. Sugai, Osaka, Japan.—p. 30.
- 6 *Status Lymphaticus. D. Symmers, New York.—p. 40.
- 7 Study of Ochronosis. N. W. Janney, New York.—p. 59.
- 8 Relation of Physical Signs to Roentgen Plate in Pulmonary Tuberculosis. J. J. Singer, St. Louis.—p. 68.
- 9 Case of Congenital Absence of Uterus with Anomalous Vulvovaginal Anus. E. J. Strick, Chicago.—p. 75.
- 10 Clinical Experience with Koga's Cyanocuprol. T. I. Masuda and T. K. Matsuda, Japan.—p. 78.
- 11 Vaginal Metastases of Hypernephroma; Report of Case. G. Gellhorn, St. Louis.—p. 94.
- 12 *Report of Thirty Cases of Meningococcic Cerebrospinal Meningitis. G. McConnell, M. L. Morris and N. A. Seehorn, Camp Pike, Ark.—p. 105.

1. **Blood Plasma and Kidneys.**—Macallum made investigations on the inorganic composition of normal human plasma, with a view to comparison of the same with the blood plasma in cases of Bright's disease, and, more especially, in cases of puerperal eclampsia. Thus far he has found that the very first change from the normal to the definitely established primary condition in some of the forms of Bright's disease is a loss of the power to maintain the paleo-oceanic ratios. The structures in the kidney involved in maintaining these ratios are the proximal convoluted tubules, which, with the glomeruli, are derived from and therefore represent the original parts of the kidney of the earliest vertebrates and of the protovertebrates. The proximal convoluted tubules are also concerned in reducing the H-ion concentration of the blood, for they secrete acid, not acid salts, into the urine, a function which is also very ancient, a function performed in invertebrates by all the cells of the body situated near the body surface, and still performed intermittently and with a high degree of specialization by the gastric glands of vertebrates. In some invertebrates other tissues have specialized in this matter also, as for example, in the salivary glands of the carnivorous mollusk *Dolium galea*, the concentration of the sulphuric acid of the saliva of which exceeds 4 per cent.

Macallum suggests the possibility that the function of preventing the ever-tending-to increase of the H-ion concentration of the blood plasma is as ancient as the paleo-oceanic function, a view which their common localization in

the proximal tubules supports. The author emphasizes the view that behind the functions of the renal organ is a history which links up the human body with the far past with an age of the earth when its oceans contained only what would now be regarded as brackish water and the earliest type of vertebrate life was beginning to appear as a marine form. From the facts advanced it will be gathered also that the blood plasma, so far as its inorganic salts are concerned, is but a reproduction of the remotely ancient ocean, and that it is an heirloom from the life in "that immortal sea which brought us thither," for the sea is the original home of all life on the globe and gave our blood, and, accordingly, the tissues of our bodies, a character that long ages have not effaced and will not efface.

2. **Typhoid Vaccine in Typhoid Spine.**—Allan and Squires suggest that from the clinical history of typhoid spine it seems probable that typhoid vaccine given early, would stop the development of this local infectious spondylitis.

6. **Status Lymphaticus.**—In Bellevue Hospital, in the past twelve years, 457 cases of status lymphaticus were encountered among 5,652 necropsies (8 per cent.). In the first 4,000 necropsies there were 249 cases. These have been analyzed, statistically and otherwise, and form the basis of Symmers' paper. The proportion of males to females was about 6 to 1. One hundred and sixty occurred between the ages of 21 and 50. Of the 249 cases, there were 118 instances of status lymphaticus, 89 cases of recessive status lymphaticus and forty-two cases in which the lymphoid tissues were in places hyperplastic, in other places atrophic, in other words, borderline examples, which, however, were tending in the direction of regression. Of the 118 cases of well developed status lymphaticus the thymus gland was hyperplastic in every instance. In the 89 cases of recessive status lymphaticus the thymus was weighable in 19 cases only. In the remaining 70 cases the thymus was practically invisible to the naked eye and its position was occupied by a pad of fat or by fat and scattered glandular remnants, the whole corresponding in a general way, to the normal outlines of the gland. In the 118 cases of well developed status lymphaticus the faucial tonsils were hyperplastic sixty-one times (51 per cent.), the lingual tonsils fifty-eight times (49 per cent.) and the pharyngeal tonsils forty-five times (37 per cent.). Peyer's patches and the solitary follicles were each hyperplastic in 105 cases (88 per cent.), sometimes in combination, at other times independently. The spleen was described as small or normal in size in 68 cases (70 per cent.). In 26 cases the spleen was enlarged, but in all of them contributing factors were found to account for the enlargement, such as cirrhosis of the liver, sepsis, enteric fever, etc.

The splenic lymphoid follicles were hyperplastic in 105 cases (88 per cent.). The mesenteric lymph nodes were enlarged in 7 cases only, the axillary nodes eleven times, the inguinal nodes twelve times, the cervical nodes fifteen times and the peribronchial nodes five times. In 89 cases of recessive status lymphaticus the faucial tonsils were enlarged twenty-five times (28 per cent.), the lingual tonsils thirty-two times (36 per cent.), the pharyngeal tonsils nineteen times (21 per cent.). Peyer's patches were enlarged eleven times (12 per cent.) and the solitary follicles nineteen times (21 per cent.). The spleen was described as normal or small in 52 (71 per cent.); enlarged in 21 cases, in 17 of which enlargement was due to some accompanying lesion, such as chronic valvular disease, cirrhosis of the liver, etc. The splenic follicles were hyperplastic in 37 cases (41 per cent.). Of the 249 cases, the heart was small or normal in size in 127 (51 per cent.). In 46 cases the heart was enlarged, due, in every instance, to inherent valvular disease or to chronic interstitial nephritis, emphysema and similar causes. The aorta was hypoplastic in 101 cases (40.5 per cent.). In 78 cases (31 per cent.) the elasticity of the aorta was increased and in 66 cases (26.5 per cent.) the vessel was described as unusually thin.

There were thirty-seven instances (about 15 per cent.) in which anatomic changes due to syphilis were detected in various parts. The aorta was the seat of syphilitic lesions

in fifteen instances (40 per cent.). In 4 cases the aorta from commencement of bifurcation was the seat of syphilitic aortitis, in 9 cases the changes were advanced but were limited to the arch, in 1 case there was syphilitic aortitis of the arch and thoracic aorta and in 1 case a small aneurysm of the sinus of Valsalva was imposed on a limited syphilitic aortitis of the ascending aorta. Acute gelatinous aortitis: In the 249 cases of status lymphaticus there were 15 cases of the acute gelatinous aortitis described by the French.

Sudden death due to spontaneous rupture of a hypoplastic cerebral artery occurred seven times (three times in men and four times in women), all of them under 30 years of age, none of them presenting syphilitic or precocious arteriosclerotic changes in the vessels of the brain or elsewhere. The clinical symptoms were those of cerebral hemorrhage and death occurred rapidly. There were 88 cases of endocarditis (35.3 per cent.), of which number 51, or 57.8 per cent., were acute. It seems scarcely possible to evade the conclusion that status lymphaticus is a distinct predisposing factor in those infective processes which exert a selective action on the heart valves and in which, in many cases, the provocative micro-organism enters the body through the tonsils.

12. Cases of Meningococcic Cerebrospinal Meningitis.—In order of frequency the subjective symptoms in these cases were as follows: (1) profound frontal headache; (2) stupor or coma; (3) rigidity of the neck; (4) vomiting; (5) Kernig's sign; (6) increased knee jerks; (7) hyperesthesia; (8) slow pulse; (9) petechiae; (10) slight increase in temperature. Strabismus was not present as an early symptom. The headache was very severe in character, being much more marked than in typhoid, and nearly always was frontal. In regard to the mental condition, there were all variations from an almost abnormal acuteness to complete coma. Rigidity of the neck was, as a rule, well marked and accompanied by more or less retraction. Vomiting occurred in about two thirds of the cases and was of the projectile or cerebral type, coming without warning and without previous nausea. In a few of the cases it was the initial symptom.

Kernig's sign was positive in nearly every case, either slight or well marked, according to the general condition of the patient. The knee jerks were exaggerated in most of the cases, as were the plantar reflexes. Babinski's sign was absent in practically every case. Hyperesthesia was present in many instances to a high degree and at times the skin showed marked irritability, as evidenced by positive "tâche cérébrale." The pulse in nearly every case was slow, commonly between 60 and 70, and not unusually it was in the fifties. Petechiae were present in but a small percentage of the cases, being marked in but three. Generally the distribution was diffuse, with variations in size and shape and not disappearing on pressure. The temperature has not been high, particularly early in the disease. Herpes appeared in practically all of the cases and was abundant, usually most extensive on the lips at the mucocutaneous junction. The ears, nose and forehead were involved also.

All of the patients as soon the lumbar puncture was done, and either a cloudy fluid discovered or a positive globulin obtained, were given, as a rule, 40 c.c. of serum. According to the authors' experience it would appear unnecessary to give the serum more frequently than at twenty-four-hour intervals, excepting in those fulminating forms when death seems imminent. One patient received four injections within thirty-six hours and showed improvement after each treatment. Many of the patients will need no further serum after the fourth dose, yet it may be well to make a puncture at the end of forty-eight or seventy-two hours later to determine the pressure, the quality and quantity of the fluid and the globulin reaction. If the patient does not show improvement it may be necessary to continue the lumbar punctures until recovery or death ensues. In one case, which finally proved fatal, twenty-three lumbar punctures were made. The following signs of improvement were considered of value in the order given, and on them was based the prognosis of the case: (1) improvement in the consciousness of the patient; (2) fall in temperature to nearly normal; (3) diminution in

intensity of headache; (4) no decrease or marked increase in the pulse rate; (5) no increase in the rigidity of the neck; (6) decrease in the globulin.

American Journal of Orthopedic Surgery, Boston

July, 1918, 16, No. 7

- 13 Orthopedic Surgery and War. J. L. Porter, Chicago.—p. 413.
- 14 Rôle of Orthopedic Surgery in Modern Warfare. C. L. Starr, Toronto, Canada.—p. 415.
- 15 Special Training Battalion of 26th Division, A. E. F. Z. B. Adams, Boston.—p. 427.
- 16 *Inefficiency Due to Back Strain and Faulty Posture in Unseasoned Troops. D. P. Willard, Philadelphia.—p. 429.
- 17 Curative Workshops in British Military Orthopedic Hospitals. R. W. Billington, Nashville, Tenn.—p. 431.
- 18 Re-Education in Functional Disabilities of Active War Service. W. W. Plummer, Buffalo.—p. 433.
- 19 Some Aspects of Massage Problem. M. Sanderson, Boston.—p. 436.
- 20 Ward Occupational Therapy for Military Hospitals. H. R. Hayes.—p. 438.
- 21 Mechano-therapy: Functional Re-Education. E. A. Bott, Toronto, Canada.—p. 441.
- 22 Problem of Chronic Disabilities of Soldier. F. J. Fassett, Seattle. p. 446.
- 23 Etiology of Flattening of Upper Femoral Epiphysis; Study of Seventy-Five Personally Observed Cases. A. T. Legg, Boston.—p. 448.
- 24 Tendon Operations About Ankle for Deformity After Infantile Paralysis. S. Kleinberg and I. Zadek, New York.—p. 452.
- 25 Orthopedic Work in British General Hospital in France. W. J. Taylor.—p. 464.

16. Back Strain and Faulty Posture in Unseasoned Troops.—In contrast with the number of weak and painful backs among the comparatively untrained men of the American forces, the examination of the veteran troops of the British Expeditionary Force is most interesting. Willard, acting as surgeon in one of the large orthopedic bases of Great Britain for seven months, came in touch with 7,000 soldiers who were sent there for orthopedic treatment. Of all these cases there were only four of back trouble. Three of these were unquestionably due to toxic arthritis of the spine or sacro-iliac joints. The fourth case was due to faulty posture. The surgeons of the Royal Army Medical Corps who had served with the British Expeditionary Forces were unanimous in stating that inefficiency from back strain among well trained and well seasoned troops was very uncommon.

American Journal of Public Health, Boston

July, 1918, 8, No. 7

- 26 Safe Limit of Carbon Dioxid in Working Atmosphere. G. O. Higley, Delaware, Ohio.—p. 477.
- 27 Maternity and Infant Welfare Program for United States. J. H. Larson, New York.—p. 482.
- 28 Sanitary Moisteners for Postoffice Lobbies. W. E. Forsyth, Ann Arbor, Mich.—p. 487.
- 29 Study of Pellagra in Mortality Experience of Metropolitan Life Insurance Company, 1911-1916. L. I. Dublin, New York.—p. 488.
- 30 Bactericidal Efficiency of Soap Solutions in Power Laundry. H. G. Elledge and W. E. McBride.—p. 494.
- 31 Effect of Plankton Animals on Bacterial Death Rates. W. C. Purdy, Lonoke, Ark., and C. T. Butterfield, Washington, D. C.—p. 499.
- 32 Filing System for Public Health Literature. R. R. Harkness, York, Maine, and C. E. Turner, Boston.—p. 522.

Archives of Diagnosis, New York

July, 1918, 11, No. 1

- 33 Vestibular Nerve Function. J. Byrne, New York.—p. 1.
- 34 Polyneuritis and Hyperesthesia in Poliomyelitis, and Differentiation of Polyneuritic Form of that Disease from Postdiphtheritic Paralysis. J. C. Regan, New York.—p. 11.
- 35 Ocular Complications in Renal Diseases; Their Diagnostic and Prognostic Value. A. Brav, Philadelphia.—p. 29.
- 36 Diagnostic Data of Commoner Eruptive Diseases. W. L. Somerset, New York.—p. 34.
- 37 Rachiocentesis and Spinal Fluid. J. H. Barach, Pittsburgh.—p. 48.
- 38 Diagnosis of Syphilis of Nervous System. J. H. Lloyd, Philadelphia.—p. 56.

Boston Medical and Surgical Journal

July 25, 1918, 179, No. 4

- 39 *Present Needs of Tuberculosis Campaign in Massachusetts. J. B. Hawes, 2nd, Boston.—p. 123.
- 40 Epidemiology of Typhoid in New England City. D. M. Lewis, New Haven, Conn.—p. 127.

- 41 *Clinical Method of Collecting Expired Air for Determination of Alveolar Carbon Dioxid Tension. P. Roth, Battle Creek, Mich.—p. 130.

39. **Present Needs of Tuberculosis Campaign.**—The three great needs of the tuberculosis campaign in Massachusetts, according to Hawes are: (1) Intimate knowledge of the amount of tuberculosis; (2) equally intimate knowledge of machinery and equipment against it; (3) cooperation of all forces, public and private, municipal and state. Nearly 5,000 persons in Massachusetts die of pulmonary tuberculosis each year, which means that there are fully 10,000 patients in the active stages of the disease needing adequate care and treatment. The duty of a local board of health or private physician is not ended when a patient is admitted to a state sanatorium or to a local tuberculosis hospital. The care and supervision of discharged sanatorium patients is one of the most important lines along which progress can be made. Hawes emphasizes that it is the duty of every one of us to help to develop public opinion to the point when the dangerous and incorrigible consumptive can be accorded the treatment which he deserves. We must not, however, allow public opinion to reach the point where every person who is unfortunate enough to contract tuberculosis is looked on as a leper and ostracized from society; finally, Hawes would urge that we remember at all times, and particularly those who are doing purely administrative work, that we are dealing with human beings who happen to have pulmonary tuberculosis, and not merely with "cases."

41. See THE JOURNAL, July 31, 1915, p. 413.

Bulletin of Medical and Chirurgical Faculty of Maryland

March, 1918, 10, No. 3

- 42 Practitioner and Deputy State Health Officer. E. A. Jones.—p. 38.

Iowa State Medical Society Journal, Des Moines

July, 1918, 8, No. 7

- 43 Symposium on Pediatrics. L. H. Branson, Iowa City.—p. 233.
44 Physician in the Army. L. Schooler, Des Moines.—p. 235.
45 Etiology and Serum Treatment of Epidemic Poliomyelitis. J. W. Nuzum, Chicago.—p. 237.
46 Radium in Treatment of Carcinoma of Uterus. L. L. Myers, Iowa City.—p. 246.

Journal of Cutaneous Diseases, Chicago

July, 1918, 36, No. 7

- 47 So-Called Porokeratosis (Mibelli), with Special Reference to Its Histopathology. S. I. Matsumoto, Kyoto, Japan.—p. 379.
48 Annular Macular Syphilis: Case Occurring as Early Secondary Manifestation. J. J. Rothwell, New York.—p. 395.

Kansas Medical Society Journal, Topeka

July, 1918, 18, No. 7

- 49 War Experiences in German Base Hospital. H. M. Richter, Chicago.—p. 159.
50 War Experiences in British Base Hospital in Northern France. J. M. Neff, Chicago.—p. 160.
51 Needs of Medical Corps. J. N. Jackson, Kansas City, Mo.—p. 162.
52 Training of Civilian Physician for Army Service. W. N. Bispham, Fort Riley.—p. 167.
53 Organization and Fraternity. J. W. Helton, Hillsdale.—p. 170.
54 War's Aftermath—Legitimate Surgery. F. A. Harper, Pittsburgh.—p. 173.

Laryngoscope, St. Louis

July, 1918, 28, No. 7

- 55 Otitic Meningitis. E. B. Dench, New York.—p. 501.
56 *Ear Protectors. C. W. Richardson, Washington, D. C.—p. 514.
57 Bacteriologic and Clinical Aspects of Infection of Accessory Sinuses of Nose. J. W. Babcock, New York.—p. 527.
58 Case of Chronic Middle Ear Suppuration, Treated by Carrel-Dakin Method, Following Radical Operation. P. D. Kerrison, New York.—p. 537.
59 *Consideration of Asthma from Wider Aspect. H. L. Pollock, Chicago.—p. 543.
60 *Trichloroacetic Acid in Vincent's Angina. T. J. Gallaher, Denver.—p. 551.

56. **Ear Protectors.**—The Section of Otolaryngology Medical Department, U. S. Army, of which Richardson is chairman, made a thorough and careful investigation of various devices that have been invented for the purpose of lessening the severity of the concussion impact. These devices have been tested on the living animal; and also rather imperfectly

on the human subject. There are three important features in the device: first, applicability; second, safety; third, cheapness. All types of hard and metallic forms of protectors are dangerous, because in cases of gunshot wounds, shrapnel wounds about the auricle or canal, they are likely to become secondary foreign bodies. Therefore, the examiners feel very much inclined to eliminate mechanical devices, such as the Wilson-Michaelson and the Mallock-Armstrong. Some of the cheapest, while fairly good protectors, should be ruled out, because they cut off the conduction of air sounds too greatly. The examiners are convinced that they have found one actual protector in what is known as the British Tommy. This device is simple, easy to introduce, and causes no undue pressure, and is easy to remove. While it cuts down the hearing, it does not cut down sufficiently to impair the voice beyond military needs. It prevents impact of concussion on the membrana tympani, the conducting apparatus; it is safe: there is no possibility of forcing it in against the membrana tympani; it is not likely to be any more conducive to secondary foreign bodies than anything that could be worn in the war; and it is comparatively cheap. In all tests it has proved itself the best protector.

The next most satisfactory is the Mallock-Armstrong. The only objection to the Mallock-Armstrong is the fact that it is made out of hard rubber, and is apt to become secondary point of foreign body injuries. In other respects it is nearly as good as the Tommy. It is not as easy to introduce as the former device. The Baum device is very simple; very easily introduced into the ear; not so easily removed. It can be worn for longer or shorter period without causing any inconvenience to the patient. It is light in weight, and there are practically no dangers attending on its wearing as regards secondary foreign bodies. It is not nearly as good as the other two mentioned. It does not present the fine degree of prevention as do the others to concussion impacts; but it is an American invention, and can be bought at a very reasonable price.

The Wilson-Michaelson device is planned somewhat on the type of the Mallock-Armstrong. It has a movable valve, which has been demonstrated under experimentation not to move as freely as it should with the detonations with which the committee experimented. Under more forceful concussion, such as takes place in actual warfare, it might respond more favorably. It has the advantage of being a perfect conductor for the voice. It has the disadvantage of being made of hard rubber, and therefore possesses the danger of secondary foreign body injury. It is from experimentation a little difficult to wear, and for longer wear it would be inconvenient. Cotton, saturated with glycerin or petrolatum is the cheapest of all; most available, easy to obtain, constantly at hand. It is practically within the reach of every soldier. Soldiers are very much inclined to use cotton in the dry state. It is only in the wet state that it is of any value to prevent shock concussion. This wetting should be done preferably with glycerin or with petrolatum. Either one impairs the conduction of sonorous sound waves. Therefore, while it is the cheapest, the most easily available, one that is most likely to be used, it has the disadvantage of deafening the wearer more than any other.

59. **Cause of Asthma.**—Pollock believes that the underlying causative factor of asthma is undoubtedly a disharmony in the ductless gland system. The exciting factor varies: dust, pollens, excreta from animals, split proteins, poisoning, etc., but unless there exists a disharmony in the ductless glands, asthma cannot result.

60. **Trichloroacetic Acid Specific in Vincent's Angina.**—Trichloroacetic acid is termed Vincent's angina by Gallaher. It should be applied pure, as follows: A small applicator, such as used by nose, throat and ear men, is wound with cotton and dipped in the pure liquid acid. The excess is removed by touching it against an ordinary blotter, and the acid is carefully applied to the entire area affected. In case of the tonsils, the acid should be carried on a thin applicator to the depth of each crypt involved, in addition to the surface application. After the parts are turned white it should be neutralized in one or two minutes by the application of a

saturated solution of sodium bicarbonate. The application of the acid and its neutralization may be repeated in two or three days if necessary. The results will be dependent on the thoroughness of the application. Gallaher has rarely found it necessary to make over two applications. An excess of acid must not be used, and none must be permitted to fall into the larynx.

Medical Record, New York

July 27, 1918, **94**, No. 4

- 61 Medical Women, Yesterday and Today. S. J. McNutt, New York. p. 135.
- 62 Protein Treatment of Arthritis. S. P. Beebe, New York.—p. 139.
- 63 Hay Fever Pollen Extracts and Their Standardization. W. Scheppegegrell, New Orleans.—p. 141.
- 64 Hereditary Syphilis. W. S. Reynolds, New York.—p. 142.
- 65 Relation of Proteins in Food to Cause of Disease. R. C. Brown, Milwaukee, Wis.—p. 145.
- 66 Case of Circumflex Nerve Paralysis Following Carbuncle. L. F. Herz, New York.—p. 149.

Neurological Bulletin, New York

June, 1918, **1**, No. 6

- 67 *Case of Juvenile Paralysis Agitans; Primary Atrophy of Pallidal System of Corpus Striatum. J. R. Hunt, New York.—p. 237.
- 68 *Case of Wilson's Disease—Progressive Lenticular Degeneration. F. Tilney and G. M. McKenzie, New York.—p. 243.
- 69 Case of Food Poisoning of Type Known as Botulism. M. Grossman, New York.—p. 260.
- 70 Supra-Optic Canal in Its Relation to Interpretation of Choked Disk. F. Tilney, New York.—p. 265.

67. **Juvenile Paralysis Agitans.**—Hunt's patient is 39 years of age. Except for the nervous manifestation, she enjoys very good health. Her family history is negative, as is also her personal history, blood and Wassermann. Her illness began twenty years ago. The first symptom was a cramp, or a sensation of cramp, in the right foot. This cramp was not constant; it only appeared when she was tired or toward the end of the day when the muscles felt stiff and rigid. In the morning when she awoke from sleep the cramp had disappeared. This symptom continued for some time and gradually increased in severity so that eventually the evening cramp became a permanent stiffness in the foot and leg. For several years, or until she was about 23 years old, the disability was limited to stiffness and weakness of the right foot and leg. At this time the right hand began to tremble. The tremor of the hand came on very gradually and was not constant. It appeared at certain times only and then without apparent reason would disappear. Little by little, however, it became a fixture so that in time there was present almost constantly a marked trembling which became more and more marked as the disease progressed. When she was about 30 years of age the first evidence of trouble appeared on the left side. First there was stiffness on moving the leg, and this was followed by a tremor of the hand and arm. The progress, however, was not much more rapid, probably because the disease was well established, and the degenerative tendency well under way. It is interesting to note that for three years the distribution of the rigidity and tremor was of the hemiplegic type, a not uncommon observation in the juvenile as well as the senile and presenile forms of the disease. The patient has had no special trouble in masticating or swallowing food. The speech, except for slight tremulousness under excitement, is normal. She has had no pains and no paresthesias. With the exception of the motor disability, namely, weakness, rigidity and tremor, she is quite well and enjoys excellent health. Her mind is perfectly clear, there is no loss of memory, and she is quite cheerful in spite of the chronic and serious nature of her malady.

68. **Progressive Lenticular Degeneration.**—The past and family history of this patient, a boy, 15 years old, were negative. He developed, without discoverable cause, severe nervous symptoms which grew progressively worse until his death, seventeen months after the onset. The chief symptoms were a tremor, increased by voluntary movements, hyper-tonicity of the musculature generally, loss of strength, dysarthria, and toward the end, dysphagia, impairment of bladder and sphincteric rectal control and vasomotor irritability. Physical signs of sensory disturbance were not present. The reflexes were normal. Clearly, this was a case of a motor

disturbance with an intact pyramidal system. The patient's condition grew steadily worse and a terminating broncho-pneumonia was the final event. The chief lesion at necropsy was an advanced cirrhosis of the liver with slight, though definite changes, in the lenticular nucleus of each side. Syphilis was ruled out by the negative history, negative Wassermann, absence of spirochetes in liver, and absence of any other positive evidence.

New York Medical Journal

July 27, 1918, **108**, No. 4

- 71 Modern Obstetric Technic. G. L. Brodhead, New York.—p. 137.
- 72 Epileptic Attack in Dynamic Pathology. S. E. Jelliffe, New York.—p. 139.
- 73 Clinical Value of Pupillary Changes. A. Brav, Philadelphia.—p. 143.
- 74 Ileocecal Insufficiency. M. A. Ramirez and J. P. Hoguet, New York.—p. 146.
- 75 Surgical Diagnosis. W. F. Fowler, Rochester.—p. 148.
- 76 Diagnostic Hints in Gastro-Intestinal Diseases. R. Finkelstein, Brooklyn.—p. 150.
- 77 Some Surgical Problems and Principles. M. Behrend, Philadelphia.—p. 153.
- 78 *Food Value of Meat. E. H. Nies, New York.—p. 156.
- 79 Diabetes among Troops. C. G. Cumston, Geneva, Switzerland.—p. 157.
- 80 Psychology of War. J. M. Beck, New York.—p. 159.
- 81 Trench Fever. A. Lambert, New York.—p. 159.

78. **Food Value of Meat.**—Nies, who is associate editor of the *Hotel Gazette*, says there are a thousand and one dishes of which each one is in itself a well balanced meal, and in addition is appetizing and nourishing. They can, even at the present high costs, be prepared for a reasonable price. They are made by a combination of a small portion of meat with a larger quantity of grain, cereal, or other farinaceous substances, or vegetables. They are flavored from their essential ingredients so that their preparation requires no high order of culinary skill. With a judicious use of the ordinary fireless cooker they can be prepared in the morning, put in the cooker, and taken out ready to serve when the family returns in the evening; thus releasing poor women from the bondage of the cook stove, and, in addition, providing the family with better food than could be prepared by the old hurryup way, which is so wasteful of material, and consumes so much time. These dishes are prepared so that all the substance of each ingredient is conserved for consumption. The shrinkage instead of evaporating into the air is absorbed by the parts of the combination and saved to the consumer. The pleasure which is derived from eating is established first by sight, second by taste and smell, and lastly by the feeling of satisfaction after eating which brings with it relaxation of mind and body. If food can be so prepared that it brings about all these things, and that with the homely means at the command of every housewife, much can be saved by thus abolishing the necessity of dining at restaurants and spending money, which economized, purchases many better and perhaps more needed things. Stews largely composed of potatoes and various vegetables with only enough meat used to flavor them are better than meat stews. Potatoes cooked à la Boulangère with bacon, and sliced onions constitute a meal in themselves. A small part of meat or fish will give relish or flavor to the satisfying and nourishing cereal. The farinaceous or vegetable dinner will save money and health.

New York State Journal of Medicine

July, 1918, **18**, No. 7

- 82 Newer Methods in Diagnosis of Thyroid Disorders; Pathologic and Clinical. E. Goetsch, Baltimore.—p. 259.
- 83 Medical Treatment of Exophthalmic Goiter. H. C. Gordinier, Troy.—p. 267.
- 84 Surgical Treatment of Goiter. C. W. Webb, Clifton Springs.—p. 272.
- 85 Dry Milk in Infant Feeding. R. H. Dennett, New York.—p. 278.
- 86 Some Problems in Visual Economics as Applied to New York State Workmen's Compensation Law. A. C. Snell, Rochester.—p. 284.

Public Health Journal, Toronto

July, 1918, **9**, No. 7

- 87 Problems of Rural Mother in Feeding of her Children. A. Brown, Toronto.—p. 297.
- 88 Education of Medical Student in his Relation to Child Welfare. R. A. Bolt.—p. 302.

- 89 Result of Three Years Work in Department of Child Hygiene, Toronto. G. Smith, Toronto.—p. 310.
 90 Baby's Father. H. MacMurchy, Hamilton, Ont.—p. 315.
 91 National Conference of Social Work, Kansas City, 1918. A. H. Burnett.—p. 324.

Southern Medical Journal, Birmingham, Ala.

July, 1918, 11, No. 7

- 92 *Oral Sepsis and Digestive Apparatus. L. F. Barker, Baltimore.—p. 481.
 —p. 484.
 93 *Oral Sepsis and Anemias. M. L. Graves, Galveston, Texas.
 94 Diagnosis and Treatment of Oral Infections. T. P. Hinman, Atlanta, Ga.—p. 487.
 95 *Oral Sepsis and Arthritis. J. H. Gibbes, Columbia, S. C.—p. 489.
 96 *Relation of Chronic Infection to Thyroid Deficiency. H. G. Beck, Baltimore.—p. 492.
 97 Sociologic Factor in Public Health Movements. J. P. Faulkner, Atlanta, Ga.—p. 496.
 98 *Popularizing Public Health. C. E. Terry and F. Schneider, Jr., New York.—p. 498.
 99 *Case of Congenital Pyloric Stenosis. W. D. Haggard, Nashville, Tenn.—p. 506.
 100 *Tetanus Following Laparotomy for Ectopic Pregnancy. Treatment by Subarachnoid Injections of Magnesium Sulphate and Antitetanic Serum—Recovery. D. B. Casler, Baltimore.—p. 512.
 101 Thoracic Empyema. M. D. Delaney, Alexandria, Va.—p. 518.
 102 Postoperative Residual Urine. R. M. Harbin, Rome, Ga.—p. 519.
 103 Case of Fracture of Skull. G. S. Wright, Cowan, Tenn.—p. 520.
 104 Surgery as Therapeutic Agency in Acute and Recurrent Iritis. M. M. Cullom, Nashville, Tenn.—p. 522.
 105 Objective Ear Noises; Report of Case. A. I. Weil, New Orleans.—p. 526.
 106 Results of Tonsil Surgery as Revealed by Examination of Nearly One Thousand Five Hundred Schoolchildren Who Have Been Operated On. E. L. Roberts, Nashville, Tenn.—p. 529.

92. Oral Sepsis and Digestive Apparatus.—Barker calls attention to the fact that serious arthritis, osteitis, osteomyelitis, periostitis, myositis, embolic pneumonia, pleuritis, nephritis, ureteritis, myocarditis, endocarditis, pericarditis, lymphadenitis, neuritis, neuralgia, iritis, anemia, septicemia, and pyemia may, in certain cases, have their origin in oral sepsis and there is a growing tendency to look on the same etiologic factor as contributory, in many instances, to chronic degenerative diseases like arteriosclerosis and arterial hypertension. In the origin of disease in the digestive apparatus the forms of oral sepsis principally concerned consist of two groups: (1) alveolar infections secondary to diseases of the dental pulp; and (2) gingivitis, pyorrhea alveolaris, and infections about impacted teeth and unerupted teeth. The first group includes: (a) acute periodontitis (apical, interradial or lateral) in which the tooth becomes tender, especially at night, and feels longer and looser than it should so that mastication becomes painful, often resulting in an acute alveolar abscess (popularly known as a gum boil), in an alveolar parulis (or flat swelling under the periosteum), or in a chronic alveolar abscess with a sinus to the gum or face; and (b) proliferative periodontitis, that leads to granuloma (apical, interradial or lateral), usually starting as a result of the devitalization of a tooth and imperfect treatment of the root canal, and causing no symptoms referable to the tooth or gums recognizable by the patient.

The condition is easily recognizable in roentgenograms made on intra-oral dental films; without such roentgenograms it can scarcely be recognized with certainty. Barker states that any person who has devitalized teeth in his mouth does well to have them roentgenographed at intervals in order that a developing proliferative periodontitis shall not be overlooked. The second group of oral infections includes, as stated, gingivitis, pyorrhea alveolaris, and infections about impacted teeth and unerupted teeth. Much toxic matter may be directly absorbed from such infected areas. Often pus is swallowed over long periods (especially in pyorrhea alveolaris), or local extensions or metastatic infections may occur. Inspection of the mouth, palpation of the gums, and roentgenographic examinations make the diagnosis clear. The commonest varieties of disturbance of the digestive apparatus associated with the forms of oral sepsis mentioned above are (1) gastritis and gastro-enteritis, (2) achylia gastrica, (3) pylorospasm, and (4) a toxic hepatopathy. It seems probable also that some cases of (5) gastric and duodenal ulcer are secondary to oral sepsis. Whether (6) appendicitis and (7) cholecystitis may occasionally, as some think, be due to

metastatic infection from a primary oral focus, Barker says, is still in doubt.

93, 95 and 96. Abstracted in THE JOURNAL, Dec. 29, 1917, p. 2207.

98. Abstracted in THE JOURNAL, Dec. 15, 1917, p. 2066.

99 and 100. Abstracted in THE JOURNAL, Dec. 22, 1917, p. 2143.

Texas State Journal of Medicine, Fort Worth

July, 1918, 14, No. 3

- 107 How We Treat Wounds Today. R. W. Knox, Houston.—p. 121.
 108 Plea for Prolonged Rest in Bed in Treatment of Pulmonary Tuberculosis. S. E. Thompson, Kerrville.—p. 125.
 109 Pregnancy and Tuberculosis. W. O. Wilkes, Waco.—p. 130.
 110 Complement Fixation in Tuberculosis. M. D. Bell, Dallas.—p. 134.
 111 Tuberculosis and Country Physician. H. L. Wilder, Clarendon.—p. 136.
 112 How Tuberculosis Specialist Can Best Help General Practitioner in Antituberculosis Campaign. H. F. Gammons, Carlsbad.—p. 138.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

July 6, 1918, 2, No. 3001

- 1 Nature and Symptoms of Cardiac Infection in Childhood. F. J. Poynton.—p. 1.
 2 *Nephrotomy Combined with Cesarean Section in Treatment of Eclampsia with Suppression of Urine. C. White.—p. 4.
 3 *Tinel's Sign in Peripheral Nerve Lesions. W. M. Macdonald.—p. 6.
 4 Sporadic Case of Polioencephalitis. J. N. Marshall.—p. 8.

2. Cesarean Section and Nephrotomy for Eclampsia.—White claims that suppression of urine in some cases of pregnancy toxemia is caused by pressure on the collecting tubules due to increased tension inside the fibrous capsule of the kidney. It can be treated successfully by nephrotomy after symptoms have persisted for many days. As a prophylactic measure nephrotomy may be combined with cesarean section advantageously in suitable cases.

3. Tinel's Sign in Peripheral Nerve Lesions.—Electric tests are of great assistance in arriving at a complete conclusion when taken in conjunction with other methods of examination, but Macdonald says, they should not be regarded as final, and it is important that the other methods of diagnosing the interruption of a nerve should have their true value recognized. Of these the most important is what Tinel calls *le signe du fourmillement*, which may be translated as "distal tingling on percussion" (and abbreviated as D. T. P.). This sign depends on the fact that when young axis cylinders are percussed there is a sensation of tingling in the cutaneous area corresponding to the ultimate distribution of the axis cylinders. Thus if the musculospiral nerve is cut across in the arm and the proximal end is percussed no tingling will be felt by the patient. The lower segment of the nerve then degenerates, and a very short portion of the upper segment of the nerve, as well as the muscles, tendons, skin, etc., supplied by that nerve exclusively, become insensitive.

After a time regeneration commences at the lower end of the proximal segment, and new axis cylinders grow down to and beyond the point of section. In from four to six weeks there will be bundles of new axis cylinders at this point, and if they are firmly tapped with the forefinger the patient will experience a sensation of tingling or "pins and needles" in the skin over the dorsum of the first and second metacarpals. When tingling in the hand follows tapping on the arm this indicates not continuity of the neuron between the arm and the hand, but between the arm and the brain. If the new axis cylinders are arrested or twisted back to form a neuroma by a fibrosis or keloid mass at the end of the lower segment, or if they cannot reach the latter owing to extensive destruction, the portion of nerve from which D. T. P. can be elicited is never longer than 2 or 3 cm., and is situated at the site of the lesion. That is what is commonly found in interruption by neuroma or section.

If, however, the new axis cylinders succeed in growing down the trunk, or if the latter has only been contused and

has preserved its anatomic continuity, then with the growth of the cylinders there occurs a downward extension of the D. T. P. Another example of the utility of this sign is afforded by cases in which a nerve lesion has occurred in a limb with multiple wounds. The site of the D. T. P. indicates which wound is responsible for the lesion. In lengthy wounds also it indicates the exact level of the nerve injury. In testing for D. T. P. one or two practical points are to be observed. The first is that percussion must always be begun from the distal end and proceeded with slowly, as an unintelligent patient may have a persistent sensation of tingling once it has been obtained and so give fallacious responses. Second, too much shaking of the limb must be avoided, as in a sensitive patient the shock may set up tingling in an area other than the one percussed. Third, care must be taken not to set up tingling in another nerve. Thus, with a complete ulnar and an incomplete median, the patient may answer for the median when the ulnar is percussed. In the leg also patients are apt to confuse tingling in the sole and on the dorsum of the foot (internal and external popliteals). Another source of confusion is the downward growth of stray fibers while the bulk of the nerve remains interrupted. This error can be rectified by later examinations when the bulk of the D. T. P. is found to be at the site of the lesion, while that obtained lower down is indistinct and irregular. In elderly alcoholic, or debilitated persons nerve regeneration is very imperfect, or may altogether fail. In these cases D. T. P. does not occur, and its complete absence is usually a sign of grave prognostic import, but on the whole it is of more value as a positive than as a negative sign.

Bulletin of Naval Medical Association of Japan, Tokyo

June, 1918, No. 19

5 *Treatment by Radium-Ray. R. Fukuda.—p. 1.

5. Treatment by Radium-Ray.—Fukuda has treated thirty-one cases of cancer, sarcoma, lupus, anal fissure, exophthalmic goiter, tubercular lymphadenitis, nevus and angioma by radium ray in the Tokyo Charity Hospital. The effect on cancer was extremely good if adequate attention was paid to applying sufficient radiation measured by the quantity of radium and the duration of exposure. In cases of cancer of the esophagus, a relatively small quantity was sufficient to relieve patients from pain and contraction caused by the tumor; but not for its permanent cure. The effect on sarcoma was also good. Its effect on anal fissure, without any signs of relapse was noteworthy. The effect on lupus was uncertain, some patients being permanently cured without relapse, and some not being affected at all. The effect on tubercular lymphadenitis was undoubtedly good. It had some good effect on the thyroid of exophthalmic goiter patients. In some cases two or three applications resulted in the rapid reduction of the enlarged thyroid with an improvement of the general signs. The cosmetic effect on angioma and nevus was certain. Its effect on nocturnal incontinence seemed to be certainly good; multiple condyloma acuminata were more beneficially affected than by any other treatment; the scar was softened and the chronic inflammatory infiltration was dispersed by this treatment. Local burns were sometimes caused by this treatment, even through a suitable filter. These burns, however, healed quite easily by themselves and there was no need to pay much attention to them.

Edinburgh Medical Journal

July, 1918, 21, No. 1

- 6 Treatment of Acute Appendicitis. W. Q. Wood.—p. 3.
- 7 Case of Calculus Anuria Treated by Decapsulation of Kidney and Drainage of Renal Pelvis. N. H. Bronnum.—p. 13.
- 8 Training of Student of Medicine: Teaching of Medicine. W. Russell, G. L. Gulland.—p. 16.
- 9 Id.; Teaching Arrangements in Medicine. E. Matthew.—p. 24.

Lancet, London

July 6, 1918, 2, No. 4949

- 10 Maternity and Child Welfare Work. A. Newsholme.—p. 1.
- 11 Infant Mortality and Education of Mother. H. W. Pooler.—p. 3.
- 12 Epidemic Encephalitis; Report of Cases. S. A. Wilson.—p. 7.
- 13 *Operative Treatment of Trigeminal Neuralgia. J. Hutchinson.—p. 12.

13. Operative Treatment of Trigeminal Neuralgia.—Since 1898 Hutchinson has operated by one technic in over sixty cases, in all of which the ganglion has been approached by the temporal route. Considering the advanced age of most of the patients (many have been from 50 to 60, and one was 72 years old) and their exhausted condition from the effects of years of agonizing pain; taking also into account their malnutrition from inability to masticate their food, etc., and often their edentulous state from fruitless removal of teeth, the results of the operation have been most satisfactory. Only one case proved fatal. The patient was an old man, the subject of both ataxia and true epileptiform neuralgia. He was so feeble that Hutchinson tried to avoid operation by resorting to alcohol injections—which made him worse—and ultimately the gasserian ganglion was excised. His dura mater was very thin and it gave way in detaching it from the skull. Probably owing to this there was undue pressure on the brain during the operation. He died of sudden cardiac syncope an hour after its completion.

Hutchinson says that experience with peripheral neurectomy and alcohol injections has usually obtained respite from the neuralgia for a varying period of months, but return is practically invariable. The essential feature of his method of operating consists in sparing the ophthalmic trunk of the fifth nerve. After the operation facial paresis or paralysis of uncertain duration has occurred in a few cases, on the side operated on due to detachment of the dura mater from the upper surface of the petrous bone, and hence to blood getting through the small openings leading to the aqueductus fallopii. With due care one should avoid this. A more important complication, met with in three or four of the sixty cases, has been weakness of the opposite arm and leg apparently from retractor pressure on the brain during a long operation. Recovery from this is very slow, and the risk of its occurrence points to the greatest care being taken throughout the operation in the use of the retractor, and frequent relaxation of all pressure by depressing the retractor against the bone or removing it for a time.

Medical Journal of Australia, Sydney

June 15, 1918, 1, No. 24

- 14 Gunshot Wounds of Knee Joint. B. Quick.—p. 487. To be continued.
- 15 *Intestinal Obstruction from Large Gallstone in Ileum. A. Aspinall.—p. 492.
- 16 *Restoration of Supination by Verrall's Splint. H. S. Stacy.—p. 493.
- 17 Case of Splenomegalic Polycythemia. H. J. Ritchie.—p. 493.
- 18 Case of Harlequin Fetus. W. F. Litchfield.—p. 494.
- 19 Congenital Radio-Ulnar Synostosis. J. G. Edwards.—p. 494.

15. Intestinal Obstruction from Gallstone in Ileum.—Aspinall's patient, a woman 61 years of age, had had persistent vomiting for three days. The character of the vomit had been the same throughout, namely, greenish brown color, of feculent odor. The patient was cold, and collapsed, and was vomiting constantly. The abdomen was slightly distended. There was general tenderness on palpation. No definite rigidity was detected. There was no jaundice. Previous history: She had had repeated attacks of gallstone colic during the last nine years, but during the past twelve months could scarcely eat a meal without vomiting. The diagnosis of intestinal obstruction was made and immediate surgical interference recommended. When the abdomen was opened the small intestine was seen to be distended, and on passing the hand up in the region of the gallbladder no marked adhesions were felt, although the gallbladder felt hard and suggested the presence of gallstones. In the left iliac region Aspinall felt a hard body in the bowel; on bringing this portion of the bowel into the wound it was seen to be somewhat collapsed below. The mass was a large gallstone in the ileum about 120 cm. above the ilcocecal valve, and moveable for about 60 cm. Then the bowel contracted on it firmly. The bowel was incised and the stone removed. At the site of the stone a marked ring of contraction was evident; before the abdomen was closed this contraction had passed off. The blocking of the bowel was due to spasm from irritation of the stone rather than from mechanical obstruction.

The calculus weighed 13.8 gm.; its length was 36 mm., its diameter 26 mm. and its circumference 85 mm. The patient survived.

16. Restoration of Supination by Verrall's Splint.—A soldier, aged 47, had a gunshot wound of the right forearm, fracturing both the radius and ulna about the middle. A piece of the radius was removed two weeks later. An internal angular splint was applied for three months; then massage was given. The masseur attempted to supinate the forearm, but owing to the pain desisted. The man had been discharged from the Army, with his forearm almost completely pronated and with great pain over the fifth metacarpophalangeal joint. It was impossible to supinate the forearm more than a small extent. Stacy decided to apply Verrall's splint, which consists of a plaster casing enveloping the lower half of the upper arm and the upper half of the forearm, in one piece; in the other, the lower half of the forearm down to the palm (leaving the thumb free), is enveloped. Along the radial and ulnar borders of each casing a piece of metal 2 cm. wide and 8.75 cm. long, 7.5 cm. of which is turned up at right angles, is incorporated, making four in all. The vertical turned up portions project at the edges of the casing, the horizontal portions being serrated, in order to fix them to the plaster bandages better. The limb, before the application of the plaster, is enveloped in felt or cottonwool, care being taken to pad well the lower end of the radius in front and the lower end of the ulna behind. In twenty-four hours the pieces of the metal are partly approximated by rubber tubing, radial to radial, ulnar to ulnar. They may be tightened every few days. When supination is complete, it is left on for three weeks longer. This man's supination is now almost completely restored, the treatment having taken two months. The patient found it painful for the first week. He lost all his pain in the palm, and recovered his hand-grip, which previously was very feeble. He is now rejoining the army, and hopes to go abroad soon. The malposition in this case was partly due to contracture of the soft parts around the site of fracture and partly to the contraction of the capsules of the radio-ulnar joints as a result of long immobilization in that extremely faulty splint, the internal angular.

Medical Journal of Australia, Sydney

June 22, 1918, **1**, No. 25

20 *Mine Accidents at Broken Hill and Their Treatment at Broken Hill and District Hospital. M. Birks.—p. 507.

21 Gunshot Wounds of Knee Joint. B. Quick.—p. 510.

22 Case of Lactosuria with Acetone and Diacetic Acid. H. C. Carden.—p. 513.

20. Treatment of Mine Accidents.—In the treatment of burns, Birks has had good results from the use of No. 7 formula paraffin, applied with a broad fine haired varnish brush. In the treatment of shock great stress is laid on keeping the patient warm, and avoiding, as much as possible, mental and physical discomfort. He has practically given up using stimulants. Alcohol and strychnin are now looked on as dangerous. Morphin is their sheet anchor. It is used to prevent and to treat shock. In severe accidents Birks usually give 0.03 gm. hypodermically. If the shock is not successfully combated, the next step is to give intravenously half a liter of hypertonic saline solution. For this purpose use is made of the following formula: sodium chlorid, 2.00 gm.; potassium chlorid, 0.05 gm.; calcium chlorid, 0.05 gm.; saturated solution of gum arabic, 6.00 gm. and distilled water to 100 c.cm.

Sei-I-Kwai Medical Journal, Tokyo

June, 1918, **37**, No. 6

23 *Staining Solution for Protozoa and Blood. T. Watabiki.—p. 21.

23. Staining Solution for Protozoa and Blood.—Watabiki describes his modification of the method of Romanowsky. The erythrocytes and the granula of the eosinophils take a red color and the nuclei a purplish red, contrasting with the blue of the protoplasm, the bluish red of the neutrophil-granula, and the purplish black of the basic granula. Two solutions are prepared separately, the methylene blue, and the eosin stains. Solution I, the methylene blue, is made as

follows: methylene blue, 1.0; absolute alcohol, 10.0; sodium carbonate, 1.0; distilled water, 90.0; dissolve the polychrome methylene blue in the alcohol and the sodium carbonate in the water, and then mix the two. The container should be plugged with cotton and allowed to remain undisturbed in the incubator at 37 C. for two days. Solution II, the eosin preparation, consists of: eosin, water soluble, yellowish, 1.0; distilled water, 200.0. To Solution II the filtered Solution I should be added slowly. A purplish black, finely granular precipitate forms immediately, resulting from a combination of the dyes. This may be called "methylenazureosin." The mixture is allowed to stand for an hour and is then filtered. The residue is carefully collected from the paper by means of a wooden spoon and is dried for twenty-four hours at 37 C. An extremely light, purplish-black powder may then be collected. This is the "methylenazureosin" and should amount to about 0.5 gm. The methylenazureosin is carefully ground to a powder and to 0.5 gm. is gradually added 150 c.c. of methyl alcohol. After filtration, 150 c.c. of neutral glycerin is added. This preparation will keep, ready for use, for a long time if put in a dark cool place.

Smears to be stained should be very thin and air dried at room temperature. Fixation is by an ether-alcohol mixture and should require about ten minutes. For use the stain is diluted to 1:10 with distilled water and the smears should be stained for three to thirty minutes, depending on the material to be stained. Leukocytes, blood platelet and bacteria require three to five minutes; trypanosoma, piroplasma, malarial parasites and spirochetes require longer, five to ten or even thirty minutes. In the case of *Spirochaeta pallida* no rule can be established and the stain should remain as long as is necessary to secure a good result. In such stained preparations the various elements present differential characteristics as follows: (a) Purplish red: the nuclei of trypanosoma, secondary nuclei, flagella, the chromatin of the malaria plasmodium and piroplasma, *Spirochaeta pallida*, the spirochete of relapsing fever, the spirochete of icterohemorrhagia of India, and the nuclei of leukocytes, cells and blood plates. (b) Blue: body of the trypanosoma, piroplasma, plasmodia, and the protoplasm of leukocytes and other cells. (c) Red: the granules of eosinophils and of pseudo-eosinophils. (d) Pale blue-red: the granula of neutrophils. (e) Black violet: the granula of basophils. Bacteria are stained blue or blue-black, the nuclei of erythroblasts blue-black.

Archives des Maladies du Cœur, etc., Paris

June, 1918, **11**, No. 6

24 *The Heart in Diphtheria. E. C. Aviragnet, R. Lutembacher and Le Soudier.—p. 241.

25 Aortic Diastolic Thrills. L. Bard.—p. 272.

26 Pure Dextrocardia. A. Clerc and J. Bobrie.—p. 277.

24. The Heart in Diphtheria.—Aviragnet and his co-workers expatiate on the great interest of the arrhythmias in the course of diphtheria. They are not only of great variety, but they vary from moment to moment, and it is possible to trace in them the whole gamut of progressing and retrogressing disturbances in conduction of the impulse. Only polygraphic methods, with radioscopy, permit exact study of the phenomena induced by the toxic action on the heart. Anatomic examination alone is often misleading. This explains the conflicting testimony that has been published, some of which is analyzed here. The case is then described of a boy of 14 with diphtheria for eight days before antitoxin was given. Seventeen tracings of the heart action are given, showing toxic heart block and extrasystoles and their gradual retrogression, with a colored plate of the necropsy findings in the bundle of His. The boy succumbed the twenty-fifth day to weakness of the myocardium. The lesions in the myocardium were both interstitial and parenchymatous, but they were less pronounced in the bundle of His than elsewhere. Fatty degeneration of the liver was pronounced but the kidneys and suprarenals showed only slight changes.

Bulletin de l'Académie de Médecine, Paris

June 4, 1918, **79**, No. 22

27 *Bronchopulmonary Spirochetosis. H. Violle.—p. 429.

28 *Radiotherapy of Superficial Cancer. J. Darier.—p. 431.

29 *Massive Doses in Serotherapy. A. Jousset.—p. 432.

30 *Congenital Luxation of the Hip Joint. Calot.—p. 434.

27. **Bleeding Bronchitis.**—Violle has recently encountered thirty cases of what Castellani in his original report ten years ago called bronchopulmonary spirochetosis. Violle had the thirty cases grouped in a special ward as the disease seems highly contagious; it was probably imported by the Asiatic troops. The sputa are always red with blood, like raspberry juice, and they contain the special spirochetes, sometimes in pure cultures. The disease is relatively benign; the men were sick for about a month in all, but relapses were frequent. The onset is insidious, and the bloody expectoration suggests tuberculous hemoptysis until the spirochetes are found in the sputum; they were never found in urine, blood or in the nasopharyngeal secretions. The slight bleeding leaves open foci which are liable to become infected with other germs.

28. **Contraindications for Roentgen Treatment of Cancer.**—Darier's extensive experience has apparently confirmed that the superficial cancers amenable to radiotherapy are the face epitheliomas of the elderly, the basal-celled growths. They never involve neighboring glands or induce visceral metastasis. But lobulated epithelioma, such as smoker's cancer, on the tongue or lips, cancer of the external genitals or anus, cancer of cicatrices and lupus—this type is not cured by roentgen or radium treatment. When it is applied there is apparent improvement for two or three weeks, then it is seen that the proliferation is growing more active, whipped up, as it were, by the radiotherapy. The cancer may have been operable at the start but after the radiotherapy it becomes inoperable. Darier reiterates that these spine-celled epitheliomas are exclusively amenable to surgical excision which should be as extensive as possible. Radiotherapy further has no influence on melanotic sarcomas or cancers that develop in a nevus, sometimes in the young. It is wasting time to dally with radiotherapy; this form of cancer demands radical excision or electrolysis, which is perhaps preferable here. Radiotherapy applied to the small bunches in the skin of secondary cancer, as with mammary cancer, has only a deceptive influence; the bunches may subside under it, but the prognosis of the malignant disease as a whole is not modified thereby. Hence, he reiterates, microscopic examination of a scrap of the cancer will give the clue for successful treatment, if it proves to be a basal-celled growth, especially in the form of *ulcus rodens*.

29. **Massive Doses in Serotherapy.**—Jousset has made over 1,500 subcutaneous injections of from 50 to 150 c.c. of anti-tuberculosis serum. The injections were repeated at intervals of several days or several weeks or several months. Nothing suggesting anaphylaxis was observed in any instance, and he declares that the fear of anaphylaxis in serotherapy is absolutely chimerical, and that never, in the ordinary conditions of practice, are we liable to encounter it if we utilize serums *larga manu* without regard to possible consequences.

Anaphylaxis presupposes a preliminary sensitization by a small dose of serum, always smaller than the smallest doses of our current practice. Anaphylaxis presupposes further a new injection, two or three weeks later, this time by the vein. This combination is very exceptional and scarcely ever is realized. Of course the massive doses he uses expose to by-effects, sometimes quite dramatic, but they have nothing to do with anaphylaxis, as is evident from their harmless character and the fact that they occur immediately, at the very first injection, even in young children. Anaphylaxis, on the other hand, requires a prepared soil. The by-effects of serotherapy in man are phenomena of toxic action, varying with the individual susceptibility which it is impossible to foretell. It is wrong and misleading to apply the term anaphylaxis to these phenomena. "Anaphylaxis is redoubtable only in the laboratories," he adds, "In man, fatal shock from serotherapy seems to me a pure legend."

30. **Principles for Treatment of Congenital Dislocation of Hip Joint.**—Calot says that the success of treatment depends on the position given the thigh during the months of immo-

bilization, but that there is no agreement among surgeons as to what is the proper position. Rotation, flexion and abduction are applied differently by different men, and without regard for the special conditions in the individual case. This is the explanation for the failures and the return of the luxation. In his experience with over 2,000 cases, he has learned that certain mathematical principles govern the restoration of clinically normal conditions. The thigh must be placed in an attitude determined by the angle of slant and the angle of torsion of the neck of the femur. The rotation should be equal to the angle of torsion of the neck. The abduction should be equal to the angle of the slant of the neck, which is the complement of the angle formed by the neck with the static axis of the femur. The flexion is done in a circular cone, the axis of which coincides with the prolongation of the transverse line (sound cotyle, cotyle, head and neck of the side affected). The shaft of the femur is the generator of this cone, and the generator angle is the supplement of the neck's angle of slant. Rotation, abduction and flexion should be done in the order named. The angles of slant and of torsion can be determined by roentgenoscopy. The femur is rotated inward until the screen shows that the neck has reached the point of its maximal length. This is the true angle of slant, and he marks and measures it. He notes further the rotation of the knee required to bring the neck into this position of its maximal length. The amount of rotation of the knee is equal to the femur's angle of torsion. If roentgenoscopy is not available, two radiograms, taken 90 degrees of rotation apart, may answer, or even mere clinical examination.

Paris Médical

May 18, 1918, 8, No. 20

31 *Scabies. G. Milian.—p. 385.

32 *Gallbladder Colics without Stones. L. Lévi.—p. 388.

33 Chronic and Postoperative Dilatation of the Duodenum. V. Pouchet.—p. 393.

34 *Suprapubic Bladder Fistulas. F. Cathelin.—p. 395.

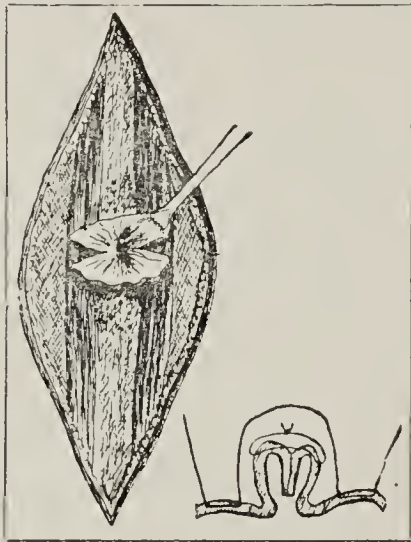
31. **Scabies.**—Milian remarks that 500 cases of scabies per month in two *corps d'armée* have been the average for some time. He has simplified the treatment by using a soluble sulphur salt instead of the insoluble salt generally ordered. The soluble salt can be applied by inunction and there is no need to change the linen. The inunction is repeated the next day and the salve is washed off thoroughly with soap the third day. His formula calls for 250 gm. each of petrolatum and *adeps lanae*, with which are incorporated 50 gm. potassium polysulphid and 250 gm. water. Then 5 gm. of zinc oxid and 200 gm. of liquid petrolatum are added. The salve has a disagreeable odor at first, but this wears off in half an hour. The scabies symptoms may become aggravated under this treatment for the first three or four days, and unless the salve is thoroughly washed off after the second inunction there is liable to be an eruption. In any event, it is well to follow with a zinc oxid paste made up with equal parts of the zinc oxid, petrolatum and *adeps lanae*.

32. **Congestions from Thyroid Instability.**—Lévi reports a typical case of "neuro-arthritis" with congestions in different organs revealing thyroid instability. The patient is a woman of 37 and the congestions at times in different organs led to various conflicting diagnoses. The most striking clinical picture was presented when the gallbladder became much enlarged from congestion in the cystic duct closing the outlet of the gallbladder. Paroxysms of pains and tenderness suggested gallstone mischief, but during an appendicectomy exploration of the gallbladder failed to reveal any stones. The provocative influence of a course of treatment at Vichy on these gallbladder colics was evident on more than one occasion. During a month of repose and dieting for the assumed cholelithiasis, there was an extremely severe attack each week. On the other hand, during periods of extreme activity and fatiguing travel, with no diet restrictions, three months might pass without an attack. The special feature of the case, however, was the gradual progressive subsidence of the attacks, along with all the other symptoms, when thyroid treatment was given systematically. This is more conclusive than if the attacks had stopped abruptly, which might have

been ascribed to a coincidence. The approach of the menses induced various phenomena of congestion, and the gallbladder colics developed in connection with these phenomena, or they were preceded by a violent attack of myalgia and neuralgia. The woman's breasts swelled before the menses, and the more they swelled, the more intense the gallbladder attack when such developed.

Under thyroid treatment, 5 mg. cachets, the woman's martyrdom ceased, and she has resumed an active life. The case teaches the advisability of tentative thyroid treatment in every case of thyroid instability, even if the symptoms cannot be definitely classed. This patient's mother was a sufferer from migraine, and one of her children had asthma which was cured by thyroid treatment. The patient herself has had from youth a tendency to headaches, nasal asthma, urticaria and mild rheumatism, and once there was intoxication from belladonna, given in small doses.

34. Suprapubic Vesical Fistulas.—Cathelin has been amazed at the rapid cure of hypogastric fistulas treated by inversion of the skin. He applied this technic, March 13, 1917, curing with it in a few days a fistula rebellious to other methods of treatment for five months. In a second case the fistula was of twelve months' standing, and the healing was complete in twelve days. The fistulas were the result of war wounds. The fistula is circumscribed with a bistoury at about 3 or 5 mm. from its center, and this collar of skin surrounding the fistula is loosened up to the mouth of the fistula. The skin beyond is incised along the same meridian and is loosened up in the same way for some distance back. The collar around the fistula is then slit on both sides, perpendicular to the meridian, and each half is turned inside out, toward the lumen of the fistula. The raw sides are thus brought in contact and the folded-over ends are pushed down into the fistula. Three fine silk sutures hold the ends inverted. Other silk threads are passed through beyond, bringing the other ends together above. The skin is sutured together in a straight line over the whole. The method is equally applicable to bladder and ureter fistulas. The various steps are shown in four illustrations. One of the special features is that the bladder wall itself is left unmolested. The pincers used are oculists' pincers, to avoid injury of the skin flap, and the needles are right, intestinal needles, very small. Catgut is absorbed too soon; fine silk is the reliance. A retention catheter is depended on for drainage for twenty-five or thirty days. The technic can be applied equally well to fistulas into any hollow organ. The ultimate outcome in his three bladder cases has been perfect.



Presse Médicale, Paris

June 24, 1918, 26, No. 35

35 *Encircling Bands for Fractures. J. Tanton.—p. 317.

36 *The Glass Pressure Sign. J. Nicolas, M. Favre and A. Saleur.—p. 318.

37 Spontaneous Periscapular Amyotrophies. A. Léri and Perpère.—p. 320.

38. *Talipes Varus. C. Ducroquet.—p. 321.

35. Steel Bands to Hold Fractured Bone.—Tanton gives illustrations of Parham's method of correcting fracture by passing one or more thin, narrow steel bands around the bone. There is a buttonhole in the broader tip of each band through which the other end is passed. The noose can thus be drawn tight and firm, and the end bent down to hold it, the osteosynthesis thus realized being solid and permanent.

36. The Glass Pressure Sign.—Pathologic changes in the derma may be rendered visible by pressing on the skin with a sheet of glass. This *signe de la vitro-pression* has been accepted as testifying to the tuberculous nature of the changes seen, but the research here reported shows that similar find-

ings are common with syphilis and other diseases involving the skin.

38. Talipes Varus.—Ducroquet remarks that the number of cases of talipes varus equinus among the wounded is legion, and he discusses how it can be corrected. When not very pronounced, this can be accomplished by raising the heel very high on the outside and having the heel slope and project far to the outside of the foot. In paralysis of the external popliteal nerve, four elastic bands fastened to the side of the shoe and a garter above act like artificial muscles to keep the foot from dropping. In inveterate cases, very good results can be obtained with mediotarsal and subastragal arthrodesis. This puts an end to the torsion and rolling over of the foot, while leaving a play of 35 degrees of movement which is ample for walking. The article is illustrated.

Progrès Médical, Paris

June 1, 1918, 33, No. 22

39 *Stones in Urinary Apparatus. Uteau.—p. 189.

40 Heating Cradle. Bonnette.—p. 192.

June 8, 1918, 33, No. 23

41 *Radioscopy of Normal Stomach. F. Ramond and P. A. Carrié.—p. 197.

42 *Reeducation of Blinded Soldiers. E. Ginestous.—p. 199.

43 Technic for Extraction of Projectile under Screen Control. J. Fiévez and P. Tronquet.—p. 202.

39. Urinary Concretions.—Uteau discusses the best means for removing calculi at different points in the urinary apparatus, illustrating typical cases. Catheterization of the ureter has proved successful in a few cases when the calculus was impacted in the ureter, but in one case reported in which the calculus protruded from the mouth of the ureter, even passing the catheter up to the pelvis, failed to dislodge it.

41. Radioscopy of the Normal Stomach.—Ramond and Carrié remark that the stomach containing the suspension of bismuth cannot be regarded as a normal stomach. They sought to approximate normal conditions better by mixing 40 gm. of bismuth in a dish of savory hash, eaten as at an otherwise ordinary meal. Eighteen vigorous men taking this meal were examined afterward with the roentgen rays, and the findings in the erect and recumbent positions are reproduced. With any tendency to gastritis, the mucosa is extremely sensitive, and pain is experienced when the gastric juice comes in contact with it. The chyme protects the mucosa against the gastric juice. When the inflamed part of the stomach is the initial portion—which is usually the case with toxic gastritis—then the gastric juice in the fluid contents acts at once on the inflamed region, and the consecutive pain is immediate. When the gastritis is in the middle part of the stomach, the chyme protects the mucosa, and there is no pain until the chyme is passed on out of the stomach which leaves the mucosa exposed to the irritation from the gastric juice in the fluid contents left. When the gastritis is in the region of the pylorus, no pain is experienced until the acid-containing fluid contents are passed along. A tardy pain, after two or three hours or more, indicates therefore an inflammatory process in the region of the pylorus. When the gastritis involves the whole of the stomach, then we have a combination of all three types of pain, the early, the retarded and the tardy pains.

42. Training the Blinded Soldier.—Ginestous declares that every minute is precious and not one should be wasted, from the beginning, to train the suddenly blinded. He is like a babe just born into a new world. From the very first, while still in the eye infirmary, his training in writing with a guide frame and in reading the Braille type should begin, without waiting to ascertain whether vision is entirely lost or not. A small broom or brush-making plant is now connected with each *centre d'ophtalmologie*. Even if vision is regained later, these exercises do not harm but fill up the leisure moments, while if total blindness is unavoidable, precious time has been saved. In his own service, Ginestous has been amazed at the rapid progress made by the men. In a few hours they learned to write with the aid of the frame. The Verdon-Richard *guide-mains* seemed to give the best results in this line. All the men could read and even write the Braille fluently by the time they left his service. All the men, besides, had been initiated into manual labor, such as

weaving rugs, making brooms or brushes, resoling shoes, or doing light garden work.

Revue de Chirurgie, Paris

Nov.-Dec., 1917, 36, Nos. 11-12. Issued May, 1918

- 44 *Suture of Nerves. E. Duroux and E. Couvreur.—p. 401.
45 *Surgical Service on Boats. Delanglade.—p. 420.
46 *War Wounds of Vessels in Neck. P. Mocquot.—p. 441.
47 *Complicated Fractures of Femur. G. Houzel.—p. 473.
48 *Projectiles in Mediastinum. R. Le Fort.—p. 489. Conclusion.
49 *The Seriously Wounded. Chalier and Glénard.—p. 552. Cont'n.

44. **Suture of Nerves.**—Duroux and Couvreur reiterate, on the basis of extensive clinical and experimental experience, that rapid recovery of function after suture of a nerve is an illusion. It takes a long time for a sutured nerve to regain its function. Even when the nerve has recuperated, if the muscles have degenerated beyond repair, the outcome will be poor. The median and the ulnar nerves are less likely to regain satisfactory function after suture than the external popliteal and the radial. Two cases are illustrated showing the fine functional results after suture of the radial nerve which had been severed by a bullet. In both cases the total radial paralysis gradually subsided, after the nerve had been sutured, to satisfactory functioning in a year, and to complete recovery of function by the twenty-first and twenty-eighth month. During the first six months the only apparent effect of the suture was the gradual disappearance of vasomotor disturbances, the cyanosis of hands and fingers progressively diminishing. This trophic improvement is due to the suppression of the exuberant connective tissue surrounding the ends of the nerve. The best results were attained when the stumps were cut slanting, the coaptation thus being oblique. The ideal to be aimed at is to unite motor fibers with motor fibers and sensory with sensory. "Motor fibers may grow to sensory fibers and conduct impulse, but what becomes of the impulse when it reaches the anterior root? There cannot be correct reflex action from it."

45. **Surgical Service on Canal Boats.**—Delanglade organized a hospital service on some canal boats plying on the Somme canal close to the firing line. The rough boats were readily adapted to the purpose in three days, and formed a useful supplement to the land hospitals, although hampered by lack of roentgen equipment. The fact among others that eight recovered of thirteen men with penetrating abdominal wounds, testifies to the advantages of these canal boats surgical services.

46. **Wounds of Large Vessels in Neck.**—Mocquot remarks that all the men with wounds of large vessels in the neck reached his service with no mention on their cards that these vessels had been injured. He assumes, consequently, that these injured vessels had not induced symptoms enough at first to attract attention. Short circuiting of the circulation by an arteriovenous aneurysm is a frequent complication. It may develop at once or not until several days or even weeks after the wound. The great danger with an operation in this region is the shutting off of the carotid artery blood from the brain. Hence temporizing is advisable, unless urgent conditions demand immediate intervention. Ligation of a carotid artery is a less serious procedure with an aneurysm than with a recent wound. If an immediate operation is necessary, every effort should be made to avoid the necessity for interrupting the blood supply to the brain, whenever this is possible.

47. **Compound Fractures of the Femur.**—Houzel restricts his remarks to the application of the Gassette apparatus in cases of war wounds of the thigh. He says it has been in use in different hospitals for eighteen months, and has established its usefulness and advantages "veritably approximating perfection."

48. **Projectiles in the Mediastinum.**—Le Fort here concludes his comprehensive study of this subject, based on his own experiences and the literature. He describes in detail each case in his two groups of forty and eleven cases, with deductions as to diagnosis, prognosis, and the preferable technic for extraction of projectiles in different sites.

49. **The Seriously Wounded.**—In this instalment of their extensive work, Chalier and Glénard review their experience

with wounds of the genito-urinary apparatus, and the lessons learned therefrom.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 15, 1918, 48, No. 24

- 50 *Achyilia Does Not Predispose to Cancer. A. Hofmann.—p. 785.
51 Accidents and Disease. H. Zangger.—p. 796. Conclusion.

50. **Gastric Achyilia and Cancer.**—Hofmann queries whether achyilia predisposes to malignant disease, his observation in a Berlin polyclinic tending to answer the question in the negative. Among 368 cases of gastric achyilia, there were four cases of gastric cancer and two in 200 private patients. In two of these six cases the achyilia was of four to fourteen years' standing. In the others it may have been a symptom from the beginning cancer.

Chirurgia degli Organi di Movimento, Bologna

April, 1918, 2, No. 2

- 52 *Treatment of Infected Joint Wounds. D. Taddei.—p. 103.
53 *The Circulation in the Skin. G. Pieri.—p. 115.
54 *Reflex Crippling of Foot. F. Nasseti.—p. 129.
55 *Tendon Transplant for Radial Paralysis. G. Serafini.—p. 167.
56 *Research on Materials Used in Prostheses. A. Landini.—p. 195.

52. **Infected War Wounds of Joints.**—Taddei's experience in a base hospital has confirmed the advantages of subcapsular and subperiosteal resection of the infected joint, sparing muscles, tendons and the innervation of the muscles. Only when ankylosis is planned, should the ligamentum patellae be severed without hesitation. He applies the first dressings under a few whiffs of ether, and shuts off the blood temporarily with an elastic band above. This permits better inspection of the joint, while the febrile reaction to the dressing manipulations is less. He repeats the ether at each dressing, until they cease to cause pain. The leukocytosis induced by the ether aids in the defensive processes; it was his impression that the men given ether several times in this way had a more rapid and favorable course, other things being equal. Another impression was that gauze used in draining seemed to invite fistulas more when it was in strips than when packed in loose. The drainage acts like a foreign body and keeps up the suppuration.

53. **Kinetic Amputations and the Circulation in the Skin.**—Pieri has been studying the superficial circulation as it affects plastic and kinetic surgery. He gives illustrations of the location and branching of the vessels as they enter the skin in limbs and trunk, and outlines the flaps of skin that could be cut at different points so as not to interfere with the local circulation. The base of the flap can thus be located so that the artery, vein and capillary system will be left intact.

54. **Talipes Varus After War Wounds of the Leg.**—Nasseti gives illustrated descriptions of twenty cases of talipes varus that had persisted for several months or over a year after a war wound of the leg. The contusion or distortion to which the deformity was referred was not apparently serious in any case, and there had been no septic complications even in the projectile cases. Some of the men were in bed for only a few days and some soon resumed their service, but had to return to the infirmary on account of swelling and pain in the foot. Others had had the limb long in plaster. He does not think that hysteria is exclusively the cause of the crippling. There are signs of neuritis in many cases, and other factors combine in this "metapsychic crippling." He applied various physical and mechanical measures in treatment, and obtained good results in the mild cases but little or none in the ones of longer standing, even with overcorrection in plaster. His experience confirms the vital importance of watching over the use of the foot when a man gets up after a wound of the leg, or even slight trauma of the leg. Vicious attitudes of the foot should be detected and combated early, addressing treatment both to possible organic causes, hysteria and simulation, with prolonged observation and systematic treatment, always in the one hospital when possible. The longer crippling persists, the harder to overcome.

55. **Tendon Plastics for Radial Paralysis.**—Serafini describes thirteen different methods for plastic operations on tendons to correct radial paralysis, besides operations on bones in

the region, and correction by external mechanical devices. He gives the details of two typical cases treated by transplanting tendons, with excellent effect. Whatever operative method is applied should be preceded by correcting the drooping of the hand, as this menaces the nutrition of the hand. In his second case this was responsible for swelling and cyanosis of the hand for a time. The literature on the subject of treatment of radial paralysis is reviewed.

56. Experimental Research on Substances Used in Making Prostheses.—Landini's investigations included wood, fiber, metal, leather and hides. His report fills sixty-three pages and is profusely illustrated; tables are given also showing the results of numerous tests of the strength, etc., of the substances under different conditions of humidity, dryness, pressure, strain, etc. Landini was awarded the \$1,000 prize offered by the National Federation of committees for aid to crippled soldiers. His research and practical work were done in the experimental prostheses department of the Rizzoli Orthopedic Institute. He signs his name Landini "Eng." not "M.D."

Policlinico, Rome

June 23, 1918, 25, No. 25

57 *Lactic Acid as Dressing for Wounds. G. Moruzzi.—p. 581.

58 *Anglo-Saxon Medical Journalism. L. Verney.—p. 584.

June, 1918, 25, Medical Section No. 6

59 *War Wounds of Peripheral Nerves. S. Ricca.—p. 161. Conclusion.

60 *Tactile Sensations in the Gassed. E. Cavazzani.—p. 178.

61 *Uric Acid and the Endocrine System. T. Silvestri.—p. 184.

57. Sugar-Lactic Acid Treatment of Septic Wounds.—Moruzzi describes the scientific reasons which led him to try a solution of 15 gm. of lactic acid and 250 gm. sugar in 1,000 gm. water, in treatment of septic wounds. The results in the twenty cases surpassed all anticipations. Suppurating and putrid wounds by the third or fourth day showed healthy granulations which spread more rapidly and healing proceeded faster than in any healing by primary intention. The cases included two of gas gangrene and eighteen of phlegmons. All had fever, pain and general toxic symptoms. After the surgical clearing out of the lesion it was dressed with this solution, renewed twice a day, the dressing left undisturbed.

58. Anglo-Saxon Medical Journals.—Verney describes for Italian readers two British and two American medical journals, of which THE JOURNAL is one. He remarks that Italy has not been familiar with Anglo-Saxon medical journals, partly from negligence but mostly from the preponderance of the German medical journals. It is only recently that Italy has realized the important position taken by the Anglo-Saxon in the field of medicine. In general medical journalism, he says, "THE JOURNAL A. M. A. takes the lead, not only in the United States but in all countries; no other is so well edited." "The discussions which are given with the addresses aid materially in illuminating the subject from various points." He pays high tribute to the editorials, "the most characteristic feature of Anglo-Saxon medical journals, short, lucid, interesting." The special articles in THE JOURNAL are also extolled as "revealing an ample and accurate knowledge of the subject, and rare critical balance. They may be regarded as the most useful feature of THE JOURNAL, they certainly are the feature that has most contributed to establish its renown." In commenting on the fight against nostrums, Verney remarks that the so-called American Evil is far from being restricted to America alone. He gives a full account of the Propaganda Department and its work, the Council on Pharmacy and Chemistry, the Educational Numbers of THE JOURNAL and of the British journals. He remarks of the latter that they accept certain advertisements of dubious products, "the *Lancet* even publishing advertisements on pages that should be reserved for the reading matter, a practice which in Italy is never seen in the leading medical journals."

The scant space devoted in the British journals to abstracts of current literature Verney ascribes to the British insular tendency to isolation, and chides them for it. "THE JOURNAL A. M. A.," he says, "carries on an intense and well organized editorial oversight of numerous journals in all countries,

reviewing them promptly and accurately." He adds that besides the twelve Italian journals already indexed regularly in THE JOURNAL, two other Archives deserve a place and some of the specialist journals. To make space for more abstracts, he suggests dropping the indexing of the titles as superfluous. "On the whole, however," he exclaims, "would that some Italian medical journal had the courage and the capacity to imitate it." Another feature, he says, which distinguishes the Anglo-Saxon medical journals is the impartiality of the book reviews. They are not written, as in Italy, France and Germany, to please the publishers and flatter the authors, but actually to inform the readers. Verney does not forget to refer to "Tonics and Sedatives," saying that this lighter vein seems to him out of place in a serious scientific journal but that it "responds to the American spirit, untrammelled and free from prejudice. It has the advantage further of attracting attention to the advertising pages, which otherwise might not be glanced at."

59. Suture of Nerves.—Ricca discusses the clinical-surgical problem of war wounds of peripheral nerves inducing paralysis, with or without neuralgia. In nearly half of his own thirty-five cases with neuralgia, the pain developed the very day of the wound; in only seven cases was there an interval of a month or more before the onset of the pains. Early development of pain and paralysis indicates that the trouble is within the nerve and not the result of compression, etc. In his thirty-three operative cases he never found one with a zone of atrophy or strangulation of the nerve. The tendency to spontaneous recuperation also disproves the assumption of compression as the main factor. Injury from compression of the nerve must be regarded as a rare eventuality with war wounds of peripheral nerves. The reason why so many military surgeons ascribe such a predominant rôle to compression in these cases is merely because neurolysis, releasing the nerve, is almost inevitably followed by improvement. Ricca, however, insists that this improvement would have occurred spontaneously, without the intervention, in most cases. Study of parallel series with or without neurolysis amply confirms this assumption.

He emphasizes further that suturing the nerve does not ensure its recuperation, but only offers a probability of it. A cure or notable improvement after suture is observed only in less than half the cases of sutured nerves. On the other hand, a spontaneous cure was observed in over half the cases of the complete paralysis type. Outside of the cases with diastasis, a spontaneous cure was realized in about 66 per cent. of the cases. In all cases in which conditions do not indicate unmistakable compression, he advises surgical abstention if the lesion seems to be incomplete. If, on the other hand, the lesion is complete, an explorative operation is called for, and if the anatomic findings indicate that the nerve lesion is absolutely incurable, the nerve should be sutured. Otherwise, surgical intervention should be postponed until it is finally settled that spontaneous recuperation is out of the question.

60. Modification of Tactile Sensations by War Toxic Gases.—Cavazzani is professor of physiology, and he reports a case of poisoning from the gases used in warfare which apparently sustains his assumption that the fields of tactile sensation are an essentially psychologic phenomenon, as he describes in detail.

61. Uric Acid-Destroying Power of Ductless Glands.—The results of Silvestri's research seem to sustain his theory that the endocrine sympathetic system presides over the metabolism in general as the regulator, the physiologic stimulus indispensable for its normal rhythm, but not the *primum movens* of the metabolism. It merely stimulates or checks the activity of the metabolism in general, including the production and destruction of uric acid.

Uppsala Läkareförenings Förhandlingar

Dec. 27, 1917, 23, No. 1-2

62 Development of Arsenic by Fungi. G. Wirgin.—p. 1.

63 Interstitial Myositis in Man of 43. G. Holm.—p. 23.

64 Frequency of High Blood Pressure with Accidental Heart Murmurs. E. Kylin.—p. 34.

65 Changes with Age in Rabbit Suprarenal. B. Bager.—p. 48.

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THE TEACHING OF PHARMACOLOGY*

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MINNEAPOLIS

Our last chairman made a plea to bring the practice of clinical medicine closer to pharmacology. I should like to make a plea to bring the teaching of pharmacology closer to clinical medicine.

In saying this I have no desire to return one inch toward the old style teaching of empiricism, or to lessen one iota in the teaching of the physiologic action of drugs. I have selected this subject, trite as it is, on account of the difficulties which I myself encountered as a medical student in the study of pharmacology, and which I meet again in my own students and in the students of other medical teachers. I believe that these difficulties are not entirely inherent in the nature of the subject. Medical students have difficulty in grasping, assimilating and remembering the facts of pharmacology because they have too few pegs on which to hang them; and the value of the subject and its usefulness to them in after life suffers accordingly. I believe that this trouble is not inherent in the nature of the subject, and that it lies with us as teachers to remedy the defects.

I believe that we can do this partly by teaching the student how to study accurately the effects of drugs on himself, partly by basing our animal experiments and our didactic teaching largely on pathologic physiology, and by assigning to our student, at the time he is studying the formal pharmacology, enough outside reading of clinical pharmacology to make him see for himself the usefulness of the subject.

USE OF MAN IN EXPERIMENTAL WORK

I should like to begin by pleading for a more important place for man among the laboratory animals in routine teaching. He is just as good an animal as a dog or a rabbit. In the present state of affairs he is more plentiful, and he is cheaper; and to most medical students, especially when one experiments on himself or his fellow students, a great deal more impressive and a great deal more interesting. Just in proportion to this interest and to the associations in which it is clothed, the lessons learned in such experiments are the more impressive and the more lasting. Moreover, since we are training medical students to observe and treat patients, the experiments that they perform with accurate methods on themselves and on their fellows are also furnishing them with training and habits of

applying equally accurate methods later in the treatment of their patients.

One of the most important lessons that they learn in this connection is the science of dosage. They take the drug in conventional dosage, and in most cases they get no effect. So they should be made to repeat the experiment, increasing the dose until an unmistakable physiologic effect is obtained. To avoid the effects of suggestion, different types of drugs having opposite or nearly opposite actions, interspersed with some inactive ones, should be given to each group of students, and they should not be told what drug they have been working with until the true results have been obtained and checked off by the instructor.

Occasionally a student is encountered who has a mild idiosyncrasy; his exaggerated reactions to an ordinary dose quickly become the talk of the class, and the effects of this drug are fixed in their minds forever.

Of course, the drugs that may be used for such purposes are limited in number. However, in such experiments as the testing of local anesthetics, the effects of boiling on cocaine, the repetition of some of the studies of Hewlett, of Edsall, and of G. N. Stewart on circulatory and respiratory stimulants and nitrites, of Hollingsworth on the effects of caffeine on cerebation and coordination, coupled with similar experiments on the opiates, bromids, epinephrin and strychnin, as well as in the studies of E. G. Martin on acetphenetidin, and in those of Macht on the morphin derivatives, we have a sufficiently large and varied series to impart a good deal of interest.

Such experiments bring the physiologic testing of therapeutic effects closer home to the student, and furnish him with the associations that render the impressions lasting. But we need not confine our experiments on man to such tests.

Experiments of theoretical importance, such as the conversion of organic acids to carbonates within the body and their use in the alkalization of the urine, or the combination of drugs with hippuric and glycuronic acid, are more easily shown to the student in experiments on himself than in any experimentation on the lower animals.

PATHOLOGIC PHYSIOLOGY AND PHARMACOLOGY

In our experimentation on animals, too, we can do much to bring the picture home more closely to the clinical medicine for which he is aiming, not to the detriment, but even to the betterment of our pharmacologic lesson. We can begin the experiment by having the student reproduce in a measure some of the pathologic physiology of the disease to which the drug is applied.

* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

For example, much of the pathologic physiology of pylorospasm and many of the motor disturbances in vagotonia can be simulated by mechanical stimulation of the corresponding parts of the gastro-intestinal tract or by administration of pilocarpin. The changes can be watched through a window inserted in the abdominal wall, and the relief of the dynamic condition by atropin and papaverin can be readily seen. So, too, the intestinal spasm accompanying lead colic can be simulated by intravenous injection of lead acetate, and the relief afforded by atropin and nitrites can be demonstrated.

Similarly, in the therapeutics of the circulation, modes of action which render digitalis useful in therapy can be much more easily demonstrated from the starting point of pathologic physiology than from the normal. Thus, by continuous faradization of the auricles, we can reproduce exactly the clinical picture of auricular fibrillation with the accompanying absolute arrhythmia; and here, as in the clinical case, we can get more striking slowing of the heart than we get in the normal animal. Again, since digitalis acts best on the dilated heart, we can demonstrate its effect on the strength and tone of the heart muscle more strikingly on a heart that has been previously made to dilate by a properly graded clamping of the thoracic aorta. Still further, we can show the truth of Mackenzie's statement that digitalis fails to work on the poisoned heart muscle by demonstrating side by side the production of systolic death in the normal digitalized frog's heart and the death in diastole that occurs in a chloralized frog that has been similarly treated.

Occasionally an obstetric clinic can be held on the exposed uterus of pregnant animals to demonstrate the effects of pituitary solution and of ergot on uterine contractions, as well as the arrest of the latter by atropin.

VALUE OF SIMPLICITY

Let me insert, here, too, a plea for another departure from the usual procedures of the physiologic laboratory; a plea for greater simplicity in the technic of experiments that are used for laboratory teaching. Having been one of the earliest workers to apply the cardiometer to the study of pharmacologic problems, I confess that it was with a pang of regret that I asked myself whether my students would not learn more by watching with their own eyes the changes in volume that occur in the exposed heart under the action of drugs than they would by stowing the ventricles away in a cardiometer, and only finally learning the same things by translating the cardiometric curve back into terms of volume change. We are training them to be clinical observers, and most of their clinical work will be done by simple observations, so we should, whenever possible, train them to observe accurately changes in the organs that lie exposed beneath their eyes.

Moreover, it is not always true that recording by instrumental means is necessarily freer from error than is the ocular observation. Years before Starling and Markwalder demonstrated, by means of a stromuhr placed in the coronary sinus, that nitrites increase the flow through the coronary vessels, François Franck had shown that the caliber of the coronary arteries increases when these drugs have been administered. This is all the more evident if one directs one's observation not merely to the large arterial trunks, but particularly to the very ends of the smallest visible arteries, just where they narrow into invisibility

to the naked eye. After amyl nitrite and nitroglycerin, invisible branches widen into visibility, so that new stretches of artery come into view and seem to shoot out their branches into areas in which none could be seen before. When such a change in phenomenon is accompanied by a fall in general blood pressure, as is often the case, it could be due only to a true dilatation of the arteries; and this demonstration, since confirmed by the elaborate method of Starling, is much simpler, easier, and more striking by the method of ordinary ocular observation.

In our didactic teaching, too, we can add much to the interest of the presentation by laying as much emphasis as possible on pathologic physiology and by teaching the students to look for physiologic targets at which to aim their therapy.

Thus, there is a radical difference between the empiric statement that belladonna is put into a purgative pill to relieve cramps, and teaching the student to realize that cramps are associated with intestinal spasm, usually due to overstimulation of the parasympathetic system; and that atropin relieves the symptom by relaxing the muscle through its inhibitory action on the parasympathetic nerve endings. Almost every drug can be studied in that way—its modes of physiologic action being associated with the pathologic physiology of the conditions that the student is expecting to meet and anxious to treat.

I should not like to convey the impression that the fundamental relations of chemistry to pharmacology, of structure to physiologic action, should be neglected, since this is perhaps the most interesting of all the phases of pharmacology; but here again we can teach more effectively by simplification wherever possible, focusing the attention on the individual reaching groups of the molecule rather than on the whole complicated structure, and by associating them as closely as possible with physiologic effects and with clinical results. Thus a knowledge of the danger that results from oxidation of the arsenic portion of the arsphenamin molecule on standing imparts an immediate interest to the structural formula of arsphenamin. A knowledge of the ease of hydrolysis of acetyl esters helps the student to understand why heroin is more of a habit-forming drug than codein, etc. Chemistry should be made simple and interesting by focusing his mind not on whole formulas but on the individual groups in which changes are accompanied by change of action.

ACQUAINTANCE WITH ORIGINAL LITERATURE

Most of all, perhaps, we can help the student by bringing him into first hand contact with original literature in which clear-cut pharmacologic studies have been made under clinical conditions. A first hand acquaintance with a couple of good articles on each group of drugs is both concrete and stimulating and, above all, the reading of the original literature is habit forming. I myself give my students, at the beginning of their course, a bibliography of about seventy articles of such type as Lauder Brunton's description of amyl nitrite in angina pectoris, James Mackenzie on digitalis, Sellards on alkalis in acidosis, and Leonard Rogers on emetin. They are required, in addition to their textbook reading, to make abstracts of these articles in good bibliographic form, and they are induced to start a card index of their own. They are compelled to get the work at first hand and to find for themselves the pegs on which to hang their knowl-

edge, and I think the results are as good as can be expected for their state of advancement in the medical curriculum.

And yet, in spite of all such efforts, pharmacology still remains a difficult subject for the student, and senior students and graduates still repeat: "We wish that we could have our pharmacology now. We could grasp the subject better." Though this lament applies to all the subjects in the curriculum, I believe it applies in a far higher degree to pharmacology than to any other subject.

PLACE OF PHARMACOLOGY IN THE CURRICULUM

For my own part, I believe that this very universal sentiment is worthy of careful consideration. I believe that we ought to ask ourselves seriously whether, in framing our curriculums, we may not have considered didactic convenience, the fact that in many schools pharmacology has been grouped under the department of physiology, and similar considerations, rather than the actual associations of the subject itself.

It might be worth while to push pharmacology farther along in the curriculum, and begin it in the junior, rather than in the sophomore year, so that the student would be provided with clinical pictures from his own experience with which to associate the drugs about which he is learning. He would then have the pegs on which to hang his facts. He would by this time have satisfied some of his very laudable appetite for diagnosis and symptomatology, and would have reached the stage at which he is desirous of knowing what to do for the patient. In other words, he would be prepared for the subject. Very little time really would be lost by this arrangement, since clinical teachers devote so little time and attention to the therapeutic side of the subject; and, on the other hand, I think a very distinct advantage would be gained by keeping some purely laboratory subject in the so-called clinical years and keeping the student with one foot in the laboratory while the other is in the hospital, to keep the two points of view constantly before him until he can unite them into a single image with full perspective.

CONCLUSIONS

These are a few of the methods by which pharmacology can be brought closer to the newer sciences of clinical physiology and clinical pharmacology in order that our students may weld their knowledge more firmly into the theory and practice of medicine.

ABSTRACT OF DISCUSSION

DR. TORALD SOLLMANN, Cleveland: Dr. Hirschfelder is fortunate in being able to work out the application of pharmacology to clinical problems of students and their friends as experimental "animals," and deserves encouragement. The student, particularly when the experimental work is given in the preclinical years, is much more impressed by experiments done on human subjects, than by what he does on animals. It has a little spice of novelty, at least, and it brings the matter of dosage, as Dr. Hirschfelder says, much more strikingly before him.

Many pharmacologic phenomena can only be illustrated by toxic doses, and minimum effects are not sufficiently constant or sufficiently pronounced, for a complete study of the subject. However, every point that can be illustrated on human material is one point that is better illustrated than it can be illustrated in any other way. Dr. Hirschfelder is right in emphasizing the fact that there is also a pathologic field for pharmacology.

I can further endorse the emphasis that Dr. Hirschfelder places on the return to direct observation, as supplementing instrumental observation. Neither alone really gives a complete picture, especially in the hands of students who are not yet trained observers. Often we learn more from a cardiac tracing—simply because there the thing is reduced to its simplest terms so that we can scarcely miss the essential phenomenon.

The collateral reading of original literature should be encouraged as much as the crowded condition of the curriculum permits.

The last point brought out, namely, the desirability of putting the subject of pharmacology a little farther along in the curriculum is one that I think all pharmacology teachers will endorse. Unfortunately, every medical teacher would like to teach his subject in the fourth year, and there is a sort of competition in that respect. In our institution we have found it very satisfactory to give half of the subject in the second, and half in the third year.

DR. FRED I. LACKENBACH, San Francisco: Dr. Hirschfelder has under his instruction some very raw material in the shape of naval students and hospital apprentices, and it would be very interesting, indeed, to know how these young men respond to his methods of teaching which, I am informed, are very practical. One of his students, one of our boys, who was with us about three years and who had acquired quite considerable knowledge along certain lines, was very enthusiastic over Dr. Hirschfelder's teachings and the breadth of the studies which these boys were undertaking. It would be very interesting to know how these lads respond. These are raw youths; in many instances, perhaps, having had no previous experience along these lines.

DR. S. J. MELTZER, New York: A pharmacologist should have a year or two of training in the practice of medicine before he starts teaching pharmacology, and not only in a hospital where the physician is practically not responsible to any one, but in private practice. The percentage of mortality is not the only thing which the physician has to know; he must know how to relieve. Then, the pharmacologist should free himself from the idea that his task consists in teaching the physiologic action of drugs on normal animals. He must know and teach the action of drugs on pathologic individuals. He must give up further the old notion that pathology is nothing else but physiology in different conditions. Antibodies, etc., are not physiologic products; they are peculiar to pathologic states. Numerous patients get well without any drugs; but it should be kept in mind that they get well not by accident but by definite treatment, the treatment consisting in the use of newly formed antibodies. That is nature's school of pharmacology, and the teacher of pharmacology will do well to take a thorough course in this school. Furthermore, the pharmacologist should keep in mind that one and the same drug may have a profound effect on a pathologic state and have no effect whatever in a physiologic condition. An antipyretic may reduce a temperature from 105 to 99 F., but will not be capable of reducing the temperature even by one degree when administered to a normal individual. You may give a large dose of alcohol to an infected patient without producing any signs of intoxication, while only a small fraction of that dose may cause intoxication of a healthy individual. Then the pharmacologist should cultivate in the student the point of view of a scientific physician; a drug which does no harm should be administered even if it offers a chance of only 5 per cent. of doing good to the patient. That is the practical side of the physician. But the same physician must learn to be critical and not to draw conclusions from the mere fact that the patient who received a certain medicine recovered from his disease; he may have recovered in spite of the medicine and not because of it. Finally, a pharmacologist should not teach too much; he should not teach pharmacology from big volumes. The pharmacologist himself should know which things are most essential to the physician and confine himself in teaching mostly these essential things. But the student should have a knowledge of these things on the tip ends of his fingers. Pharmacology and therapeutics should not be separated into

two disciplines. Pharmacology should be taught for its practical application first and for knowledge second.

DR. BERNARD FANTUS, Chicago: There is a great deal of importance and truth in what Dr. Meltzer has just said. However, his specifications of requisites for the teacher of pharmacology, I fear, are quite impossible of realization. Life is too short for a man to become a laboratory expert and a clinical expert as well. Many of our present teachers of pharmacology are, unfortunately, not even competent to teach in the whole domain of pharmacology. Many of them are merely students and teachers of pharmacodynamics, that is, the study of the action of drugs, and know very little about pharmacy or prescribing. The result is that these vital topics are not taught properly. The pharmacologist is essentially a laboratory man; and, as such, cannot be, at the same time, a clinician. The teaching of therapeutics should be in the hands of clinicians. To place it, as has been done in some institutions, in the hands of the pharmacologist is, in my opinion, an unfortunate and pernicious practice.

DR. ARTHUR D. HIRSCHFELDER, Minneapolis: In regard to the points that Dr. Sollmann made as to the effect of drugs on students themselves: I agree thoroughly with what he said about the fact that there is only a limited number of drugs in which that method can be used without danger of getting the student into the toxic stage. If I emphasized the feature of pathologic physiology in my paper, it was in contradistinction, or rather, in contrast to those experiments in which we are confined entirely to perfectly normal conditions. I think one of the most important things we do in teaching the students with this experimentation on themselves is to find the dose, and the student who has worked on himself with a good sized dose and obtained no effect will not go on and prescribe one one hundred and fiftieth or one two hundredth of a grain of atropin and be satisfied with it. He wants to get the effect. It is what they do not get in those experiments on themselves which is really more important than what they do get. In regard to simplicity of experimentation, I agree with Dr. Sollmann, except that I say we should select only those experiments in which the results are sufficiently striking to get clinical effects. We might as well train the student to use his eyes for pharmacologic effects wherever we can do it in laboratory experimentation.

There is one thing in connection with this question that I think is worth while considering. That is when the student goes out of school, he goes with the idea that research must not be limited entirely to the very best equipped laboratories.

What I have said has applied only to the question of the routine course. Besides that, we have an elective system, and in the electives we assign definite problems to groups of students, a repetition of some interesting features of work that has been published, or, perhaps, modern research, sometimes physiology on animals, sometimes on themselves, and sometimes purely chemical.

As regards the question of the naval hospital corps, I did not have time, and I would probably not, if I had had time, give these students more than a very few of the more striking demonstrations. In the main, we reduced the subject to its very lowest terms, in words of one syllable, but maintained the physiologic viewpoint. As regards the pharmacologist in teaching, even the physiologist who has never had any relation at all to clinical medicine, if he cultivates just a little bit of interest in the problems of pathologic physiology relating to common types of clinical cases, will be able, without departing from his chosen career at all, to introduce a great deal of that phase of the subject into the teaching of his students, and I think in that way can add a great deal to the interest and to the usefulness of the subject.

Bullet in Bladder Wall Ten Years.—The bullet was not found at the operation three days after the accident although it was known to have entered the woman's bladder. Ten years later it had to be removed as it had formed the nucleus of a very large phosphate stone embedded in the right wall. The case was reported by Economos at a recent meeting of the Medico-Surgical Society of Greece.

EARLY DIAGNOSIS AND INTRAVENOUS SERUM TREATMENT OF EPIDEMIC CEREBROSPINAL MENINGITIS *

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In large cantonment hospitals where clinical material can be controlled by military methods, where acute disease in large volume may be studied in its earliest as well as its later stages, where necropsy study is possible and where elaborate laboratory equipment is often lacking and the medical officer thrown in consequence on his own resources, bedside observation may well add to the store of medical knowledge.

At the base hospital, Camp Jackson, S. C., attention has been focused on epidemic cerebrospinal meningitis. More than 270 cases of this disease have been studied with the result that a more definite idea of its general character has been established, methods of diagnosis of value have been brought into use, and a more successful treatment has been carried out. This paper is based on the study of the first 265 cases of meningococcus infection observed from November, 1917, to June, 1918. Some of our results have been published in earlier reports.¹

In the historical development of the knowledge of this disease, the fact that meningitis due to the streptococcus, the pneumococcus, the tubercle bacillus and other organisms is always secondary seems to have been left out of account. The weight of opinion has inclined to the view that meningococcic meningitis is a primary disease; that the organism finds its way from the nasopharynx to the meninges directly through the cribiform plate of the ethmoid bone, or by blood-stream transport, the resulting morbid process being local rather than systemic. This was our point of view when the epidemic came upon us in November, 1917. It soon became apparent, however, that the disease with which we were dealing was not a primary meningitis but a meningococcic sepsis with a secondary meningeal localization. As the epidemic continued and our study widened, this opinion became firmly fixed.

The principal arguments in favor of this view may be briefly summarized. About 45 per cent. of our cases have been recognized before meningitis developed. The duration of the stage of generalized systemic infection without meningitis may vary from a few hours to many days; in the average case it is about forty-eight hours. One of the most extraordinary of our cases had symptoms of a general infection with meningococci in the blood stream two weeks before meningitis developed. The blood culture is positive in about one third of the cases in which this is carefully made.²

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Herrick: The Epidemic of Meningitis at Camp Jackson, *THE JOURNAL A. M. A.*, Jan. 26, 1918, p. 227; The Intravenous Serum Treatment of Epidemic Cerebrospinal Meningitis, *Arch. Int. Med.*, April, 1918, p. 541.

2. By special care in preparation of mediums and other details, Marshall A. Barber, Captain, S. C., N. A., and J. F. Fleming, First Lieutenant, M. R. C., have obtained positive blood cultures in twelve of the last fifteen cases. Recent experience would indicate that with early diagnosis and proper laboratory technic the meningococcus may be grown from the blood in from 50 to 80 per cent. of all cases of epidemic meningococcus infection.

Certain signs and symptoms point to a widespread infection. The petechial rash, the arthritic pains and the complications, such as panophthalmitis, arthritis, pericarditis, endocarditis, pneumonia, pleurisy and orchitis, most of which lesions have shown the meningococcus locally, indicate that in this disease the organism is widely disseminated by the blood stream. A considerable number, about 4 per cent., of examples of meningococcus infection in our experience have not shown meningitis. The notable effect of intravenous serum therapy, particularly in the more severe systemic types of the disease, is added argument. Corroborative reports have also appeared from Europe, where Thomsen and Wulff,³ Netter,⁴ and Aimé and Chéné⁵ have contributed added evidence favoring the point of view expressed. Previous to our observations,¹ however, such a conception of the character of this disease had not been used as a basis for diagnosis or treatment.

If meningococcus meningitis is a metastatic or secondary local inflammatory focus, the primary stages of the disease, the sepsis, should be recognized. This we have found possible in a considerable proportion of the cases. Conditions obtaining in a large cantonment in which cooperation between division and regimental surgeons and a base hospital is possible afford opportunities for the study of inaugural symptoms of acute disease that are denied the staffs of civil hospitals. It may be that the diagnosis of this stage of sepsis will seldom be made in civil life. Nevertheless its possibility should be borne in mind and the clinical picture repeatedly brought to general notice.

CHARACTERISTICS OF THE DISEASE

In our experience, meningococcus sepsis is usually characterized by a prodromal period of malaise, of languor, with frequent upper respiratory tract infection, as tonsillitis, pharyngitis or laryngitis, which for a few hours or even days may not incapacitate. Rapidly or gradually the patient becomes ill, weakness increases, and with this, apathy. He likes to be let alone, may be a trifle morose, and loses interest in his ordinary pursuits. There may be diarrhea, tonsillitis or, as in four of our cases, conjunctivitis of meningococcic origin. The temperature rises, but is rarely above 102: the average of our epidemic was 101. Headache, usually frontal, may be present and is described as "bursting." This symptom, however, may be absent. The conjunctivae are reddened, the eyes dull, the pupils usually dilated, the pharynx and tonsils red and in some instances swollen. The tonsillar crypts may contain a grayish exudate. The tongue is coated. The oral secretions are sticky and viscid so that the tongue and palate may be connected by strings of sticky, mucoid saliva. The attitude, manner and facies are perhaps the key to the diagnosis. A dull apathy is always present. The patient is conscious when roused, but lapses promptly into silence and immobility. He does not modulate his voice. He does not use the

muscles of expression in responding to questions. There is a striking suspension of all voluntary physical and mental activity. The patient lies on his side with the head bent forward and the knees drawn up, shielding himself with the bedclothing. In several of our cases the disease began as an acute pneumonia, in two as an acute polyarthritis.

In the presence of an epidemic, the one sign of almost diagnostic value is a petechial rash, which was present in about half the cases. This comes out rapidly in crops over the trunk, more rarely the extremities, face, conjunctiva and mucous membrane of the mouth. At necropsy this rash is found on all the serous surfaces, pericardial, peritoneal and pleural. The spots vary in size up to an inch in diameter. In two cases they assumed the form of large vesicles on hemorrhagic bases with scarring on fading. In some of the milder cases there has been a maculopapular rash resembling large rose spots or the beginning eruption of chickenpox. In the severest cases purpura may cover a large portion of the body surface.

The ill balanced activity of the deep reflexes is very characteristic. To illustrate, the right abdominal reflex may be absent, the left normal or increased; the

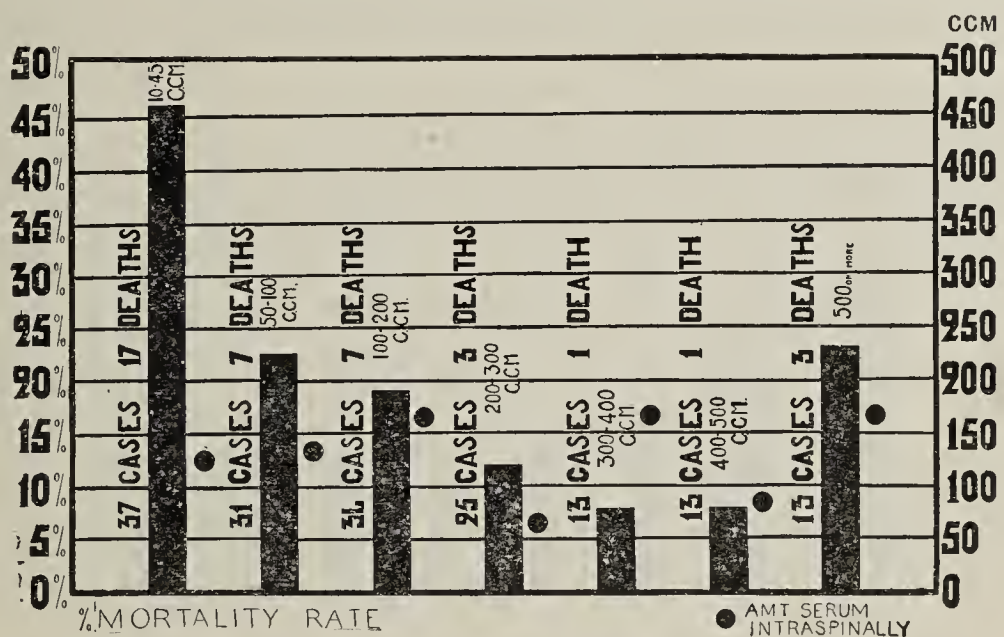


Chart 1.—Mortality in cases treated intraspinally and intravenously.

right knee jerk exaggerated, the left normal; the Achilles jerks may be hyperactive and unequal. The inequality of the deep reflexes with a tendency to exaggeration is a very striking feature of this disease and is of the utmost value in early diagnosis, although great care is necessary in estimating inequality. Specific signs and symptoms of meningeal irritation—Kernig's, Brudzinski's stiff neck, etc.—are very often lacking during the early period of the infection.

The spinal fluid in the stage of sepsis, as in other acute febrile diseases, may or may not be under increased pressure and may or may not show a trace of globulin. The cells are not increased and are lymphocytes. After centrifugation and evaporation on the slide of the last cubic centimeter of the contents of the centrifuge tube, fixing and staining, one may find a few extracellular diplococci, which are usually atypical in form and size. If organisms are not found in the fluid obtained by the first lumbar puncture, they frequently appear in that obtained by the second performed three or four hours later.

That the meningococci first invade the cerebrospinal spaces in the region of the choroid plexus seems clear from our observation that repeated puncture at intervals of two hours in many instances brings down the

3. Thomsen, O., and Wulff, F.: Meningococcus Infection and Meningitis, *Hospitalstidende*, 1917, 60, 1192; abstr., *THE JOURNAL A. M. A.*, Feb. 16, 1918, p. 498.

4. Netter: Epidemic Meningitis with Purpura, *Rev. de méd.*, 1917, 35, 33.

5. Aimé, H., and Chéné, H.: Parameningococcus Septicemia, *Paris méd.*, 1918, 8, 118; abstr., *THE JOURNAL A. M. A.*, April 13, 1918, p. 1125.

organisms by drainage. In two fulminating cases with speedy death, the spinal fluid obtained by lumbar puncture shortly before death contained no organisms, while that secured at necropsy from the lateral ventricles showed numbers of meningococci.

The inaugural symptoms of acute lobar pneumonia are very like those of meningococcus infections, but apathy is less marked, skin lesions are absent, the deep reflexes, though exaggerated, are usually equally active on either side of the body, and the spinal fluid, though often under increased pressure and containing globulin, gives negative bacteriologic findings.

METHOD OF TREATMENT

Diagnosis having been arrived at by joint clinical and laboratory methods, treatment is begun at the earliest moment possible. No medical emergency demands action more prompt, vigorous, unremitting. Knowledge of and attention to detail brings greater reward in meningococcus sepsis than in almost any other infectious disease. In addition to reduction of mortality, important objects in the treatment of cerebrospinal meningitis are the decrease in the number and severity of the complications and the shortening

c.c. The greatest number of intravenous serum injections given in any case is twelve; the highest total amount of serum, 1,050 c.c.

Does antimeningococcus serum sterilize the blood? That this desirable end is accomplished is shown by the results of blood cultures.

In all of our recent cases a blood culture has been made on admission before serum treatment was begun. Approximately one third of such first cultures have been positive. A second culture has been made twenty-four hours later—after from one to three large intravenous injections have been given. In no case has this second culture been positive.

If the spinal fluid is clear there is no interference with the central nervous system. So soon as meningitis develops, lumbar puncture is performed about half an hour after the intravenous injection. Sufficient fluid is withdrawn to reduce the pressure to an approximate normal, and rarely more than 30 c.c. of serum are introduced into the spine. The average number of spinal punctures in the cases treated by this method is seven; the average number of intraspinal serum injections, four. The freest possible drainage is aimed at after the intravenous injection of

serum. Since the permeability of the inflamed choroid plexus for antibody has been quite well established, it is believed that drainage at this time results in the introduction of a considerable amount of antibody from the blood into the cerebrospinal spaces. Satisfying proof of this is the prompt disappearance of meningococci from the spinal fluid when these massive intravenous injections are given. With infrequent exceptions the meningococci are not found after the first forty-eight hours. Under the older methods of treatment they were present for a longer time in the average patient.

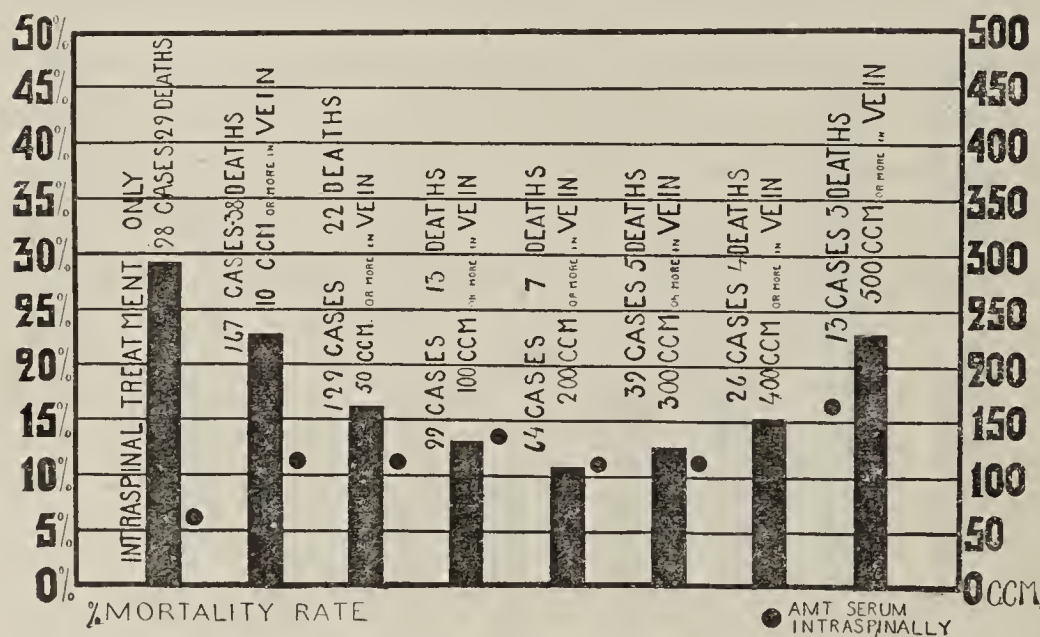


Chart 2.—Mortality in cases treated intraspinally and intravenously.

and mitigation of the course of this extremely painful disease.

To accomplish these aims we have based treatment on the conception of the nature of the disease which seems to have been established by observations at the base hospital, Camp Jackson—that the disease is primarily a blood stream infection and, at least in its early stages, should be treated as such. For the success of treatment based on this principle an early diagnosis is important, though not absolutely necessary, as will subsequently appear.

The diagnosis having been established with the least possible delay, the attempt is made to sterilize the blood stream by massive doses of antimeningococcus serum introduced intravenously. The general plan of treatment is as follows: The patient is desensitized by the injection of 1 c.c. of serum subcutaneously. One hour later from 80 to 150 c.c. are given by vein, the first 15 c.c. at the rate of 1 c.c. per minute. The remainder is allowed to flow more rapidly. In the severe cases the injection of this volume of serum is repeated every eight to twelve hours, in the mild cases every twenty-four hours, until the symptoms are under control. The average number of intravenous injections given is four and a half, the average total amount of serum is 400

IMPORTANT POINTS IN INTRAVENOUS SERUM TREATMENT

1. It must be employed with boldness, yet with care. One must be prepared to give from four to eight massive injections by vein of from 80 to 150 c.c. during the acute stages of the disease or a period of from two to four days. There is much more danger in insufficient than in excessive intravenous serum administration. We have, in fact, in 128 cases so treated, had no serious serum effects. Our regrets have been that serum was not more freely used in many of the early cases.

2. The desensitization by subcutaneous injection of 1 c.c. of serum one hour before the introduction of serum into the vein and the cautious injection of the first 15 c.c. at the rate of 1 c.c. per minute are the secrets of safe intravenous serum therapy. Immediate stopping of the injection with the appearance of dyspnea, pallor, cyanosis, vomiting, weak, rapid or irregular pulse or other immediate serum effects is essential. Renewal of the attempt after two or three hours is rarely unsuccessful. Even those patients thoroughly sensitized to serum by earlier courses of treatment can be treated safely with these precautions. It is desirable to give morphin and atropin before the injection, but they are not absolutely necessary. It is well to have these drugs at hand in case of dyspnea or other symptoms of discomfort following the treatment. Epinephrin also should be available.

3. A knowledge of when to stop treatment is important. Harm may result from too much as well as from too little treatment. Particularly is this true of intraspinal injections. The number of convalescents that show evidence of a subacute or chronic caudal myelitis in weakness, atrophy of muscle groups, local vasomotor disturbances, and exaggerated or otherwise altered reflexes of the lower extremities is sufficient to compel attention to the danger of too active interference with such a delicate and vulnerable structure as the cauda equina. One great advantage of intravenous treatment is that the number of intraspinal treatments is reduced. In two serious cases no serum was used intraspinally, drainage being carried out only by lumbar puncture, and reliance being placed on intravenous injections. Both patients recovered. We are, however, far from advising abandonment of intraspinal treatment. In fact, all our experience confirms its importance and effectiveness. The local treatment of meningococcus infections when foci are established in meninges, joints, pericardium or other accessible regions is most effective and must not be neglected by too great attention to the blood stream invasion.

In those prolonged cases in which meningococci persist in the spinal fluid and in which the patients are made uncomfortable by intraspinal injections, showing increased opisthotonos, and severe pain in the head or back or lower extremities following the treatment, it is better to omit all interference. At times drainage may be necessary with or without further intravenous injections. Many of these prolonged cases apparently become intolerant of intraspinal serum injections. If satisfactory response does not follow a series of eight or ten intraspinal treatments, it is generally best to cease injecting serum intraspinally, continuing drainage only if there is discomfort from increased intracranial pressure or apparent danger of blocking the foramina.

In relapsing cases the entire cycle of treatment must be repeated with the same thoroughness and care used in the initial course. The organism cultivated from the blood or spinal fluid may be used to determine the presence of agglutinins in the serum employed. Valuable evidence can thus be obtained as to the specificity of the serum for the strain of meningococcus present. This is of the highest importance. Therapeutic results seem to parallel the agglutinin content of the serum for the special strain of meningococcus involved. Commercial serums are frequently lacking in high agglutinin content, and their therapeutic effect is often disappointing. In the absence of desirable results from a given serum, use should promptly be made of serum from another source. This may be of vital moment to the patient. The standardization of serums by governmental authority is an urgent need.

4. Other more general methods of treatment are not to be neglected. Morphine is given without stint to disturbed patients during the first twenty-four or forty-eight hours to control violent symptoms. Large amounts are well tolerated. Chloral and bromid are likewise useful. Of great importance is an adequate supply of liquid. Patients will drink almost without limit, and despite this their tissues often seem to lack fluid. In some of these almost desiccated cases, First Lieut. Arthur M. Dannenberg, M. R. C., has suggested and successfully used intravenous injections of physio-

logic sodium chlorid solution with or without sodium bicarbonate. Abundant food is required.

RESULTS OF TREATMENT

Of 265 cases, 137 were treated by the older methods of intraspinal therapy alone (Class A), or combined with extremely small amounts—from 10 to 45 c.c.—of serum intravenously (Class B), amounts of serum which given by vein have in our experience little or no influence. One hundred and twenty-eight cases were treated by the combined intraspinal and massive intravenous serotherapy (Class C). Of the 137 cases treated by the older methods, forty-seven patients died, a mortality of 34.3 per cent. Of the 128 treated by the newly developed methods, nineteen died, a mortality of 14.8 per cent.

Cases have been divided roughly into mild and severe according to the intensity of the symptoms, their duration and the presence of important complications.

The mild cases do well under either form of treatment. In fact, figures are slightly in favor of the intraspinal methods in such cases. Of sixty-seven mild cases treated by intraspinal methods alone, one patient died, a mortality of 1.4 per cent. Of thirty mild cases treated by the new methods, two patients died, a mortality of 6.6 per cent. It is in the treatment of the

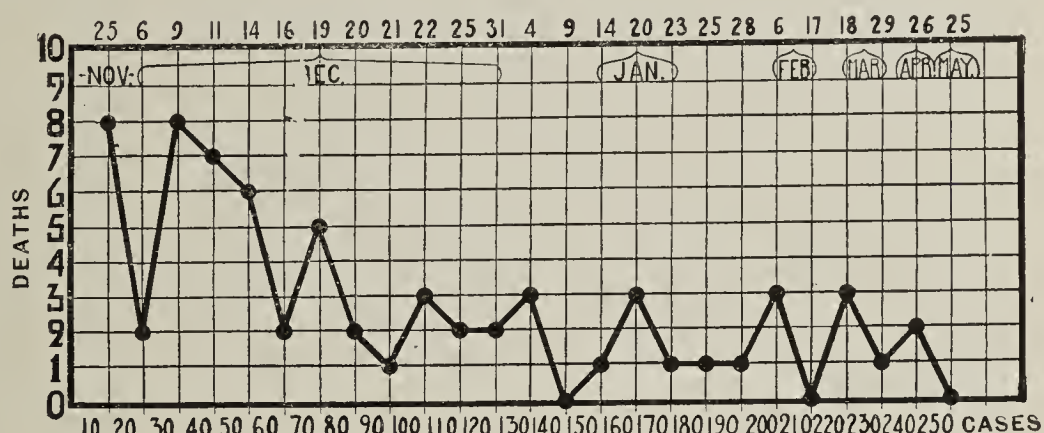


Chart 3.—Mortality rate by tens.

severe types of meningococcic infections that the intravenous methods have the most brilliant results. Of seventy severe cases treated by the older methods, forty-six died, a mortality of 65.7 per cent. Of ninety-eight severe cases treated by the newer methods, seventeen died, a mortality of 17.3 per cent. This happy result in the severe types of meningococcus sepsis deserves particular emphasis. The reduction of mortality from 65.7 to 17.3 per cent. in a similar class of cases is noteworthy.

Of the entire 265 cases here reported, 105 were identified before meningitis developed. Seventeen per cent. of these patients treated by all methods died. Of the 160 patients in whose cases treatment by any method was begun after meningitis developed, 30 per cent. died. By this the importance of beginning treatment during the premeningitic stage of sepsis is emphasized. On the other hand, of seventy-six cases recognized late, that is, after the clouding of the spinal fluid, 42.1 per cent., or thirty-two patients treated by the older methods, died. Of eighty-four patients of the same type treated by the newer methods described, 19 per cent. died. This comparative mortality in groups of similar cases, of 42.1 per cent. in one and 19 per cent. in the other, shows that the modified treatment described is of benefit even in those cases in which the disease has begun or accomplished

its characteristic selective localization in the meninges. A consideration of importance in this connection is the frequency of positive blood culture in advanced cases, with late recognition. A further point is the late development in many instances of hematogenous foci of suppuration in eye, pericardium, joints or elsewhere.

Table 1 is a statistical summary of the epidemic, giving the mortality in cases classified according to severity, stage of the disease in which diagnosis was made, and method of treatment used.

EFFECT OF TREATMENT ON COMPLICATIONS

In cerebrospinal meningitis not only is life in jeopardy but also the future usefulness of the patient is at stake by reason of the number of complications which may permanently handicap those who recover. Complications of a crippling character are practically always the sequel of the localized process in the central nervous system. The most vulnerable structures are the cranial nerves, which are involved in this order of frequency: sixth, third, second, eighth, seventh. Next in order of importance among the complications is the blocking of foramina with consequent partial or total hydrocephalus. Of interest and military value are the persistent spinal cord symptoms. Many of the convalescents show evidence of a caudal myelitis. In one paraplegic case with necropsy the cauda equina was matted together with a hemorrhagic fibrinopurulent exudate. Symptoms of this myelitis are pain in the back and lower extremities, weakness of the muscles of the thighs and legs, especially the hamstring muscles and quadriceps, frequent atrophy of muscle groups, vasomotor disturbances and altered reflexes. These symptoms may persist for months. Some of the disabilities are doubtless permanent, especially those showing atrophy. They are the apparent result of needle traumatism, irritating serum and local meningococcus infection.

TABLE 1.—MORTALITY IN CASES CLASSIFIED ACCORDING TO SEVERITY AND METHOD OF TREATMENT USED

	Entire Epidemic		Classes A and B*		Class C†	
	No.	Per Cent.‡	No.	Per Cent.	No.	Per Cent.
Number of cases	265	....	137	....	128	....
Deaths	66	24.8	47	34.3	19	14.8
Mild cases	97	3.0	...	....	...	....
Early diagnosis	59	3.3	41	2.4	18	5.5
Late diagnosis	38	2.5	26	0.0	12	8.3
Severe cases	168	37.4	...	....	...	....
Early diagnosis	46	34.7	20	70.0	26	7.6
Late diagnosis	122	38.5	50	64.0	72	20.8

*Classes A and B comprise cases treated by intraspinal methods alone or with only 10 to 45 c.c. of serum intravenously.
†Class C comprises cases treated intraspinally and with from 50 to 800 c.c. of serum intravenously.
‡Percentages are mortality rates.

Of the complications due to the blood stream infection, panophthalmitis is most important since it results in loss of vision in almost all cases. Of less permanent consequence are pericarditis, endocarditis, arthritis, orchitis, pleurisy, pneumonia and peritonitis. These are factors in the acute stages of the disease, but are uncommon during convalescence.

Table 2 shows the comparative frequency of the important complications in the classes of cases treated by the different methods. The four cases of panophthalmitis occurring in Class C were in cases early in the epidemic not given the fully developed treatment. In the last fifty cases treated by large amounts of serum by vein, no instance of panophthalmitis was observed.

The optimal amount of serum to be employed by vein or spine is graphically illustrated by Charts 1 and 2. With increase in the amount of serum used intravenously, there is decrease in the mortality, which is quite marked up to a certain point. At a dosage of about 400 c.c. by vein and 125 c.c. by spine, the mortality is lowest. With larger amounts the mortality rate again rises. The explanation of this later rise is, in our opinion, that the more severe cases receive the more active and prolonged treatment rather than that harm results from the larger dosage of serum.

Treatment of meningococcus infections by this new method, after all, is a matter of judgment in each

TABLE 2.—FREQUENCY OF COMPLICATIONS

Complications	Classes A and B	Class C
Panophthalmitis	7	4
Pericarditis	8	3
Endocarditis	1	0
Pneumonia	12	8
Pleurisy	2	0
Peritonitis	2	0
Otitis media	8	3
Arthritis*	7	9
Hydrocephalus	2	2
Paralysis, transient or permanent	3	4
Deafness	4	2
Gangrene of toes	0	1

*Including serum arthritis.

individual case and cannot be reduced to a mathematical formula. The only general statement that one can safely make is that the average case requires from 400 to 600 c.c. of serum by vein and about 100 c.c. by spine. To give less amounts is to deny the patient the benefit that follows energetic and thorough carrying out of the ideas of therapy developed during our year's experience with 265 cases.

The mortality rate at different periods of the epidemic is made graphic by Chart 3.

Acknowledgment is made of the services of the following officers in the epidemic here reported: In the laboratory, Major F. W. Baeslack, M. R. C.; Capts. A. H. Bunce, M. R. C., and Marshall A. Barber, S. C, N A.; First Lieut. J. F. Fleming, M. R. C.; in the clinical work, Major George A. Blakeslee, M. R. C.; Capts. D. L. Walker, H. S. Fincke, E. W. Barron, B. Lattin, G. M. Parkhurst, F. W. Rogers, Q. H. Barney and L. H. Taft, and First Lieuts. A. M. Dannenberg, R. C. Davis, S. A. Cobb and C. E. Woodcock, M. R. C. I am indebted to Miss Edith L. Vincent, Reserve Nurse, A. N. C., for valuable work on statistics and records.

ABSTRACT OF DISCUSSION

DR. J. BIRNEY GUTHRIE, New Orleans: The conclusion Major Herrick draws that meningitis is a blood infection first of all, a general sepsis, is, in the main, correct. I will go further and state it as my belief, based on the 138 cases that we had at Camp Beauregard, that the condition is in its beginning a respiratory infection. I believe we are justified in using a term which I have applied—meningococcus grip. We are familiar with a certain picture which we call grip. This does not convey the idea of a specific disease. We know that the clinical picture of grip is one that can be produced by various organisms. There are sufficient data at hand to justify the term, meningococcus grip. This is certainly the clinical picture that Major Herrick drew. There is nothing characteristic in the initial symptoms of any specific infective agent. The flushed face, the hebetude, the dry tongue; in fact, the whole picture is certainly not a specific one. It brings up nothing but an infection. The most frequent mistake in the diagnosis previous to admission to the hospital was calling a pneumonia case "meningitis suspect." The picture of the pneumonia case is the picture, as we saw it, in this pre-meningitis stage of Major Herrick's. The conclusion comes, as one watches such cases, that there exists this stage of sep-

ticemia in meningococcus infection. The prostration is greater than one sees in grip infections due to Pfeiffer's bacillus. It was my own observation and the experience of others that we often made initial spinal punctures and found clear fluid, later to see the picture develop into that of typical meningitis with cloudy fluid and organisms. I cannot agree with the major in his conclusion that the occurrence of a rash stamps the case as a severe one. The rash occurred in 50 per cent. of our cases. Some of the cases of severe rash yielded promptly to treatment and should be classed as mild.

A question of great importance is reinfection. The cerebrospinal meninges may harbor these organisms intact and later allow them to develop and break out again, producing a widespread reinfection of the meninges. We have seen that occur in a number of cases. I believe that the idea of abandoning the initial therapeutic puncture and injecting serum into the cerebrospinal canal is wrong. I think we should give the serum by this route anyway. If organisms are found in the blood stream it would be the safest plan to follow. Theoretically, it would seem to be indicated. The breaking down of the meningeal choroid complex, Major Herrick assumes, is a result of the meningococcus infection. I do not think this is correct, or that this occurs in the absence of a local nidus of infection on the choroid plexus. We know that the introduction of horse serum into the cerebrospinal canal does affect the permeability of the meningeal choroid complex from the blood to the cerebrospinal canal. This would constitute an additional indication to carry out the injection of the serum early into the cerebrospinal canal, to be followed by repeated introduction of serum by both intravenous and intraspinal routes.

DR. P. S. SCHENK, Norfolk, Va.: I should like to ask Major Herrick what his opinion is in regard to the control of carriers. Beginning in January of this year we had quite an outbreak of meningitis at the Naval Base, near Norfolk. This outbreak was followed by about forty cases in Norfolk. There were over 400 direct contacts in the homes of these cases, but we did not have a single case develop in any of those contacts. At the Naval Base, and also in Norfolk, we were very careful in ferreting out the carriers, yet notwithstanding the fact that they had a very large number of carriers at the Naval Base, it does seem that the carrier proposition has no particular influence on the incidence of the disease. In the several cantonments throughout the country, where meningitis prevailed, it was a striking fact that in many of those where there were the greatest number of carriers they had the fewest cases. We have not had a case of epidemic meningitis in Norfolk for many years previous to this outbreak at the Base. We traced 90 per cent. of our cases, however, directly to this source; either the brother, father, husband or some other member of the family who developed the disease in Norfolk, worked at the Base. It is a well-established fact that it is extremely rare to contract a case of meningitis directly from another case of developed meningitis. It seems to be a disposition to ignore the carrier, except, perhaps, those that had been in immediate contact, and yet not a single one of our cases had been in contact with a person who had been directly exposed to the disease.

DR. W. L. BIERRING, Des Moines: I want to call attention to an interesting observation by Dr. Preble presented to this section a number of years ago on the clinical similarity between acute pneumonia due to the pneumococcus and epidemic cerebrospinal fever, in that way establishing a relationship between the two causative organisms. Both diseases are ushered in by a chill, followed by a rapid rise in temperature; both have a similar fever curve, with a drop by crisis. A polymorphonuclear leukocytosis and a chlorid retention is peculiar to both conditions, and each corresponding in time to the fever course. The cultural characteristics of the two causative organisms are practically identical. All of which offers an explanation of the early finding of the meningococcus in the blood stream, suggesting a hematogenous infection, which gives to it the same conception that is held for pneumococcus infections. Furthermore, it bears out the good therapeutic results reported in Major Herrick's paper.

COL. F. F. RUSSELL, Washington, D. C.: I do not know that this is the best time to consider the carrier question. Dr. Herrick's paper is so important in itself. I do not think the profession has yet agreed as to what is the best way to handle the carrier. I think all of us agree that without the carrier we would have no spread of the disease. We must recognize the carrier and control him. The difficulty is to know which carrier is the serious one and which one is negligible. We know that some carry pure cultures constantly and others harbor only a few organisms. It seems, therefore, that the chronic carrier with large numbers of meningococci regularly present is dangerous. If we can take care of that man, we will cut down the number of cases. If you study the statistics of last winter you will find that at those places where the carrier work was done early the epidemic diminished. There were one or two camps where the epidemic continued longer than the average; and I think in those you will find that they did not control their carriers as in the places where the epidemic stopped.

DR. W. W. HAMBURGER, Chicago: Does Major Herrick consider that all cases of meningitis are primarily cases of sepsis? For instance, at Camp Taylor, we had forty-six cases and we made early blood cultures, eight or ten in all. In none of those blood cultures was there a positive finding of meningococci, and in all of these cases there was no rash, except in one case, in which there was urticaria. Our mortality in these cases was 16 per cent. treated by the old method. I would like to know whether Major Herrick considers that all cases of cerebrospinal meningitis are primary sepsis and secondary meningitis, and whether he would feel that they should all be treated intravenously in addition to intraspinally.

DR. WILLIAM W. HERRICK, New York: I am glad that Colonel Russell treated the question of carriers, because I have not made up my mind about it. I believe that meningitis is primarily a sepsis just as pneumonia is a blood stream invasion by the pneumococcus. I believe that every case of meningitis, no matter in what stage recognized, should have intravenous treatment. We began our treatment with the commercial serums. They did not have a satisfactory effect. We were then fortunate enough to get a supply from the Rockefeller Institute and the New York City Board of Health, which gave better results. Later in the winter we returned to commercial serum, which by that time seemed to have improved. We now use the serum from the Rockefeller Institute, that from the New York City and state boards of health and two or three commercial serums. If a given case does not respond promptly to one serum, we change and give serum from some other source. That is a point of very great importance in the treatment of the disease. The largest intravenous dose has been 150 c.c. The greatest number of such doses in any one case has been ten. The greatest total amount of serum given to any individual has been 800 c.c.

As to the criteria of mild and severe cases, that is a rough clinical judgment depending on the severity of the symptoms. The respiratory tract infection is most important. It is common in by far the larger proportion of the cases. This phase of the disease requires study. The similarity between pneumonia and meningitis came very prominently to our attention early in the epidemic. We thought we had made a discovery, but later found that Dr. Osler had described this many years ago.

The repetition of the cycle of treatment in the resistant cases is most important. If it is a case of reinfection, repeat the whole course vigorously and persistently. We have had a number of these cases. One patient has had three attacks of the disease since last December. We have noticed no hemorrhagic vomitus. Hemorrhages into the meninges have not been a feature in the epidemic. In only one of our thirty-seven necropsies was hemorrhage a factor in the death.

Red Cross War Fund Totals \$176,528,158.—The Red Cross issues the following: The total of the second Red Cross war fund continues to grow, and the returns still are incomplete. Reports from the various divisions received since the last figures were printed, July 1, show contributions amounting to \$176,528,158.

DIGITALIS THERAPY*

JOSEPH H. PRATT, M.D.

BOSTON

In the year 1785 a small book was published in England entitled "An Account of the Foxglove and Some of Its Medical Uses." It was written by William Withering,¹ a distinguished physician of Birmingham. In the preface he states that "the use of the foxglove is getting abroad and it is better the world should derive some instruction, than that the lives of men should be hazarded by its unguarded exhibition, or that a medicine of so much efficacy should be condemned and rejected as dangerous and unmanageable." He presented careful notes on 163 cases of dropsy in which digitalis was given, and describes the method of collecting, preparing and administering the drug. It was in dropsy of cardiac origin that he exhibited this drug with remarkable success. They were, as he says, "cases lost to the common run of practice and only snatched from destruction by the efficacy of digitalis." He reported his failures as well as his successes.

He recognized that digitalis did not have a diuretic action in all cases of dropsy and that the best results were obtained if "the pulse be feeble or intermitting, the countenance pale, the lips livid, the swollen belly soft and fluctuating or the anasarcaous limbs readily pitting under the pressure of the finger." His book carries conviction to the reader that the writer was a keen and accurate observer and "without any unjust predilection in favor of the medicine."

Until recently I did not know that Withering's splendid work was practically unnoticed by teachers and students of cardiac disease, in England and America at least, for more than a century. It would be an interesting quest to find and do honor to the man who discovered Withering and impressed the world with the value of his work. Hope, Stokes, Latham and Walshe and our own Austin Flint, masters of medicine though they were, paid no attention to Withering's teachings and never discovered for themselves the great value of digitalis in cardiac failure when properly administered. The neglect of this drug and of Withering's discovery until modern times is a striking illustration of the difficulty that new truths sometimes have in gaining acceptance.

I first learned of William Withering and his work on digitalis from my teacher and friend, Sir William Osler. One day while in Boston, although he had only a few hours in the city, he proposed that we go to the Medical Library and look up old Withering's book. With characteristic kindness and helpfulness he wanted me to learn from those striking case reports the value of digitalis when properly administered. In the first edition of his textbook, Osler gives the credit due Withering for introducing digitalis into practice.

In the first general treatise on heart disease to be published in English, that of Allan Burns,² Edinburgh, 1809, the only reference to Withering is the following sentence: "We often find, that in the early stages of

dropsy, while the patients are, as Dr. Withering observes, robust, and of firm fiber, that the diuretics make no impression, but that when the strength is more wasted, the very same medicines cure the disease."

It is true that, as a number of recent writers have pointed out, Burns in another place does declare that digitalis has a very powerful effect in obviating the urgency of the symptoms in dilatation of the heart. But the force of this statement is weakened by the context. The remedy he relied on chiefly was a seton introduced into the precordial region. He did this, he says, to prevent the occurrence of inflammation, and adds, "With a similar view, we occasionally prescribe digitalis." If dropsy was present he gave diuretics, not trusting to digitalis alone, and in addition always administered laxatives joined with carminatives.

Digitalis will be of no real service in the treatment of heart failure unless it is given in an active form and in sufficient amount to produce a physiologic effect.

Withering in 1785 gave the following directions for the administration of digitalis: "Let the medicine be continued until it either acts on the kidneys, the stomach, the pulse, or the bowels; let it be stopped upon the first appearance of any one of these effects." Now it is an amazing fact that in spite of the extraordinary success with which Withering exhibited the drug according to this rule in dropsy of cardiac origin, Sir James Mackenzie, working over a hundred years later, was the first clinician to demonstrate conclusively the correctness of Withering's instructions regarding the administration of digitalis. For his studies on digitalis,³ published in 1911, he records the careful and detailed observations in a series of cases treated with digitalis in his wards at the Mount Vernon Hospital, London. Convincing evidence was presented that the drug yielded brilliant results in certain forms of cardiac failure when pushed to the physiologic limit.

Withering concluded the preface to his great work with these prophetic words: "After all, in spite of opinion, prejudice or error, time will fix the real value upon this discovery and determine whether I have imposed upon myself and others, or contributed to the benefit of science and mankind." At length time has shown the real value of Withering's discovery, but it took 125 years to do it. For some strange reason difficult to explain, digitalis has been regarded as a dangerous drug in therapeutic doses by generation after generation of clinical teachers and writers. This fear of the drug explains the failure of most practitioners to obtain any benefit even in those conditions in which it gives the most brilliant results when properly administered.

Failure to obtain results in suitable cases is due (1) to the employment of too small doses and of an insufficient amount of the active drug, and (2) to the use of weak or inert preparations.

STRENGTH OF VARIOUS SAMPLES OF THE LEAF

During my student days I never saw a case in which striking improvement was produced by digitalis, nor did I ever obtain any undoubted benefit from its use during the first years of my practice, although I treated many cases of cardiac failure. Lack of success

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Withering, William: *An Account of the Foxglove and Some of Its Medical Uses, with Practical Remarks on Dropsy and Other Diseases*, Birmingham, 1785, p. 207.

2. Burns, Allan: *Observations on Some of the Most Frequent and Important Diseases of the Heart*, Edinburgh, 1809, p. 102.

3. Mackenzie, James: *Heart*, 1911, 2, 273.

caused me to try a number of different tinctures and infusions. Finally suspecting that the digitalis available in Boston was of poor quality, I had a local druggist import directly from Germany some of Merck's powdered digitalis leaf. I first gave it to a woman with auricular fibrillation and heart failure, who had been under observation for more than a year. It was a typical case with dyspnea, dropsy and a troublesome cough. In spite of the administration of digitalis I had never found the pulse rate below 120 during the preceding six months. Improvement from the new digitalis was noted in a few days. The pulse was slowed to 72 and the symptoms of cardiac failure lessened so that the patient was able to do her housework. That was in December, 1905.

Four years later I tested by the frog method nine samples of digitalis leaf obtained from six of the leading druggists of Boston and vicinity, and from two hospitals. They were all of low strength as shown by the biologic test.⁴ The only strong digitalis leaf found on sale was the Merck preparation that was carried in stock by the single druggist who imported it. In 1909 a bottle of Caesar and Loretz's titrated (standardized strength) leaf was obtained from Germany and shown by a series of tests to be twice as strong as the best leaf furnished by American drug houses.

Although *Digitalis purpurea* grows wild in California, Oregon and Washington, we have always imported our supply from England and Germany. For some years before the war, German digitalis was coming more and more into use. No American house is yet supplying a digitalis so strong and so reliable as the titrated leaf put out by Caesar and Loretz of Halle. I used this almost exclusively from 1909 to 1915.

In 1916, I obtained some wild digitalis leaf that was collected in Hobart, Wash., by my friend, Dr. Harris B. Haskell. This proved to be very active; in fact, the leaf of the first year plants was as strong as any I have ever used. It was twice the strength demanded by the pharmacopeia.

In 1916 and 1917, Morrison and I studied twenty-four specimens of American digitalis, both wild and cultivated, grown in different parts of the country. Only six of these were stronger than the pharmacopeial standard, three of the required strength, and the remaining fifteen weaker. Of the three most active leaves, one was from Washington, one from Virginia and the third from the experimental station of the University of Minnesota. Our studies showed that cultivated leaf may be as strong as that of the wild plant. Two specimens of Washington leaf of the crop of 1916 were weak. In 1917, leaf gathered at the same place (Hobart, Wash.), and at the same season of the year and treated in the same way as the strongest leaf of 1916, was found to be so weak as to be valueless in ordinary therapeutic doses.

We have learned that active leaf can be obtained at times at least as far North and East as Portland, Maine, as far South as Virginia, in the Middle West and in the Rocky Mountains, and that good digitalis grows wild in great quantities in parts of Oregon and Washington. In spite of the fact that excellent digitalis both wild and cultivated grows on American soil the large wholesale drug houses supply an inferior digitalis, and there is great difficulty at this time,

and there has been for the past year, in getting good preparations. Steps should be taken to remedy this difficulty. Specimens of wild Oregon and Washington leaf should be tested, and when found to be strong it should be gathered in large quantities. A good leaf may preserve its strength for several years. Tinctures deteriorate much more rapidly than the dried leaf.

EMPLOYMENT OF DIGITALIS

For the past eight years I have followed the rule of Withering and pushed the drug until a physiologic effect was obtained. My experience with this method has demonstrated that large doses are not dangerous when the cases are carefully followed, and that the drug gives brilliant results in heart failure associated with auricular fibrillation, as Mackenzie has shown, and that it is beneficial in some cases of heart failure with normal rhythm.

In hearts with normal rhythm, slowing of the pulse is still generally regarded as a measure of digitalis action but my observations confirm the findings of Mackenzie⁵ and Cohn and Fraser⁵ that the drug rarely slows the pulse except in auricular fibrillation until toxic symptoms are produced. In auricular fibrillation slowing of the pulse in the vast majority of cases can be brought about readily and quickly if an active preparation is given in the proper amount. The action of strong digitalis in slowing the rapid pulse of auricular fibrillation is so definite that it furnishes a simple and reliable means for determining the activity of any digitalis preparation.

Physicians should learn to recognize the presence of coupled beats with the stethoscope. When they appear, the drug should at once be discontinued. The development of heart block may be followed by a striking improvement in the condition of the patient. Vomiting when induced by digitalis is quite distressing. It may be preceded by a day or two of complete anorexia. When this loss of appetite develops suddenly in a patient I usually discontinue the drug, knowing that it is an indication that the physiologic limit has been reached and that distressing nausea and vomiting will follow if more digitalis is given.

It makes no difference in what form digitalis is given, whether as the fresh tincture, or the powdered leaf in capsules or pills, provided an *active* leaf is used. The use of the infusion should be condemned. It has no advantages. It may upset the stomach and it loses strength quickly. If a tincture is employed, minims or cubic centimeters, not drops, should be used. As I pointed out in a previous paper, it usually takes from 35 to 40 drops to equal 15 minims or 1 c.c. if an ordinary medicine dropper is used. Recently I saw a case with a physician who thought he had given a rather large amount of digitalis in forty-eight hours to a patient, 2 c.c. four times a day, or 16 c.c. in all. He made the common mistake of reckoning 15 drops as 1 c.c. Investigation showed that it took 55 drops with the medicine dropper used, so the patient had received only 4.3 c.c.—less than a third of the calculated amount.

The ordinary dose of a strong digitalis preparation is 1 c.c. of the tincture or 0.1 gm. of the powder three or four times a day. The physiologic effect is usually obtained when 2 to 2.5 gm. of the leaf are taken within from five to seven days. If more rapid

4. Pratt, J. H.: Boston Med. and Surg. Jour., 1910, 163, 279.

5. Cohn, A., and Fraser, F.: Tr. XVII International Congress of Medicine, Sec. VI, Medicine, London, 1914.

action is desired, 1 gm. may be given within the first twenty-four hours.

I have occasionally used some of the weaker preparations in doses of 40 minims and even 1 dram without any result. I have given a tincture of digitalis supplied to the Army by a leading American pharmaceutical house in dram doses every three hours for twenty-four hours to a pneumonia patient without affecting the pulse or disturbing the stomach.

Whether a weak leaf in very large doses would yield as good results as a strong leaf in ordinary doses is unknown. This is a question that should be settled.

In auricular fibrillation, after the patient has been well digitalized the slow pulse should be maintained by the constant administration of sufficient digitalis to maintain the rate below 80 and to prevent the occurrence of a pulse deficit. In some cases the circulation is best maintained at a much lower heart rate. In one patient under constant administration of digitalis the pulse has rarely been above 50 during a period of two years.

Digitalis is indicated in every form of heart failure. The best results are seen in cases of auricular fibrillation. It rarely seems to be of benefit in myocardial weakness due to aortic insufficiency, but this valvular lesion is not a contraindication to its use, as was taught by Corrigan.

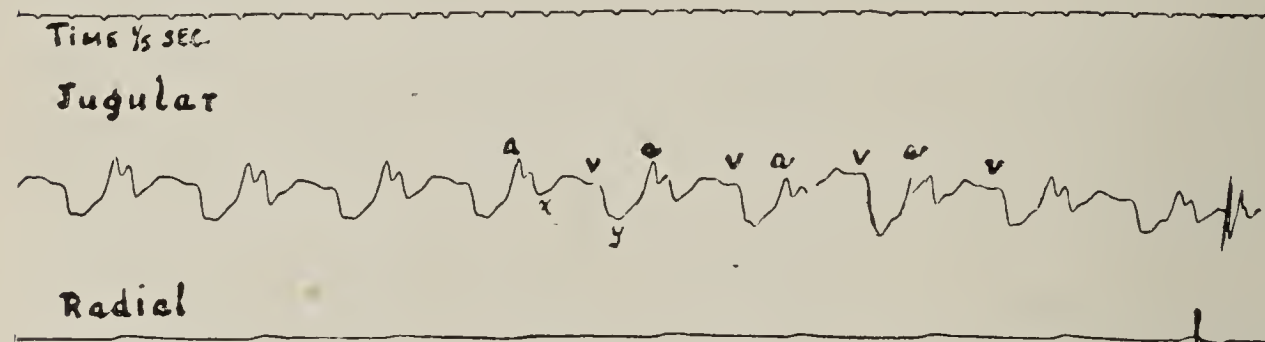


Fig. 1.—Tracing of jugular and radial pulses, taken March 8, showing a well marked venous pulse with a distinct *a* wave.

DIFFERENT PREPARATIONS

Many attempts have been made to substitute the single glucosids of digitalis for the crude drug in therapy. The "German digitalin" is a favorite with many physicians. This is a mixture of alkaloids of varying strength.⁶ It is cheap, which may explain its popularity. It is sometimes put out in tablets of 1/100 grain for subcutaneous use, although 100 times that dose has been given without injurious effect. There seems no justification for its use.

The "French digitalin" is an entirely different substance. The fact that two different extractives are put out under the same name has led to much confusion. The French digitalin is obtained by the method of Homolle. It consists chiefly of pure digitalin (digitalinum verum of Kiliani). It is sold in the form of Natavelle's granules. Each granule contains 1/240 grain (0.25 mg.), and is equivalent to 1½ grains (0.1 gm.) of good digitalis leaf. It is a trustworthy preparation⁷ and deserves more extensive use in this country.

Certain proprietary preparations of digitalis have had an extensive sale during the past ten years. Chief of these are digalen, digipuratum and digifolin. The

first of these, digalen, has been most extensively advertised, and extravagant claims made for it. It has been found to be a weak digitalis preparation. The statement of the manufacturers that it does not produce nausea or vomiting in therapeutic doses seems justified by its lack of strength. The experiments of Hatcher and Eggleston⁸ have shown that the gastric disturbances induced by digitalis are due to the action of the drug on the central nervous system and not on the gastric mucous membrane.

German digipuratum is an active digitalis made from carefully selected leaves, and the tablets contain the proper dose for ordinary use. Naturally physicians who had been employing weak tinctures obtained better results when they gave digipuratum. While using the strong titrated leaf of Caesar and Loretz, I never found any advantage in giving digipuratum.

Digifolin is a Swiss preparation that is similar to the German made digipuratum. Both produce nausea and vomiting when pushed, as do all forms of active digitalis.

A warning should be sounded against the use of the tincture of strophanthus as a substitute for digitalis. The reason for this is the variability and uncertainty of its absorption from the gastro-intestinal tract. A tincture of strophanthus, used at the Massachusetts

General Hospital in the ordinary doses without any untoward result or even definite physiologic effect, was tested in the laboratory by Wesselhoeft and myself on frogs by the one hour method and found to be 100 times as strong as a good digitalis tincture. That the patients not only lived but manifested no toxic symptoms is good evidence

that the drug was not absorbed from the stomach or intestine. If by chance absorption of such a toxic preparation should occur, the result would be disastrous, and fatal cases are found in the literature. There is no justification for the use of a drug that usually has no action on the heart because not absorbed, and which if well absorbed, as sometimes happens, would injure or even kill the patient.

STROPHANTHIN AND OUABAIN

Strophanthin is a remedy which, if given intravenously, may save lives that would otherwise be lost. It has not received the attention it deserves, and at the present day is more often condemned as a dangerous drug than praised for its undoubted value in strengthening the heart. I have seen it restore the circulation after the pulse at the wrist could not be felt or the heart sounds heard. Many deaths have doubtless resulted from its employment in too large doses, far more I know than the published reports would indicate. Boehringer's preparation of amorphous strophanthin has been chiefly employed. The proper dose of this is 0.5 mg., and I have never heard of any death following the injection of this amount to a patient who had not received digitalis during the preceding forty-eight hours.

6. Roth, G.: Digitalis Standardization, Bull. 102, Hyg. Lab., U. S. P. H. S., Washington, 1916.

7. Balfour, G.: The Senile Heart, London, 1896, Ed. 2, p. 271. Mackenzie, James: Diseases of the Heart, London, 1913, Ed. 3, p. 378.

8. Hatcher, R., and Eggleston, C.: Jour. Pharmacol. and Exper. Therap., 1912, 4, 113.

The fatalities that have occurred resulted from the administration of the maximum dose of 1 mg., which, when the drug was first used, was regarded as the regular dose to be employed. Fraenkel,⁹ who introduced the intravenous use of amorphous strophanthin, gave 425 injections in 1913 without any injurious effect. Ouabain, or crystalline strophanthin, has not been so extensively used clinically, and the proper dosage is not yet definitely established. Ouabain obtained by Thoms' method of extraction seems to be more toxic than that prepared by the method of Arnaud. As Thoms' ouabain is twice as strong as Boehringer's amorphous strophanthin, the use of larger doses than 0.25 mg. may prove to be dangerous. Vaquez and Lutembacher¹⁰ have given 2,000 injections of Arnaud's crystalline strophanthin in 0.5 mg. doses without any untoward action. I have obtained only benefit from strophanthin; but I never give more than 0.5 mg. of the amorphous strophanthin at a dose and have never repeated it oftener than once in twenty-four hours.

Burroughs and Wellcome supply amorphous strophanthin in tablets of 1/500 grain for intravenous use. Agassiz,¹¹ using this preparation, found that a dose of 1/250 grain had a definite effect in reducing the pulse rate in cases of auricular fibrillation. From a study of the literature he concluded that definite benefit from strophanthin had been obtained only in cases of heart failure associated with auricular fibrillation. Rowland, working under Mackenzie, concluded, according to a statement made in the textbook of the latter, that in cases of heart failure with regular rhythm, strophanthin intravenously had very little effect on the general condition and no effect on the pulse rate or blood pressure. I have recently used Burroughs and Wellcome's preparation, giving four tablets equal to 1/125 grain or 0.52 mg. in a single dose with benefit and without untoward results. I have obtained from strophanthin given intravenously striking benefit in some cases of heart failure with regular rhythm. As improvement has occurred in forms of heart failure that are rarely, if ever, relieved by digitalis, it suggests at least that strophanthin given intravenously exerts an effect on the contractility or tonic of the heart muscle that is not obtained from digitalis in therapeutic doses.

I shall report one case in detail, as the evidence is most convincing as presented in the notes that the strophanthin had a prompt and definite effect in increasing the strength of the heart. The tracing of the venous pulse shows that the rhythm was normal. The pulse was not slowed by the strophanthin, but there was a definite rise in the blood pressure. The dilatation of the heart as determined by the percussion of the cardiac outline was not diminished. From these facts the conclusion seems justifiable that the benefit was due to the action of the strophanthin on the contractility of the heart muscle.

REPORT OF CASE

Heart failure in a case with normal rhythm; urgent dyspnea, Cheyne-Stokes breathing; chronic interstitial nephritis; great improvement following one intravenous injection of strophanthin.

History.—D. N., a man, aged 59, case 195389, Massachusetts General Hospital, Service of Dr. Edsall, when admitted, May 8, was at once placed on the danger list. There was marked Cheyne-Stokes breathing. It was thought that he was suffering from renal asthma, and hence was treated as having uremia. Treatment consisted of hot air baths, magnesium sulphate and morphin. This treatment was continued until May 13, when I was given charge of the case.

Bedside Notes.—May 13, breathing was labored, 19 a minute, typically Cheyne-Stokes in type; there were apneic periods lasting from fourteen to twenty-five seconds. The left border of the heart was in the axilla 17.5 cm. from the median line. The apex was not felt but was made out by percussion in the sixth interspace. The left border of absolute and relative cardiac dulness coincided. There was no dulness to the right of the sternum. The lower border of pulmonary resonance was in the fourth space, right nipple line. There was a systolic murmur at the apex. The rate was 76 about one hour after a hot air bath. The lower border of liver dulness was at the costal margin. The abdomen was distended, bulging in the flanks, but tympanitic throughout.

May 14, the patient had a poor night, being much disturbed by coughing. He felt very weary. He was restless and sat

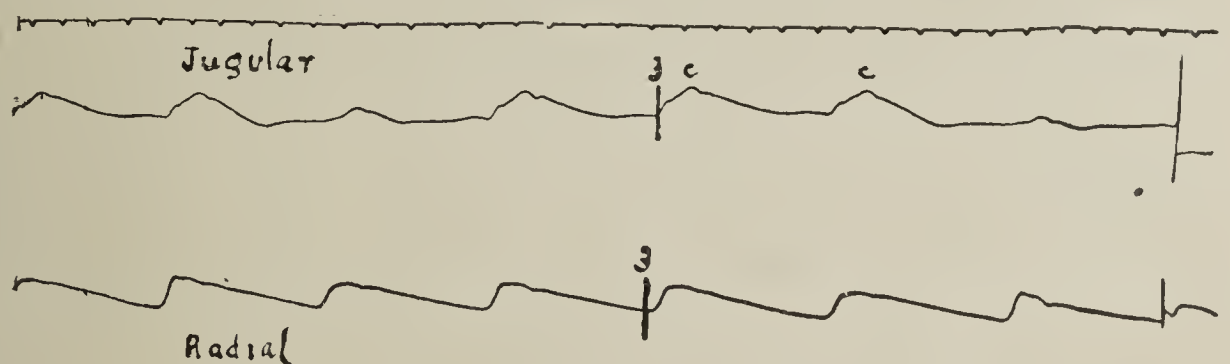


Fig. 2.—Tracing, taken March 15, the day following the intravenous injection of strophanthin. The pulse has disappeared, only the carotid wave being obtained in the neck. The radial tracing shows a regular rhythm.

upright, although supplied with four pillows and a bed rest. Breathing was labored, definitely Cheyne-Stokes, apneic periods of thirty seconds being observed. The rate was 18 per minute. The sternomastoids were prominent, and contracted markedly with each inspiration. There was fulness above the inner third of the clavicles because of venous engorgement, and two waves were distinctly seen in the marked venous pulse on both sides of the neck. There was slight impairment of resonance at both bases of the lungs, more so on the left. Breathing was loud and harsh over the entire right front. At times fine sibilant râles were heard during expiration at the right base. At the left base there were fairly numerous, fine, moist râles. Early in the examination distinct bronchial respiration was noted at the left base which later became much diminished and not bronchial. Vocal fremitus was normal. A diffuse cardiac impulse could be seen 7 cm. outside the nipple line, but was not definitely palpable. The left border of absolute and relative cardiac dulness was in the midaxilla in the sixth interspace. The upper border of absolute cardiac dulness was at the third left costal cartilage. The right border of absolute and relative cardiac dulness at the fourth space was 3 cm. to the right of the midline. The lower limit of pulmonary resonance was at the fifth rib in the right nipple line. The cardiohepatic angle was acute. There was dulness over Traube's semilunar space. The heart sounds were well heard in the midaxilla and were of good quality over the entire precordium, excepting in the fourth and fifth interspace, 3 cm. to the left of the midline, where a blowing systolic murmur replaced the first sound. The aortic second and pulmonic second sounds were both possibly pathologically accentuated. The abdomen was full, rather tense and tympanitic through-

9. Fraenkel, A.: Therap. d. Gegenw., 1914, 16, 200.

10. Vaquez, H., and Lutembacher, R.: Arch. d. mal. du coeur, 1917, 10, 461.

11. Agassiz, C.: Heart, 1912, 3, 353.

out. There was slight fulness but no definite edema of ankles. There was slight hard edema over the sacral regions.

May 14, at 11:45 a. m., 0.5 mg. of strophanthin was given intravenously. The blood pressure just prior to the injection was 175 mm. of mercury; the blood pressure fifteen minutes after the administration of strophanthin was 205 mm.; ten minutes later it was 202, and the pulse 73. At 12:45, the blood pressure was 202, and the pulse 79. Within fifteen minutes after the administration of strophanthin the breathing became less labored and the Cheyne-Stokes breathing gradually became less, and at 1 p. m. it was noted that it had ceased. At this time the breathing had become abdominal in type; prior to the injection the respiratory movements were largely confined to the uppermost part of the thorax. At 1 p. m. the patient had lost his anxious expression, and the restless movements of his body had ceased. He said he felt very much better and "less tired."

May 15, when seen in the morning the patient was asleep; the respirations were quiet. There were slight movements of the lower part of the thorax, but this may have been due to the muscular twitching. Later, when a careful examination was made, the respirations were regular, and 19 to the minute. The patient was then awake. The night report stated that he had had the best night's rest since his admission. He coughed occasionally and raised some mucopurulent expectoration. His expression was placid; he dozed frequently and said that he felt perfectly comfortable. The left border of cardiac dulness was in the midaxilla, 17 cm. from the median line in the sixth space; the upper border of absolute cardiac dulness was at the fourth costal cartilage; the right base of absolute cardiac



Fig. 3.—Tracing, taken May 22, of radial pulse showing normal rhythm.

dulness was 2 cm. to the right of the median line. The lower border of pulmonary resonance was at the sixth rib, right mammillary line. The systolic blood pressure was 185 mm. of mercury and the diastolic 125 at 11:35 a. m. The venous pulse in the neck was no longer distinctly visible. In tracings made of this no *a* or *v* waves could be made out.

At 11:30 a. m., while I was observing the patient, Cheyne-Stokes breathing was resumed and the patient became a little restless and the expression somewhat anxious. An intravenous injection of 0.3 mg. of strophanthin was given, and administration of digitalis begun, 0.1 gm. thrice daily. This was continued until 2 gm. were taken.

May 16, the respirations were regular, 19 per minute. The pulse was 72 and regular. The patient was comfortable except for dull pains in the legs and ankle. He was lying down low on the bed rest and took greater interest in his surroundings. The heart borders were the same. There was no edema.

May 18, the cough was much less. Respirations were quiet. There was no Cheyne-Stokes breathing. The rate was 19. There was vesicular breathing in both backs. There were numerous moist râles at the left base, but none at the right. Examination of the heart revealed a visible systolic outward thrust, 15 cm. out in the sixth space. At 11:45, Cheyne-Stokes breathing was observed with short apneic periods.

May 20, there was no cough. The pulse was 68.

May 21, tracing showed an occasional extrasystole not felt in the radial pulse; but a long pause was noted at the wrist.

May 22, the pulse was 68. The respirations were 20. There were no dropped beats.

May 25, there was one dropped beat in a minute. The apex impulse was high and quite forcible in the sixth interspace, 14 cm. out. The left border of relative cardiac dulness was 16.5 cm.; the left border of absolute dulness, 13.5; right, 2 cm.

There was a distinct venous pulse. Examination of the lungs revealed no dulness or râles.

May 26, the pulse was 70. The patient was now comfortable.

May 31, he was up for half an hour with no bad effects.

June 9, he was up two hours.

June 13, the patient was discharged.

In this case of heart failure with normal rhythm, as shown by the polygraph tracings, severe dyspnea, which had been present continuously since the patient's admission to the hospital—a period of eight days—was lessened within fifteen minutes after the intravenous injection of 0.5 mg. of strophanthin, and within one hour and fifteen minutes the marked Cheyne-Stokes breathing entirely disappeared. The blood pressure was raised 30 mm. of mercury in the fifteen minutes following the injection.

SUMMARY

Much of the digitalis now being used in the country is of poor quality.

Active leaf grows in various parts of the United States from Maine to the Pacific coast.

Digitalis from the same locality may vary greatly in strength from year to year.

To obtain the full therapeutic effect, the drug should be pushed until it acts on the stomach, the bowels or the pulse, and should then be discontinued for a few days at least.

Amorphous strophanthin given intravenously may exert a direct and beneficial action on the heart muscle that has not been observed when digitalis was given to patients.

ABSTRACT OF DISCUSSION

SIR JAMES MACKENZIE, London, England: I can support Dr. Pratt

in nearly everything he says, but I have never found an inefficient sample in England. There is another point: I am doing a little bit of propaganda work. Many years ago it used to grieve me to see men go from me to Germany and come back with a blood pressure instrument and think they were heart specialists. For some years the English system gradually fell into disuse and everybody went off to worship false gods. The physician, instead of being a superman and saying what he will do to the surgeon, is inferior to them all. The physician is subject now to the surgeon and to the pathologist who is making a vaccine. John Hunter was an ordinary physician, but he was the greatest surgeon of the day, the greatest physician of the day and the greatest pathologist of the day, and if you will read about him you will find he knew more about medicine than anybody. He was the man who described gallstone colic and he was the first to describe Cheyne-Stokes breathing. He was a careful observer, following the English system of observation. Professor Cushny first told me about Withering. I had analyzed the cases that I had treated with digitalis, and then I read Withering's book, and I found that Withering had anticipated me. His observations about auricular fibrillation were put in a better paper than all the pharmacologists and physiologists in the world have ever written. I want you to think of that and what that means.

Fly Poison.—Phelps and Stevenson, of the United States Public Health Service, recommend an aqueous solution of sodium salicylate sweetened with brown sugar as fly poison. Three teaspoonfuls of this powder in a pint of water is the proper dilution. This fly poison has the distinct advantage of being nonpoisonous to children, while equally as effective as the more poisonous substances employed.

INTESTINAL PARASITES IN CHILDREN *

H. M. McCLANAHAN, M.D.

OMAHA

Every animal, including man, is an unwilling host to one or more kinds of parasites. A number of these produce serious diseases. At the present time, more than 300 kinds of animal parasites have been described for man, and the list is constantly growing. By the term parasite is understood a living organism, which, for the purpose of obtaining food, takes its abode temporarily or permanently on or within other living organisms.

There are two great general divisions, vegetable, or phytoparasites, and animal, or zooparasites. While the phytoparasites offer a rich field for research and cause many serious diseases, they will not be considered in this paper. The zooparasites invade every organ, tissue and fluid of the human body. Their significance as an etiologic factor in disease is becoming more appreciated and understood.

There are ectoparasites, which live on external surfaces of the body or in cavities easily accessible from the exterior. This class will not be discussed in this paper. Endoparasites are those that live in the interior cavities, or fluids, or tissues of the body. Parasites are temporary, as in the case of fleas and bedbugs, and permanent, as in the case of many classes of helminths. Some parasites are confined to certain hosts, and are called specific parasites, as the beef tapeworm, which is specific for man alone. Other parasites thrive equally well in several hosts. These are called cosmopolitan, such as the *Dipylidium caninum*, a tapeworm found in the dog, the cat, and man. There are examples of free living animals which become parasitic when introduced into the body, as the vinegar eel. These are called facultative parasites.

CLASSIFICATION OF ANIMAL PARASITES

The foregoing gives a general survey, but is not scientific. With the morphologic characters used in classifying free living animals, as a basis of classification, animal parasites in man occur in four of the great primary phyla of animals.

First come the protozoa, or one-celled animals, four classes of which include parasites pathogenic to man, such as the endameba of dysentery, the treponema and the *Balantidium coli*. Second, come the arthropoda, including five classes, two containing parasites of man, and all containing many orders, including the cereal mites, mountain ticks, lice, etc.

Third, come the platyhelminths, or the flat worms, and fourth, the nematelmints, comprising the large group of round worms. Only certain classes of the last two phyla will be considered in this paper. The platyhelminth group is subdivided into three classes. The first class, *Turbellaria*, is rarely found in man. The second class, the trematodes, includes the flat, unsegmented worms, with one or more suckers, popularly known as flukes. It also includes a large number of parasites pathologic to man, but is beyond the scope of this paper. The third class, the cestodes, includes the girdle form flat segmented worms, or tapeworms. Up to the present, thirty varieties of tapeworm have

been described. Of these, the following are the important parasites in man: The beef tapeworm, or *Taenia saginata*; the pork tapeworm, or *Taenia solium*; the fish tapeworm, or the *Dibothriocephalus latus*: The dog or cat tapeworm, the *Dipylidium caninum*, is probably the most frequent in infants. The larval stage is passed in the flea, which lives on the skin of the animal, and in turn is swallowed by its host. The *Hymenolepis nana* and the *Hymenolepis diminuta* are small cestodes from one fifth of an inch to one inch in length, whose life history is not yet complete. By some, they are thought to be identical with the cestode of the rat, and conveyed by that rodent to man.

There is a somatic group of cestodes which exist in a larval form, the most common being the echinococcus, causing hydatid cysts, etc.

The fourth phylum, the nematelmints, comprise the largest group of intestinal worms. This series is divided into three classes: First, *Acanthocephalia*, or the thorny headed worms, very rare in the human family; second, the *Gordiaceae*, or hair-snakes, living in water, also rare in man.

The third class, the nematodes, contains the largest number of important parasites in man: First, the pig-worm, or roundworm, the *Ascaris lumbricoides*; second, the pinworm, threadworm or seatworm, the *Oxyuris vermicularis*, the most frequent in infants; third, the hookworm, a group known by various names, such as the *Necator americanus*, *Ancylostoma duodenale*, the *Strongyloides intestinalis*, the *Strongyloides stercoralis*, and the *Uncinarias*; fourth, the *Trichuris trichiura*, or the whipworm, quite common and least harmful in children. Two other classes not included in this paper are the *Trichinella spiralis* and the *Filariae*.

CONCLUSIONS OF OTHER WRITERS

The foregoing arrangement is abstracted from a general classification arranged for me by Dr. F. B. Barker, professor of parasitology, University of Nebraska. In my examination of standard textbooks on parasitology, this classification appealed to me as more practical and easier to comprehend. Much valuable literature on this subject has appeared in recent years, some of a purely scientific nature, concerning the life history of helminths, and their geographic distribution.

Prof. Henry B. Ward,¹ of the University of Illinois, has called attention to the fact that the recent textbooks fail to convey the proper ideas concerning the tapeworm class, and that the tapeworms of the beef, pork and fish are rare in infancy, but the tapeworm of the dog and rat is more common. I quote from his article as follows:

Of 100 cases of the dog tapeworm on record, 34 per cent. of cases in sucklings of 1 to 6 months; 42 per cent. in infants 7 months to 3 years; 10 per cent. 4 to 8 years, and only 13.5 per cent. above 8 years.

As a further evidence of the frequency of parasites in children, I call attention to an article by Oscar M. Schloss.² I abstract as follows:

These investigations were conducted upon 310 children of from 2 to 12 years old, for the purpose of determining, first, the frequency with which children of this age harbor intestinal worms; second, the species of parasite harbored, and the relative frequency of occurrence; third, the number of cases

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Ward, H. B.: Arch. Pediat., 1916, **33**, 116-123.

2. Schloss, O. M.: Am. Jour. Med. Sc., 1910, **139**, 675-705.

in which intestinal worms are responsible for symptoms, and the nature of the symptoms produced; fourth, the occurrence and significance of eosinophilia in infections with intestinal worms.

He gives the following summary and conclusions on his work in New York: First, twelve of thirty children who suffered from unexplained nervous and gastro-intestinal symptoms were found to harbor intestinal worms. Second, consecutive examinations of 280 children showed that eighty, or 28.5 per cent., harbored intestinal worms. Five of the children harbored two species of parasites, giving a total of eighty-five infections. Third, thirty-one, or 11 per cent., harbored *Trichuris trichiura*; twenty-three, or 8.25 per cent., *Oxyuris vermicularis*; twenty, or 7 per cent., *Hymenolepis nana*, and five, or 1.75 per cent., *Taenia saginata*. Fourth, only one of thirty-three children infected with *Trichuris trichiura* suffered from the symptoms, while thirty-five out of the fifty-one infected with other parasites suffered from the symptoms. Fifth, eosinophils were not increased in *Trichuris trichiura* infections and were usually absent in infection with other parasites, when there were no symptoms of helminthiasis, but were usually present when such symptoms were present.

The writer's conclusions were as follows: First, intestinal parasites are not infrequent among children of the poorer classes of New York City. Second, intestinal parasites may be harbored without inconvenience to the host, and on the other hand symptoms may occur which are always deleterious and sometimes severe.

SYMPTOMATOLOGY

As is well known, all manner of symptoms are attributed to intestinal worms. In the south and other countries where the hookworm prevails, the symptoms are quite characteristic. We have seen but one case in Omaha, in a child who had spent the summer in Florida. The beef, pork and fish tapeworms have no characteristic symptoms. In my experience they are usually detected by observation of the segments of the stools. Among the recent articles on fish tapeworm, mention is made of the fact that the patients have a peculiar weakness out of proportion to the symptoms, and generally a high eosinophilia. It is believed by some authorities that this parasite elaborates a toxin. The larger roundworms may cause symptoms, the two chief ones being abdominal pain and mucus in the stool, also their migration. Twice in my personal experience patients have vomited roundworms. Twelve cases of obstruction of the bowels by masses of roundworms are reported. Threadworms are more frequent in infants, and while they may infest the upper bowel, they are usually present in the lower bowel. The most characteristic symptom is itching, with pruritus ani. The worms may often be discovered by careful inspection. Four times in the last year, I have been able to diagnose this type by inspection. The real proof of the presence of worms is the discovery of the ova in the stool. In his work on "Faeces in Children and Adults," Cammidge calls attention to errors that may occur in stool examination, and shows that even good observers may be mistaken. Muscular fibers, the parenchyma of fruit, the cuticle of seed, elastic tissue, banana fiber and mucus have all been mistaken for worms or ova. Quite frequently, children will pass worms during acute sickness. I have noted this in cases of

cerebrospinal meningitis, in typhoid fever, in pneumonia and in enterocolitis. In one case of a child whom I was treating for mucus diarrhea, he passed at one time three roundworms and after that promptly recovered. Aside from the symptoms, intestinal worms may do damage by their migration, by the production of leukomains, as has been recently pointed out, by the decomposition of dead worms in the intestinal tract, and by the mechanical irritation of the lumen of the bowel, causing excessive secretion of mucus and interference with absorption. The hookworm living off the blood of the host causes a severe anemia, either by abstracting the host's blood or by developing toxins.

THE THERAPEUTIC TEST

I wish now to call attention to what I may term the therapeutic test. It is my impression that physicians as a class minimize the importance of intestinal helminths. As we all know, the lay public attribute all manner of symptoms to intestinal parasites. We so often hear the question, "Does this child have worms?" that we are in danger of overlooking them when they are actually present. For several years, I have made it a rule, in selected cases, to apply the therapeutic test, with the consent and cooperation of the mother. I have followed a routine procedure as follows: The child is given a cathartic in the evening, a light supper and no breakfast; and in the morning, the treatment is instituted. I have employed a combination of santonin and calomel, or the fluid extract of spigelia and senna. I am in the habit of combining this remedy with the syrup of blackberry. These remedies are followed by a brisk cathartic of either castor oil or solution of magnesium citrate. The mother is instructed to have a vessel containing water ready, and the stools are carefully examined. Any suspicious particles are put in a bottle and brought to me for inspection. Very frequently, I find strings of mucus, or banana fiber, which the mother feels very certain is a parasite. Also vegetable fibers are obtained, and particles of meat that require careful inspection. I have notes on the cases of fifty-seven children ranging in age from 4 to 12 years, in which this routine treatment was employed. As a result, three of the patients passed roundworms, one passed some segments of a taenia, and two passed threadworms, making a total of six, or a little more than 10 per cent. of the number. These were all run-about children having minor ailments and in none was there any positive evidence of worms.

In my experience, the threadworm is the most frequent in infants from 1 to 3 years old. All infants suffering from pruritus ani should be carefully inspected. These patients are very difficult to cure. In one of my cases, persistent treatment was continued for eight months. It is an error to depend entirely on local treatment. It is now known that these parasites may infest the bowels so high up as not to be reached by an enema. The treatment I employ is as follows: Once a month, the infant is given small doses of calomel and santonin, usually four doses one hour apart, and followed in an hour by a cathartic. In seven cases, large numbers of worms were expelled. Each night the mother applies a salve composed of mercurial ointment, 2 drams, and benzoinated lard, 2 drams. She is instructed carefully to separate the folds when applying this salve. Following a suggestion made by Holt in his textbook, I have used an

infusion of garlic, for which two bulbs are sliced and boiled in a pint of water and strained. This treatment is kept up for a week and then, after an interval of three weeks, is resumed again. In four cases, two series of treatments have resulted in a complete eradication of the parasite. I have had one case of the dog tapeworm in a child aged 16 months. This child had as constant companion a pet dog. The youngest patient having a beef or pork tapeworm was 16 months old. This infant had been fed for a long time on raw scraped beef. I have had many failures in the treatment of the tapeworm because of the inability of the child to retain the remedy. In one case in which I had two such failures, at the third treatment I introduced the remedy through a catheter into the stomach. This treatment was successful in expelling the head.

It has been my experience for many years that when the head is not expelled, an interval of about three months elapses before segments appear in the stool. Treatments should not be repeated until segments do appear. I have employed either the ethereal extract of male fern or of pelletierin tannate.

Roundworms in children, which often cause no symptoms, are, no doubt, the most frequent variety of parasites. They may be conveyed to the child in uncooked fruit, in vegetables and in drinking water, and the ova may be carried by the common house fly. My treatment for this variety of worm is the combination of santonin and calomel as in the treatment of pinworms. Twice in my experience, a repetition of the treatment resulted in the expulsion of worms a second time from the same host. Hence, when roundworms are discovered, I advise a repetition of the treatment.

COMMENT

An inquiry among the druggists of Omaha elicited the fact that worm medicine commanded a large sale, some saying as large a sale as cough syrups. All anthelmintics are poisons. Bastedo states that three grains of santonin have proved fatal to a child. I have had three serious cases of poisoning in children from the use of worm medicines. Would it not be wise for physicians to warn parents of this danger? Only recently THE JOURNAL has called attention to one of the patent worm medicines containing santonin.

Intestinal parasites may be the cause of obscure symptoms in children not explained by careful clinical examination.

ABSTRACT OF DISCUSSION

DR. WILLIAM WESTON, Columbia, S. C.: In 1902 we endeavored to eradicate uncinariasis in a community of about 8,000 population, and among that number we treated 1,600 cases of uncinariasis. Uncinariasis is an importation from the west coast of Africa. Our findings differed materially from the findings of English physicians who had worked with this disease in Egypt. We had a high birth rate among the population affected and a comparatively low death rate, but their efficiency was markedly affected. The ease with which the parasites may be eradicated is another point of great interest and importance. We tried all kinds of drugs, and we found oil of chenopodium was the best remedy. Another point, we seldom found a case that was not complicated with other intestinal parasites, and the use of oil of chenopodium was equally effective in the elimination of these other intestinal parasites as with the uncinaria.

DR. LANGLEY PORTER, San Francisco: The older clinicians were very insistent on the fact that one could not get rid of the ordinary thread worm unless the child was protected from

reinfection. The child scratches, the eggs get under the finger nails, and so reinfection constantly takes place. Most old textbooks recommend that the fingers be protected during the period of infection. A good protector is flexible collodion. Dr. McClanahan's suggestion about a stomach tube sounds like good advice. Years ago I was unsuccessful in securing the head in a case of tapeworm, and the father took the child to a charlatan tapeworm specialist—a layman. This man used ordinary male fern extract and divided the dose, administering it by capsule. The child was wrapped up and one of the capsules was tossed back behind the tongue into the pharynx. It seems to me this method may be less disturbing than the stomach tube. Another point about tapeworm, and that is the passage of the worm. The loss of the head comes from mechanical fracture, and if the child is placed on a vessel filled with water, at body temperature, the weight of the worm is supported, and there is no contraction of the worm due to change of temperature, and so, if these precautions be taken, the head is more frequently obtained than otherwise.

DR. C. F. WAHRER, Fort Madison, Iowa: When I was a young boy on the farm our drinking water was contaminated with many things that should never get into a baby's stomach, and old granny was right possibly half the time when the child looked pale around the mouth and crunched its teeth and was nervous, in saying that the child had worms, and she thought there was nothing so good as to give two or three teaspoonfuls of turpentine. Dr. McClanahan's paper is very timely, especially when he warns parents not to dope children with all kinds of worm medicine, especially turpentine. This is sometimes dangerous. Not long ago I was called to see a child 4 years old. The mother had given four teaspoonfuls of turpentine for worms. The child was suffering with a severe case of strangury, and was dead in twenty-four hours. Not long ago a woman came to me with a child about 7 months of age, and showed me a stool just full of what looked like worms. I made a slide and found it was banana threads. She had already given turpentine three times and was also giving some vermifuge in heroic doses. She had given the baby three or four bananas in one day. It is wonderful how children can survive.

I would suggest that in these days of better water supply we make our diagnosis of worms in children tentative until it can be verified before using worm therapeutics.

DR. ALBERT H. BYFIELD, Iowa City, Iowa: About a year ago a child of 2 years came to our clinic with intestinal parasites and a violent pyelocystitis. All of the classical remedies were used without avail. The patient presented a history of harboring not only the fine pinworm, but also the ascaris. Feeling that intestinal irritation was possibly keeping the pyelitis alive, I proceeded vigorously in an endeavor to rid the child of worms. After about eight weeks the pus diminished in quantity, the urine became quite clean and, although I kept in touch with that patient for over a year, there has not been the slightest return of the trouble.

DR. HARRY M. McCLANAHAN, Omaha: There was one point I left out in reading, that is, that we so frequently discover intestinal parasites during acute infections. As to hookworm, of course, I merely mentioned it, as we do not have hookworm in our part of the country. I appreciate what was said about oil of chenopodium. As to the question of reinfection by scratching, that point is well taken. A word of warning as to the use of mercuric salve: While it is valuable in the treatment of this condition, there is the danger of pyalism, and we should be on the lookout for it.

Old Time Specialists.—It appears from the writings of Herodotus that the physicians of Egypt were considered the most learned in the world, and that they practiced specialties, being divided into oculists, dentists, surgeons, accoucheurs (mostly women, but also men), etc. From the researches of Ebers we learn that the physicians wrote prescriptions which were compounded by a special class of medical men who were practically apothecaries or dispensing pharmacists, and Rawlinson says that all physicians were separate, as a class, from the priests.—Wall, *The Prescription*.

THE ETIOLOGY AND TREATMENT
OF ENURESIS *

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About 200 cases of bedwetting were studied for a period of more than seven months. Most of the patients of less than 4 years of age and a few older ones were not used because they were not sufficiently developed mentally to be willing to undergo privations as an end to their cure. Children more than 12 years old were not seen. The treatment was not outlined to patients not living with their parents, who would not make the necessary sacrifices, nor to patients brought in by neighbors. Children with cord lesions or other organic nervous diseases, diabetics, and those with marked mental disorders were considered as outside the scope of this study.

Boys comprised 62 per cent. of the cases. Blond children predominated. There was a history of enuresis in the immediate family in 56 per cent., including grandparents, aunts and uncles.

In 59 per cent. of the cases, the wetting took place only at night, and 38 per cent. wet both day and night. Less than 3 per cent. were day wetters exclusively. Incontinence of feces was encountered twice. In 68 per cent. the wetting occurred every night. The remainder wet less frequently. Seventy-nine per cent. had always wet the bed from babyhood; 20 per cent. began later in life after a normal period. Of the latter, four started with scarlet fever, one with chorea, and one after a fall from a window.

CONDITIONS ACCOMPANYING ENURESIS

The etiology, as usually considered, varies from malnutrition to a concentrated urine and even adenoids. As to adenoids, 36 per cent. of my patients had had them removed without apparent relief. In two cases the wetting was definitely worse after the operation. Fifty-one per cent. of the boys had previously been circumcised, and were, nevertheless, bed-wetters. Only three boys and one girl had adhesions of the prepuce. The adhesions were not broken up, and the cases in question numbered among the easily relieved in spite of the adhesions. Acidity, alkalinity, and high or low specific gravity of the urine were all held as of little consequence, and were never allowed to influence the treatment. Pus in the urine was always considered an evidence of inflammation, often very mild, and was cleared up before the enuresis treatment was instituted.

There was a definite history of pinworms in 20 per cent. of the cases. Besides these, there was a definite history of pinworms in either a parent or brother or sister in 32 per cent. I believe a much higher percentage among the enuresis patients would be found to have worms, had they all been given an appropriate treatment to bring the worms to light. Whether the incidence of pinworms in cases of enuresis is of greater proportion than in the ordinary run of cases, I am not prepared to say, but I am of the opinion that the proportion is greater, and that the pinworms may often be of at least secondary impor-

tance in the etiology of enuresis. The worms were prevented from accumulating by the giving of calomel and santalin.

There were many accompanying conditions present, among the more frequent being pinworms in thirty-four cases, pyelitis in eleven, tuberculosis in five, chorea in four, orthostatic albuminuria in four, adherent prepuce in four, and thirteen other conditions, such as one would expect to meet in any clinic. Only two patients were feeble-minded, and four had some external genital abnormality. Most of the patients in the series were underweight, only one being definitely overweight.

About half the patients in this series had been previously treated by various other methods, many having been tried along two, three and even four lines. Twenty-six had been circumcised without any benefit, two becoming a trifle worse. Forty-nine had had their tonsils or adenoids or both removed to improve their condition. Twenty-four had had a more or less thorough "atropin treatment." Sixteen had received some form of alkali for an acid urine.

ETIOLOGY

Enuresis is probably never a disease entity, but simply a symptom or evidence of an underlying cause, namely a neuromuscular fatigue. This fatigue is not localized to the genito-urinary nerves and muscles, but is general. It is not an acute fatigue or exhaustion, but a chronic one. Enuresis patients are alike in many manifestations. They are all exceedingly active and nervous. When night comes, they are dead tired and sleep so soundly that it is almost impossible to wake them. Some slept so profoundly that it was impossible at 10 p. m. to awake them sufficiently to urinate, and when they were put back to bed they wet within five minutes. The children were never thoroughly rested because their period of sleep was never long enough to overcome the fatigue and strain of the long, active day. I believe it is due to such a neuromuscular fatigue that some children stutter and others have habit spasms. In bedwetting, control is lost over a certain group of muscles, but the general fatigue and loss of tone is behind it all.

Mental strain is often also a factor. Many of my patients attended parochial school that required almost seven consecutive hours of work. Then they were required to spend two or three hours doing home lessons at night. Such mental strain creates fatigue. If there is enuresis in such a child, it usually cannot be controlled until school is abandoned for a while and the general body tone revived.

Diet is an equally important factor in producing the general fatigue. The diet in over 95 per cent. of my cases was very poor. The patients were getting plenty of food, but not of the right kind or at the right time. More than half were getting baked beans for two meals in the week. Candy, cake, ice cream, syrup, molasses, cocoa, coffee, tea, apples, bananas, frank-forts and pickled herring were daily offenders. Indigestion was uncommon, but such articles of diet and the food eaten between meals kept the gastro-intestinal system under a constant strain, and added appreciably to the general body fatigue. Adenoids, adherent prepuce, highly acid urine and irritation from worms may also add their mite to the creation of a general fatigue. As heredity plays an important part, the fatigue may be easily explained as a congenital lack of general systemic tone.

* From the Medical Outpatient Department of the Children's Hospital.

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Not only is there an underlying cause in enuresis, namely, general neuromuscular fatigue, but there is another and most important factor—habit. After the underlying cause has been removed, the habit of bed-wetting may still remain. The treatment for the habit is very different from the treatment for the underlying cause, and is often more difficult to overcome. Many of the patients, when they present themselves for treatment, have only the habit remaining. Regularity in urination may in itself cure many of these. I imagine it is in this sort of case that suggestion, electricity, spinal douches, and surgical methods usually meet with good results in many hands.

May I compare the cause and habit in enuresis to the cause and habit in whooping cough and also in chorea? After the infection in whooping cough has long passed, the characteristic spasmodic cough often persists for months. It is simply an uncontrollable muscular habit, due to a cause no longer present. After the infection in chorea has passed, there persists again an uncontrollable habit, dependent on, but entirely different from the original cause, namely, the infection.

The size of the bladder must also be considered. When enuresis has continued from babyhood, the bladder, continually emptying itself, is probably never distended to more than a capacity of from one to three ounces. This physical condition must be treated by gradually lengthening the periods between urinations.

TREATMENT

The treatment for enuresis in this series was planned absolutely along dietary and hygienic lines, with emphasis laid especially on more sleep and rest hours. No drugs, operations or mechanical means were employed. Printed directions were supplied to each mother and every minute detail explained.

All food was forbidden between meals, even milk and bread and butter. The diet list included milk, butter, eggs, meat, fish, breadstuffs, cooked cereals, macaroni, vegetables, orange, stewed fruits and simple, unsweetened desserts. It excluded soups, coffee, tea, cocoa, sweet and salty and highly seasoned food, ice cream, candy, pastry, cake, jellies, jams, etc., condiments, bananas and raw apples. Meat, eggs and vegetables were forbidden for supper, simply to make it easy for the digestive system at night.

The child was required to be in bed by 7 p. m. If it was a very nervous child, school was prohibited temporarily, and a nap required at noon. No play was allowed after 4 p. m. The child was to be entertained by books or toys in a chair. Moving picture shows, music lessons and evening home lessons were prohibited.

The habit element was treated in the usual way. No fluids were allowed after 4 p. m. There were regular hours for urination at night, namely, 7 p. m. on going to bed, 10 p. m., and not again until 6 a. m. Many children could not go eight hours because their bladders could not distend to hold more than two or three ounces. These were made to urinate also at 2 a. m. After a few weeks, the 2 a. m. urination was omitted. Punctuality was considered of prime importance; 7 p. m. meant 7 p. m., not 7:05 p. m. A regular habit for the time of urination means a great deal.

The day wetters were made to urinate at regular, stated times, anywhere from every three hours during the day down to every twenty minutes. The interval was gradually lengthened until a satisfactory regimen was reached.

It takes courage on the mother's part to carry out every detail of the treatment, because, unless the child is anxious to overcome his condition, she will have to watch him every minute in order that he does not eat between meals or take forbidden food, and to see that after 4 p. m. he is quiet and drinks nothing. For this reason, the older the child, the more successful the treatment. At the first visit, much time was spent in explaining the details to the mother, and the reasons for them. At each subsequent visit the details were investigated by cross-examination, and the faults corrected. Rewards were offered, not for not wetting the bed, because the children do not know when they do that, but for following directions and refraining from the temptation of food and drink.

Nineteen per cent. of 131 cases did not wet the bed on any occasion after their first visit for instruction. Another 23 per cent. did not wet once after the first few weeks or months, not wetting for at least one month previous to May 1. An additional 31 per cent. were relieved to the extent that they never wet more than once a week. Thirteen and one half per cent. were partially relieved. Sixteen patients, or 12 per cent., were not relieved at all. When a combination of day and night wetting existed, the day wetting usually stopped first. This was because the child could purposely wait until the appointed time for urination. Both cases of incontinence of feces cleared up in less than a month.

After the child has been successfully wakened at 10 p. m. and 6 a. m. without wetting the bed for a few weeks, he usually wakes himself at those hours, but he should not be trusted to awake himself for fear of his oversleeping and thus breaking the "dry habit." This makes it easier to wet the next time. It may take many months of treatment to tone the body to such a degree that the enuresis habit will never recur under any conditions. After an apparent cure, an intercurrent cold or an upsetting of digestion will cause the bedwetting to begin again. This is probably due to a return of the general fatigue resulting from the infection or other disturbance.

In the treatment of enuresis, many of the other coexisting disorders were markedly improved. A habit spasm in one case and night terrors in two cases soon disappeared. Stuttering in another was greatly relieved. Attacks of petit mal were reduced 75 per cent. in one boy. The usual nervousness and irritability decreased so much that almost every parent remarked it without a hint. Almost every child gained weight. There was very often an initial loss of weight due to the fact that on the simple diet many of the children would not eat the plain food.

Many writers have described subacute inflammations of the urinary tract as either causes or accompanying conditions in many enuresis cases. It is a matter of common knowledge that mild cystitis and pyelitis are usually secondary conditions, flaring up when the patient is run down or diseased. It may be that the general body fatigue is responsible for the continuance of both the inflammation and the enuresis. On the same theory, atropin, strychnin and thyroid may act as a nerve or muscle tonic. It is usually conceded that the drugs have little effect unless used in conjunction with some hygienic treatment.

As this work was done on outpatients by themselves in their own homes, a perfect result could not reasonably be expected. The nature of the directions are such that the mother may repeat the whole treatment, after

a discouragement, without consulting the physician. The purpose of this paper is to show the effect of a simple, regular diet and plenty of rest and little excitement on the underlying cause of enuresis, which is general neuromuscular fatigue. The wetting habit is secondary, and must be treated by limiting fluids and establishing regular hours for micturition.

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ABSTRACT OF DISCUSSION

DR. HARRY LOWENBURG, Philadelphia: I have never felt that I cured a case of enuresis. I have had them get well, but I have always thought I had little to do with it. I remember one family in which there were three children with this condition. The father paid me quite a fee for trying to cure this condition, and I have felt conscience stricken ever since. The children eventually got well, but I do not believe I had anything to do with it. The doctor said he found underlying nervous fatigue. I believe that is true. The treatment for this is difficult, because we cannot remove the children from their own homes. To illustrate: A child was brought to me about four weeks ago. The mother said she could do nothing with the child; that it sat around all day and cried. The child cried in my office, and the mother said, "You stop crying; the doctor has a policeman in the house." I promptly told the mother she ought to commit suicide, that there was nothing I could do for the child unless the cause was removed. It is difficult to treat these cases from the fact that almost all of these parents are neurotic. The next case I get I am going to send to Boston to Dr. Grover.

DR. H. M. McCLANAHAN, Omaha: I have been disappointed often when children have been operated on for circumcision, without any result so far as the enuresis was concerned. I appreciate what Dr. Grover said in regard to diet. In children 8 to 12 years of age, the bladder is too small and will not hold a sufficient amount of urine to carry the child over the night. With the cooperation of the roentgenologist, we have some data along this line. We must get the confidence of the child and persuade it to hold the urine as long as possible during the day so as to develop the bladder. This can be done. Boys may be instructed to stop the act of urinating several times in order to develop certain muscles. Another point is to have the patient make certain to empty the bladder. Older children should be instructed to drink very little fluid, say, after 5 o'clock.

DR. M. L. TURNER, Des Moines, Iowa: My experience has been somewhat different from Dr. Grover's. I read some place that enuresis was due to a lack of development of the nerve center that controls the bladder, and I have worked on that theory. Take a child 8, 10 or 12 years of age, and make an impression on it in some way and it will stop bed-wetting within twenty-four hours. I have had a number of cases of that type. I think I can say that I have cured these patients—or at any rate the enuresis has stopped—in 75 per cent. of the cases. One of the first things I do is to stop the drinking of fluid after 4 o'clock in the day, and have the mother impress on the child that it is keeping the fluid from the child to keep it from bed-wetting. Where the mother will cooperate we usually get good results. I have used medicine in some cases at 4, 6 and 8 in the evening—usually tincture of nuxvomica—and tell the mother to impress on the child that he is taking it to keep from wetting the bed. When the child has been impressed with this fact he ceases to wet the bed. One little girl came to the dispensary for treatment. The mother said the child would wet the bed within half an hour after going to bed, evidencing the fact that the center loses control before the bladder is full. I said to this girl, "You will soon be a young lady, and will want to have gentlemen call on you. Is your mother going to have to tell you that you cannot have callers because you wet the bed?" She went home and never wet the bed again. In another case the child was told she would have to have an operation if she did not stop wetting the bed. She went home and never wet the bed again.

DR. FRANKLIN N. ROGERS, Manchester, N. H.: I am disappointed that there is not something more than the rule of rest

that can be laid down for these little patients suffering with enuresis. It is discouraging not to be able to give these patients immediate relief. The point which impressed me most in Dr. Grover's paper is his emphasis on rest in the treatment of this condition. We all know rest is essential to children. The daylight saving plan which is now in operation has, without doubt, shortened the period of rest for children. It is hard to get a child to go to bed at the usual hour because it is so light. I agree also that there is a great deal of nervous irritability in these children—often due to family living conditions. A great deal can be done by the family for a child suffering with enuresis by enforcing the rules laid down by the doctor.

DR. JOSEPH I. GROVER, Boston: About a week before I left Boston I saw a boy, 11 years old, who wet the bed several times every night, and had done it ever since he was born. I explained everything to the boy in this case—he was educated and old enough to understand. Every day for the next eight days he was dry for the first time in his life. He passed his water at 10 o'clock at night and not again until 6 in the morning. In treating children by diet and rest, the child's general condition becomes improved. It seems that by treating enuresis children in general, with a good diet and rest, you can kill two birds with one stone.

THE EFFECTS OF HIGH EXPLOSIVES ON THE EAR*

J. GORDON WILSON, M.B.

CHICAGO

The large number of men incapacitated for military service on account of deafness due to the concussion from high explosive shells is engaging the attention of military authorities in all the armies in this war. The number of men who will return to civil life with seriously impaired hearing demands the attention of otologists. I have chosen this subject for consideration, not only because it is urgent, but also because I have had considerable opportunity to observe such results in warfare and in addition have studied in a very modified degree corresponding effects in the laboratory. It shall be my endeavor to describe my observations and the results of my investigations rather than to attempt to offer any explanation or form any hypothesis.

The otologic cases resulting from the bursting of a shell are divided into two groups:

1. Those in which a piece of the shell has struck the ear. The trauma may have been limited to the external canal or to the mastoid, or may have involved the middle and internal ear. Injuries to the external canal or mastoid cause total or partial deafness on that side and at the same time some loss of hearing at least temporarily in the other ear. In addition, we have the results of the suppuration and contractures of the external meatus so apt to follow. Injuries involving the middle and internal ear are usually immediately fatal from associated injury to the brain, and those who survive are totally deaf in that ear.

2. Those in which the damage has come from the explosion without any fragment of the shell striking the ear or its immediate neighborhood. In some there has been no objective signs of any trauma, in others some fragments may have caused a trauma in a part remote from the temporal bone. It is with this second division that this paper is concerned. It includes a large number of cases in which the diagnosis is fre-

* Read before the Section on Laryngology, Otology and Rhinology at the Sixty-Ninth Session of the American Medical Association, Chicago, June, 1918.

quently very difficult and the treatment as yet unsettled and obscure.

It has long been known that cases of temporary deafness occur during big gun fire. In these cases, tympanic ruptures are rare. The artillery men and navy gunners are able to take precautions such as standing back of the gun, plugging the ears with the fingers or cotton, and opening the mouth, when the guns are fired.

PREVALENCE OF WAR DEAFNESS

In previous wars, serious concussion deafness was extremely rare. In the present conflict which is pre-eminently the war of trenches and high explosives, cases of concussion deafness are numbered by the thousands. Many thousands of shells of high explosive force are in each engagement sent over to blow up the trenches and prepare the way for the attack. These shells vary in weight from a few pounds to about a ton and each consists of a thick iron case with a central cavity containing the charge which may be as much as 200 pounds of high explosives. These shells do not contain bullets. The injury comes from the explosive force, from the fragments of the shells and from debris from adjoining structures which they have shattered. The concussion effects are no longer confined to the artillery men who fire the big guns; far greater and more numerous are the disastrous effects produced by the burst on all classes of combatants.

The effect of the high explosive is a great compression followed by a great decompression; it is probable that the damage done to the ear results from the compression. I have had men under my care who have been blown considerable distances; thus, one man was blown out of the trench and then became unconscious. Another was blown 6 yards, became dazed and finally lost consciousness for three days.

I know of no available figures that can help us to form even an approximate estimate of the numbers injured in hearing either temporarily or permanently by shell explosions. Whatever figures I give in this paper are to be understood as of only relative value. When in France, the fronts I was stationed at were relatively quiet and cases arising from exposure to heavy bombardment were rare, so my figures only show what may be expected in times of quietness. The base hospital, at which I was stationed and which was equipped for eye and ear cases, had sent to it either for examination and report or for admission and treatment many patients with deafness of long duration, but only such as had no need for general surgical or medical care. So obviously such figures would be misleading.

Dr. Sohier Bryant¹ of Boston has recently published a statement in regard to the number of men incapacitated from injuries and diseases of the ear in the French armies based not only on observations made by himself and his colleagues in the French army, but on figures given by the French war office.

"In the zone des Armées at the Front, the total sick contains 16 per cent. of ear cases in the evacuation hospitals. From the evacuation hospitals 4½ per cent. of ear cases are evacuated to the rear. In the rear of the zone des Armées, in the zone des Etapes, ear cases form 6¼ per cent. of total sick. These figures rise during time of inactivity at the Front

and fall during military activity. Seven per cent. of these cases are evacuated from the zone des Etapes to the Interior. In the Interior region, ear cases form 9 per cent. of total sick. I estimate that about 80 per cent. of the ear cases will show considerable impairment of function. This impairment will be sufficient to interfere permanently with the civil occupations of the patients. The above figures are for 1917, some of them approximate."

These figures obviously include all ear troubles, infective and traumatic, but even then they are sufficiently alarming. One recognizes that an ear damaged even slightly by the bursting of a shell is more liable to the invasion of pathogenic organisms and to suppurative processes. My experience leads me to believe that in the British forces the number permanently incapacitated from injuries and diseases of the ear is smaller than that of the French forces.

In the early days of the war the large number of cases of deafness after shell explosion, the intensity of deafness, and sometimes long persistence of this symptom, gave serious ground for fearing a serious lesion comparable to that of labyrinthine hemorrhage. This is disproved by the subsequent history of cases and by the available postmortem examinations. There have been published alarming percentages on the subject, based on conclusions from an insufficient number of cases. While total and seemingly incurable deafness is rare, yet according to Jobson² a large number who have been exposed to a heavy bombardment which caused severe or complete deafness for one or more days and who declare they now hear quite well will be found on examination to have some definite signs of deafness. In a series of examinations Jobson found a large majority, more than 80 per cent., were quite unaware of being deaf.

Lannois and Chavanne report on 1,000 patients whom they had seen at Lyons up to June, 1916. These they classify as follows:

1. War deafness in patients having auricular lesions in process of evolution with a nonhealthy auditory mechanism: (a) Chronic suppurative otitis media, 189 cases. (b) Sclerosis of the middle ear affecting or not the internal ear, 134 cases.
2. War deafness in patients with healthy auditory meatus: (a) Simple labyrinthine concussion, 262 cases. (b) Labyrinthine concussion with rupture of the tympanum, 82 cases. (c) Labyrinthine concussion with rupture of the tympanum, followed by acute suppurative otitis media, 301 cases.
3. War deafness or deafmutism from traumatic neurosis, 32 cases.

In this report there is one group which requires the attention of otologists—(b) and (c) of Section 2. The fact that out of 383 cases of shell concussion with rupture of the membrane, only eighty-two escaped suppuration does not speak well for our treatment of early cases. This is no reflection on the distinguished Lyons otologists who probably saw many cases after suppuration had started. The number of cases of acute suppuration following rupture is in the armies of all the combatants in excess of what it ought to be and can be reduced by early satisfactory treatment.

In one stationary hospital near the front, to which victims of recent shell shock were sent, including men suffering from shell shock deafness, I saw 200 patients with little or no trauma exhibiting nerve symptoms ascribed to high explosives. Of these, 50 complained of deafness of varying degree. Of the 50, 17 showed demonstrable symptoms of injury to the internal ear

1. Bryant, W. S.: Prevalence of Ear Injuries and Diseases in the French Army, *Jour. Laryngol., Rhinol. and Otol.*, 1917, **32**, 338.

2. Jobson, T. B.: *Lancet*, London, 1917, **2**, 566.

traceable to the explosive. Among the other 33, either the deafness had been temporary and no objective signs of disturbance of equilibrium could now be seen, or the persisting defect of hearing was due to middle ear involvement, in some of old standing, or to blockage of the external canal from wax or some other cause. Of the 17 cases, 7 had symptoms of nerve deafness without perforation; 6 had definite middle ear trouble previous to the concussion, and of the other 11, with no previous history of ear trouble, 6 had recent perforations; 12 complained of vertigo and had observable signs due to it; the other 5, when examined, had no symptoms of disturbances of equilibrium.

A large proportion of the men suffering from shell concussion deafness get better very rapidly, in one ear usually more rapidly than the other. Those with simple rupture of the tympanum without suppuration are the first to recover; about 50 per cent. of these have serviceable hearing within a month. My experience is that even those showing slight improvement at the end of one month may still improve. But the longer the delay in improvement, the less likely they are to get better. The most obstinate are simple labyrinthine concussions, in which, according to Lannois and Chavanne, there are only 24 per cent. of cures in the first month.

SHELL SHOCK DEAFNESS DEFINED

The term shell shock deafness, so commonly applied to these cases, has a fascination for the lay mind. Its vagueness as a medical term serves to emphasize our ignorance of its pathology. Shell shock deafness means that the patient has been made deaf by the concussion of the shell associated, it may be, by little obvious injuries due to its bursting. In many the probability of internal injury to the nervous system must be considered. By the force of the explosion the soldier may have been blown violently against the parapet or walls of the dugout, or hurled for some distance through the air, or struck by debris from the destruction of neighboring buildings. One man described it as a soft irresistible force pushing him up against the parapet wall close to which he was standing when the shell burst in the trench. As a result of the explosion the men may be buried for a varying period, and, as Mott³ pointed out, this may have an important bearing on the symptoms which follow. It must be noted that, though not observable to the casual examiner, a trauma to the ear is frequently present and observable to the otologist. In recent cases seen by me, minute ruptures were observed which under ordinary conditions would close in a week; and when no rupture was seen, the congested condition of the membrane and of the middle ear indicated that the blow had been sufficient to cause considerable disturbance. In many of the cases seen some time after the concussion, in which no trauma had been diagnosed at the first examination, the history of aural hemorrhage and of rotation vertigo made it more than likely that an injury to the peripheral aural mechanism was present at the time of the explosion. But if the term shock is to be condemned as too indefinite, it is just as important, perhaps more so, to avoid as far as possible the terms hysteria and neurasthenia. These elastic and indefinable terms are too often applied to such cases, probably less often now than in the early stages of the war, and have

resulted not only in an unwarranted stigma but often in disastrous effects. The cases under review will be discussed in some measure to ascertain how far the psychogenic explanation may be accepted.

RELATION OF THE EAR TO PRESSURE

The ear is the peripheral sense organ which *a priori* we should have expected to suffer greatly from concussion effects. Like all peripheral organs, it is a mechanism adapted to transform one form of external energy into nerve impulses. There are two separate and distinct mechanisms in the internal ear, one concerned with the hearing, and one with equilibrium. Each of these mechanisms is adjusted and made sensitive to register minute pressures and transform them into nerve impulses. The nerve impulses are carried to the central nervous system, there to be interpreted and utilized. In hearing, air vibrations (varying, say, from thirty-two double vibrations per second up to several thousand double vibrations per second) in various combinations are transmitted normally through the external auditory meatus to the drum membrane, which is finely swung to catch them. The vibrations are then transmitted through the ossicles and the middle ear to the cochlea, where they are transformed into nerve impulses. Nerve impulses may also be set up in the cochlea by vibrations through bone, but these, so far as hearing is concerned, are of secondary importance. The nerve impulses are conveyed along the cochlear nerve and the acoustic path to the temporal lobe, where they enter in one definite bundle. Here they come in association with various parts of the cerebrum. The route from the periphery to the temporal lobe is not one undivided path. To put it roughly, there is not one telephone wire from the ear to the receiving and interpreting station in the cortex. The path is broken at various synapses or junctions or telephone exchanges. At these synapses connection is made with other nerve paths, and communication can be and is established with other physiologic systems. What the significance of this probable interchange and influence on other paths may be, we do not know.

The other pressure mechanism in the internal ear is a system of canals containing fluid, a manometer, so designed as to register and signal to the central nervous system movements of the head. This mechanism is adjusted to indicate very small varying pressures. Here, also, in the central path, we have numerous synapses influencing other cranial pathways, somewhat better though still very inadequately understood. The information so obtained from the vestibular peripheral mechanism is coordinated with information received from other sources (the eyes, the joints, etc.), and enables the muscular mechanism to adapt itself rapidly to varying alterations of our center of gravity to preserve the equilibrium, for instance, to maintain the erect posture during movements of the head. There are certain limits of pressure normal to these two mechanisms. Pressure beyond the normal produces disturbances which are pathologic. Disturbances of the canicular system produce disturbances of equilibrium, for instance, vertigo and nystagmus.

PATHOLOGIC EFFECTS OF EXPLOSIVES

Our knowledge of the pathologic effects of explosives on the ear has come largely from the experimental work of Witmaack, Yoshii, and Hoesli, who investigated the results of pistol or revolver shots near

3. Mott: Effects of High Explosives on the Central Nervous System, Lettsomian Lectures, Tr. Roy. Soc. Med., London, 1916, 39.

to the ear of animals, chiefly guinea-pigs. Yoshii's⁴ work is the most complete, the experiments being in two series: effects of firing a single shot, and effects of firing repeated shots daily over a definite period. Some of the animals were killed at once, others were kept alive for a varying number of days, up to sixty. His findings in the first series may be thus briefly summarized: There were very constantly rupture of the tympanic membrane and hemorrhage into the middle ear cavity. Pathologic changes were present in all the coils of the organ of Corti. The hair cells were swollen, had lost their characteristic shape and were loosened from their support. Deiters' cells had lost their normal appearance and appeared as a homogeneous mass. The cells of Hensen were flattened out. The pillars of Corti were bent and the tunnel filled with a homogeneous mass, probably of extravasated cell contents. Nuel's space could no longer be seen. The tectorial membrane was raised sharply up and in extreme cases its free end reached Reissner's membrane. In recent cases blood corpuscles were seen in the scala tympani and in the vestibule. Immediately after the firing, a change was observable in the ganglion cells of the cochlear nerve. The Nissl bodies had disappeared and the chromophile substance was no longer distinguishable. In the nerve fibers, changes were seen, especially in the myelin sheath. As a result of repeated pistol shots, the pillars had collapsed and all the cells had lost their characteristic shape. This was especially observable in the region at the junction of the basal coil to the second coil where a complete atrophy of Corti's organ could be seen.

These changes were observed immediately after the explosion and had reached their maximum in two or three days. Then a restorative process slowly set in, especially in the basal coil. In animals killed after eight days, the pillars were straightening out and the mass in the tunnel was absorbed, though the cells were not clearly outlined. Later regeneration proceeded in all the cells, but even after sixty days, the hair cells and Deiters' cells were not fully reformed in the basal coil and could not be distinguished in the other coils. At this time the ganglion cells were again nearly normal.

This work ought to be repeated in other mammals. So far, my results in dogs and cats do not give so extreme a picture.

HYPOTHESES ADVANCED TO EXPLAIN SHELL CONCUSSION DEAFNESS

The pathology of nerve deafness from high explosives is still little known. Complete pathologic examinations have been few. The involvement of the middle ear seen in a large number of patients, with or without rupture of the tympanic membrane, will produce diminution of hearing but will not account for the total deafness to air and to bone conduction, as well as other symptoms, which follow the explosion. We have, therefore, to look for some explanation in the inner ear or its central connections.

The following hypotheses have been advanced: (1) pathologic changes in the organ of Corti and the ganglion cells in the internal ear; (2) hemorrhages into the inner ear; (3) interruption of the central auditory path from small hemorrhages, edema, etc.,

and (4) temporary interruption of the central auditory path from functional disturbance, not due to any organic lesion.

J. S. Fraser and John Fraser⁵ of Edinburgh have recently published the results of pathologic examinations of four cases of concussion deafness. The only changes found were: (1) rupture of the drumhead in three cases, and hemorrhage into the middle ear spaces in all four, and (2) hemorrhage in the fundus of the internal meatus in three of the four cases at the point where the nerves enter the bony canals. The vestibular apparatus showed very little change. The examiners conclude, "It seems quite possible that in many cases of 'shell' or 'explosion' deafness we have to deal with a functional affection, as suggested by Milligan and Westmacott. On the other hand, rupture of the drumhead and hemorrhage into the middle ear spaces must cause a certain loss of hearing, while hemorrhage in the fundus of the internal meatus may give rise to deafness, tinnitus, giddiness, and other symptoms of an inner ear lesion." The functional hypothesis is supported by the report of a pathologic examination of an ear by Mr. Sydney Scott,⁶ who found no change in the internal ear.

While in France, I was able to secure several petrous bones from patients who died shortly after injury from shells. In all there was complete deafness. Two have been sectioned and studied, one of which briefly I wish to describe.⁷

The right drum membrane had a small rupture in the posterior half, but there was little blood in the tympanic cavity. The petrous temporal was congested, as were also the meninges. Both petrous temporals were removed within six hours of death and the superior semicircular canals were opened. The bones were placed in formalin, which was changed repeatedly during the first ten days.

These sections showed the following conditions:

I. At the deeper part of the internal auditory meatus where the cochlear nerve enters the modiolus, there were dilated small veins with small hemorrhages due to rupture (by rhexis) and also hemorrhages through the interstices of the capillary walls (by diapedesis).

II. Edema was seen, also infiltration of small cells throughout the area of the cochlear ganglion. In some of the ganglion cells the nuclei were well stained, but as a rule the cell contents were very indistinct.

III. The scala vestibuli and the scala tympani had no hemorrhage.

IV. The ductus cochlearis showed the following important changes:

1. The membrana tectoria was thrust sharply up and was attached to Reissner's membrane by serous effusion.

2. There was a small cell exudate along Reissner's membrane, especially marked in the areas near to the attached membrana tectoria.

3. The stria vascularis was edematous and showed hemorrhagic infiltration.

4. The basilar membrane was edematous and showed small cell infiltration.

5. Fraser, J. S., and Fraser, John: *Morbid Anatomy of War Injuries of the Ear*, Jour. Laryngol., Rhinol. and Otol., 1917, 32, 340-369.

6. Scott, Sydney: Proc. Roy. Soc. Med., Otological Section, London, March, 1916, p. 29.

7. The pathologic results and the history of cases have been given fully in a lecture before the Harvey Society of New York and will be published in full in the volume of Harvey Lectures for 1917-1918.

4. Yoshii: Experimentelle Untersuchungen über die Schädigung des Gehörorgans durch Schalleinwirkung, Ztschr. f. Ohrenh., 1909, 58, 200-252.

5. In the organ of Corti there were numerous small cell infiltrations, and there was serous effusion which filled the tunnel and the Nuel spaces. The pillars of the tunnel were unaltered. The other cells were indistinct. In some of the hair cells the hairs could be distinguished.

V. The vestibular mechanism was very little affected, except that there was a slight dilatation of the veins and some serous effusion and edema. No rupture of the membranous labyrinth could be seen and there was no hemorrhage into the canals.

VI. The foot plate of the stapes was uninjured.

These microscopic findings corroborate those of J. S. Fraser and J. Fraser, though in addition there was present the upward thrust of the membrana tectoria so characteristic of the experimental work on guinea-pigs already referred to. The findings tend to substantiate the hypothesis that deafness from the effects of high explosives may result in distinct damage to the peripheral organ of hearing, with little damage to the middle ear or the drum membrane.

GENERAL SYMPTOMS OF NERVE DEAFNESS FROM SHELL CONCUSSION

We are here concerned chiefly with the results of one severe concussion, followed by total or diminished loss of hearing. In some of the cases, a previous concussion may have damaged the hearing, and the second made it worse, or resulted in total loss. Cases of gradual diminution of perception of sound from long exposure to gunfire do not come within this paper.

The otologist is accustomed to differentiate two types of deafness: (1) conduction or obstructive deafness when the lesion lies in the external or middle ear, and (2) nerve deafness when the lesion lies in the internal ear or its central connections.

There are tests which enable one fairly accurately to determine which type one is dealing with. With both obstructive and nerve deafness, it is often very difficult to assign a relative value. In shell concussion deafness we are, as a rule, dealing with a mixed type.

In testing cases of deafness following exposure to shell concussion it was noted that we were dealing with a type which, so far as I know, is not usually noted in civil practice. The chief characteristics are:

1. There is a diminution in the tone perception both for bone and air over the whole range of the forks.
2. When hearing is markedly diminished, the diminution for the forks is marked at both ends of the scale and is least marked at about C² (512 d. v.) and C³ (1,024 d. v.).

3. When hearing is completely obliterated there may still remain a remnant to bone conduction in the region corresponding to the C² fork.

4. With restricted tone perception with the use of a greater intensity, it is sometimes possible to extend the area of sound perception.

In considering these findings, it is well to recall that physicists place the localization at which a minimum of energy will produce audible sounds at about 1,000 d. v. below rather than above this figure. Further, otologists⁸ claim that from 480 d. v. to 768 d. v. "is the most important part of the sound scale for hearing and understanding speech." These facts throw light on our findings that in concussion cases perception may linger for the tones C² (512 d. v.) and C³

(1,024 d. v.), while tones above and below fall below the threshold of audible sounds. It brings this area into parallel with the macula of the retina and its relation to vision. It makes of interest our findings that associated with concussion deafness there is concentric limitation of the field of vision. In addition, since in concussion deafness, increasing the intensity extends the area of sound perception, this would further strengthen the analogy; for in indirect vision the more the object is illuminated the further it can be seen at the periphery.⁹ The elaboration of this subject must be left for a future paper.

NERVE SYMPTOMS ASSOCIATED WITH THE TOTAL LOSS OR DIMINUTION OF HEARING

The symptoms frequently associated with loss of hearing from high explosives are included by neurologists within that group of nerve diseases called traumatic neuroses. In some of our cases there is a recognizable physical trauma, in the head or elsewhere, received during a period of mental excitement. In addition to deafness, which was the chief complaint of the men who came to the otologic wards, there were other symptoms, varied and complex. There were present, for instance, exaggeration of tendon reflexes, tremors, vasomotor disturbances, sweatings, lethargy, sleeplessness and headaches. Vertigo, with disturbances of equilibrium, is very commonly present and very much complained of. There was frequent concentric narrowing of the field of vision. In many of our cases, fields of anesthesia were present. In two of my cases of total deafness, there was complete anesthesia and loss of thermal sense. In one with total loss in one ear and great diminution in the other, there was anesthesia on one half of the body and hyperesthesia on the other. The ear symptoms accord with those which Déjerine classifies under traumatic hysteroneurasthenia. Some patients, as in neurasthenia, had hyperacusis with subjective sounds; others, as in hysteria, had the auditory acuity diminished, sometimes on both sides, sometimes on one only.

While granting that the symptoms accompanying the deafness often, but not always, fall within Déjerine's classification of traumatic hysteroneurasthenia, yet one would err if one were to insist that the nerve deafness is to be explained as due to a functional neurosis. The sudden onset of these labyrinthine symptoms and the slowly accumulating, though as yet very meager, pathologic findings make one chary of fully accepting the neurosis hypothesis in all these cases. A study of the ear cases that have come under my observation has convinced me that in a large number the trauma has caused an organic lesion and that the functional symptoms are secondary and subsequent to it. It is altogether possible that these functional symptoms will persist after all traces of the traumatic lesion have ceased to be capable of recognition.

CASES SEEN SOON AFTER INJURY

The cases of deafness as they present themselves soon after injury show a variety of types. All the patients have been more or less dazed. Some are admitted as stretcher patients in varying depths of stupor. In many, the stupor or unconsciousness has passed off previous to admission. All have a varying amount of vertigo, but nystagmus due to labyrinthine irritation I have never seen. Of twenty-two patients

8. Bezold and Siebenmann: Textbook of Otology, Chicago, 1917, p. 71.

9. Luciani: Human Physiology, London, 1917, 4, 339.

with nerve deafness examined soon after the shell explosion, eighteen had demonstrable lesions of the drum membrane. Four had no demonstrable lesions, and of these four, three had the history and indication of old trouble, and one had had no previous ear trouble and no demonstrable trauma.

Next to deafness, vertigo is the chief complaint. It is very difficult in many to estimate the amount of vertigo that is present. Vertigo is a subjective sensation and subjective sensations are difficult to describe; the average individual has a very indefinite idea of what medically we mean by dizziness and often includes in the term all variations in cerebral consciousness. But even moderately severe labyrinthine vertigo is accompanied by some objective signs such as nystagmus, pointing error, and signs of unstable equilibrium such as may be produced by shutting the eyes on standing or walking. In many the objective signs of vertigo quickly passed away. The greater number were comfortable so long as they remained quiet or moved slowly. It was experienced if the head were placed quickly in an unusual position and was especially apt to occur in bending. There did not appear to be any relation between the return of hearing and the disappearance of the vertigo. Of eighteen men carefully examined for signs of vertigo, twelve gave a distinct history and showed signs of labyrinthine vertigo. Six had no objective signs of vertigo.

CASES SEEN SOME TIME AFTER INJURY

In the cases of deficiency in hearing, following exposure to or injury from high explosives, the patients seen by me at the base hospital date the onset of their deafness back anywhere from two months to eleven months. All have been under treatment since the injury, many in the care of competent otologists.

The patients may be divided into three groups:

1. Those with nerve deafness.

2. Those who have had nerve deafness of a varying degree, and who, with a varying amount of indefinite nerve symptoms still have the fixed idea that they cannot hear. This group includes cases in which the patient hears without being conscious of doing so.

3. Malingerers. The majority in this group undoubtedly have had shell concussion which affected the hearing. At the time of examination, many still showed traces of traumatic neurosis. But they have now recovered, partially or entirely, from the defective hearing and are consciously exaggerating the defect still remaining or consciously asserting its persistence.

It is with the first group that I am here concerned. It may be said in passing that it is a difficult matter to separate the second from the third group. Experience, the general condition of the patient, his answers to the test questions, largely aid the examiner. To the second group belong the cases that yield to suggestion or recover hearing rapidly, often completely, after excitement or intense stimulation. To discuss the third group and show how the malingerers may be detected is outside the limits of this paper.

CASES OF NERVE DEAFNESS

The patients now to be considered have been exposed to and had their hearing damaged by the shell explosion. My endeavor will be to outline the treatment that I found beneficial in these cases. Patients with wounds in the temporal bone are for the present excluded. I deem this advisable because I wish to focus

attention on the concussion. In some cases there were injuries from pieces of shell in a part of the body remote from the ear. But these are cases in which the trauma could not have damaged the internal ear. It is scarcely necessary to say that there are eliminated cases in which a trauma to the ear has come from the explosion, but in which the deafness, when examined, was evidently middle ear in type and in which no evidence of nerve deafness was present at that time.

It was not judged sufficient to take the patient's statement that he had been exposed to shell fire. It was necessary to have at the time of examination symptoms pointing to such exposure or official records supporting the statement. It must be remembered that it is not possible in a military hospital on the lines of communication to keep patients long. All we could do was to keep as long as possible those promising improvement and to suggest further treatment.

TREATMENT OF CASES OF CONCUSSION DEAFNESS

Although the number of the totally deaf is relatively not great, yet it may be said that, even at best, a large number of men are left at the end of two or three months with marked impairment of hearing, who show little or no tendency to improve. If left alone, they are not likely to improve. They are deprived in no small measure of the pleasures of social life and hampered in their industrial outlook. The question then arises, can anything be done for them to improve the remnant of hearing still present, or must we fall back on such advantages as lip reading offers?

In my work it was early observed that when the forks could not be heard by air or bone, it was possible, by summation of stimuli, to get the tone perceived through the mastoid. To make sure that this was so, the patient, if totally deaf, was required to hum the tone. It was further noted that, after repeated applications of the fork, the time required for the perception of the tone gradually decreased, and that at this period the patient was able to perceive the tone passed into the ears by tubes attached to resonating boxes and later directly into the ear.

With these observations as a basis, the following treatment was adopted, varying in accordance with the degree of deafness present:

1. Tuning forks were sounded and the vibrations conveyed to the ear, first, by bone conduction through the mastoid; secondly, through resonators attached to the ear by tubes; and thirdly, through the air. In our worst cases the time given to each of these processes varied with the amount of deafness. In the totally deaf it was sometimes found difficult to pass from bone to resonator. In these cases we found it convenient to use the resonating box of the piano.

2. The voice was used through resonators with a tube to the ear, with speaking tubes, and without any aid.

Each period of treatment was short, for fatigue was rapidly produced. If the treatment be too long, headaches, vertigo, and occasionally pain was complained of and profuse sweating was very frequently present. At each successive stage we had to use summation of stimuli; thus, not only must the fork on the resonator be kept up for some time, but with the voice we had to repeat the word, but even then there was a marked delay before the response came. In the later stages, this delay was still present. Then it appeared to be not so much that the patient did not hear, but that he hesitated to attach the word to the sound, for, if asked

what he thought it was, he frequently answered correctly.

3. As soon as possible, carefully graduated physical exercises were given, in which the two essentials are short duration and no bending. The treatment, except the drill, was given twice a day in the worst cases; it ought to be given twice in all.

4. As early as possible, we ascertained if the semi-circular canals were functioning, because when there was reaction to the caloric or the rotation tests in totally deaf patients we felt justified in continuing treatment for some time.

In some cases in which an ear was totally deaf with a normal vestibular mechanism, we failed to get any response; in those, however, who had not total deafness but some perception of sound, all the patients improved, some very considerably.

There is nothing new in the stimulation of the auditory nerve by sound. Marage¹⁰ of Paris has long asserted that in suitable cases the use of sonorous vibrations produced by a siren which he has specially constructed is of benefit to improve the hearing. My method differs from his in that I prefer tuning forks and the voice conducted through resonating boxes to stimulate the auditory mechanism. He has applied the method in suitable cases of war deafness. He uses sonorous vibrations by means of a siren in which the air pressure reaches about 5 mm. of air, for as he says, "it must not be forgotten that even a very deaf man is often very sensitive to the weakest sounds."

His results are very interesting. "I consider," he says,⁸ "a patient to be a success when at the end of the treatment he hears sufficiently to rejoin his regiment." Sixty-eight per cent. were able to return to the front, of whom almost half were reported to him as very deaf, many as incurable. Of the unsuccessful cases, 10 per cent. were totally deaf and remained so. The others have attained the power of hearing when one speaks close to the ear without raising the voice and can be used in certain auxiliary services.

A question of very great importance and one that will require very careful forethought is how far lip reading should be taught in such cases. My experience leads me to believe that in the cases under consideration lip reading should not be used until some method corresponding to the foregoing be tried.

SUMMARY

1. In deafness resulting from concussion due to high explosives, there is frequently a trauma demonstrable in the ear. The perception of sound is diminished over the whole normal range both for bone and air conduction. This diminution may be so great as totally to abolish perception of sound.

2. In the totally deaf who improve, bone conduction is perceived before air conduction. In these cases summation of stimuli plays an important part in the perception of sound. It is essential to differentiate vibrations from musical tones.

3. There is a marked diminution of the duration of hearing along the whole series of forks, both through bone and air.

4. The normal stimulus (musical tones or voice) is an adequate stimulus for the nerve and is the best stimulus. Electricity is contraindicated and liable to do harm, since it easily produces vertigo.

5. If the conducting mechanism is damaged or destroyed, it not only takes longer to get improvement, but complete recovery cannot be expected.

6. As the deafness diminishes, there may persist for a long time an inability to grasp intelligently what is said or to retain the memory of it. Thus a word may have to be repeated two or three times before the patient gets it; or, if he is asked to repeat two or three numbers given consecutively, he will repeat the last one. He knows that there were others but did not get them.

7. Pathologic examinations show that the auditory mechanism may be seriously damaged, while the vestibular shows little or no change. Therefore the vestibular mechanism may react to stimulation in cases in which the cochlea is seriously damaged. The large percentage of cases of early recovery speaks against any very serious damage to the organ of Corti in the majority of the cases. The absence of islands of deafness speaks against the destruction of a part of the cochlear organ.

8. Prognosis is good as a rule, especially if there is no history of marked aural vertigo, and a normal caloric reaction. The most noteworthy exception met with so far is damage to the seventh nerve. In these cases if hearing returns, it returns but slowly, and so far as I have observed, not perfectly even with a normal drum membrane, and the caloric reaction present.

9. While a psychogenic factor cannot be denied in concussion deafness, the frequency of labyrinthine symptoms immediately following the shell burst speaks against an exclusive view of the psychogenic explanation of nerve deafness.

10. The progressive recovery of hearing so constantly observed suggests that, in the light of our pathologic and experimental knowledge, we are dealing with injuries of the nature of contusions with edema, capillary hemorrhages, changes in the myelin sheaths and molecular changes in the nerve cells. That in the majority of concussion cases we have a marked destruction of the organ of Corti or a definite lesion of the auditory cortex appears to me doubtful, for in both of the regions we are dealing with a highly specialized structure in which regeneration would be unlikely.

ABSTRACT OF DISCUSSION

DR. THOMAS HUBBARD, Toledo, Ohio: I found a device that was originally intended to protect gunners but has since been used more extensively to protect the ears of swimmers. It is a rubber thimble affair made in two sizes, and the voice can be heard through it. I know nothing as to its efficacy in preventing injury from severe concussion. I am positive, however, that in all cases great care must be taken in using any device to see that no plug of wax is pressed against the drum. In some cases one might shove in a hard plug of wax that would lie up against the drum and in that way, of course, temporarily impair the hearing.

DR. E. B. DUNLAP, Tulsa, Okla.: In June, 1917, I was at the Central London Hospital, and after one of the air raids eight people attended the ear clinic. They were employees of the general postoffice, in which two or three people were killed. These eight people had discharging ears, either one or both ears. When only one ear was discharging, the ear that did not discharge was protected by a plug of cerumen. There were two or three of these cases. In all cases the discharge was started by a concussion. These people had never had discharging ears before, except one—a man who had an old perforation—and this discharge started immediately, but no sooner than the others. When these men did not have a discharge in both ears, in every case they had a plug of cerumen to protect the drum membrane.

10. Marage: Treatment of Deafness Resulting from War Wounds, *Comp. rend. Acad. d. sci.*, 1915, **161**, 311-322.

DR. H. W. LOEB, St. Louis: It seems to me that Dr. Wilson has gone even farther than Fraser in establishing some sort of organic basis for all of these conditions. I notice that in referring to the work of Bourgeoise and Sourdille, they claimed that when the shell explosion is in the open, unilateral deafness results, whereas if it is in an enclosed space, as in the trenches, it is likely to be bilateral. I would like to ask Dr. Wilson what he knows about this.

DR. SAMUEL D. HIGGINS, Milwaukee: I think it might be interesting to report a case of unilateral deafness that occurred in Milwaukee a few years ago when the McNamara brothers blew up a large coal bin. This man was injured by the explosion; only one membrane was ruptured, however. He had no deafness and no difficulty in the ear which was apparently not affected. The ear in which the drum was ruptured suppurated, but only for about two weeks. His main difficulty was shock. He was frightfully nervous and the best aid was the first aid which was given to him six hours after the explosion occurred.

DR. J. GORDON WILSON, Chicago: The ear protector I have shown will soon be on sale. All at present made have either been sent to the ordnance department or to France. Rubber or some plastic material such as wax molded into the external ear undoubtedly hinders concussion deafness, but these also block the entrance to sound waves and the soldier is thereby prevented from hearing orders. Regarding the benefit to be anticipated from ear protectors in the prevention of some forms of shock I can give no opinion, though I believe that very possibly they will be of use.

PREVENTION OF PNEUMONIA*

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Last autumn little attention was given to pneumonia as a probable menace to our newly formed army. The reports of only moderate or slight incidence of pneumonia among the French and English armies gave a feeling of security concerning this disease. We were not without warnings, however, for even in times of peace pneumonia had been the most fatal of the acute infections among soldiers, as it is among the civilian population. The experience of the troops along the Mexican border during the preceding year had also given some indication of the danger of this disease. With the onset of colder weather, in October, the prevalence of pneumonia among the troops became serious. During November and December it became alarming, and in certain camps it reached epidemic proportions. Its prevalence among the soldiers has not yet entirely ceased, even with the coming of warm weather. Previous experience, however, indicates that it will probably become less during the summer, but unless preventive measures are found and properly instituted, we run the risk of a repetition next winter of the experience of this. It is very fitting, therefore, that we devote a short period to the discussion of the measures for prevention of this disease. Time will not permit a review of all the details of preventive measures, and I shall therefore limit my remarks to a consideration of the principles involved.

A year ago, a discussion of this subject would have embraced only a consideration of the prevention of acute lobar pneumonia due to pneumococcus. War causes rapid and unexpected changes. During the past few months, the experience in our army camps

has entirely changed our point of view. Today, in considering this question, not only must we consider acute lobar pneumonia, but we must also include in our discussion broncho or lobular pneumonia having an entirely different etiology.

The fact that two distinct diseases existed in our camps was not at once generally recognized, and even in the camps where this knowledge has existed, it has not always been possible clearly to differentiate the cases of the different kinds. Consequently, the relative incidence of the two varieties of pneumonia during this first year of the war will never be known. Both kinds of pneumonia have prevailed in most of the camps, frequently simultaneously. Fortunately knowledge concerning the methods of differential diagnosis is now much more widespread than it was last winter, the laboratories are better equipped and better organized, and in the future the different kinds of acute pulmonary infection will undoubtedly be better differentiated, with a corresponding gain in our knowledge of epidemiology and mode of distribution.

Our consideration of the prevention of pneumonia will probably be rendered more clear by an independent consideration of the two diseases, for they must be considered such, at least from the standpoint of prevention.

ACUTE LOBAR PNEUMONIA DUE TO PNEUMOCOCCUS

The pneumococcus is a widely distributed organism in the mouths of healthy individuals, and since it survives for considerable lengths of time in dust, great opportunities exist for its widespread distribution, especially when persons live in close association.

A most important question, therefore, is, do persons acquire the disease because they receive the bacteria into their mouths, or on their respiratory mucous surfaces, or is the important etiologic factor something antedating this, something which causes a change in susceptibility of the host either local or general? Does infection then occur with those organisms in the mouth which have the greatest tendency to grow parasitically? It is obvious that the answers to these questions are of great importance as regards prevention, for in the one case, the chief attention must be given to measures for preventing the distribution of the infectious agent, and in the other, this is of little importance, and the chief attention must be given to the factors influencing resistance.

So long as all pneumococci were considered identical, we indeed had little justification for attempting to limit pneumonia by preventing the spread of the infectious agent itself, but were driven to the conclusion that the only factor of importance was the resistance of the individual. The demonstration, however, that pneumococci are not all identical, that the types responsible for two thirds of the cases, and these the more severe, are found only in the mouths of those sick of the disease, in the dust in their immediate environment, and in the mouths of a very limited number of healthy carriers who have been in close association with these patients, at once justifies attempts to prevent pneumonia by limiting the distribution of these more parasitic types of pneumococci. So far as pneumonia due to these types of organism is concerned, the conditions do not differ essentially from those in diseases like diphtheria or cerebrospinal fever, in which the acquiring of the infectious agent is considered of primal importance. Healthy carriers of

* From the Hospital of the Rockefeller Institute.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the organism causing these diseases also are known to occur in considerable numbers. It is true that in pneumonia, due to these types of pneumococci, direct infection of one patient from another is not nearly so often obvious as it is in the case of diphtheria, for instance. All physicians who have had much experience with pneumonia, however, have seen examples of contact infection, and recently special studies have demonstrated the not infrequent association of cases due to pneumococci of the same type. This evidence seems sufficient to justify the attempts to prevent the spread of infection from patients sick with these types of pneumonia, provided this can be done without too great an expenditure of effort and expense.

There exists, moreover, further justification for the employment of this kind of preventive measures, even in all types of lobar pneumonia. It has long been known that the best way to render bacteria virulent for any species of animal is repeatedly to pass the bacterium through such animals, with each passage inoculating sufficient numbers of the bacteria to cause severe infection. We have no means of testing the virulence of a given race of pneumococci for man, since the virulence for different species does not run parallel; but supposing that the virulence of a given mouth strain is not very great for man, it is obvious that causing human infection may render it more pathogenic and invasive for the human species. Hence, if pneumococci from patients suffering from pneumonia are taken into the respiratory tract of healthy individuals, they are more likely to produce severe infections than are organisms that have been leading a more or less saprophytic existence. More stress than previously, therefore, should be laid on preventing the dissemination of pneumococci from patients sick of the disease.

ISOLATION AND VACCINATION

On the other hand, common experience indicates that the factor of lowered resistance cannot be neglected. It is true that here we are dealing with questions for the solution of which direct or experimental evidence is difficult or impossible to obtain. Acute lobar pneumonia prevails to the greatest extent in cold, stormy weather. In the army there have undoubtedly occurred much exposure and fatigue among the men who have suddenly changed their habits of life. In the prevention of pneumonia, therefore, measures to prevent undue exposure and lowering of resistance should be instituted, and in addition, isolation of pneumonia patients should be carried out to as great an extent as is practicable. In addition to these methods, however, there exists another possible way of preventing acute lobar pneumonia, which, if successful, would probably render all the other measures unnecessary. I refer to vaccination. Animal experimentation now gives a rational basis for this procedure, at least as far as Types I, II and III are concerned. The first important studies in this direction have been made by Lister in South Africa, where pneumonia among the natives working in the mines has for many years been a serious matter. He has now carried out preventive inoculation on a large number of men with striking and definite results. During the past winter, Cecil and Austin, working at the Rockefeller Institute and at Camp Upton, have conducted investigations as to the best method of preparing vaccine, the proper dosage to employ, etc., and have vaccinated more than 12,000 soldiers. Although sufficient time has not

yet elapsed to make the results conclusive, it is of great significance that while a considerable number of cases of pneumonia have occurred among the uninoculated men in this camp, not a case of pneumonia due to pneumococci Types I, II or III has occurred among the inoculated men, the latter having received vaccine containing these types of pneumococci. Certainly the results obtained are sufficiently promising to justify the trial of this procedure on a much larger number of soldiers during the coming winter.

STREPTOCOCCUS PNEUMONIA

Only during the past winter has much attention been given to this form of disease as affecting large numbers of adults or occurring in epidemic proportions. So far as can be determined, the bronchopneumonia which has existed so widely in the camps has been due to one organism, a hemolytic streptococcus. Reports of the occurrence of pneumonia due to nonhemolytic streptococci have been sent in from various camps, but these demand verification. All the streptococci isolated have not been identical in their power to ferment the various sugars, and they have differed to a less degree in the appearance of the colonies formed by them. Whether these differences are important is not yet certain, but it seems that these properties are not entirely fixed and therefore are not, strictly speaking, diagnostic ones. It is not yet known whether all these organisms are immunologically identical. It is obvious that knowledge concerning the identity or non-identity of the different strains is of very great importance from the standpoint of prevention. If the organisms are all the same, the problem is relatively simple. If, however, they are not identical, we must consider that the essential factor in inducing the epidemic was something apart from the organisms themselves. Moreover, if we are dealing with an infection due to a group of organisms, the study of carriers and the tracing of the spread of the disease will be rendered most difficult. The difficulties will be greater still, if it should be found that certain hemolytic streptococci identical with those causing the disease, but having no pathogenic properties for man, exist widely distributed outside the human body, and are also present as harmless saprophytes in the throats of very many healthy individuals.

It may be stated, however, that all the observers who have had much experience in the study of the flora of normal throats agree that actively hemolytic streptococci are found only with the greatest rarity in normal throats, except in the presence of epidemics of the so-called streptococcus sore throat, or streptococcus pneumonia. It is known that hemolytic streptococci do exist very frequently in milk, even in milk which is produced under the very best conditions, and also in milk products, such as cheese and butter. Intensive study, however, is showing that these streptococci, which have been described as of the bovine type, may be differentiated in practically all cases from those of the variety pathogenic for man, which has been called the human type. This differentiation is not entirely without difficulty, but with increasing knowledge is becoming more and more easy. In the epidemiologic studies that have been carried out in the army so far, great attention has not been paid to the differentiation of these two types, but this is probably not of extreme importance, since experience shows that streptococci of the bovine types are not

frequently found in human throats, certainly not in large numbers. At present, therefore, we seem justified in considering persons who harbor large numbers of actively hemolytic streptococci in the throat as potential carriers of this disease. The persistence of these human streptococci outside the body in dust, in dried sputum, etc., has not yet been carefully investigated. It is known that they are tenacious of life, however, are resistant to drying and other deleterious influences. The possibility of infection through food should not be disregarded, especially since it is generally held that the epidemics of streptococcus sore throats are spread in this way. In view of the fact which I have previously stated, however, that hemolytic streptococci of the bovine type are very frequently found in milk, great care must be taken to avoid the confusion which may arise by the isolation of these streptococci from milk or milk products and in mistaking them as responsible for the epidemic.

That the infection starts in the respiratory tract and is a descending one seems most probable, since blood infection occurs apparently only late in the disease. Our present knowledge indicates that the infectious agent is spread by fairly direct transfer of the infectious agent from the patient sick of the disease or from healthy carriers, either by droplet infection or by the bacteria carried in particles of dust. In the presence of an epidemic, there can be no question that many healthy carriers exist. The number of these vary under different circumstances, apparently depending on the degree of crowding and close personal contact. The number of healthy carriers of any pathogenic organism is apparently related to the virulence or invasiveness of the given organism and to the prevalence or lack of immunity on the part of the individual coming in contact with the infection. In the case of diphtheria, the wide prevalence of immunity in man offers an explanation for the large number of healthy carriers. At present we have no means of testing immunity to streptococci. The pathology of the disease, however, suggests that the organisms are not highly invasive for man, that they take root and grow in man with difficulty and even when once established they do not intensively invade the human tissues. If such an apparent contradiction of terms is allowable, they are highly fatal to man but not extremely virulent for man.

EPIDEMICS OF MEASLES

There seems little doubt that the present epidemic among the soldiers started with infection of patients suffering from, or convalescent from, measles. This disease seems to render the respiratory mucous membrane especially susceptible to secondary infection, particularly with the streptococcus. Similiar epidemics of this form of infection are not unknown. Indeed, the almost invariable occurrence of pneumonia among children in crowded foundling and orphan asylums, and even in hospitals not conducted with the greatest care, has long been known by pediatricians and public health officials, and has led to the adoption of the general rule that children with measles should be treated in homes rather than in hospitals, even though the home conditions are unsanitary and unsatisfactory. Probably in our army hospitals, at first at least, infection occurred mainly within the hospital itself. Very good evidence of this fact we obtained, first, by studying in one of our army hospitals the prevalence of hemolytic streptococci in the throats of patients

admitted to the measles wards, and then later, by observing the appearance of these organisms in the same throats after the patients had been in the wards some days. While on admission only about 11 per cent. of the throats showed the presence of these organisms, after the patients had been in the wards for from eight to fourteen days, between 50 and 60 per cent. of the patients harbored hemolytic streptococci in their throats. At this camp, however, both measles and the bronchopneumonia associated with it, had prevailed for several months before these studies were made. Moreover, in this camp evidence was obtained showing that this streptococcus pulmonary infection was occurring not only in the patients suffering from measles, but that patients with acute lobar pneumonia due to pneumococcus were being secondarily infected with streptococci, and thereby a disease of only moderate severity was changed into one of extreme gravity.

At this camp it did not appear that the disease was occurring primarily, or that healthy individuals were being attacked. Since my return to New York, however, cases have been seen among civilians in which the infection was apparently primary, entirely unassociated with any preceding infection. Dr. MacCallum, who was associated with me in the previous studies I have mentioned, has lately studied an epidemic in another camp and in a report not yet published states that in most of the cases seen there, no association with measles could be discovered. In a report which has just appeared by Fox and Hamburger from Camp Zachary Taylor, these writers are inclined to consider the two epidemics, that of measles and that of streptococcus bronchopneumonia, as occurring coincidentally but more or less independently. Nevertheless, it seems probable that, without the extensive occurrence of measles, the streptococcus pulmonary infections would never have reached the widespread prevalence they have obtained. Even with the risk of indulging in unwarranted theorizing, I cannot help suggesting that the epidemic started as a streptococcus infection in the respiratory mucous membrane of measles patients. The streptococci, rapidly increasing in virulence, were then able to attack patients suffering from other respiratory diseases such as lobar pneumonia; and finally the streptococci have acquired such virulence that now even healthy persons may be infected. The conditions are not at all unlike those obtaining in epidemics of septic wound infection and puerperal fever as formerly seen in hospitals, in which at times there occurred a rapid increase in virulence of the infecting streptococci, with resulting sudden and widespread prevalence of this type of infection.

MEASURES TO PREVENT INFECTION

While our knowledge is far from sufficient to permit dogmatic statement, it seems probable that the efforts to prevent and to limit this disease should consist, first, in the institution of special precautionary measures to prevent the infection of those persons in whom a high degree of susceptibility exists, especially patients with measles, lobar pneumonia and other respiratory infections; and second, since the streptococci are present in greatest numbers and are most virulent in patients already suffering from the disease, in endeavoring to obtain an etiologic diagnosis in these patients at the earliest possible moment, and in isolating them as rigidly as possible. A third measure which would be of the greatest value, just as it has

proved to be in the prevention of typhoid fever, and may be in the prevention of lobar pneumonia, is preventive inoculation. In the case of streptococcus, this is apparently not so simple as it might appear at first sight. Little is known concerning immunity to streptococci, and this little indicates that this immunity is much more difficult to induce artificially than is immunity to pneumococcus, for instance. It is not at all impossible, however, that with further investigation, proper methods for producing this immunity may be discovered. Finally, the detection and the isolation of healthy carriers, while theoretically of great importance, seem at present impossible and impracticable tasks. By avoiding crowding and by inculcating in the men by education a sense of propriety in caring for their nasal and oral secretions, just as they have been taught not to distribute feces and urine indiscriminately, much may be done to lessen the danger of the healthy carrier. Convalescents from the disease probably carry streptococci of high virulence and are therefore of great danger. Isolation of such persons until examination of the throat shows great freedom from these organisms should not be impossible. Protection of the soldier from influences which may lower his general resistance, such as exposure and undue fatigue, at least during the early period of training, is also undoubtedly of importance.

Emphasis should be laid on the matter of early diagnosis and especially the matter of proper isolation of cases of infectious disease, since these measures, as I have indicated, are essential for the prevention of the disease under discussion, as well as of all other communicable, acute, infectious diseases. For these measures to be carried out there are three essentials: first, knowledge by the surgeons of the early signs and symptoms in those diseases in which diagnosis is made by these features alone, notably the exanthemata; second, well-equipped laboratories in which etiologic diagnoses may be properly made (this applies especially to pneumonia and to diseases like diphtheria); third, properly organized infectious disease hospitals. It is not as well recognized as it should be that an infectious disease hospital requires a special organization, quite different from that of the general hospital. The great majority of medical patients treated in the camp hospitals are suffering from infectious and contagious diseases. These patients cannot be properly isolated in a general hospital. Therefore every camp hospital should consist of two divisions, one for infectious diseases and one for noninfectious diseases. Patients for admission to the former should be kept entirely separated from those to be admitted to the latter.

The personnel of the infectious disease hospital should be distinct from that of the general hospital. The infectious disease hospital should be supplied with separate receiving rooms, should have observation wards with individual rooms for patients, and should have a group of wards for each infectious disease. With a well and specially trained head and an intelligent staff, the spread of infections in such a hospital could be prevented. All pneumonia cases, those due to pneumococcus as well as those due to streptococcus, should be treated in such a hospital. So far as possible, patients suffering from pneumonia due to the different types of pneumococci should be treated in different wards. Patients suffering from streptococcus infections should be rigidly isolated. Measles and pneumonia patients having hemolytic streptococci

in their throats should not be placed in the same wards or rooms with those not carrying such organisms.

All this may sound utopian and fanciful to some of you, who will therefore be surprised to hear that these measures are already being carried out, at least in a somewhat modified form, in more than one camp. In one camp where the measles cases carrying streptococci have been carefully isolated from the so-called "clean measles cases," complications among the latter have been practically eliminated.

CONCLUSION

I should like to emphasize the fact that acute lobar pneumonia is an endemic disease, while streptococcus bronchopneumonia occurs chiefly in epidemic form. The reason for this is that streptococci are extremely variable in their pathogenic properties. Dr. Theobald Smith has drawn attention to the fact that streptococcus infections in animals are not self-perpetuating. They occur as epidemics, mainly as secondary, not primary infections. This is also true in man. A suitable soil is necessary. Given this, streptococci rapidly gain in virulence. Every new case of infection adds not only to the extent but also to the intensity of the epidemic. In streptococcus pneumonia, the epidemic of measles provides the proper soil. Measles in the army probably cannot be prevented. It is possible, however, that in any one place, the number of cases occurring at one time may be limited. Finally, the time to stop streptococcus bronchopneumonia is at the beginning of the epidemic. Later, this becomes extremely difficult. By the introduction, early in the epidemic, of measures such as I have mentioned, much may undoubtedly be done to lessen the incidence of this serious disease.

CONTROL OF MENINGITIS *

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Fortunately the problem presented by meningitis among our armed forces during the past winter has been smaller than that relating to pneumonia. But the conditions were not without their own degree of seriousness. At this moment we are facing the assembling of another large body of troops, and possibly the assembling may be repeated many times before the war is brought to an end.

Hence we shall doubtless find ourselves in the situation of having perpetually to guard against the prevalence of epidemic meningitis on a larger or smaller scale. Fortunately, we are in a favorable position with reference to that disease, since we know its bacterial cause and its mode of infection, and possess adequate methods of detecting the meningococcus.

There may be differences of opinion as to just what part the ordinary healthy carrier of the meningococcus plays in initiating an outbreak of meningitis, but no one disputes the fact that without carriers of meningococcus, either healthy or sick, there could be no spread of disease.

From this, it seems obvious that we command as many of the factors controlling the disease as possible. The meningococcus is, of course, the essential and

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central factor; but without doubt, subsidiary factors play important parts. Among the latter would appear to be excessive fatigue and concurrent respiratory infections of slighter degree, such as colds. That the unusual conditions surrounding the military life exert an influence at the outset is indicated by the circumstance that it is the fresh recruit and not the seasoned soldier who especially suffers from epidemic meningitis.

The source of meningitis in the Army and Navy is, in the first instance, the civilian population. Because healthy carriers of the meningococcus exist there, they have been introduced among the troops. Once there, they are menacing, apparently, according to fluctuating circumstances.

If we disregard, for the sake of our argument, the secondary factors that bear on the induction of infection, and concentrate attention on the meningococcus itself, two essential facts appear: first, that numbers of meningococci thrown off with the nasopharyngeal secretion, and second, that the bacteriologic type or variety of the organism play a large part in determining the result. Thus the healthy carrier who harbors many meningococci in his nasopharynx is relatively a much greater potential menace than the one who harbors few; and some types or varieties of meningococci are more pathogenic than others.

There is universal agreement among bacteriologists that the meningococci compose a complex group rather than a single, fixed type of micro-organisms. Recent studies also indicate that this group contains two immunologic varieties (so-called types) of meningococci which are responsible for from 75 to 80 per cent. of all cases of epidemic meningitis. The remainder of the cases are produced by meningococci of less fixed qualities and of less parasitic properties.

Studies of the meningococci among the general civilian population and military personnel, under conditions in which cases of meningitis are not frequent, show that the healthy carriers tend to harbor not the highly parasitic, but rather the less pathogenic varieties of meningococci. Once cases become frequent, however, the number of healthy carriers of the parasitic kind rises.

We are permitted, therefore, to view, tentatively at least, the class of meningococci somewhat as we now view the pneumococci. We distinguish among the latter parasitic and saprophytic varieties or types. The miscellaneous pneumococci composing the so-called Type IV group, notwithstanding the fact that certain ones may occasionally cause pneumonia, are still regarded as saprophytes and as practically always present in the mouths of a high percentage of normal persons. Similarly it may well be that normal persons not very infrequently carry the more saprophytic forms of the meningococcus.

Should we therefore proceed in the case of meningococcus as we have in that of pneumococcus, we should regard as menacing only the carriers of the parasitic varieties. Now, since in all our operations to conserve the health of our troops we must take into account the military exigencies, a distinction between dangerous and less dangerous meningococci would materially affect our practice of segregating meningococcus carriers and withdrawing them from active military training.

This distinction in types may now be readily made on the basis of specific agglutination with monovalent immune serums derived from rabbits. The subject, as

I have outlined it, is in its early stages. It is to be hoped that the experience of last winter in the Army and the Navy and the intrinsic importance of the matter will lead to a critical study of the meningococcus carrier problem from this point of view, in the hope and expectation that the control of epidemic meningitis may be made thereby simpler, more effective, and less disturbing to the training of our troops.

AN EXPERIMENTAL STUDY OF PAROTITIS*

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The subject of the etiology of parotitis has been investigated from a bacteriologic standpoint, and cocci have been isolated from the blood, saliva, and fluid aspirated from the swollen parotid gland.¹ Attempts to reproduce parotitis in animals by the inoculation of such cocci proved entirely unsuccessful, showing that these earlier studies had not solved the problem of the etiology of mumps. The cocci are probably contaminations. In 1908, Granata² first used saliva filtrate from parotitis patients for animal inoculation, suggesting that the virus of parotitis may be a filterable one. Since then investigators have tried to reproduce the disease in laboratory animals rather than to isolate a bacterium from human patients. Granata worked with rabbits; Gordon³ inoculated monkeys intracerebrally. Nicolle and Conseil⁴ injected material into the parotid glands of monkeys. The results of all these investigations were only suggestive as far as the reproduction of mumps in animals is concerned, and Gordon's attempts to transfer the disease from one monkey to another proved entirely unsuccessful.

Three years ago material was obtained in the following way from a number of children acutely ill with parotitis: The patients were allowed to rinse the mouth with sterile physiologic sodium chlorid solution, and the washings were filtered through a new Berkefeld candle N. The resulting filtrates were proved sterile by aerobic and anaerobic culture methods and were injected into the parotid glands and testes of healthy, half grown cats. During the past winter the prevalence of parotitis in Army camps near New York City provided the opportunity for repeating the work with material from adult (soldier) patients.⁵

EXPERIMENTAL

Cats were selected as the experimental animals because they are known to be subject to attacks of parotitis and it might reasonably be inferred, therefore, that they are not possessed of a natural immunity to the disease. Old cats proved unsuitable because the thick connective tissue on the side of the face over the parotids makes inoculation difficult, and such old

* From the Laboratories of the Rockefeller Institute for Medical Research.

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1. Laveran and Catrin: *Compt. rend. Soc. de biol.*, 1893, **5**, 528. Busquet: *Rev. de méd.*, 1896, **16**, 744. Tessier, P., and Esmein, C.: *Compt. rend. Soc. de biol.*, 1906, **58**, Pt. 1, pp. 803, 853. Mecray and Walsh: *Med. Rec.*, New York, 1896, **50**, 440.

2. Granata, S.: *Med. ital.*, 1908, **6**, 647-672.

3. Gordon, M. H.: Report to the Local Government Board on Public Health and Medical Subjects, London, 1914, N. S., No. 96.

4. Nicolle, C., and Conseil, E.: *Compt. rend. Acad. d. sc.*, 1913, **157**, 340.

5. I am indebted to Captain Meader for the privilege of obtaining material at Camp Mills; and to Captain Monaghan for many courtesies at the Army Hospital at Secaucus, N. J.

animals do not react well. Before anesthesia the temperature of the cats was recorded and the leukocytes counted and differentiated. The skin over the parotid and testis to be inoculated was denuded of hair and carefully cleansed. Injection with a new, sharp needle is not difficult. The parotid can be picked up between the point of the needle and the left index finger, and from 1 to 2 c.c. readily injected.

The animals recovered rapidly from the ether and showed no ill effects from the inoculations. The following day the temperature had usually risen 0.5 C., but the white blood cells had not increased in number. There was, as a rule, slight tenderness in the inoculated testicle, and often in the parotid as well. This was evidently of mechanical and not of inflammatory origin and always disappeared within another twenty-four hours, leaving the cats apparently well on the second day, although the temperature was from 0.5 to 0.8 C. above normal. After six or seven days tenderness returned in the testis, accompanied by swelling, and similar symptoms appeared in the parotid. An increase in the leukocytes became apparent two days after inoculation and reached the maximum in about seven to fourteen days, coinciding with the height of the fever. The swelling and pain in the parotid lasted from two to five days, but the testicular swelling rarely subsided in less than ten to fourteen days. In the third week all the symptoms began to disappear, the leukocytes reaching the normal first, the tenderness disappearing at the same time, and the fever persisting for another week. While tenderness on palpation of the parotids was less marked than that of the testes, and the swelling never reached the stage of marked facial asymmetry, the cats manifested some degree of discomfort in the inoculated parotid. The appetite was only slightly affected, and at no period of the experiments did the cats seem especially ill. The disease was not fatal in any instance. Animals killed late in the second or early in the third week showed swelling of the inoculated parotid as well as of the other salivary glands and the neighboring lymph nodes.

The salivary filtrates from patients ill from one to three days produced these marked symptoms in the inoculated cats (Fig. 1). On the sixth day of the disease the effect of the filtrate injection was much less marked, and inoculation of material obtained from a patient nine days or longer after onset of the mumps attack was apparently without result: that is, the cats showed a temperature range of only 0.5 C., the leukocytes were not even doubled in number, and the mononuclear cells were not increased, but the polymorphonuclears were. At necropsy the parotid and the adjacent salivary glands and lymph nodes showed neither gross nor microscopic changes. It would seem, therefore, that the infective period of the mouth secretions from parotitis is comparatively short, lasting about a week and corresponding to the period of swelling of the parotid gland. A fresh swelling appearing in the opposite parotid gland would naturally prolong the infectious period for a given patient.

TRANSMISSION FROM CAT TO CAT

Transmission from cat to cat was accomplished in two ways: by means of the saliva of the inoculated cats, and with emulsions made from the inoculated glands.

By anesthetizing the animals, large amounts of ropy saliva were obtained, and at the height of the symp-

toms, at the end of the second week after inoculation, the cats were found to harbor in their mouth sufficient virus to produce active symptoms in normal cats. Salivary secretions from normal cats were used as controls and gave only negative results, just as did normal saliva from healthy human beings.

Emulsions from the inoculated glands were made by grinding the organs in a small, tissue-grinding machine, through whose fine wire screen from 0.2 to 0.3 c.c. of finely divided material passed. The best time for the reinoculation was found to be from the fourteenth to the seventeenth day, when the testicular swelling, the leukocytosis and the fever were highest. During the first seven to ten days, transfers were less uniformly successful. Evidently the reaction requires about two weeks for its maximum development. Atrophy of the inoculated testicle occurred in several cats, after the acute symptoms had abated.

After the third or fourth transfers, the reaction developed more rapidly and the effects were more severe. But after the sixth or seventh transfers, the reaction perceptibly declined.

These experiments were controlled with extracts prepared from the parotid glands and testicles of normal cats. The inoculation of such normal extracts was followed by a slight rise in temperature lasting only two days, and a polymorphonuclear leukocytosis of the same duration. No enlargement nor tenderness developed in the inoculated glands and at necropsy no changes were demonstrable in them.

PATHOLOGY

1. *Gross Appearance.*—(a) Parotid Gland: The inoculated parotid was deeper pink and larger than the uninoculated gland. This difference was often striking. It was also more moist than the uninoculated side and showed on section a granular appearance due to swelling of the acini. The submaxillary and the sublingual glands, as well as the adjacent lymph nodes, were congested and distinctly enlarged. The molar gland, lying just beneath the skin at the angle of the mouth and extending along the lower lip, was uniformly congested and swollen on the inoculated side. During life the buccal mucosa over the gland was distinctly reddened. This symptom could be found in the cat's mouth in four or five days after inoculation. The opening of the duct leading from the injected parotid was always surrounded by a small zone of congestion.

(b) Lymph Nodes: The lymph nodes on both sides were decidedly swollen and moist, especially the two nodes close to the anterior border of the parotid. The smaller nodes along the posterior border were usually more swollen on the inoculated than on the uninoculated side.

(c) Testis: The inoculated testis was larger than the uninoculated, but unchanged in color. On section the cut surface was more gray, cloudy and moist. In a few instances the point of inoculation was visible as a small dark spot, but otherwise no focal changes were noted.

2. *Microscopic Appearance.*—(a) Parotid: The histologic changes present in the parotid were usually inconspicuous in the first transfer, and consisted only of congestion of the vessels and swelling of the epithelium of the acini, with edema of the interlobular connective tissue. These are the changes that have been described in the pathology of human mumps.

In the third and fourth transfers, the glands often showed infiltration of the interlobular connective tissue, with mononuclear and a few polymorphonuclear cells in addition to the edema. The infiltration was most intense about the secretory ducts, which were sometimes dilated (Fig. 2). The epithelium of the acini was swollen and cloudy in some instances. The areas

20,000, and a daily variation of 5,000 not an unusual event; consequently, only decided increases can be of significance. In the inoculated animals the white cells began to increase within the first forty-eight hours, while on the seventh and eighth days a sudden additional rise, often doubling the initial count, may occur. The increase is maintained, with daily fluctuations, for

a period of from eight to ten days, the maximum being reached on about the fourteenth to the sixteenth day. The fall takes place gradually, the initial number being reached, as a rule, in about four weeks. During the first two weeks the leukocytosis is polymorphonuclear in character. At the end of the second or beginning of the third week, when the fever and glandular swellings are at the highest, a lymphocytosis is noted. The large mononuclear and eosinophil cells remained practically unchanged throughout.

The blood picture as described in the experiments is not dissimilar from the one observed in cases of parotitis in man with testicular complications. The increase in mononuclear cells found by Nicolle and Conseil⁴ in one of their monkeys, which had been inoculated into the parotid but not into the testicle, is of some interest in this connection, as is the polymorphonuclear leuko-

cytosis without the later appearance of a lymphocytosis noted in cats inoculated intratesticularly with material from normal cats, as controls; that is, the characteristic thing in the blood picture during parotitis is a mononuclear cell increase.

2. *Virus Content*.—The marked constitutional symptoms noted in many parotitis patients suggested an investigation of the blood at the height of an attack.



Fig. 1.—Parotid, submaxillary and sublingual glands and adjacent lymph nodes showing swelling of the inoculated (right) side; cat killed after seventeen days: R, right; L, left; A, parotid gland; B, submaxillary gland; D, lymph nodes.

of cellular infiltration were more pronounced in some parts of the gland than in others, were always multiple, and could be easily differentiated from the small lymph nodes normally present between the lobules.

(b) *Testis*: The histologic changes in the testis were more constant than those in the parotid, and more pronounced in the epithelium than in the supporting framework of the gland. The layer of cells next to the basement membrane of the tubules tended to be normal in appearance, but the rest of the cells were often the seat of a change resulting in a diminution in the number of spermatocytes and consequently of the mitotic nuclei normally found. The spermatids were still more altered, showing as the remains of their nuclei irregular and deeply staining granules, while the cell bodies stained poorly or had undergone extensive lysis. As would be expected, spermatozoa were diminished in number, and few were normal in appearance, their broken-up condition being easily discernible. Epithelial changes of some degree were present in some part of practically all the inoculated testicles. Interstitial cellular infiltration, on the other hand, occurred far less frequently in the testicle than in the parotid gland. Another striking change in the testis was noted in the interstitial cells. These were larger than normal, and, in several instances, actually increased in number, forming large masses between the tubules.

(c) *Lymph Nodes*: On microscopic examination, the swollen lymph nodes showed necrosis of the center of several lymph nodules, while the sinuses were distended and the lining cells swollen.

BLOOD CHANGES

1. *Leukocytes*.—The average number of leukocytes in the normal cat was found to be from 16,000 to

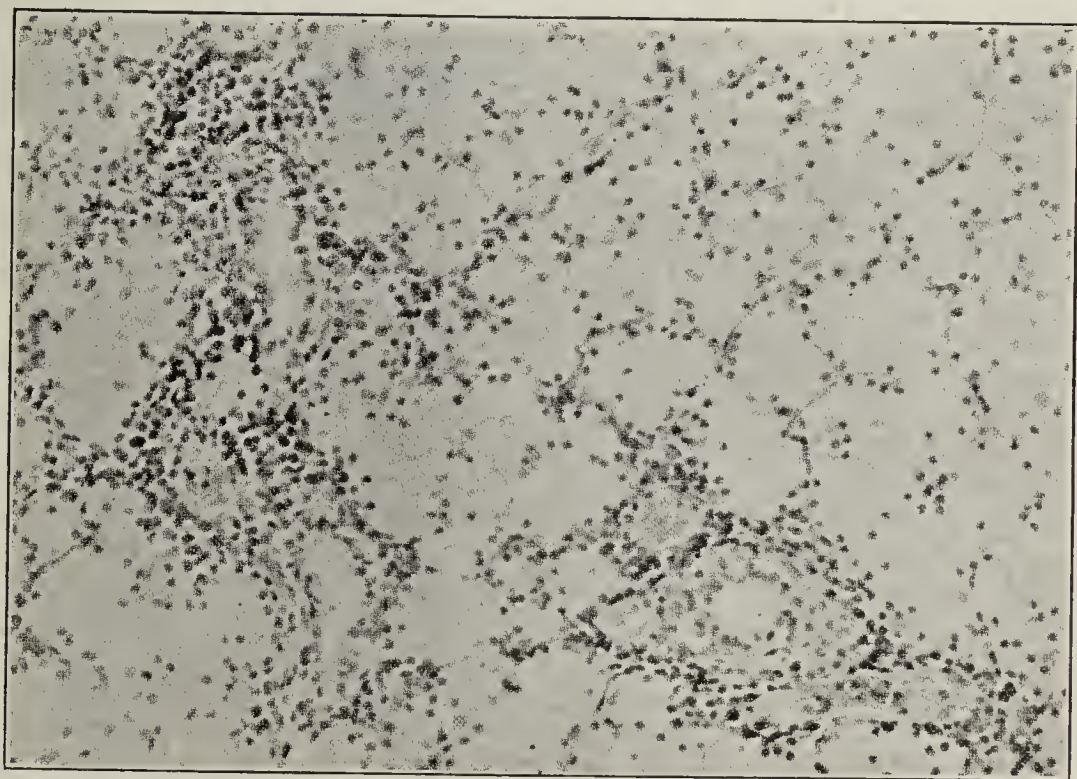


Fig. 2.—Parotid gland, showing cellular infiltration around the secretory ducts; cat killed after eighteen days.

Films were found to be negative for parasites and bacteria, and cultures made both aerobically and anaerobically remained sterile. Blood was taken from a vein at the elbow in seven patients ill from two to three days. All showed marked constitutional symptoms. The blood was defibrinated, proved to be sterile, and then inoculated into normal cats. Control animals were inoculated with

blood from a normal adult. The results were interesting. While the temperature range was not high, it was least high in the controls. The blood count, on the other hand, showed a polymorphonuclear leukocytosis in both sets of animals; but while the mononuclear cells were diminished in the control cats, they were actually increased throughout in the animals receiving the blood from the patient ill of parotitis. The blood taken from a case with slight symptoms on the fifth day of illness gave no result on injection into a cat.

The conclusion drawn from these experiments is that the blood of parotitis patients, especially when suffering from severe constitutional symptoms, is infective for cats. This conclusion is in keeping with the clinical course and metastatic complications of certain cases. Figure 3 shows the swollen glands in a cat inoculated with the blood of a patient.

PROTECTION EXPERIMENTS

Results suggesting that protective substances may be developed by the cats after they have passed through a typical attack of experimental parotitis were obtained in two ways: 1.

Animals were reinoculated from one to four months after the first inoculation and failed to develop the typical symptoms they had previously exhibited. 2. As was to be expected from the results of these reinoculation experiments, the serum from recovered cats had the power to reduce the development of the reaction caused by the injection of the virus of parotitis when left in contact with it at 37 C. for two hours. Animals inoculated with such a serum-virus mixture failed to develop the typical symptoms or lesions produced by the virus alone or by virus treated with normal cat serum.



Fig. 3.—Parotid, submaxillary and sublingual glands and adjacent lymph nodes, showing swelling of the right side inoculated with blood from a patient ill three days; cat killed after seventeen days: R, right; L, left; A, parotid gland; B, submaxillary gland; C, sublingual gland; D, lymph nodes.

RECURRENT CASE

An interesting recurrent case occurred in a soldier. His first attack of mumps began in November, 1917, and he had three recurrences, the last one early in May, 1918. March 13 and again, May 1, his filtered saliva was injected into a cat, with positive results. Figure 4 illustrates the lesion caused by the filtrate of his saliva during the second recurrence. May 15, the mouth secretions were found to be negative and the facial swelling had disappeared. Jochmann⁶ says that the swelling of the parotid may remain for months or even a year. The lesion in this soldier lasted for a period of five and a half months, and his saliva was infectious for that period.

SUMMARY

Cats injected into the parotid gland and testicle with a bacterial sterile filtrate of the salivary secretion of children and adults in the active stage of parotitis or

mumps develop a pathologic condition resembling the condition present in mumps in human beings.

After an incubation stage of from five to eight days, definite changes have been noted in the temperature, blood leukocytes, and inoculated organs.

The rise of temperature and the leukocytosis precede the glandular swelling, but all the changes reach the maximum at about the same time, after which they decline, and normal conditions are reestablished in about four weeks.

The intraparotid and intratesticular injections of extracts of normal parotid gland and testicles may cause a mild rise of temperature and leukocytosis of brief duration, but swelling and tenderness are absent. The white cells increased are the polymorphonuclears and not the lymphocytes. The injection of filtrates of normal saliva causes only a mild and brief rise of temperature, but no leukocytosis nor swelling of the glands.

The saliva of man and of inoculated cats as well as the inoculated glands of the latter animals were found to contain the filterable infective agent.

The virus of parotitis is most readily detected in the saliva during the first three days of the disease, less readily on the sixth day, and not at all after the ninth day. This would have a practical bearing on the question of infectivity and length of isolation period for mumps patients.

The virus was also detected in the blood of patients showing marked constitutional symptoms.

The serum of recovered cats was found to contain an immune body which diminished or even neutralized the action of the virus of parotitis.

ABSTRACT OF DISCUSSION

COL. FREDERICK F. RUSSELL,
Washington, D. C.: It is appar-

ent from these charts that the respiratory infections run similar curves and that in general city populations are immune and country populations are not immune; that the spread of measles, particularly, seems bound to take place when the men are brought together. If measles does not appear early, it will probably occur later, when the troops are crowded. We must remember that they are going to be crowded on the way across the Atlantic and on the other side; that there will be less air space per man over there than there is here in our own camps. As it seems almost inevitable that the men will have measles, it is better for them to have the disease under the best circumstances. The immunity that the city troops have to all the respiratory infections gives a hint of the remedy needed to make country troops equal to city troops. The diseases for which we have good vaccines have not appeared on these charts, and this again shows the importance of an active immunity against acute respiratory infections.

These are the causes of death—pneumonia, meningitis, traumas, tuberculosis, measles, scarlet fever, diphtheria, typhoid and paratyphoid. Smallpox is not even on the chart, so it is apparent that these diseases, for which we have pretty good protection, are not important. It is measles, meningitis

6. Jochmann, G.: Lehrbuch der Infektionskrankheiten, Berlin, 1914.

and pneumonia of various kinds that cause the great mortality. We have now a new incentive to look for some way of producing artificial immunity against these diseases. So far as lobar pneumonia is concerned, it seems probable, from the work of Lister in South Africa and Cole in New York, that we have a vaccine which promises good protection against lobar pneumonia. Unfortunately, there is nothing very promising for these other infectious diseases, but it seems apparent that in order for us to have seasoned troops we have got to have immune troops, either immune as the result of naturally acquired disease or immune as the result of some sort of vaccination.

DR. WILLIAM C. RUCKER, U. S. Public Health Service, Washington, D. C.: I have just returned from France, where, under the direction of the Chief Surgeon of the American Expeditionary Forces, an investigation was made relative to the sanitation of the troops in transport. I am not at liberty to give you the accurate data regarding the findings because to do so would be to disclose the number of troops that have moved and the ports by which they entered Europe. In one instance of a single convoy, on which there were not quite 14,000 troops, the time of the voyage was fourteen days. Of these troops thirteen men died before shore was reached. Of these thirteen deaths nine were due to pneumonia, three to acute tuberculosis and one to acute cardiac dilatation. There were

235 admissions to the sick bay during the fourteen-day voyage, of which 114 were discharged to the hospital when the troops were disembarked. The remainder were either returned to duty or were among the thirteen who died. There were forty-four cases of pneumonia; I forget the number of cases of mumps, but there were a considerably greater number of cases of mumps, and when we exclude the venereal diseases, there was only one case, a case of acute cardiac dilatation, which was not a sputum-borne disease. The greatest number of admissions to the

sick bay was on the sixth day of the voyage. From that I think it is pretty safe to assume that the infections were acquired prior to embarkation. The sanitary condition of the vessels was excellent in every case. The Navy has handled that end of the work remarkably well, and in no case was there infection which was traceable to the ship itself. We have control of the fecal-borne infections and we must focus our attention in the future more on the sputum-borne infections. The best way to accomplish this, so far as transportation is concerned, is to quarantine troops very carefully and to repeatedly examine them prior to embarkation, so that the sick man may not be shipped to Europe. The Surgeon-General's Office has handled this end of the problem remarkably well. There are some faults in the system at the present time, but they are not the faults of the medical department.

COL. V. C. VAUGHAN, Washington, D. C.: I made a study of pneumonia and other communicable diseases in the camps during the six months from October 1 to March 31 and found that there are great differences in morbidity and mortality rates in the different camps. The healthiest camp was that of the Illinois National Guard, located at Houston, Texas. The death rate in this division was in round numbers one-half the death rate in the same age group in Chicago for the same time. The healthiest camps were located in the South

and were occupied by northern troops. The next healthiest troops were northern soldiers in northern camps. The highest death rates were found with southern troops in southern camps. There were three camps with a death rate above 24 per thousand, and deaths were mostly due to pneumonia. These camps were Pike in Arkansas, Beauregard in Louisiana and Wheeler in Georgia, all occupied principally by southern troops. When we take a map and place the camps not where they are, but in the center of the area from which the troops came, we find that all the good camps are in one area, and that area is the northern part of the United States, east of the Mississippi River. It appears, therefore, that the prevalence of pneumonia depends on the susceptibility of the individual, and that southern soldiers are much more susceptible than their northern comrades. This was true in the Civil War, and apparently continues up to the present time.

The Surgeon-General himself having had large experience with pneumonia both on the Panama Canal zone and in South America, recognized the fact that the respiratory diseases would be those with which we would have to contend, and in order to limit the spread of these diseases, he insisted on proper floor space in barracks. It has developed that when we speak of crowding in our Army camps, we are prone to think only of sleeping quarters. Crowding in camps occurs

more frequently and more dangerously in waking hours than it does in sleeping hours. When men gather around the stove in barracks or when they go to a place of amusement or instruction, there is the greatest and most dangerous crowding. Major Soper has figured out that at Oglethorpe, in a large amusement hall, when it is filled, if every man sits perfectly upright and does not move his head one way or the other, the greatest possible distance between one man's nose and that of another man on the same row would be 16 inches, and that on the rows in front and be-

hind would be 26 inches. When one leans over and coughs, and when you think of 9,000 men sitting in such a hall and two thirds of them cough at once, you can see what it means.

So far as I know, in only one camp has there been any careful examination for malaria, and the percentage found in that camp was less than two. Of course, this does not prove that only 2 per cent. of the soldiers in this camp had malaria or had ever had this disease. At Bowie, in Texas, a thorough examination was made for hookworm, and about 12 per cent. of the soldiers were found to be infected. It seems from these figures that neither hookworm nor malaria has existed in the southern camps to the extent generally supposed.

DR. H. GIDEON WELLS, Chicago: We have heard something about the situation as to cholera on the Macedonian front. It may be interesting to mention the Roumanian front on the opposite side of Belgium. At the time of the retreat of the Roumanians into Moldavia there was suddenly crowded there a double population, with few roofs to cover them and very little food. Consequently, the population was moving as rapidly as possible and as freely as possible to get food and shelter. Cholera immediately broke out and, under these conditions, at once spread widely, with no possible means of preventing it by quarantine. Professor Cantacuzene of the University of Bucharest had brought out their bacteriologic laboratory equipment on cars. They at once established as



Fig. 4.—Parotid submaxillary and sublingual glands and adjacent lymph nodes, showing swelling of the right side inoculated with saliva filtrate from a recurrent case; cat killed after fifteen days: R, right; L, left; A, parotid gland; B, submaxillary gland; C, sublingual gland; D, lymph nodes.

near universal vaccination as possible. There was absolutely no other way to interfere with the spread of cholera, yet there was practically not a case remaining in less than two months. Last summer, at certain of the camps, all the men passing through these stations were examined as to the existence of cholera carriers, and there were no cases to be found among these troops, showing how efficient cholera vaccination is by itself, even in the absence of proper quarantine and sanitation.

DR. PAUL ARMAND-DELILLE, France: Our French laboratories had the same experience. There were some cases in the civilian population, and in Corfu they used the same method, vaccination, and stopped the epidemic.

DR. SIMON FLEXNER, New York: I was asked to touch on the point of the extent to which examination should be made in the search for meningococcus carriers. In the first place, I should say that whole commands should not be swabbed. Even assuming the operation practical, it would not be justified. I approve the plan outlined in the leaflet of information of meningitis issued by the Surgeon-General of the Army, in which the Navy concurs. This plan is based on wide experience. Briefly, it consists in swabbing first the close associates of the case of meningitis, and later extending and widening the circle according to circumstances—that is, whether more cases arise or not. Two advantages are obtained by this procedure: disorganization of the military personnel is avoided, and the carrier work is done more thoroughly and with greater finality. To attempt to swab organizations larger than the laboratory force can handle well is either to invite inaccurate reports or to compel repetition of the work.

COL. FREDERICK F. RUSSELL, Washington: There was one point about the carrier work which has been done on meningitis which shows in the survey of all the camps, and that is that where the carrier work was done thoroughly at the beginning the disease never became widespread, nor has it persisted. In some of the camps, where for one reason or another it was impossible to get the carrier work started early until the cocci and the infection were widespread through the camp, we have not been able to get the rate down, and at the end of the year we find certain camps have had a much higher number of cases than other camps, and they are the camps which were late in getting to work on the carrier problem.

DR. RUFUS COLE, New York: It is remarkable that there has been little or no pneumonia among English and British troops. The factors on which this freedom from pneumonia depends is still somewhat obscure. Dr. Vaughan has brought out the extremely important fact that racial or geographic immunity does really exist entirely apart from other conditions, such as climatic or hygienic ones. However, there are two main factors to be considered in infections. Individual resistance is one of these factors, but the virulence or invasiveness of the infectious agent is also of significance.

Monkey Bone Grafts.—Küttner recently reported in the *Münchener medizinische Wochenschrift*, 1917, No. 45, the present status of two children who had had the lacking fibula or radius replaced with the corresponding bone from a young macacus monkey. The children were 9 months and nearly 2 years old at the time, and the interval since has been six and four years. The roentgenograms show that the bones have grown solidly in place but there has been no growth in length. This experience shows that living bone is available in this way for implants, and that possibly whole joints, tendons and vessels from apes and monkeys might be utilized, but Küttner doubts whether monkey nerve tissue would ever be suitable for grafting. (From an abstract in the *Nederlandsch Tijdschrift*.)

CHANGES IN THE BRAIN IN GAS (CARBON MONOXID) POISONING*

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AND

C. B. SEMERAK, M.D.

CHICAGO

This subject is important for three reasons:

1. Carbon monoxid is liberated by bursting shells and therefore is one of the gases responsible for mortality in the present war.

2. Deaths, accidental and suicidal, from inhalation of illuminating gas are increasingly frequent in civil life.¹ Henderson² states that carbon monoxid causes more deaths than all other gases combined. There is a reason to believe that a higher carbon monoxid content in illuminating gas is in part responsible for this. Statistics of certain cities of Great Britain³ indicate that the higher percentage of such deaths parallels the greater proportion of water gas used in the manufacture of a cheaper product.

3. Carbon monoxid poisoning is of medicolegal significance. A history is not always available, and the characteristic cherry-red color of the blood and chemical

proof of carbon monoxid are aids to diagnosis only in the first few days after poisoning. Kolisko⁴ in 1914 maintained that carbon monoxid produces invariably a characteristic lesion in the brain, namely, bilateral softening of the lenticular nucleus. We have attempted to discover whether this observation can be confirmed.

The present study consists of the examination of

thirty-two brains obtained from the postmortem rooms of the Cook County Hospital. In every case the clinical record and complete necropsy report have been available for correlation with the pathologic condition found in the brain. The fresh brains were described on removal, hardened in 10 per cent. dilution of solution of formaldehyd, and again described. Thin cross-sections made by cutting the brain transversely at right angles to the anteroposterior axis were then described. Blocks were removed regularly, including the leptomeninges and cortex from the lateral surface of the hemispheres, corona radiata, centrum semiovale, corpus callosum, lenticular nucleus and internal capsule, pons, medulla and cerebellum. Other areas were selected where gross changes were evident. The blocks



Fig. 1—Extensive hemorrhages in the leptomeninges in gas poisoning.

* Because of lack of space, this article is abbreviated in THE JOURNAL by omission of the case reports. They will appear in the reprints, a copy of which will be sent by the authors on receipt of a stamped, addressed envelop.

* From the Department of Anatomy, University of Chicago, and the Department of Pathology, Rush Medical College. This study was made under the supervision of Profs. C. J. Herrick and E. R. LeCount. The expenses were defrayed by an appropriation from a fund contributed to the University of Chicago for this purpose by twelve citizens of Chicago through the efforts of Mr. H. S. Hyman, and an appropriation made by the Otho S. A. Sprague Memorial Institute.

1. McNally, W. D.: Carbon Monoxid Poisoning, THE JOURNAL A. M. A., Nov. 10, 1917, p. 1586.

2. Henderson, Yandell: Carbon Monoxid Poisoning, THE JOURNAL A. M. A., Aug. 19, 1916, p. 580.

3. Mott, F. W.: Arch. Neurol., 1907, p. 246.

4. Kolisko, A.: Die symmetrische Encephalomalacie in dem Linsenkern nach CO-Vergiftung: Beitr. z. gerichtl. Med., 1914, 2.

were dehydrated in gradually increasing strengths of alcohol, beginning with 20 per cent. in order to minimize the shrinkage of the nerve cells, embedded in paraffin and cut in sections varying from 10 to 15 microns in thickness. The stains used were hematoxylin and eosin, phosphotungstic acid hematoxylin, van Gieson's toluidin blue, Mann's methyl blue, Mallory's connective tissue, Weigert's, Marchi's, osmic acid, sudan III, and Ciaccio's.

In such a series of brains, chosen only by the one circumstance that death was due to carbon monoxid poisoning, there were of course many pathologic changes which cannot be attributed to the gas. Thus syphilis, tuberculosis, pleurisy, pneumonia, nephritis and varying degrees of arteriosclerosis were encountered in various organs, and the picture presented by the brain tissues varied greatly according to preexisting diseases. The effort has been made to determine those changes which may be attributed to the constant factor of the carbon monoxid in the circulation.

FINDINGS

Hyperemia of the brain and leptomeninges was observed in twenty-nine cases. No diagnostic importance is attached to this common appearance in brain disease.⁵ Hyperemia of other organs than the brain was frequently present.

Edema was observed in twenty-one cases. The brains do not dry rapidly as do normal brains, and when hardened they cut with more resistance. The leptomeninges are cloudy, owing to the precipitate from the edematous fluid.

Internal hydrocephalus was noted in twenty-one cases.

A cherry-red color of the blood was noticed in eleven cases, and a pink hue to the white matter of the brain in five cases. These indications of carbon monoxid in the blood may be confirmed by the spectroscopic examination and by various chemical tests,⁶ which depend on the persistence of a red color to the serum or coagulum when carbon monoxid blood is mixed with certain chemicals in contrast to the gray, brown or black color of normal blood similarly treated. Of the eleven cases showing the characteristic color, four patients were found dead and five others died within a few hours of poisoning. When death is delayed for some days, these evidences of carbon monoxid poisoning are usually lacking.⁴

Petechial hemorrhages, especially in the leptomeninges and the white matter, were observed in fifteen brains. Frequently the hemorrhages were so minute that only microscopic examination served to distinguish them from the stippled appearance in cross-sections of hyperemic vessels. The predilection of the white matter rather than the gray is explained by the scant anastomoses in the circulation of the former. The hemorrhages are scattered through the corona

radiata and the centrum semiovale, tending to be more numerous in the posterior part of the brain. The pons, medulla and brain stem are usually involved. In only one brain did hemorrhages occur in the corpus callosum. This fact deserves mention because of the statement of Mott that hemorrhages in this location are characteristic of carbon monoxid poisoning. Mott's⁷ case was one of gas poisoning in the trenches, the history was lacking, and there is a possibility that some other gas was responsible for death. Moreover, concussion hemorrhage was not excluded. Hoover⁸ has found hemorrhages in the corpus callosum in poisoning by phosgen gas (COCl_2) but not in carbon monoxid poisoning.

Petechial hemorrhages were not limited to the brain. Fifteen cases exhibited such hemorrhages in numerous mucous and serous membranes throughout the body, as the stomach, bowels, peritoneum, renal pelvis, urinary bladder, pleura, pericardium, pharynx and larynx and in the skin. Together with these extensive lesions of many organs besides the brain should be mentioned the occurrence in twenty-one cases of hyperplasia of the lymphoid tissue, including the spleen, thymus and tonsils, and the cervical, lingual, biliary, periaortic and intestinal lymph glands.

Arteriosclerosis of the cerebral vessels was noted in the majority of the thirty-two cases. In addition to those in which the degree of arteriosclerosis might be considered proportional to age, nineteen brains exhibited degrees of vascular degeneration excessive for their age. Ten of these patients were under 41 years of age.

Bilateral softening of the lenticular nucleus was evident on gross examination in fourteen brains. Microscopic evidence of necrosis in this region was found in each of the remaining

eighteen brains. With an overwhelming dosage of gas producing death quickly, especially in young and healthy persons, gross changes may not be present. In older persons with vascular degeneration, the characteristic softening more often occurs. Age, duration of life after poisoning, amount of gas inhaled and preexisting diseases of the brain are factors influencing the amount of damage to the lenticular nucleus. One of these factors may outweigh others.

In the fourteen brains showing softening of the lenticular nucleus, serious pathologic changes due to various diseases were revealed at necropsy in each case. Ten of these persons were above 40 years of age; seven survived three days or longer; four had extensive tuberculosis; six gave evidence of syphilis aside from a degree of arteriosclerosis out of proportion to age in six others; several were chronic alcoholics. In the eighteen brains in which no gross softening of the lenticular nucleus was found, eleven brains were from persons under 40 years of age; thirteen patients died within three days. Of these, three were found dead, seven died within twenty-four

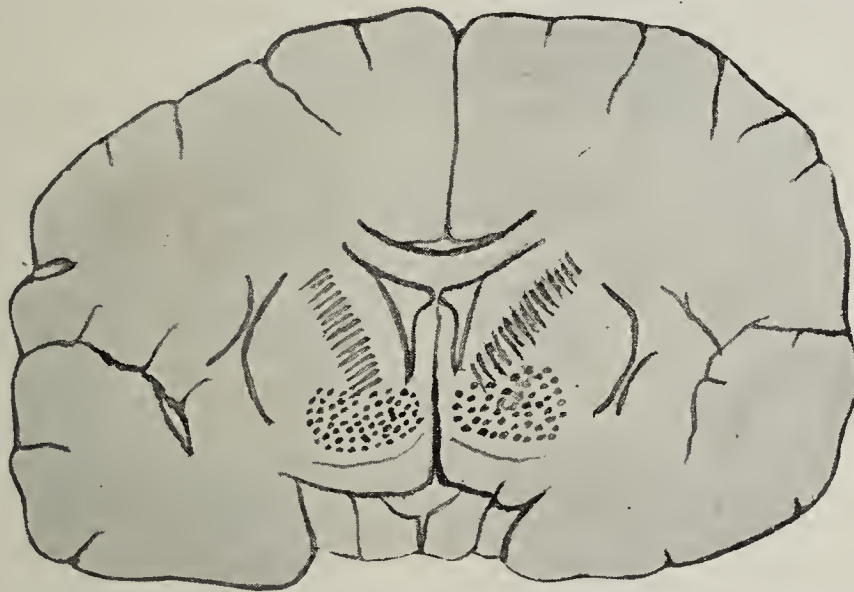


Fig. 2.—Coronal section of a brain, showing the characteristic bilateral softening of the lenticular nucleus in carbon monoxid poisoning; the dotted area represents the softening.

5. Slavik: *Etiologie Nahleho Umrti*, Prague, 1912.
6. Fishbein, Morris: *Illuminating Gas Poisoning*, THE JOURNAL A. M. A., March 8, 1913, p. 737.

7. Mott, F. W.: *Brit. Med. Jour.*, 1917, 1, 637.

8. Hoover: Personal communication to the authors.

hours, and one in forty-eight hours. Postmortem evidence of serious pathologic changes was much less than in the preceding group showing softening in the lenticular nucleus. The globus pallidus was invariably affected. The putamen and internal capsule were affected to a less degree. When gross softening occurred, the putamen and internal capsule were

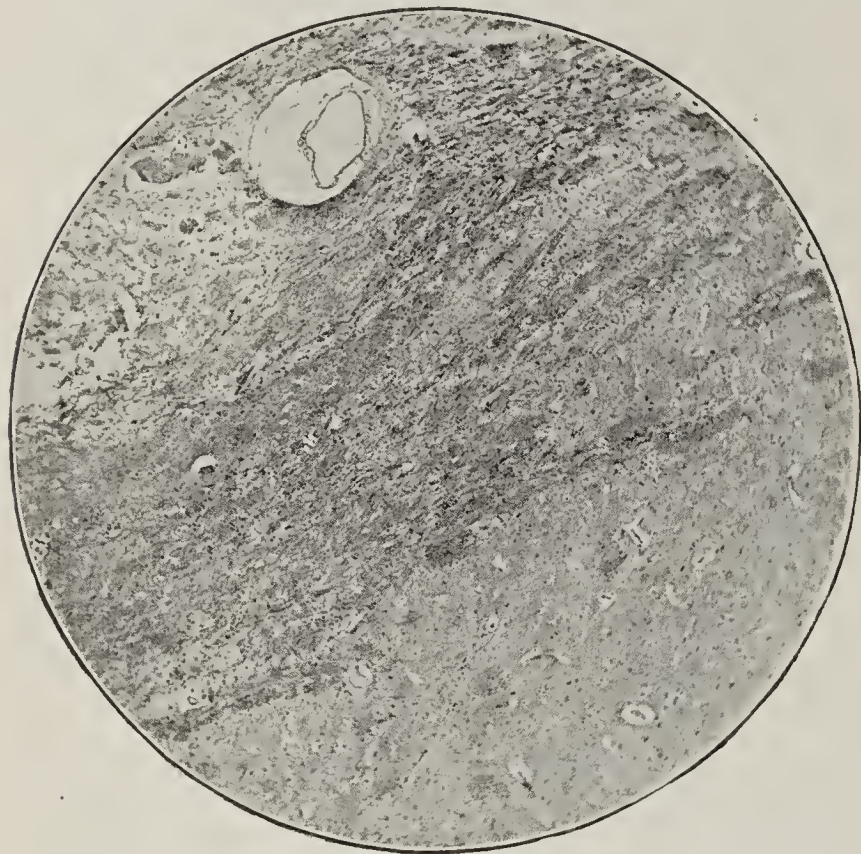


Fig. 3.—Ischemic necrosis in the lenticular nucleus (upper left quadrant).

always included. Three days in solution of formaldehyd is sufficient to bring out the difference between the soft regions and the normal tissue. In extreme cases a slushy mass occupied the position of the lenticular nucleus.

Microscopic examination confirmed the gross appearance of hyperemia, edema, capillary hemorrhages and necrosis. The striking feature of the minute changes was thrombosis of the veins. In some instances the arteries also contained thrombi. In addition to fibrin masses in the vessels, many contained homogeneous, hyalin-like substances.

Stasis of the circulation without thrombus formation was indicated by agglutinated masses of red cells filling the vessels. The lenticular nucleus was almost constantly the seat of thrombosed vessels. In the six specimens in which thrombi were not seen in this location, the vessel walls were degenerated and partly or entirely digested in the midst of necrosed areas. Varying degrees of damage to the tissues about the vessels were observed. The minimum change was a slight edema. Usually necrosis was manifested by alterations in the glial nuclei, varying from pyknosis to entire disintegration. Frequently a wide region about the vessels was vacuolated and all nuclei destroyed. The arteries were usually empty. The extreme damage to the blood vessels may be in part accounted for by their previous condition, sclerotic changes being rather the rule than the exception in the cerebral vessels in this series. The capillary endothelium was usually fragmented, lying loose in the vessel lumen or altogether absent. Inflammatory changes about the vessels were seldom observed. Occasionally round cells were abundant along with a periarteritis in association with tuberculosis or syphilis

in other organs,*and one brain showed a polymorphonuclear accumulation. Aggregations of glial nuclei about the vessels suggest the possibility of proliferation of glial tissue, but the varying quantity of such tissue within small areas of the normal brain makes it unsafe to call these accumulations abnormal.

A conspicuous appearance in some of the brains, usually of elderly persons, was the accumulation of spherical masses from 4 to 20 microns in diameter beneath the pia and ependymal linings and about the blood vessels and perivascular lymph spaces in chaplet-like groupings. Their appearance in some regions of necrosis suggests a relationship to nerve cells. Within a small area were observed gradations from slightly altered nerve cells to granular fragments of these cells, with a faint nucleus seen only with the high power lens, to spherical homogeneous bodies. Mott⁷ and Poelchen⁹ have described droplets which they attributed to fatty degeneration of the vessel walls due to carbon monoxid poisoning. Other writers describe droplets of similar appearance in several types of lenticular degeneration, and numerous explanations are offered for their occurrence. They are regarded as degenerated axis cylinders, myelin sheaths and glial cells, as products of fatty degeneration of the vessel walls, and as products of the blood itself and of the cerebrospinal fluid. Whether they are antemortem products or artefacts is disputed. Shionaya¹⁰ made extensive experiments on the staining properties of neutral fats, esters of cholesterol, myelin and lipoids in the central nervous system. He concludes that these globules are normal constituents of the globus pallidus, and that sex, age and general diseases have no influence on them, but that they are

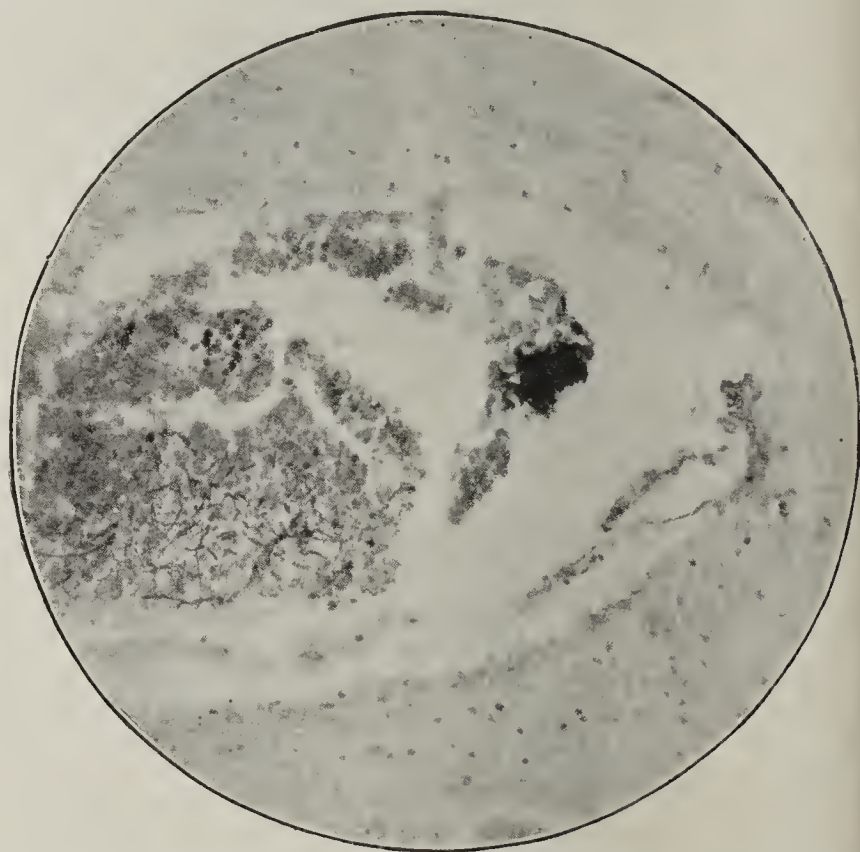


Fig. 4.—Characteristic vascular lesion in carbon monoxid poisoning. Thrombosis; degenerated vessel wall; perivascular necrosis. Phosphotungstic acid and hematoxylin stain, showing fibrin threads in blood vessel.

increased in number in all diseases producing degeneration of the nervous tissue. They stain yellow-red with sudan III, and are positive with Ciaccio's stain. The latter gives negative results with neutral fats and

9. Poelchen, R.: Zur Etiologie der Gehirnerweichung nach Kohlen-
dunstvergiftung, Virchow's Arch. f. path. Anat., 1888, **112**.
10. Shionaya, F.: Mitt. a. d. med. Fak. d. k. Univ. z. Tokio, **14**, 121.

the esters of cholesterol. In our series the spherical bodies stained a deep purple with hematoxylin and eosin, were negative with sudan III, negative for hyalin and myelin with van Gieson's stain, and negative with Ciaccio's stain. From these staining properties we are unable to make a definite classification. Bearing in mind the very high fat content of nervous

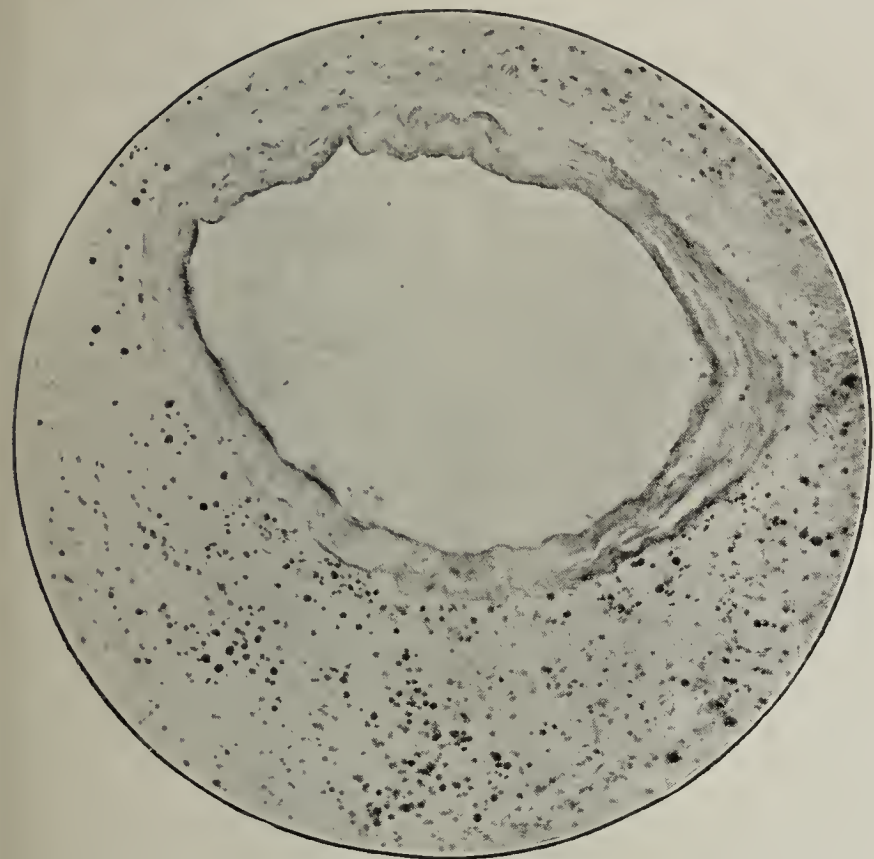


Fig. 5.—Accumulation of spherical bodies about a blood vessel.

tissue, we hesitate to attribute such accumulations to fatty degeneration of vessel walls. We presume that the spherical or globular bodies in our series are the same as those described by other authors, but we do not think they have any relation to carbon monoxid poisoning.

COMMENT

Chief interest attaches to the peculiar localization of the principal lesion in carbon monoxid poisoning in the lenticular nucleus and especially in its medial portion, the globus pallidus of both sides of the brain. Von Recklinghausen, Simon, Lesser and Poelchen observed this before Kolisko's monograph on the subject was published. Poelchen was satisfied from experiments that asphyxiation alone does not produce this lesion, but he thought that other poisons acting similarly to carbon monoxid might do so. He attributed the vulnerability of the lenticular nucleus to the long, thin end-arteries supplying this structure. Kolisko considered this explanation insufficient and called attention to the fact that the necrosis is ischemic rather than hemorrhagic. He postulated a mechanical theory, thus: The hairlike anastomosing arterioles arise from the cerebral portion of the internal carotids and their branches, the middle and anterior cerebrals. They pass at right angles from these vessels through the anterior perforated space into the brain substance. In acute poisonings the tissues supplied by these small vessels become anemic and eventually necrotic. The putamen suffers less than the globus pallidus because the vessels supplying the former have some anastomoses with a separate vascular supply. The initial increase of blood pressure in carbon monoxid poisoning tends to force the carotids upward against the brain and outward into the sylvian fissures and thus

draws the small ganglionic branches outward from their proper location, which interferes with their circulation. Subsequent diminished blood pressure further lessens their blood supply. Deleterious effects of carbon monoxid on the vessel endothelium add to the retardation of the circulation. Another factor is the swelling of the brain tissue from edema pressing on the blood vessels. Again the widened carotids and their branches press the cerebrospinal fluid against the anterior perforated space and compress the vessels which pass through this space into the basal ganglions. While not altogether convincing, this is perhaps the most satisfactory explanation yet offered for the constant involvement of the globus pallidus.

The engorgement of the vessels of the white matter and their rupture logically follow as compensatory phenomena when the circulation just described has been greatly impeded. Greenacre,¹¹ in a study of spontaneous cerebral hemorrhages, calls attention to pontile hemorrhages found secondary to hemorrhages in the internal capsule and basal ganglions. She refers to anatomic peculiarities of the vessels supplying the pons (small, short, terminal branches given off at almost right angles from a large trunk), and suggests also a disturbance of blood pressure in the circle of Willis which may act on the posterior branches, as Kolisko describes in the case of the more anterior ganglionic branches.

It seems certain that the blood vessels bear the brunt of the damage in carbon monoxid poisoning. Haldane believes that all the effects can be referred to lack of oxygen, the symptoms increasing with the saturation of the blood with carbon monoxid. He has kept mice alive on exposure to from 200 to 300



Fig. 6.—Characteristic hyperemia and hemorrhage in the white matter of the brain in carbon monoxid poisoning.

times the fatal dose of carbon monoxid in the presence of oxygen, under high pressure (from one to two atmospheres). Mosso repeated the experiment with the same result, using monkeys instead of mice. On the other hand, Lanossier says that animals die sooner and with different symptoms in an atmosphere of carbon monoxid than when asphyxiated by nitrogen.

11. Greenacre, Phyllis: Bull. Johns Hopkins Hosp., 1917, 28, 86.

Lancereaux thinks that carbon monoxid destroys the red cells which block the vessel lumen and lead to thrombus formation. Mott believes that carbon monoxid dissolved in the blood plasma irritates the endothelium and causes necrosis and rupture. The histologic appearance of the capillaries in our series suggests that the endothelium is extremely vulnerable. The precise method of destruction of vessel walls cannot be determined without animal experimentation carefully controlled, with the use of fresh material specially prepared and stained in a more thorough manner than has yet been undertaken.

The symptoms produced by inhalation of carbon monoxid are explained by the union of this gas with the hemoglobin, for which it has an avidity estimated to be from 200 to 300 times that of oxygen, and by the vascular degeneration consequent on its presence in the circulation.

There is an initial rise in blood pressure, with slow pulse and pounding heart beat. This is followed by lowered blood pressure, rapid and small pulse, with dilatation of the peripheral blood vessels. In mild cases there is a dull headache, flashes before the eyes, dizziness, ringing in the ears, nausea and vomiting. According to Haldane, 20 per cent saturation of the blood with carbon monoxid produces these symptoms. With 50 per cent. saturation one is scarcely able to stand, and faints on slight exertion; 80 per cent. saturation is fatal. The symptoms vary with the temperament of the individual, as in alcoholic intoxication. In severe cases there are cyanosis, difficult respiration, convulsions, paralyzes, subnormal temperature, weak and intermittent pulse, and unconsciousness. Pneumonia, both lobar and lobular, follows with great frequency if the patient lives many days.

On recovery from acute poisoning, and in chronic poisoning, the end-results vary according to the previous condition of the nervous system. Existing brain lesions may be accentuated, so that carbon monoxid poisoning has been said to simulate almost every variety of nervous disease.¹² Multiple softenings may produce the picture of insular sclerosis.¹³ Paralyzes, convulsive seizures, impaired memory and psychoses frequently follow. Suicidal attempts may result from insanity caused by carbon monoxid poisoning, and of course poisoning may be itself the suicidal act of one already insane.

Tremors, muscular spasms and pareses are accounted for by the peculiar involvement of the lenticular nucleus and the internal capsule. We cannot enter here on the disputed questions of the functions of the lenticular nucleus. Wilson¹⁴ has recorded elaborate experiments tending to show that the corpus striatum is independent of the cerebral cortex and exerts a steadying influence on the lenticulo-rubrospinal projection system on innervation of the corticospinal (pyramidal) system, being concerned with the maintenance of the tone of the skeletal muscles. Several syndromes are described in neurologic literature which appear to depend on involvement of the corpus striatum, as paralysis agitans, Wilson's¹⁵ progressive lenticular degeneration, pseudosclerosis of the lenticular nucleus,¹⁶ Voigt's spastic pseudobulbar paralysis, Huntington's chorea, progressive athetosis,¹⁷

and progressive atrophy of the globus pallidus.¹⁸ Pollock¹⁹ has recently reviewed the subject and described very similar changes to those of carbon monoxid poisoning in his case of Wilson's disease. It would perhaps be pertinent to inquire into the possibility of a chronic carbon monoxid poisoning in those diseases in which the lenticular nucleus is softened.

CONCLUSIONS

Carbon monoxid poisoning produces a characteristic lesion of the brain, namely, a bilateral ischemic necrosis of the lenticular nucleus, especially the globus pallidus. This lesion results from the vascular disturbance brought about by the presence of carbon monoxid in the circulating blood which produces a thrombosis with degeneration of the vessel walls. Anatomic peculiarities in the circulation account for the localization of the lesion. The necrosis varies from slight perivascular lesions in the globus pallidus to grossly visible softening of the entire lenticular nucleus and internal capsule, depending on the amount of gas inhaled, duration of life after poisoning, and preexisting pathologic changes in the cerebral vessels.

When death occurs within a few hours, other evidences of carbon monoxid poisoning are available, namely, a cherry-red color of the blood, a pink hue of the brain substance, and petechial hemorrhages in the skin and various mucous and serous surfaces; further, the spectroscopic and chemical tests for carbon monoxid in the blood are positive. These evidences later disappear, and the diagnosis depends on the characteristic lesion in the lenticular nucleus.

Spontaneous hemorrhages in the leptomeninges and punctiform hemorrhages throughout the white matter of the brain are part of the profound vascular disturbances in carbon monoxid poisoning.

Nerve cells possess a high degree of tolerance to the poisonous action of carbon monoxid.

Edema and hyperemia of the brain and internal hydrocephalus are frequent appearances in carbon monoxid poisoning.

Cerebral arteriosclerosis cannot be attributed to carbon monoxid, but it probably increases the vulnerability of the individual to small amounts of the gas.

Carbon monoxid poisoning as a cause for the subsequent development of nervous and mental disease as well as for deaths which may not be explained easily receives emphasis from this study. The occupation and other conditions of living as well as careful gross and microscopic examination of the brain are of importance in demonstrating such a causal relationship.

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Exercise and the Tuberculosis Patient.—The problem of exercise is one that will frequently tax the acumen of the physician. The febrile tuberculosis patient in whom the maximum daily temperature habitually exceeds 99.5 F. should unquestionably be kept in bed. The best rule is to require the acute case to rest irrespective of temperature, as the condition becomes more chronic to be guided strictly by the thermometer, and when the case has become one that is progressing toward arrest to ignore the slight fluctuations of the temperature. Patients who have large lesions must be treated with more severity in respect to the enforcement of quietude than those with small lesions. Each case must be the subject of special study. As has been well said, the patient who begins to exercise has reached a period of danger in his course of treatment.—*American Review of Tuberculosis*.

Military Medicine and Surgery

END-RESULTS FROM TREATMENT OF COMPOUND FRACTURES OF THE FEMUR BY THE CALIPER METHOD

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Since the appearance of the preliminary report on the treatment of war fractures of the femur by means of extension by the caliper or ice tong method, by Major Frederic A. Besley,¹ more than fifty cases have been treated by this method, and the end-results have been sufficiently satisfactory to merit discussion.

To review briefly the technic of obtaining extension by means of the calipers: The patient generally arrives

at the base hospital within from twelve to forty-eight hours after being wounded, depending on whether or not his condition is satisfactory for transportation. His wounds have usually been excised at a clearing station and all damaged skin, fascia, muscle, detached bone and foreign bodies, such as metal, clothing and dirt, removed. He is transported in a Thomas splint with moderate extension maintained by the use of glue applied below the knee joint. We consider the Thomas splint an ideal one, as it completely immobilizes the part, renders the wounds accessible, provides for extension, is easy to apply, and insures comfortable and safe transportation. On his arrival at the base hospital, the patient's wounds are immediately inspected for

the presence of either gas infection or secondary hemorrhage. If his condition is satisfactory, he is made comfortable and allowed to rest for from twelve to twenty-four hours. The following day he is taken to the roentgen-ray laboratory, where his thigh is fluoroscoped. If a foreign body is still present it is localized and the site of the fracture is then plated. The patient is now removed to the operating theater and anesthetized, usually with ether, and the Thomas splint and glue extension are removed, while an orderly maintains moderate traction on the leg. A couple of sand bags are placed under the knee joint to elevate it and the entire condylar area is surgically prepared. A small incision, just sufficient to admit the point of the caliper, is made through the skin and fascia over

the most prominent part of the internal and external condyles. The calipers are inserted and driven into the cancellous bone about a quarter of an inch, without any preliminary drilling. The caliper points must enter the bone just above the most prominent part of the condyle, as near the middle as possible, and a little higher on the inner than on the outside.

It is necessary to exercise great care that the caliper points do not enter the knee joint. In eight of our cases which terminated in either amputation or death, dissection of the joint demonstrated that the synovial sac had not been penetrated, and distention of the joint capsule produced by injecting warm gelatin and allowing it to solidify revealed a relatively safe area for the application of the calipers, as is shown in Figures 3 and 4.

Particular care, however, must be taken in those cases in which a marked effusion is present in the knee joint. This condition most often results from a direct trauma to the knee joint, caused by the patient's striking the ground after being wounded. We have

been fortunate enough in our cases to avoid this possible complication. The small incision wounds are then iodized and a dry, sterile dressing applied, which is not disturbed during convalescence. The ends of the calipers are tied firmly together to assure the points remaining in place until traction is applied.

The gunshot wounds of the thigh are now examined and paraffin or bismuth iodoform petrolatum packs removed, if present. Any foreign body which remains and is accessible without doing much damage or opening new areas for possible infection is removed, and devitalized muscle or bone fragments without periosteal attachment are excised. Better drainage is provided for, if indicated. Sterile petrolatum dressings are applied to

the wounds, and a Thomas splint, bent at the knee, depending on the location of the fracture, is replaced. The thigh and leg are suspended from the splint by means of strips of flannel bandage which are well padded and held in place by metal clips, and a foot piece adjusted so as to hold the foot at right angles and to prevent any inward rotation. The calipers can be applied with either nitrous oxid or local anesthesia. However, if the gunshot wounds are to be explored and better drainage provided, it is better to use ether as routine unless some contraindication for a general anesthetic is present.

The patient is returned to the ward, and while still asleep the entire splint is suspended from a Balkan frame by means of a system of pulleys and weights. A weight of from 10 to 15 pounds, depending on the muscular development of the patient, is applied to the



Fig. 1.—Two weeks following injury. The traction is pulling in the same direction as the long axis of the thigh. A fixed foot piece is used in this case. Later glue was applied to the sole of the foot and the foot suspended from above by a small weight in order to relieve pressure from the Achilles tendon and allow voluntary motion of the ankle joint. The weights seen at the head of the bed support the splint. The right sided weight is only 5 pounds in order to prevent unnecessary pressure in the groin. As this is a fracture of the upper third of the femur, extreme abduction is present, though not shown well in this picture.

1. Besley, F. A.: Value of the Caliper in Obtaining Extension in Compound Fractures of the Femur, *THE JOURNAL A. M. A.*, Jan. 12, 1918, p. 87.

ends of the calipers, the traction being adjusted in the same direction as the long axis of the thigh. No manual force has been used in reducing such infected fractures. Instead, we have depended on our extension and abduction to approximate the fragments. Some abduction has been used in every case, increasing it the higher the fracture is located. The danger of embolus and the possibility of generalizing the infection from manipulation are well recognized.

The maximum weight used for extension has been 16 pounds, and this has been sufficient to paralyze the thigh muscles in every case. During the first twenty-four hours following operation, the patient may have some pain in his knee; but this soon disappears, and he is very comfortable. The wounds are dressed daily or more often, depending on the amount of suppuration present, the clips allowing the supporting flannel to be removed in sections and thus avoiding

is good, the infection clears up rapidly, the wounds fill in with healthy granulation tissue, and bone regeneration progresses so that union is present after five or six weeks. In other cases, the sepsis is more stubborn and the pus burrows between the muscular planes of the thigh, collecting in pockets which necessitate subsequent drainage. The traction, which soon paralyzes the thigh muscles and keeps them on a stretch, unfortunately does not entirely prevent the formation of pus pockets. A retained shell fragment, a piece of clothing, or an osteomyelitis with sequestrum formation is usually responsible for the prolonged suppuration of a wound. We firmly believe that gravitation has much to do with the direction in which the pus spreads. Since the Thomas splint is always bent in some degree at the knee, this joint is at a higher level than the hip joint; consequently, favored by gravity, the infection, when it spreads, burrows down toward

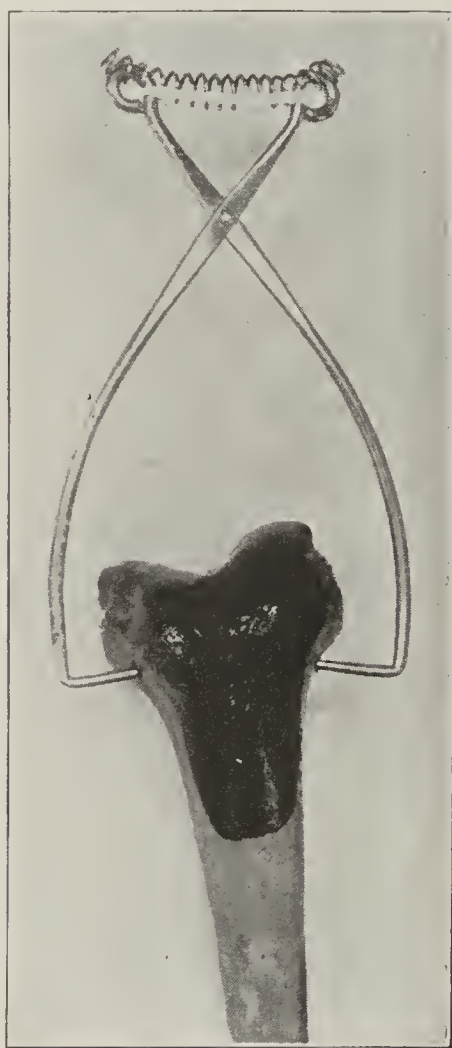


Fig. 2.—Calipers in situ in a femur amputated because of secondary hemorrhage. The blackened area over the articular surface shows the extent of the knee joint and the safe area on each side above the condyles where the calipers can be inserted without entering the synovial sac.



Fig. 3.—Calipers in situ in a case in which amputation was performed because of a severe sepsis. The knee joint has been injected with gelatin to show the extent of the synovial sac. Internal surface.

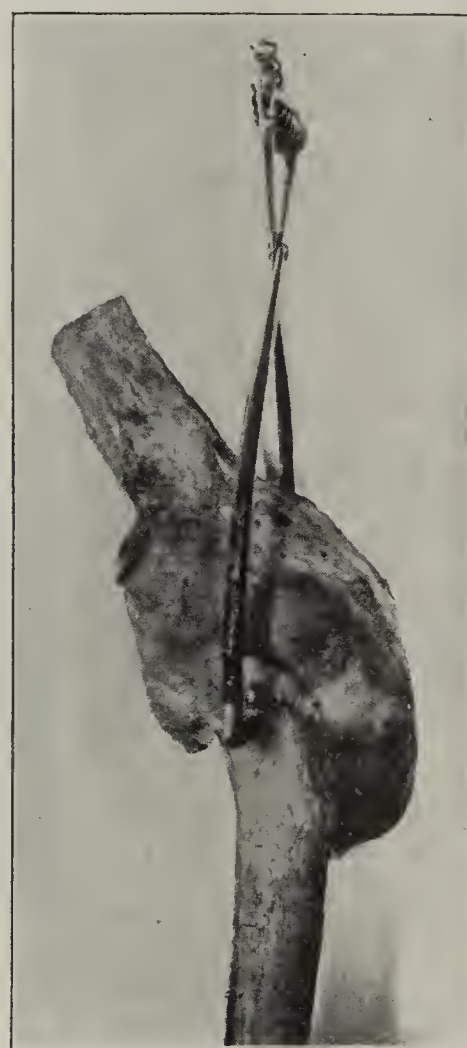


Fig. 4.—Same case as Figure 3, external surface.

pain due to the loss of support. The use of a bedpan is made easy by means of a sling attached to the Balkan frame above the patient's head by which he can lift himself from the bed. In place of metal clips, perforated zinc carriers have been used to support the thigh and leg in the splint. These, however, have not been as satisfactory as the clips, as they are easily broken, interfere with roentgen-ray examination, do not permit sectional dressing, and often scratch the hands of the person dressing the wound.

The patient's course depends largely on how quickly suppuration can be controlled. No matter how extensive the wounds are or to what degree the bone has been damaged, complete rest is the fundamental principle in healing. In some cases the patient's resistance

the buttock, which is the lowest point. In no case has the infection been observed to travel upward toward the knee.

The Thomas splint is often difficult to employ with comfort to the patient when there are extensive buttock wounds, on which the lower half of the ring exercises pressure. In such cases an anterior or posterior Hodgens splint can be used to better advantage, the thigh being sharply flexed to nearly a right angle and suspended from overhead, rather than from the end of the Balkan frame. This allows the patient comfort and greater ease when being dressed, but is hardly as satisfactory as the suspended net arrangement devised by Major Sinclair, R. A. M. C.

When bony union is partially complete, the patient is again roentgenographed to determine the position of

the fragments and the amount of callus formation. He is also roentgenographed any time during this course when correct apposition is doubtful or if there is no attempt at union within a reasonable length of time. The ideal arrangement would be, of course, a portable roentgen-ray apparatus with which each case could be plated and studied in the exact position the fragments occupy while in the frame with extension applied. This apparatus has so far not been used here, and as a result, the exact amount of traction necessary has at times been a matter of conjecture. When bony union is firm according to clinical and roentgen-ray evidence, the calipers can be easily removed in the wards without an anesthetic and without pain to the patient, and a dry sterile dressing applied until the incision wounds are healed.

Gentle, passive motion of the knee joint is instituted at once; in fact, patients are encouraged to move the knee a little at frequent intervals before the calipers are removed, if some degree of union is present. Such motion does not damage the fracture site and has the advantage of eliminating the pain on manipulating the joint when the splint is removed. The same principle applies equally as well to the ankle joint. Some of our cases developed considerable edema of the ankle joint (periarticular) resulting from too great a degree of dorsal flexion of the foot, which was applied to avoid a possible foot drop. A wide piece of flannel bandage or gauze applied to the sole of the foot by means of glue and suspended from over head by a 2 or 3 pound weight accomplished better results than a fixed foot piece, as it allowed voluntary motion of the knee and ankle joint and relieved all pressure from the heel and Achilles tendon. Patients treated in this manner have avoided edema and limited joint motion (because of prolonged immobilization) except in a couple of cases in which the sciatic nerve was partially damaged and consequently the ability to move the foot lost.

CALIPER INFECTION

The success of this method of extension and the complete comfort of the patient is going to depend considerably on whether or not the caliper incisions become infected. In our series, this complication occurred in 18 per cent. of the cases, which on first observation may appear very high and sufficient to question the advisability of their use. On careful analysis, however, we find that most of such infections were due to preventable causes, and a second series of cases treated could be kept to a low percentage (2 or 3 per cent.).

Experience has taught us that the caliper incisions after being dressed sterilely and bandaged in the operating theater, at the time of insertion, should be left undisturbed. There is no indication for any fur-

ther dressing and it only invites infection, as there are frequently suppurating wounds in the immediate vicinity. In a few of our cases we drove in the calipers without any preliminary skin incision, the object being to decrease the possibility of infection. This technic is very satisfactory, provided the caliper points are sharp and do not drive the skin in ahead of them. The calipers used here were all improvised from either meat skewers or wire. As a result of their crude construction, they frequently broke at the cross pieces where they were riveted, or the points bent when driven against the hard bone. Consequently, in a certain number of cases the reinsertion of a second pair of calipers was necessary and this procedure was practically always followed by infection. There is no doubt that the use of a well constructed steel caliper would eliminate the most frequent cause of suppuration around caliper incision.

Another very important cause of caliper infection occurred in patients whose early days in the hospital

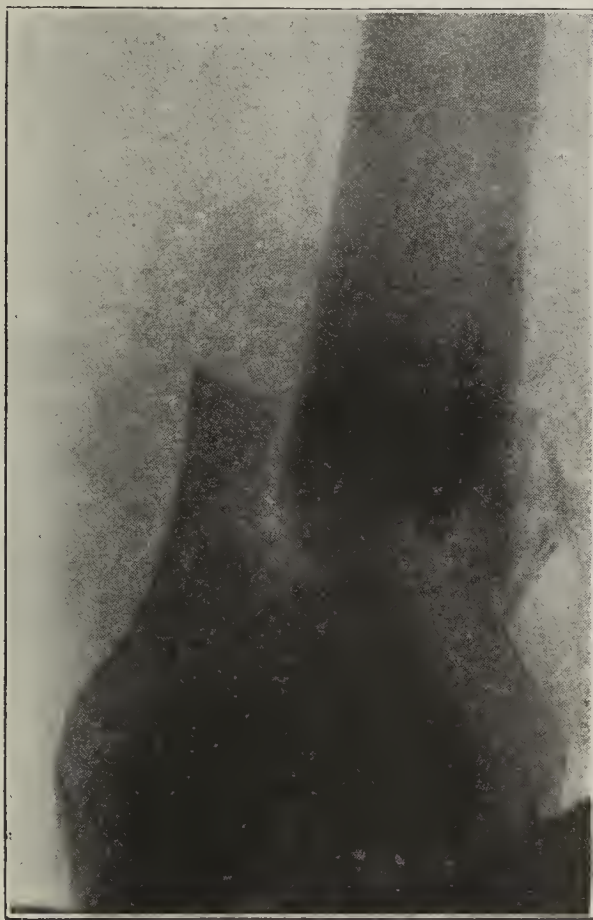


Fig. 5.—Compound comminuted fracture of the lower end of the femur involving the knee joint. Anteroposterior view of the fracture on admission of the patient to the hospital.

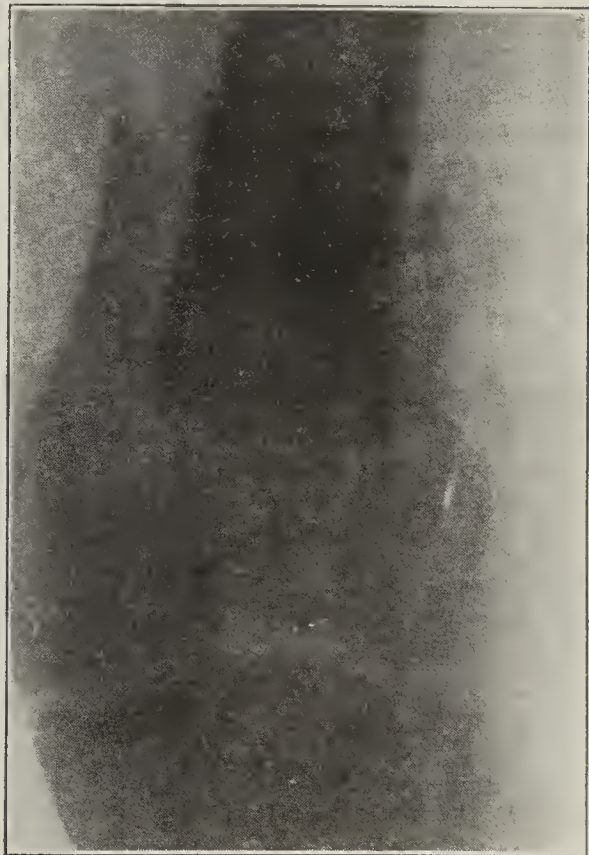


Fig. 6.—Anteroposterior view of the fracture shown in Figure 5 after six weeks of extension with glue. There has been practically no change in the position of the fragments. Three inches of shortening is present.

were attended by delirium due to associated head injuries, and during which time they became violent, tore out their calipers, and infected their caliper incisions. The use of proper arm restraints or a caliper kept firmly locked by a set screw would easily prevent this complication. In two patients, who were profoundly septic during a long period of time, infection around the caliper points developed spontaneously and was probably due to a general lowered resistance of the patient.

When the caliper incisions become infected regardless of cause, how much damage results and how does it affect the patient's comfort and convalescence? In the majority of our infected cases the suppuration has remained localized around the calipers, either on one or both sides, and no drainage has been necessary. In such cases we at first removed all the weight from the calipers until the infection subsided; but lately we

have only slightly decreased the traction for a few days if the patient complained of discomfort. In three cases the infection was more severe and gravitated down the thigh, necessitating a long lateral incision through the skin and fascia and allowing free drainage, the amount of traction being decreased for a few days while the infection was most acute.

The question as to how much the calipers damage the cancellous bone of the lower end of the femur is somewhat difficult to answer definitely at this time. In cases not infected, it is certain very little harm is done, and bone regeneration soon fills in the small defect. In infected cases it is quite possible to see how a periostitis and even an osteitis could develop; but we have had neither clinical nor roentgen-ray evidence of such a complication. That infection can be present around the calipers without influencing the bone itself was demonstrated in a case in which the calipers were applied for a period of twelve weeks and infected from the time of insertion, as a suppurating wound was present over the external condylar area. Amputation was performed in this case because of severe sepsis and non-union, and a cross section of the lower end of the femur, exactly through the site of the insertion of the calipers, revealed no bony destruction. It would appear that if periostitis or osteitis were prone to occur, this would have been a favorable case, as the patient was emaciated, had multiple septic wounds of the legs, bilateral gangrenous trench foot and little ability to resist infection. No case in the entire series presented any signs of damage to the bony structures by the calipers or evidence of a consequent osteomyelitis.

CONTRAINDICATIONS FOR THE USE OF CALIPERS

There are very few contraindications for the application of the calipers in fractured femurs, and we have used them alike in both the simple and the compound varieties and regardless of the site of the fracture and the amount of comminution. In cases in which one or both condyles have been shot away they are of course impracticable. When suppurating wounds are present over the condylar area with little or no accompanying bone damage, the insertion of the calipers is questionable and would depend largely on the judgment of the surgeon and on his decision as to whether or not he would care to risk infecting the cancellous bone.

The presence of suppurating wounds near the site of introduction of the calipers is hardly a contraindication for their use since by bandaging the incisions and then leaving them undisturbed, usually no infection results. Comminuted fractures of the lower end of the femur

involving the knee joint have been treated by this method of extension with very favorable results.

ANALYSIS OF CASES

The number of cases reported in this series is limited to fifty, because at the end of that time segregation of all fractured femurs in a special hospital was recommended by the British Surgical Service. Practically all the patients were healthy, well developed men whose average age was about 28 years. The youngest was a boy of 18, while the oldest was a Scotchman of 57, who, in addition to his compound fractured femur, had a shattered arm which demanded immediate amputation. His course was very septic and terminated fatally in about five weeks with a bronchopneumonia. The right and left thighs have been about equally involved. In regard to the location of the fracture, 33 per cent. were present in the upper third of the thigh, 54 per cent. in the middle third, and the remaining 13 per cent. in the lower third. Only two of the fractures, or 4 per cent., were of the simple variety, and of the 96 per cent. that were compounded, over one half were badly comminuted in addition.

The wounds of the fleshy parts of the thigh varied from small, sharply defined tracts to extensive evacuations with much loss of substance. They had practically all been excised and left open, and so were infected at least to some degree when reaching the base hospital. Primary union was therefore not common, and seen in only two cases. The length of time required for the wound to heal by secondary union varied considerably. In at least 75 per cent. of the cases, healing was complete by the time the bone had firmly united, so that

the patient could be evacuated to England; and in 25 per cent. of the cases there was some serous or purulent discharge on transferal. Foreign bodies remained present in 40 per cent. of the cases, either one or many pieces of metal. In two cases large pieces of shrapnel were removed, followed by rapid closure of the wound. Thirty per cent. of the cases required a second operation of some variety, either for removal of foreign bodies and a provision for better drainage or an amputation.

It is not the purpose of this paper to discuss the relative merits of the various chemical substances used in treating infected war wounds. Fundamentally, their success or failure depends largely on the thoroughness of the primary mechanical cleansing of the wounds rather than whether bismuth iodoform petrolatum or the Carrel-Dakin treatment is used later. In this series, the wounds were for the most part dressed with sterile gauze, either dry or smeared with petrolatum

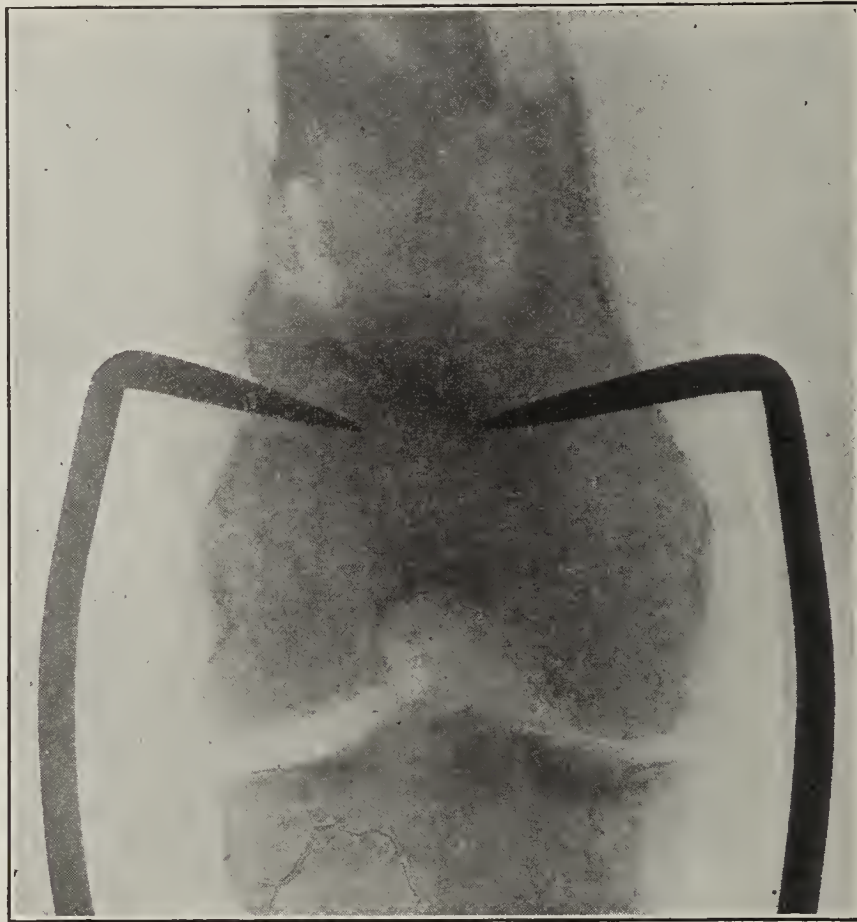


Fig. 7.—Anteroposterior view of the fracture after seven weeks of caliper extension. No shortening present. The calipers have been driven in a little too far in this case.

to prevent adhesion. When the suppuration was profuse and of a very foul odor, and considerable necrotic tissue was present, eusol dressings were used with satisfactory results; and when the infection was acute with a tendency to spread, hot boric fomentations, changed every four hours, were employed to good advantage. The open air treatment was impracticable at this time of the year, owing to the low temperature of the ward.

The average length of time necessary to obtain firm, bony union has been from eight to nine weeks, and it has been our policy to keep the calipers in place with some traction applied until such union was obtained. The question has been raised, whether, after six or seven weeks of heavy extension, the muscles are not paralyzed to such a degree as to prevent subsequent shortening, even though the callus is not firm. In two of our cases in which the extension was removed after seven weeks and the callus was still soft, the muscles were able to recover and increase the amount of shortening by nearly an inch. In our cases of delayed union, either due to the primary destruction of much bone or to severe sepsis, we have kept up extension by means of the calipers for fourteen or fifteen weeks, the traction being decreased to 5 or 6 pounds during the later weeks.

The end-results as regards shortening and deformity can be thus summed up: The total shortening in forty cases evacuated to England amounted to $15\frac{1}{2}$ inches, all of this occurring in eighteen cases. Of the remaining twenty-two cases, twelve presented similar measurements of both thighs, and ten showed a total lengthening of $5\frac{1}{2}$ inches. This gives an average shortening per patient of three-eighths inch. The greatest amount of shortening in any case was 2 inches and resulted from the calipers being removed early because of infection, and no other method of extension could be substituted. The greatest amount of lengthening obtained was $11\frac{1}{4}$ inches, occurring in a badly comminuted fracture in the trochanteric region. Particularly good results were obtained in several cases which had been held in extension by glue for several weeks and reached us with little or no union and much shortening. In one patient this amounted to 4 inches, and by caliper extension it was reduced to three-quarters inch.

Roentgenograms were taken in nearly all cases before and after treatment. In 70 per cent. of the cases the final plates showed satisfactory results, that is, good alignment, little or no angulation or overriding, and abundant callus formation. The remaining 30 per cent. presented some deformity, either an overriding due to deficient traction, or angulation due to faulty supports or too little abduction. This was marked in but three cases, and even in these, a useful leg was assured. Two patients had no attempt at bony union after sixteen weeks of treatment, so they were then evacuated to England. This nonunion was rather difficult to explain, as their courses had been absolutely afebrile except for the first few days, their wounds never suppurated markedly and healed within a few weeks, and the roentgen ray showed a satisfactory position in both anteroposterior and lateral views with no foreign bodies or sequestrums present.

Thigh amputation was necessary in 14 per cent. of the cases. Two were indicated because of severe secondary hemorrhage, and extreme sepsis with nonunion was responsible for the remaining five. The mortality in this series was 14 per cent., four of the

amputations having a fatal termination. Of the three remaining deaths, two were due to acute bacillary gangrene which had extended so that amputation was useless, and one was due to a bronchopneumonia. Ten per cent. of the patients presented partial or complete sciatic nerve injury and had lost both motor and sensory power in the affected foot and leg. This condition remained practically stationary during their entire convalescence.

The technic of this form of extension in fractured femurs and the calipers themselves have not reached perfection as yet, and with an improvement in technic and materials with which to work, even more favorable end-results can be expected. The British medical stores are now furnishing a well made, nickel plated steel caliper, which was modeled after the crude wire ones we used. This new caliper, however, has certain faults, the most serious being that the point of crossing of the calipers, where they are riveted, is not close enough to the ends where the traction is applied. By advancing this point of crossing, which represents the fulcrum, the leverage has been correspondingly increased, with the result that when a 15 pound weight has been applied for traction, the caliper points have been gradually forced into the cancellous bone, much farther than is necessary. Such a result occurred in which we used these ordnance calipers, and similar results have been reported to us from other hospitals where they are now being used. The substitution of a set screw in place of a rivet would be a distinct improvement in that the caliper points would be held as firmly in the bone as a nail driven entirely through, and there could be no loosening of the points when the traction is temporarily removed, as is necessary in transporting the patient to the roentgen-ray laboratory. At present instead of a set screw we use a stout cord or a small spiral spring to hold the handle ends of the calipers together. The caliper method accomplishes everything that the Steinman nail driven through the lower end of the femur does, and has the advantage of causing less damage to the bone and less danger of a central osteomyelitis.

The Rain-Barrel Mosquito.—If there is a rain barrel, or any receptacle for stagnant water about premises, the notice of the Connecticut State Entomologist will serve as a warning. It says: Even though all fresh water swamps are drained we may suffer from the bites of the house or rain-barrel mosquito which enters the house and bites after dusk. This kind of mosquito breeds in rain-water pools, rain barrels, tubs, buckets, tin cans, etc.; in fact in any receptacle which may fill with water when the first hard shower comes. Wherever any building operations are being carried on, there are usually tubs or barrels of water, and many householders carelessly leave around the premises tubs, kettles, or tin cans which serve as breeding places; then too, old cisterns, clogged roof gutters, eave spouts and leaders occasionally furnish a breeding place and should be given attention. A little kerosene applied to the surface will kill all "wrigglers." Everyone should see that no such possible breeding places exist on his premises, but we cannot depend on everybody to look out for this. Hence it is essential that municipal inspectors be sent from house to house for this purpose. If mosquitoes are troublesome just after dark, it is reasonable to suppose that they are rain-barrel mosquitoes and that their breeding place is close at hand, probably on the premises. The first thing to do then is to search for stagnant water, for without stagnant water there can be no mosquitoes. If rains are abundant, all receptacles and depressions will fill with water; but if there are no receptacles and no depressions to hold water, there will be no mosquitoes even in a wet season.

INTRADERMAL VACCINATION AGAINST SMALLPOX

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By intradermal vaccination is meant the deposition of smallpox virus between the layers of the skin. In the days of smallpox inoculations, Sutton,¹ and later Dimsdale,² in their respective methods aimed to

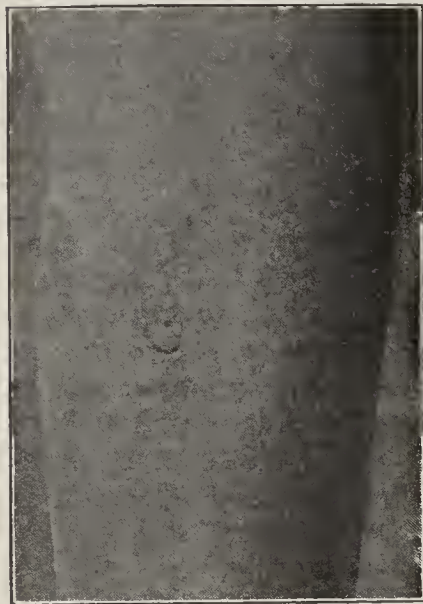


Fig. 1 (No. 11054).—"Take" by intradermal method; tenth day after vaccination. Two sites of injection used. The two circles of vesicles are confluent. No history of smallpox; man never vaccinated in civil life; since entry into the service, vaccinated seven times with negative results.

deposit the variolous material between the skin layers. Ruhräh,³ in describing the various methods of vaccination, says, "Another method is the intradermic injections of the lymph, which is done with a hypodermic syringe, the needle being introduced not through the skin but into it, and a small quantity of lymph injected." He gives no further description of the technic used, nor any reference to the original work on which the statement is based. Force and Beckwith,⁴ as a result of their study of the skin reactions following the intradermal injection of vaccine into rabbits previously sensitized by vaccination, offer injection of virus as a method for the laboratory diagnosis of smallpox. The articles by Ruhräh and Force and Beckwith are the only two references to the intradermal injection of smallpox virus for any purpose that could be found after a rather careful search of all easily accessible literature. It seems justifiable to conclude, therefore, that relatively few published observations have been made with this method, or else the observations that have been made, possibly, did not warrant further investigation along this line.

VARIOUS METHODS OF VACCINATION

In describing the various methods of vaccination, Rosenau⁵ states that the virus may be introduced in three ways, namely, (1) by puncture, (2) by scarification, and (3) by incision.

Puncture.—A few simple punctures are made with a needle and the virus rubbed in gently. This method, according to Rosenau, is less apt to yield satisfactory results because of the attenuation, by dilution with glycerin, of the virus used today. In Hill's method the punctures are made through the drops of virus applied to the skin. This method has been used with excellent results by DeLanney.⁶

Scarification.—A series of cross scratches are made with a needle, scalpel or ivory point, and the virus is gently applied to the abraded surface. Copeman⁷ thinks that application of the lymph to the skin, followed by scarification through the lymph, gives the best results. The scarification method has been practically discarded by the profession universally, because of the large number of infected arms that have followed its use in comparison with other methods, a result that is due to the large crust or scab that forms and favors infection.

Incision.—This method is very properly known as the Army method of vaccination. The following abstract taken from Vedder⁸ is self-explanatory:

Bulletin No. 30, W. D., Washington, July 15, 1914. In carrying out the requirements of Paragraph II., General Orders No. 30, War Department, 1914, all vaccinations will be preceded by cleansing of the site, preferably the brachial insertion of the deltoid, with water and alcohol.

The skin at selected site must be clean; antiseptics are not necessarily employed; should they be used they must be washed away with sterile water that the activity of the virus be not destroyed. Washing with warm water, followed by alcohol, is usually sufficient, the alcohol being permitted to evaporate before proceeding. Scrubbing with soap and water is necessary for a dirty skin, but needless irritation of the skin is to be avoided.

The procedure described as follows is preferable to "scarification," which will no longer be used.

Incision is the method of choice and it should be made with the point of a sterile needle producing a "scratch." A sterile scalpel may be used, but is more likely to cause bleeding. The incision or scratch should preferably not draw blood. There should be at least two incisions, three quarters of an inch long and one inch apart; after exposure to smallpox, four incisions will be made. The virus is then placed on the abraded surface and gently rubbed in, unnecessary irritation being avoided.

The wound is allowed to dry thoroughly and can be left without dressing, though several layers of gauze may be applied with adhesive plaster. Any dressing that retains heat and moisture is bad. Shields will no longer be issued.

Cope⁹ makes four incisions through 4 drops of lymph applied to the skin, each drop being situated about 1 inch from either of the others. Force¹⁰ removes a small circle of epidermis with a chisel, by rotary motion, and then applies the virus; with his method he obtained on first insertion 95.8 per cent. "takes" on all that he vaccinated, as



Fig. 2 (No. 9474).—"Take" by intradermal method; eighth day after vaccination. One site of injection used. Below are seen the scars resulting from an incision method vaccination done on the same day. Man never vaccinated in civil life; since entry into the service, vaccinated five times with negative results.

contrasted with 63.8 per cent. by the old method. Knöpfelmacher has produced immunity in children by

1. Sutton, Daniel: The Inoculator or Suttonian System of Inoculation, London, 1796, p. 77; introduced in England in 1763.
2. Dimsdale, Thomas: The Present Method of Inoculating for Smallpox, Philadelphia, 1771, p. 18.
3. Ruhräh, John: Billings-Forchheimer's Therapeutics of Internal Diseases, New York, D. Appleton & Co., 1917, 2, 69.
4. Force, J. N., and Beckwith, H. L.: A Laboratory Method for the Diagnosis of Smallpox, THE JOURNAL A. M. A., Aug. 14, 1915, p. 588.
5. Rosenau, M. J.: Preventive Medicine and Hygiene, New York, D. Appleton & Co., 1917, p. 9.
6. DeLanney, E. L.: The Army Method of Vaccination, Mil. Surgeon, 1918, 12, 84.

7. Copeman, S. M.: Modern Methods of Vaccination, Lancet, London, 1901, 2, 1721.
8. Vedder, E. B.: Sanitation for Medical Officers, Philadelphia, Lea & Febiger, 1917, p. 15.
9. Cope, A. E.: Vaccination with Glycerinated Calf Lymph, Brit. Med. Jour., 1902, 2, 43.
10. Force, J. N.: An Investigation of the Causes of Failure in Cowpox Vaccination, THE JOURNAL A. M. A., May 9, 1914, p. 1466.

the subcutaneous injection of glycerinated virus diluted with physiologic sodium chlorid solution.¹¹

IMPORTANCE OF SUCCESSFUL VACCINATION

Today the importance of the successful vaccination and revaccination of troops is appreciated by the medical officers of all armies. In the Three Hundred and Sixty-Seventh Infantry, with which regiment I am serving, the regimental medical officers found large numbers of men on whom repeated revaccinations, and, in many cases, primary vaccinations by the prescribed

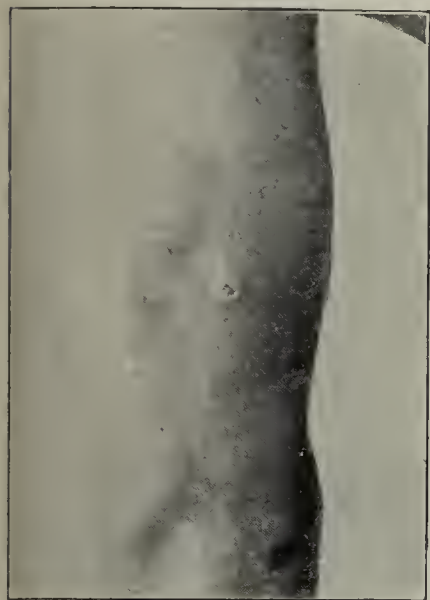


Fig. 3 (No. 9471).—Vaccinoids by both methods; outer one by the incision method; seventh day after vaccination. One site of injection used. His story of smallpox eleven years before.

incision method, gave negative results. The question immediately arose as to whether or not these men were immune to smallpox. According to their histories, very few of them had ever had smallpox, while arm examinations for vaccination scars showed that the majority of them had been successfully vaccinated in civil life—in most cases from ten to fifteen years previously. Some were found who had never been successfully vaccinated against smallpox and had never been through an attack of the disease. Therefore, it seemed reasonably clear

that most of them were not immune, and that those who were immune possessed only a partial immunity. At the same time it was evident that their failure to give "takes" was not due to the virus used, because with it we were daily getting a large number of "takes" on other men. Then it occurred to me that intracutaneous injections of vaccine virus might prove to be a more satisfactory method of virus transference than the one that we were using; therefore, it was for the purpose of reducing to a minimum the number of unsuccessful vaccinations in the regiment that this work was undertaken.

THE INTRADERMAL METHOD

The method used was as follows: Virus treated with a glycerol-phenol solution was used. The composition of the glycerol-phenol solution was: phenol (carbolic acid), 1 part; glycerin, 49 parts, and water, 50 parts. The virus was diluted with equal parts of sterile distilled water immediately before using, although in a few of the first cases undiluted virus was used. Dilution of the virus was made solely to avoid waste, because I soon discovered that the diluted virus gave just as good results as the undiluted; and sterile distilled water was used for dilution instead of glycerin because it was feared that further dilution with glycerin might cause too much attenuation of the virus. One tenth c.c. of the diluted virus was injected intradermally by means of a sterile tuberculin syringe and a relatively fine needle, which was also sterile. I used needles size 26 according to the English standard wire gage No. 189. The site of injection was the skin area covering the insertion of

the deltoid muscle. In some of the cases only one insertion was made, but, in most of the cases, two injections were made, one being separated from the other by a distance of about 1 inch. Two injections are preferred because of the larger area of vesicle formation that results, thereby affording one a better sense of protection, if not actual protection. Control vaccinations by the incision method, as described above, were made on all men vaccinated by the intradermal method; they were made on the same arm, on the same day, and the same virus was used in the two methods. Control injections of the virus-free glycerol-phenol solution, of exactly the same percentage composition as the fluid medium in which the virus was preserved and as shown above, were made on sixty of the men who volunteered. Two tenths c.c. of this solution was used for each injection, which was also made intradermally.

RESULTS

Intradermal vaccinations and controls by the incision method were carried out on a total of 227 men. All of these men during the preceding four months had been unsuccessfully vaccinated by the incision method a number of times, the number varying from two to eight. "Takes" were obtained in 160, or 70.48 per cent., of the cases by the intradermal method, whereas "takes" were obtained in only nineteen, or 8.3 per cent., of the same cases by the incision method. All of the nineteen cases that showed a "take" by the incision method also showed a "take" by the intradermal method. There were sixty-seven cases that failed to show a "take" by the intradermal method; in all but four of these cases, however, the vaccination site showed either an "immunity reaction" or "vaccinoid." The "immunity reaction" occurred in most instances. The 208 cases that did not give a "take" by



Fig. 4 (No. 9479).—"Take" by both methods; eighth day after vaccination. One site of injection used. No history of smallpox. Man never vaccinated in civil life; since entry into the service vaccinated three times with negative results.

the incision method exhibited "immunity reactions" and "vaccinoids" in but few instances. The "immunity reactions" and "vaccinoids" that occurred in these cases were identical in every way with those described by Kolmer.¹²

In Table 1, the number of unsuccessful vaccinations by the incision method during the past four months is detailed, as well as the results obtained by myself with both methods.

Table 2 shows the results obtained in the case of men who had never been successfully vaccinated in their lives, as compared with the results

obtained on men who had been successfully vaccinated at some time prior to their entry into the military service.

Of the eight men who had never been successfully vaccinated, and whose results by the intradermal

11. Knöpfelmacher, quoted by Force, J. N., and Beckwith, H. L.: A Laboratory Method for the Diagnosis of Smallpox, THE JOURNAL A. M. A., Aug. 14, 1915, p. 588.

12. Kolmer, J. A.: A Practical Text-Book of Infection, Immunity and Specific Therapy, Philadelphia, W. B. Saunders Company, 1917, p. 678.

method were unsuccessful, it was found by inquiry into their histories that seven had had smallpox, three of them having had it five years before, one one year

TABLE 1.—UNSUCCESSFUL VACCINATIONS BY INCISION METHOD, AND RESULTS WITH INCISION AND INTRADERMAL METHODS

No. of Times Unsuccessfully Vaccinated in Army	Total Number Vaccinated	"Takes," Intra-dermal Method	"Takes," Incision Method	Unsuccessful Intra-dermal Method	Unsuccessful Incision Method
1	6	6	0	0	6
2	34	23	2	11	32
3	68	51	8	17	60
4	44	31	3	13	41
5	44	29	3	15	41
6	17	12	1	5	16
7	12	7	1	5	11
8	2	1	1	1	1
	227	160	19	67	208

before, one four years before, one eight years before, and one eighteen years before. Of the fifty-nine unsuccessful cases by the incision method in this same

their maximum diameters measuring from 0.4 to 0.9 cm.—than the size circles obtained in the primary vaccination cases.

One circle of vesicles surrounds each site of virus injection.

It is seen that the circular arrangement of the vesicles around the site of virus injection is a constant and characteristic feature of the method, and is the only difference to be noted. The virus produced evidence of its activity by vesicle formation only at points where the skin layers were but slightly separated, which explains the circular arrangement of the vesicles; the actual site of virus deposition is marked by the dark depressed central scab, which is due to the local necrosis produced by the mechanical and chemical injury to the skin at that point.

In none of these cases did any infection occur, and the local reactions in the severest cases were relatively mild as compared with the severe reactions that so often follow vaccination by the incision method.

In the cases of primary vaccination with no history of smallpox, the circle of vesicles was the same size in practically all of the cases, measuring approximately



Fig. 5 (No. 9472).—"Take" by both methods; eighth day after vaccination. Two sites of injection used. Man never vaccinated in civil life; three unsuccessful vaccinations since entry into the service.

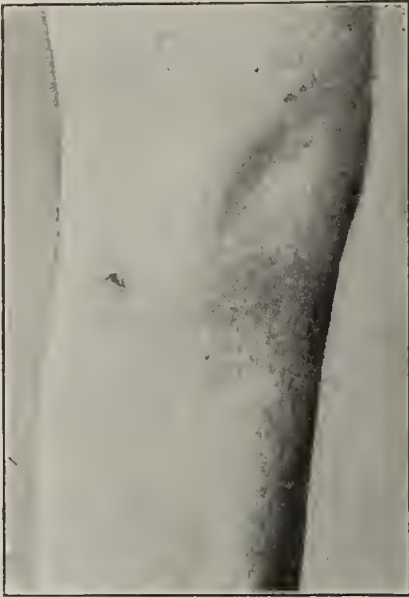


Fig. 6 (No. 9473).—Vaccinoid by intradermal method; nothing by incision method; seventh day after vaccination. Last "take," twenty years before.

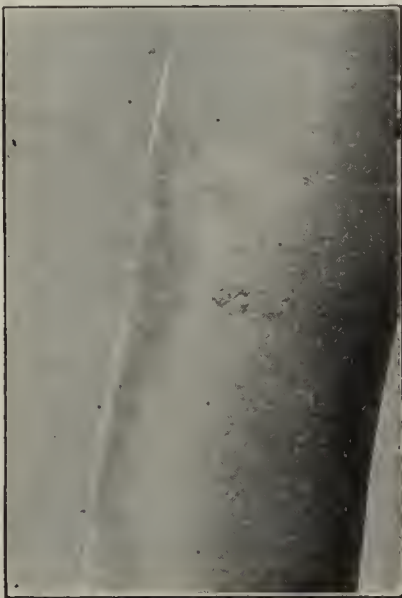


Fig. 7 (No. 9833).—Immunity reaction by intradermal method; second day after vaccination.

group, a history of smallpox was obtained in only seven instances.

The course of the eruption as it occurs in primary vaccination by the intradermal method is similar in every way to the course as it occurs by all other methods, except for the arrangement of the vesicles, which form a circle around the site of virus deposition. The vesicles appear as a rule on the sixth day and become pustules on the seventh or eighth day. The vesicles are multicolor. The center of the circle of vesicles is depressed, and shows early scab formation. On the eighth or ninth day the circle reaches its maximum diameter, at which time it measures from 0.5 to 1.4 cm. After the ninth or tenth day the vesicles begin to dry up, and at the end of from twelve to fourteen days the vaccinated area is marked by a dark brown scab that is sharply circular in outline. This scab falls off in from eighteen to twenty-four days and leaves a sharply circumscribed reddish, circular depressed scar, which may or may not show foveation.

In revaccination "takes" by the intradermal method the vesicles become pustules on the sixth or seventh day, and the size of the circle of vesicles is smaller—

1 cm. in diameter. In the cases with a history of smallpox, and also in the revaccination cases, the size of the circle or area of vesiculation varied in a most remarkable way according to the time that had elapsed since the attack of smallpox or the previous vaccination; the more recent the smallpox attack or revaccina-

TABLE 2.—RESULTS ACCORDING TO SUCCESS OF PREVIOUS VACCINATIONS

	Total	Intra-dermal "Takes"	Incision "Takes"	Intra-dermal Unsuccessful	Incision Unsuccessful
Men never successfully vaccinated before.....	52	44	9	8	43
Men successfully vaccinated before	175	116	10	59	165

tion, the smaller the circle of vesicles—a result that is not at all surprising because in all of these cases exactly the same amount of virus was introduced, and it seems only reasonable that the size of the area of vesiculation should vary in direct proportion to the immunity against smallpox that the person vaccinated possesses.

With this method it is possible to deposit a definite amount of virus of known strength in each instance; and, after having observed that a definite relationship exists between the size of the reaction area and the immunity to smallpox the injected person possesses as shown by his history, I am convinced that intradermal injections of vaccine virus will prove to be a most satisfactory and reliable method for the estimation of the relative immunity of individuals to smallpox, if a sufficient number of observations are made.

The arms of the sixty men on whom control injections of 0.2 c.c. of the glycerol-phenol solution were made showed at the end of twenty-four hours a small area of erythema, measuring about 2 mm. in diameter; while at the end of forty-eight hours all traces had disappeared. It is apparently clear, therefore, that the results obtained were due not to the irritant action of the glycerol-phenol solution on the skin, but rather to the activity of the virus itself, and also that pressure necrosis is not to be considered a factor in their production.

The amount of time required for vaccinating a large number of men by this method is slightly less than the amount required for vaccinating the same number by the incision.

The only disadvantage of the method is the relatively large amount of virus used in comparison with other methods. With 1 c.c. of virus it is possible to vaccinate from sixteen to 20 persons, while by most other methods 1 c.c. is a sufficient amount of virus for forty or fifty vaccinations.

CONCLUSIONS

1. This comparative study of 227 cases, with all conditions equal, shows that vaccination by the intradermal method gives a much higher percentage of "takes" than vaccination by the incision method, in a group of cases in which recent repeated vaccinations by the incision method had failed.

2. There is less chance for infection.

3. It is the only method by which a definite and known amount of virus can be deposited.

4. It may prove to be a method by which a fair index of the relative immunity of persons to smallpox can be obtained.

The virus used was furnished by the Board of Health, New York City, through the courtesy of Dr. W. H. Park.

Alimentary Dropsy.—An abstract in the *Correspondenz-Blatt* from the *Deutsche medizinische Wochenschrift*, 1917, No. 29, relates that numerous cases of "edema disease" had been encountered by the writers in prisoners' camps, at various times, and finally quite an epidemic developed in their service in a civilian hospital, and numerous cases were sent in from outside at the time. The elderly were in the majority, and the dropsy was the first symptom to attract attention. Considerable bradycardia accompanied the edema, but nothing pathologic on the part of the kidneys could be discovered. Under bed rest the dropsy subsided, and except for weakness for a time there were no further disturbances. They state that the epidemic occurred at a time when there was a scarcity of potatoes. Turnips and carrots were the mainstay. They were taken in the form of soup, sometimes three times a day. The diet thus contained ample carbohydrates and an excess of fluids, but too little fat. When the diet was improved, especially when potatoes became available, no further cases were seen.

CHLOROFORM ANALGESIA BY SELF- INHALATION AS ADAPTED FOR DRESSING WOUNDS *

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CLEVELAND

The needs of the war, especially the frequent dressing of painful wounds, have emphasized the desirability of a suitable, prompt, brief, safe, and if possible, pleasant method of anesthesia, or rather analgesia, especially such as could be given in the ward, without moving the patient. Full ether or nitrous oxid anesthesia is effective, but each has obvious drawbacks and limitations. They are too liable to produce nausea, and to upset the patient generally.

Several methods of meeting the problem have been suggested. L. J. Hirschman¹ describes a method used in British hospitals, consisting in the inhalation of a fixed dose of an ethyl chlorid-chloroform-ether mixture. Gwathmey and Karsner² describe a gastric method, consisting essentially of a solution of ether in liquid petrolatum.

The work reported herein had been planned and completed before the article by Gwathmey and Karsner had been published. Publication was delayed to permit the clinical trial of the method under war and base hospital conditions. This has now progressed far enough to show that the method is effective, convenient and apparently safe, although the deep-rooted fear of chloroform may tend to prevent its general adoption.

I would, however, disclaim the intention of reintroducing the use of chloroform for general anesthesia. The present method presents a specific technic, using a fixed dose for a specific purpose, namely, for analgesia only.

In approaching the problem, I aimed to avoid the gastric administration, since the narcosis produced by this method would be likely to be more persistent than is necessary for the purpose. It was also doubtful to me whether an effective dose could be given without nausea or more serious danger. Gwathmey and Karsner, however, have apparently disposed of that question.

The use of morphin or scopolamin would be excluded for similar reasons: effective doses would be too dangerous and too prolonged; safe doses would be ineffective.

It seems, on *a priori* grounds, that a brief and harmless, but adequate, analgesia could best be secured by the inhalation method, which introduces and eliminates the narcotic rapidly. The chief problem, therefore, appeared to be the evolution of a method of administration adapted specifically to this purpose; namely, one giving a rather superficial anesthesia, with perfect safety and comfort to the patient, and the minimum of technical difficulty of administration.

This pointed to the employment of "self-inhalation." This carries with it an automatic safety device, in that the patient will be unable to continue the adminis-

* From the Pharmacological Laboratory of the Western Reserve University School of Medicine.

1. Hirschman, L. J.: News of Base Hospitals in France, *THE JOURNAL A. M. A.*, Dec. 1, 1917, p. 1882.

2. Gwathmey, J. T., and Karsner, H. T.: General Analgesia by Oral Administration, *THE JOURNAL A. M. A.*, April 6, 1918, p. 993.

tration beyond the point at which consciousness is lost.

A method was devised of testing this administration on man, with various anesthetics and mixtures:

The presence and tolerance of pain was tested by touching the ordinary electrodes of a Harvard induction coil with the moistened tip of a finger, a strength of current being chosen such that the finger could not be kept on the electrodes normally by the exercise of an ordinary amount of will power.

The anesthetics were accurately measured in a conical graduate, taken up in a piece of cotton about the size of a lemon or larger, and held directly to the nostrils with the left hand of the subject. (Local irritation in all cases was negligible.) The subject then breathed deeply and quietly, occasionally testing the sensation.

Practically ideal results were secured by the use of 5 c.c. of chloroform, by this method. On several occasions the subject passed through the successive events of the ideal induction of anesthesia: the floating sensation, prickling, warmth, confusion, drowsiness; and in one case probably actual unconsciousness. In all the other administrations, the subject felt almost asleep, but gave answers to questions. The answers were appropriate, except when the effect was maximal, when they became incoherent.

The confusion began almost at once, and reached its maximum generally within five minutes. It began to lessen after about ten minutes. Then there remained a rather apathetic, drowsy state which disappeared only gradually: but inside of half an hour the subject was able to resume his ordinary occupations. There were no after-effects of any kind, except when the dosage was repeated in half an hour. In this case there remained some nausea and vertigo. The whole course of events is not in the least disagreeable, but rather seductive.

The analgesic phenomena are as follows: Within a few minutes after starting, about the time when the floating sensation occurs, the painful stimuli are very much less appreciated. The stimulation is quite distinctly felt, at first as a painful sensation; but the mind does not attach any importance to it, so that the finger can be kept on the electrodes without difficulty. As the narcosis deepens, the stimulation is felt as smarting rather than as pain. The analgesia reaches its maximum in about four or five minutes. At this time most of the chloroform has evaporated, and the sponge becomes almost dry; and from this time on the analgesia diminishes, but the tolerance to pain is still very definitely greater than normal for about half an hour.

The chloroform was more effective than any of the other anesthetics that were tried. This applies both to the analgesia and to the mental effect. It caused distinctly greater confusion, relaxation and sometimes at least a distinct pallor.

Next in efficiency to the chloroform came the Hewitt chloroform-ether mixture (chloroform, 2 parts; ether, 3 parts by volume). When 10 c.c. of this were inhaled, the effects approximated 5 c.c. of the chloroform fairly closely; but they were not quite so deep. Five c.c. of this mixture produced only a relatively slight effect. Ether itself in 10 c.c. quantity is too weak, although it produces slight analgesia

quite rapidly. Billroth's A. C. E. mixture (alcohol, 1 part; chloroform, 2 parts, and ether, 3 parts), 5 c.c. is still weaker. I also tried the mixture stated as in use in the British hospitals for dressings, as described by Hirschman.¹ Ten c.c. of this acted scarcely stronger than the same amount of ether; perhaps a little more rapidly.

From these observations I would advise the clinical trial of the chloroform, in the manner that I have described, namely:

Five c.c. of chloroform are measured, soaked up in cotton, and given to the patient, to be applied by him in the palm of his hand directly to the nose, his hand excluding the air as much as possible. The patient should be directed to hold the sponge to the nose until the operation is completed. He should be instructed to breathe quietly and deeply. The dressing procedures can be begun between three and five minutes after starting the administration, and timed so as to be completed within twenty minutes.

The dose should be measured accurately, since any tendency to guesswork or leeway would eventually lead to fatalities. Indeed, it might be advantageous to dispense the chloroform for this purpose in single dose 5 c.c. ampules.

Repetition of the dose at the same sitting is to be avoided, but if absolutely necessary, the same dose may be given at the end of fifteen or twenty minutes, on a fresh piece of cotton. It is much safer, however, to abandon the use of chloroform in any cases in which a single dose is inadequate.

Inhalation from the hand was found much better than inhalation from a cup or similar mask, because it brings the vapor much nearer to the nose.

It must be remembered that the chloroform used in this way does not usually produce unconsciousness; and so long as there is some consciousness the painful stimuli are felt. The object of the chloroform in that dosage is to produce a drowsy apathy, in which the patient in the first place feels the pain less, and in the second place is more indifferent whether he feels it or not.

The fact that the patient has his attention occupied by his doing something himself that lessens his pain is a rather desirable feature for distracting his attention from the proceedings of the dressers.

Clinical trial of the method has established its value for the purposes for which it was devised, namely, as a convenient and brief analgesia for dressings or minor surgical procedures. It has not yet been compared extensively with the Gwathmey-Karsner method in the same service. It is quite conceivable that the field of the two methods is somewhat distinct.

SUMMARY

The method proposed consists in producing analgesia by the inhalation of a definite quantity of chloroform (5 c.c.), measured as a single dose; and involving the use of the patient's hand as a tight inhaling mask. It has given good results, both experimentally and clinically.

Of the various anesthetics, chloroform is best adapted to this self-inhalation analgesia.

The fixed dose should be rigidly followed, or rather should not be exceeded. No attempt should be made to produce full anesthesia by this method.

Therapeutics

PROPHYLACTIC MEASURES TO BE OBSERVED IN MEASLES

An intelligent application of prophylactic measures in connection with measles demands that attention be paid not only to the possible transmission of the specific cause of measles from the infected individual to those about him, but also to the equally and sometimes more dangerous transmission of secondary infections to persons sick with or convalescent from measles from those who may or may not have the disease. The associated or secondary infection may be transmitted simultaneously with the measles virus, or may be transmitted from a second person to a person primarily infected with measles alone. Carriers probably play a larger part in the transmission of secondary infections than they do of measles proper.

PREVENTION OF THE SPREAD OF THE MEASLES VIRUS

Clinical and experimental evidence points to the presence of the specific cause of measles in the secretions of the respiratory tract very early in the disease, and prevention of infection of contacts can be hoped for only if the person coming down with measles is removed from his uninfected associates very early in the attack. This necessitates the early recognition of cases, which can be done by frequent examination of the mouths of those who have been or are suspected of having been exposed. The typical Koplik spots appear in the mouth from one to three days before the catarrhal symptoms develop and are readily detected by one familiar with them as minute, pearly white, pin-point spots on the mucous membrane of the cheek, each being surrounded by a red halo. If persons are isolated at this time, the likelihood of their spreading the disease is much less than if they are undetected until the catarrhal symptoms have appeared.

ISOLATION

Measles patients should be isolated as soon as detected. If possible, each patient should be placed in a separate room. Because of the ease with which this disease is spread through minute moist droplets of infected mucus driven out into the surrounding air by coughing, sneezing, etc., measles patients should not be placed in a ward with persons suffering from other diseases. They should be placed in a ward by themselves, the individuals being separated from each other by the use of cubicles, the walls of which may be sheets suspended on wires. The latter precaution is directed toward the prevention of the transfer of secondary infections from one individual to others.

SECONDARY OR ASSOCIATED INFECTIONS

Infection of measles depresses the resistance of the body to a great variety of other infections, and the mortality associated with measles depends largely on the occurrence of secondary, complicating infections which accompany or follow the primary disease. The most common secondary infecting organisms associated with measles are tubercle bacilli, diphtheria bacilli, pneumococci and streptococci. Tubercle bacilli

in a local, quiescent lesion are apt to take on fresh activity and to become widely disseminated during the course of and convalescence from measles. The mucous membranes in measles offer a peculiar vulnerability to diphtheria bacilli, and if this secondary infection occurs it is apt to exhibit unusual virulence.

Secondary infections by streptococci give rise to bronchopneumonia and empyema, and are responsible for most of the otitis media, endocarditis, pericarditis and pleuritis and other septic processes. The pneumococcus may cause lobar pneumonia.

Prevention of dissemination of these secondary infections from one patient to others is accomplished by isolation of individual patients in rooms or cubicles during the acute sickness. It is desirable to lessen further the chances for the spread of secondary infections by placing those patients with complications in separate wards from those occupied by simple cases. Patients with measles who are shown by bacteriologic examination to harbor hemolytic streptococci in the throat should be carefully separated from the other measles patients.

CONVALESCENCE

When patients are able to be out of bed and go about the ward and so come in close contact, the danger of transfer of measles has passed; but the danger of transfer of secondary infecting agents is often still present. The danger of spreading secondary infections during convalescence may be removed to a large extent by the wearing of proper gauze masks that cover the nose and mouth. The face mask not only prevents infections through droplets that pass directly from one patient to others, but it also prevents the escape of droplets that would fall to the floor or on other surfaces, and after drying might be distributed in dust. Unmasked convalescents should not be allowed to associate.

All eating utensils used by the sick should be sterilized by heat after each use.

ATTENDANTS

Those caring for measles patients should always employ aseptic technic, avoiding the carriage by any means of infectious materials from one patient to others. This necessitates great care in frequent cleaning of the hands with soap and water, the protection of the clothing by gowns, which are changed when soiled, and the covering of the hair by a suitable cap. For the personal protection of the attendants and in order that they may not become carriers of infectious agents, they should wear gauze masks when on duty.

DISINFECTION

While the measles virus is short lived outside the body and is readily killed by sunshine and abundant airing, this is not true to the same degree of the agents causing secondary infections. The latter bacteria, when dried in the secretions from mucous membranes, may retain their vitality and pathogenic properties for a considerable time. This renders necessary the sterilization of contaminated bedding and clothing. It also calls for washing of beds and cleaning of floors. If the latter are of such a nature as to be insusceptible of thorough cleaning by soap and water, they may be treated with an antiseptic solution at intervals.

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SATURDAY, AUGUST 24, 1918

"SPANISH INFLUENZA"

According to current reports, a pandemic of an acute influenza-like disease is passing over Europe, civilized and barbarian. Fortunately the outbreak in England and among the Allied troops on the continent is now on the wane. The disease has been called "Spanish influenza," presumably because it is believed to have started in Spain. In view of the likelihood that the pandemic will reach this country, all observations in regard to its manifestations and nature are of special interest. Thus far, however, most of the articles and notes regarding the disease have been of an ephemeral nature; the more elaborate and finished studies will come later.

The symptoms are described practically always in about the same terms: sudden onset with chills, severe headache, pains in the back and elsewhere, general malaise, flushed face, some soreness of the throat, and fever of from 101 to 104 F., with a rather slow pulse. Usually crisis has occurred after two or three days, with rapid and complete recovery. In many cases there has been a harsh cough with a scanty sputum; occasionally more severe bronchitis and even bronchopneumonia have developed; but among the young and healthy there seem to have been no serious consequences, and no definite statements are made as to the death rate, which in any event thus far has been very low. Gastro-intestinal disturbances have not been observed. Herpes labialis is mentioned as occurring occasionally. Enlargement of lymph nodes is recorded. At the end of the fever there has been found a rather slight leukocytosis, with a relative excess of small lymphocytes, preceded according to some by leukopenia with marked fall in eosinophils.

The observers on whose authority these statements are ventured do not agree as to the bacteriology of the disease. Little, Garofalo and Williams¹ of the Canadian Army Medical Corps did not find any influenza bacilli in smears or in cultures from the nose, throat and sputum. They found the predominating organism

to be a small coccus with many of the characteristics of the streptococcus, but with rather feeble hemolytic power. Gotch and Wittingham,² on the other hand, found a gram-negative coccus, which they speak of as *Micrococcus catarrhalis*, in the nasopharyngeal swabs and sputum of all of fifty cases, sometimes almost pure; further, influenza bacilli in culture in 8 per cent. and influenza-like bacilli in smears in 62 per cent. of the cases, and also other bacteria, such as pneumococci and streptococci, in fewer instances. The experimental implantation of pure cultures of the *Micrococcus catarrhalis* on the pharyngeal mucous membrane was followed by the symptoms of influenza in two persons; hence Gotch and Wittingham regard this coccus as the cause of the disease, either acting alone or in conjunction with the influenza bacillus. As they give no details in regard to their experimental inoculation, it is quite impossible to form any judgment as to its value. Blood cultures have not yielded any definite results and so far no immunologic tests seem to have been made. In editorial comment, the *British Medical Journal*³ states that the influenza bacillus has been found in many different places, especially in cases with bronchitis and pneumonia, and that the general opinion seems to be that the pandemic is due to the bacillus. This opinion is by no means unanimous, however, and the bacteriologic and other evidence at hand certainly does not warrant its acceptance. Much further work is required before we can feel sure that we understand the true nature and cause of this and similar pandemics.

The treatment remains symptomatic—rest in bed, free movements of the bowels, and light diet are the most important measures. No doubt the spread of the infection, whatever it is, would be limited considerably if the dangers of droplet infection were recognized more widely and guarded against.

INORGANIC ELEMENTS IN NUTRITION

There are twelve elements that occur in the human body in more than very minute quantities. By far the larger proportion make up what are commonly termed the mineral salts or inorganic components of the organism. Their presumable importance for the proper performance of our functions and the resulting welfare of the individual was recognized even in the days of Liebig. When it is recalled that under average conditions of diet and activity a healthy man may excrete daily from 20 to 30 grams (as much as an ounce) of inorganic salts, chiefly in the form of chlorids, sulphates and phosphates of sodium, potassium, magnesium and calcium, the relative magnitude of the ordinary "mineral metabolism" becomes evident.

2. Gotch, O. H., and Wittingham, H. E.: A Report on the "Influenza" Epidemic of 1918, *Brit. Med. Jour.*, 1918, **2**, 82.

3. The Influenza Pandemic, *Brit. Med. Jour.*, 1918, **2**, 39; The Pandemic of Influenza, *ibid.*, 1918, **2**, 91.

1. Little, T. H.; Garofalo, C. J., and Williams, P. A.: The Absence of the Bacillus Influenzae in the Exudate from the Upper Air Passages in the Present Epidemic, *Lancet*, London, 1918, **2**, 34.

After all, there is still great paucity of information on this aspect of nutrition. Osborne and Mendel¹ recently summarized the situation by stating that although there is almost a unanimity of opinion regarding the energy needs of the body under different circumstances of age and activity; although the current estimates of the minimum amount of protein required each day seem to be defined within reasonably narrow limits; and although the functions of fat and carbohydrate and the possibilities of their interchange are beginning to be understood, there is no adequate experimental basis to permit tenable statements regarding either the indispensability or the minimum requirement of any of the inorganic constituents of the dietary, with the possible exception of calcium and phosphorus. Statistics show enormous divergences between the mineral intakes of people in different regions; but these appear to be the fortuitous results of widely varying dietaries, including water (as is the comparative dissimilarity in the fat and carbohydrate content of the diets of peoples living, respectively, in a tropical or frigid climate—differences enforced by the different character of the available food supplies), rather than the expression of unlike metabolic needs.

Of course, this problem of the inorganic nutrients is as important for animal husbandry as for human nutrition; perhaps even more so in the case of domesticated animals deprived of a free choice of feeds and forced to live on selected rations. In this indirect way, again, the production of our own food supply is involved. Hart, Steenbock and Fuller² pointed not long ago to the prevailing idea that the mineral nutrients are contained in abundance in our feeding materials, and that therefore studies of their supply in feeds and the demand by farm animals are of little practical importance. It must be borne in mind, however, that grains in general are deficient in calcium. Agriculturists tell us that rations wholly made up of grains will supply to the growing animal an amount of calcium dangerously near a critical level of intake. Ruminants and horses consuming the usual roughages which contain more lime will ordinarily receive calcium enough for growth. But the Wisconsin experts² have announced that swine, growing or breeding, and confined wholly to grain rations, should receive an additional supply of calcium either as calcium carbonate, calcium phosphate, or legume hay. Like other workers in this field, they have pointed out that for continued and high milk production, with its extra drain of calcium, the supply may be dangerously low unless calcium is furnished in other forms.

A considerable volume of evidence from independent sources has placed beyond question the fact that

the organism is not dependent on so-called natural sources for its supply of lime. There is no doubt that even growing organisms can utilize the element from such simple compounds as calcium carbonate or phosphate. Similarly, inorganic phosphates can serve as a complete source of phosphorus for the life cycle. This deserves repeated emphasis in the face of continued attempts to postulate indispensable nutrient virtues in special forms of "naturally occurring" phosphorus derivatives.³ Furthermore, the limits of stature and form are fixed by heredity in large measure, so that, in the experience of Hart, Steenbock and Fuller, high calcium rations, as compared with low calcium rations, had no effect whatever during a single gestation period on the size or calcium content of the skeleton of the fetus. The skeleton is not increased in any dimension by a wide variation in the amount of calcium fed the mother.

Osborne and Mendel¹ likewise find that the appropriate supply of calcium, phosphorus and iron must be clearly kept in mind—a point that Sherman has repeatedly brought into public prominence in relation to human nutrition. In the case of other elements, sodium, potassium, magnesium and chlorine, they have observed in animal experiments that the minimum requirement is apparently much smaller than is currently believed. Even on diets rendered as free from these elements as ordinary care and selection will permit, Osborne and Mendel observed growth and long continued maintenance in health. This may seem surprising to those who look on a large modicum of common salt as a necessity. But it has long been known that the organism can endure a considerable reduction in the customary intake of sodium chlorid without any obvious untoward effects. There seems to be an extraordinary capacity for adjustment to varying quantities of this salt. When an abundance is offered in the diet, the elimination of chlorids through the kidneys, which are the only significant path for their excretion, is large; on a restricted chlorid intake the output promptly falls (except, perhaps, in certain cases of pathologic "salt retention"). In starvation, the output does not continue at a low level, as is the case with some of the other inorganic elements and nitrogenous wastes, but sinks almost to zero. The chlorid is husbanded in the body when its supply is limited.

What applies to chlorine is presumably true of some of the other elements, like sodium, potassium and magnesium. That these to some degree may be essential to the adjustments of neutrality regulation is indicated by the failure to grow when both sodium and potassium were practically excluded from the diet, whereas growth was nearly or quite normal when only one of these elements was missing. It is evident

1. Osborne, T. B., and Mendel, L. B.: *The Inorganic Elements in Nutrition*, Jour. Biol. Chem., 1918, **34**, 131.

2. Hart, E. B.: Steenbock, H., and Fuller, J. G.: *Calcium and Phosphorus Supply of Farm Feeds and Their Relation to the Animal's Requirements*, Research Bull. 30, Wisconsin Agr. Expt. Sta., February, 1914.

3. *The Nutritive Value of Inorganic Phosphates*, editorial, THE JOURNAL A. M. A., April 20, 1912, p. 1198; *Organic and Inorganic Phosphorus Compounds*, May 25, 1912, p. 1605; *Organic Phosphorus Compounds*, June 21, 1913, p. 1958.

that a readjustment of the points of view in this connection will soon be necessary. Not only calories and protein, vitamins and roughage, but even the individual elements need specific consideration in nutrition. What next?

THE MEASUREMENT OF MUSCULAR STRENGTH

Man power has always been an important factor in the work of the world; hence it is truly surprising that so little success has been attained in the measurement of human strength. Exercise is everywhere admitted to be an essential to good health and efficiency, yet science is far from having a suitable knowledge of the physiology of exercise. Despite the formulation of so-called strength tests, no scheme which will permit a forecast of the probable maximum strength of an individual and an analysis of observed departures from expectation has until recently existed.

In connection with a study of the treatment of infantile paralysis, Lovett and Martin¹ have developed a method of estimating muscular strength. This is not a simple matter. Martin² has pointed out the complications. Effective muscular strength, he says, by which is meant the power developed at the actual points at which strength is ordinarily exerted, depends on a number of factors. The muscles work for the most part in groups, and through action on levers. The effective strength, for example, of the calf muscles in such an action as rising on the toes has a complex mechanical basis, in comparison with the absolute muscular force of the isolated gastrocnemius. Moreover, in exhibitions of voluntary muscle power, the mechanism involved is a neuromuscular one in which the nervous part may have as much hand in determining the degree of activity as the purely muscular. Thus, so far as the actual use of the muscles is concerned, effective strength rather than intrinsic muscle power is of significance.

The collection of dependable data on this feature of the individual will serve toward the establishment of "quantitative standards of physiologic activities," surely a desirable end. Martin's extensive records of strength tests on children have shown that calculations of entire strength based on tests of only part of the muscle groups in the body are valid within a reasonable margin of error. In harmony with earlier findings of Kellogg on adults, relatively little difference in strength between the two sides of the body could be discerned. The data show a striking constancy in the relation of strength to body weight, when the sexes are considered separately. The fixed ratio of strength to weight is interpreted by Martin as

signifying that the effective strength, as manifested in volitional efforts, depends, in the absence of specific exercise effects, on the constantly operative factor of weight, either of the entire body or of the part moved by a particular muscle group. The possession of means for obtaining information regarding the ideal distribution of strength among the muscle groups, to quote Martin, may enable us to interpret and perhaps to regulate departures from the ideal due to special exercises or to particular habits. On such a basis alone can the best prescription of exercise be based and measured.

"THE DAY'S FOOD IN WAR AND PEACE"

Not infrequently one hears, in reproach of modern science in America, that it fails to do its greatest service because the lessons it brings and the discoveries it has to offer are rarely presented in a language that the public at large can comprehend. It is doubtless true that the scientific disciplines of today have developed a special nomenclature that tends to puzzle all but the trained specialist. This progressive enrichment—perhaps some would regard it as an encumbrance—of our vocabulary has by no means, however, been confined to the domain of scientific knowledge. The advances in the arts and the introduction of new inventions have likewise compelled the mastery of new or unfamiliar words to describe innovations that are rapidly engrafting themselves on our daily lives. The telephone, the automobile, the aeroplane and harvest machinery, among dozens of other devices, have added new terms which soon become permanently established in word and thought.

As an illustration of the injustice of applying the indictment of incomprehensibility to the popular literature of science—not of pseudoscience or quackery—in general, we may point with some enthusiasm to a recent compilation issued by the U. S. Food Administration. Under the caption "The Day's Food in Peace and War" it has published a collection of "lessons" prepared at the request of the Woman's Committee of the Council of National Defense by experts of the Department of Agriculture, the Food Administration, and some of our well known specialists. The names speak for themselves: Herbert Hoover has written on food and the war; Graham Lusk, on food for a day; Alonzo Taylor, on wheat: why to save it—how to use it; E. V. McCollum, on conservation of fats and sugar; C. F. Langworthy, on meat and meat substitutes in war time; Lafayette B. Mendel, on milk and its products; Caroline Hunt, on how to use fruits and vegetables; Charles J. Brand, on the use of locally grown products and the development of a near-by food supply; Ruth Wheeler, on the children's food. In an introduction, Ida M. Tarbell well remarks: "To learn to do every common thing in life in the most scientific manner is one of our high

1. Lovett, R. W., and Martin, E. G.: Certain Aspects of Infantile Paralysis, *THE JOURNAL A. M. A.*, March 4, 1916, p. 729; *Am. Jour. Orthop. Surg.*, 1916, **14**, 415.

2. Martin, E. G.: Muscular Strength and Muscular Symmetry in Human Beings, *Am. Jour. Physiol.*, 1918, **46**, 67.

duties at the present moment; but learning to meet our great need now will do much to help us as a nation in the future to do these common things in a finer and more comprehending way." If this war time booklet has not struck a timely pitch in driving home the modern lessons of nutrition, we fear that the popularization of science must be given up as a hopeless task for the present.

"The Day's Food" is not so elementary, despite its lucid style, that it will not repay examination by every physician who gives heed to the problems of diet and by every dietitian who aims to do full duty under present-day conditions. Here we find the essentials of a healthful and palatable diet clearly and succinctly indicated. "If Mother Goose had been born later in the history of the world," Graham Lusk writes, "she would undoubtedly have made a rhyme about calories, so that from early childhood we would have learned that our lives are dependent upon the fact that we burn up food in our bodies. . . . The laboring man, who does the hardest work, is the greatest consumer of food. He really needs to know the relative cost of the different fuels he eats, . . . but he has not been at all likely to get any information on the subject." In another lesson we are taught comprehendingly that wheat is just one of the cereals and there is no evidence that it is the most wholesome. Again, we are reminded that the principal reason for using sugar is that we like its taste and it makes other foods more palatable. It does not supply any necessary substance which cannot be secured equally well in other ways. The timely topic of meat, which though not actually necessary is a desirable part of the diet, is presented with forceful simplicity. The dietary virtues of milk, so often praised in *THE JOURNAL*, are reiterated in the lessons with cogent reasons for the advice given. An exceptionally sane chapter on feeding children defends the thesis that there is a real danger in attempting food conservation with them without such a knowledge of food as will show what changes may be safely made. There are no "frills" in the advice given. "A young child may be considered well fed if he has plenty of milk, bread, and other cereal food; an egg once a day or its equivalent in flesh foods; a small portion each of carefully prepared fruits and vegetables, with a small amount of sweet food after his appetite for other foods is satisfied. If there is too much or too little of any of these, his diet is one sided."

To make "The Day's Food" practical from the housewife's standpoint, illustrative tested recipes are introduced freely. For the inquisitive reader selected bibliographies are appended. The propagandist even finds a list of illustrative lantern slides to help him in his ventures. The inclusion of the entire monograph in current books on dietotherapy would be a valuable asset for their increased usefulness.

Current Comment

DOUBTFUL VALUE OF IRISH MOSS AS A FOOD

In a recent issue of *THE JOURNAL*,¹ we quoted an item from the government commerce reports which inadvertently gave the impression that carrageen, or Irish moss, if methodically collected and properly used, would help in augmenting the food supply of those nations where this sea weed, *Chondrus crispus*, is available in any abundance. The dried "moss," from which preparations termed vegetable gelatin and sea moss farina have been prepared and exploited commercially as human foods, contains a large proportion of a carbohydrate soluble in hot water and gelatinizing with ease on cooling. This has been demonstrated to consist in large measure of galactan, a polysaccharid yielding the sugar galactose, $C_6H_{12}O_6$, on hydrolysis with acids. In this respect it is analogous to the carbohydrate basis of the widely known agar agar prepared from a species of *Gelidium* growing abundantly in the warm waters of the Far East. To the chemist who analyzes these products they disclose the characteristics of a potential food because they readily yield a physiologically available sugar, just as the starch, or highly complex carbohydrate of the cereal grains, easily gives rise to the sugar glucose. But physiologic analysis shows that whereas the human organism produces enzymes or digestive ferments which can convert starch into sugars and thus prepare it for utilization in the organism, the galactans of Irish moss and agar agar are not digested in this way in the body. We produce no enzymes that convert the galactose-yielding complexes into the simpler fragments that can be assimilated; hence the carbohydrates of Irish moss, like those of agar agar, traverse the body unchanged in the alimentary tract.² Adequate digestion is a prerequisite for the suitability of a food in nutrition; and the carbohydrate in question fails to meet this requirement. The nitrogenous matter in the product has never been investigated sufficiently to justify any pronouncement in its favor. A somewhat similar error of judgment in respect to food values has lately become widespread in regard to the value of the Jerusalem artichoke as a war-time food. The cultivation of the plant has even been urged as a conservation measure.³ This plant—topinambur—is rich in the carbohydrate inulin, a levulan easily converted into fruit sugar or levulose by hydrolysis with acids. However, the digestive juices do not appear to contain any enzyme capable of digesting inulin by converting it into an available sugar. The possibility of its physiologic use is limited to such conversion as the weak acidity of the gastric contents may effect. Hence inulin and products which furnish it in abundance have a limited food value so far as

1. Irish Moss as a Food, *THE JOURNAL A. M. A.*, Aug. 10, 1918, p. 424.

2. Swartz, Mary D.: Nutrition Investigations on the Carbohydrates of Lichens, Algae and Related Substances, *Tr. Connecticut Acad. Arts and Sciences*, 1909, **16**, 247.

3. Cockerell, T. A.: Artichokes as Food, *Scient. Month.*, March, 1918; abstr., *THE JOURNAL A. M. A.*, March 30, 1918, p. 909.

this carbohydrate is concerned.⁴ As we have repeatedly pointed out, the chemist's analysis of a supposed food must nowadays be subjected to the critique of physiologic interpretation.

MEDICAL EDUCATION IN ILLINOIS

In 1906-7, when the first inspection of medical colleges was made by the Council on Medical Education, it was found that conditions in Illinois were worse than in any other state in the country. Of fourteen medical colleges then existing in Chicago, only four could be included among acceptable institutions; three were in the class needing certain definite improvements; while in seven the conditions were so bad that a complete reorganization was considered essential to make them acceptable. Even in 1910, following the investigation made for the Carnegie Foundation for the Advancement of Teaching, Mr. Flexner, in his report, referred to Illinois as the "plague spot of the country in respect to medical education." Under the publicity given to these conditions, five of the lower grade institutions in time became extinct and a sixth sought refuge by merging with another. One of the schools which closed—the National Medical University—did so only after the State Board of Health in 1909 had withdrawn recognition from it. Three years later an institution of similar type—the Chicago Hospital College of Medicine—was organized. While apparently having no direct connection with the National Medical University, it adopted many of the methods of that institution: It offered courses mainly during the afternoon and evening hours; in its advertising circulars it offered a "free European trip" to students who should meet certain conditions, and it made it appear that its interests were mainly in "the poor boy who wanted to get an education." At the same time, however, it charged fees much in excess of those charged by several of the state universities which were fully equipped in every way and which are recognized by all state licensing boards. From 1914 on, the Chicago Hospital College of Medicine has been reported as not recognized by the licensing boards of over 30 states—the number varying from 32 to 37 states—and finally in June, 1917, recognition was withdrawn from it by the Illinois State Board of Health. Since that time the Department of Registration and Education has made repeated inspections of the school, one of which was in company with representatives of the Surgeon-General of the Army, at whose request the investigation was made. Following this investigation, the college was not included by the Surgeon-General among "well recognized medical colleges," and the Illinois Department of Registration and Education refused to restore recognition. The rank and file of the medical profession of Illinois, and all citizens who believe in the enforcement of reasonable educational standards in the training of physicians, will rejoice in the better control of medical education and licensure that has been established in

the state. Illinois shows promise of again assuming the leadership that it held in the days of John Rauch, in safeguarding the public against diploma mills and quack doctors.

LET THE READER KNOW

In the latest number of that excellent publication the *American Journal of Syphilis* there appears an article under the title "On the Use of American-Made Salvarsan." The sum and substance of the article is to the effect that the arsphenamin product sold "under the trademark name of salvarsan by the H. A. Metz Laboratories" is in all respects the equal of the German-made product. It is, in effect, a puff for Metz's arsphenamin. The article is by H. Sheridan Baketel, M.D. The reader is informed, under the caption, that Dr. Baketel is "Professor of Preventive Medicine and Hygiene and Lecturer on Genito-Urinary Diseases and Syphilis in the Long Island College Hospital; Genito-Urinary Surgeon to the House of Relief of the New York Hospital; Major, Medical Reserve Corps, United States Army." One thing, however, the reader is not told, and yet it is of prime importance if he is to appraise this article correctly, viz., that Dr. Baketel is, or was until quite recently if he is not still, in the employ of the H. A. Metz Laboratories (the present name of the Farbwerke-Hoechst Co.), and has for some time been the manager of the pharmaceutical department of that concern. Whether or not Dr. Baketel's conclusions are correct is beside the question. The point is that when an article appears in a scientific publication extolling the virtues of a proprietary product it is only common fairness to the readers of that publication that they should know that the article originates from those who have or have had economic as well as scientific interest in the preparation discussed. One other point, while irrelevant, is worthy of notice: Dr. Baketel says: "Salvarsan, on account of the complexity of its manufacture, has been exceedingly difficult to reproduce, but that this has been successfully accomplished is manifested by the production of this arsenical preparation under the trademark name of Salvarsan by the H. A. Metz Laboratories." This statement, especially when taken in connection with the claims made for the Metz product, might easily lead to the inference that the Metz concern is the only one that has successfully reproduced the drug. As a matter of fact, arsphenamin was made in this country by the Philadelphia Research Laboratories at a time when the Metz concern could not make it and when, indeed, that company had to buy it from them. It is hardly conceivable that Major Baketel does not know this.

Nutrition.—To the trained eye, the general appearance of the child may reveal much that is hidden to the mother. The posture, the tissue turgor, firm resistant subcutaneous tissues speak for health; flabby, nonresistant ones for malnutrition. The expressionless, tired looking children, with circles about the eyes, need to have their diets revised, or else have grave disturbances of health. Cyanosis of the cheeks, ears and finger tips may speak of cardiac or pulmonary disease. The bony changes in the skull of rachitic children are recognized at a glance. Disproportion between various skeletal members may reveal achondroplasia or other structural deformity.

4. Lewis, H. B.: The Value of Inulin as a Foodstuff, *THE JOURNAL A. M. A.*, April 20, 1912, p. 1176.

Medical Mobilization and the War

Flight Surgeons Appointed

The United States government is now appointing a corps of surgeons and physical directors large enough to keep each training field and camp for flyers, both here and in France, with a proper organization. This medical branch of the air service does not alone select the flyer, but cares for him after he has been admitted to the service. Subject to the approval of the commanding officer, the flight surgeon recommends for the flyers such measures as periods of rest, recreation and temporary relief from duty as may seem advisable, attends sick calls of aviators, visits hospital cases and consults with the attending surgeon regarding them. The physical directors act as assistants to the flight surgeons and supervise such recreation and physical training of the flying men as is considered necessary.

Venereal Disease Control

The federal government will expend a million dollars, through the state boards of health, on venereal disease control during the fiscal year ending June 30, 1919. An officer of the U. S. P. H. S. will have charge of the work in each state in cooperation with the state health officer. The activities will be as follows: securing of reports of venereal infections; control of those infected, so as to prevent further spread of the diseases; establishment of free venereal clinics; suppression of vicious conditions that favor the spread of venereal infections, and carrying out of a systematic educational program for the general public as well as for those who are infected. The same act of Congress that made available this sum for expenditure gave authority for the establishment of a new division in the Public Health Service, to be called the division of venereal diseases, and also granted authority to the Public Health Service for the regulation of the interstate travel of venereally infected persons.

Committee Recommends Medical Examinations for Workers

A conference under the auspices of the national subcommittee on welfare work of the committee on labor of the Advisory Commission of the Council of National Defense has reported through Samuel Gompers to Secretary William B. Wilson of the Department of Labor that at its last meeting the committee recommended that medical examinations of workers be one of the functions of the government labor recruiting agency, recommending also the establishment of a central examining board to issue cards indicating the health of workers, and classifying them according to physical fitness. This proposed central examination board is to be composed of representatives of the workers, employers and the government, and the committee suggests that such men be placed on these boards as have the confidence of the workers in the locality in which they are appointed—especially should this be done in important cities like New York, Philadelphia, Chicago and Boston. It was also recommended that another board be appointed to hear appeals that might be made from the decisions of the local board, and that one member of each local board be a physician. This health examination by the government would not prevent the employer from making supplementary examinations and pursuing curative methods after placing men where they may be safely used; but it is the opinion that the official examinations made by the government would decrease about 50 per cent. of the grievances resulting when these examinations are conducted by employers. It is also believed by the conference that these examinations will aid in the detection of communicable diseases and will be of great benefit in placing subnormal employees in occupations fitted to their peculiar conditions.

Women Needed as Reconstruction Aides in Occupational Therapy

Trained women as teachers in occupational therapy are needed immediately for service in military hospitals, about 1,000 being desired for overseas service within the next few months. These reconstruction aides will teach hand crafts and other subjects to disabled soldiers in the military hospitals. The qualifications for this service are: age, between

25 and 40; citizens of the United States, or subjects of the allied countries; physical fitness; height not less than 60 inches nor more than 70; weight, not less than 100 nor more than 196 pounds; a thorough general education, at least the equivalent of graduation from a secondary school—college graduates preferred; an expert in some line. These aides will be divided into three classes: aides, head aides and supervisors, one head aide being responsible for the work of every ten aides, and a supervisor being appointed where there is need for more extended supervision. The salary of the aides will be \$50 per month for service in the United States, and \$60 for service abroad, the head aides receiving \$15 additional. Transportation and \$4 for other traveling expenses are also provided. For service at home a hospital uniform is required; for foreign service both hospital and street uniforms are needed. Women qualified for the service are requested to send applications at once to the Office of the Surgeon-General, Attention Division of Physical Reconstruction, Washington, D. C.

Conference of Local Board Examiners of New Mexico and Medical Officers of Camp Cody

In the operation of the Selective Service Law there have arisen, from time to time, various differences of opinion. This may be particularly true in respect to decisions involving medical questions. In order to forestall any contingency of this sort arising in New Mexico, Governor Lindsey, with his medical aide and the executive officer of the Selective Service Law, evolved the unique scheme of having a series of conferences between the examiners for the Local Boards and the medical officers of Camp Cody. Proposing this scheme to the division surgeon, Lieut.-Col. Coffin, he perceived the possibilities and ordered the arrangements made.

A feature of the camp is the "Developmental Battalion," numbering approximately 1,200 men. In this battalion are put the selected men who are borderline cases, mentally and physically. An attempt is here made to make these men fit for military service through the agency of mental and physical education.

It is stated that this is probably the first meeting of this nature which has taken place in the United States. The correlation of ideas as to when a man is or is not fit for military duty is of aid in preventing the return of men to their local boards as unfit.

The program which covered four days included: July 24, 1918—presentation of members to the division surgeon; sick rate charts shown, compared and discussed; inspection of casual camp infirmary, contact camp and base hospital; smoker. July 25, 1918—presentation of members to the commanding general; demonstration of field hospital and ambulances; inspection of development battalion, with presentation of cases; "Physical Disability in Relation to Mental Attitude Toward Military Service," Major E. S. Bullock; "Nervous and Mental Diseases, with Presentation of Cases of Hyperthyroidism," Major Horace Philips; "Psychologic Conditions," Lieutenant Moore; bayonet drill; conference. July 26, 1918—"Physical Diagnosis in Chest Conditions," Captain Thorburn; "Cardiovascular Conditions," Major Carter; "Review of 109th Sanitary Train," Lieutenant-Colonel Pederson, commanding; smoker, given by the 109th Sanitary Train. July 27, 1918—"Eye, Ear, Nose and Throat Conditions," Lieutenant Reeder; "Bones, Joints, Varicose Veins and Hernia," Lieutenant Husser; "Venereal Diseases and Skin," Captain Bowman.

PLANS FOR PHYSICAL RECONSTRUCTION OF DISABLED SOLDIERS IN THE GENERAL MILITARY HOSPITALS

Institutions Where Rehabilitation Work Will Be Carried On—Treatment to Be Employed and Vocations Taught

The following statement is authorized by the War Department:

The Surgeon-General, with the approval of the General Staff, announces the completion of plans for the physical reconstruction of disabled soldiers in the general military hospitals. These plans are formulated with a view to close cooperation with the War Department committee on education and special service in the work of restoring men to full or limited military service, and with the Federal Board for Vocational Education, which is authorized by the law to

provide vocational training for disabled men after their discharge from the Army and Navy.

The records of 516 cases treated in four hospitals show 134 men able to return to full military duty, 210 fit for limited service, 172 who are eligible for discharge. In the last group 12 are classed as helpless or institutional cases, 121 are able to return to their former occupations, and 39 will need further training to fit them for earning a livelihood. These figures show the division of responsibility in the work of reconstruction.

MOST PRESSING NEED

The task of fitting men for further military service is at present the most pressing need because wherever an able-bodied man behind the lines can be replaced by one less fit physically, but vocationally capable, a soldier is gained for active duty. The reconstruction work in the hospitals, therefore, will emphasize technical training in all lines capable of adaptation to the physical limitations of disabled men and in which employment will act as a therapeutic agent. When play and work and study will help a man to get well, this kind of medicine will be prescribed to the patient. If the work he does leads to further service in the Army or to better prospects in civilian life so much the better.

HOSPITALS DESIGNATED

The Surgeon-General has designated the following general military hospitals for the work of physical reconstruction:

Walter Reed General Hospital, Washington, D. C.
General Hospital No. 2, Fort McHenry, Md.
General Hospital No. 3, Colonia, N. J.
General Hospital No. 6, Fort McPherson, Ga.
General Hospital No. 7, Roland Park, Baltimore (for the blind).
General Hospital No. 8, Otisville, N. Y.
General Hospital No. 4, Fort Porter, N. Y.
General Hospital No. 9, Lakewood, N. J.
General Hospital No. 11, Cape May, N. J.
General Hospital No. 16, New Haven, Conn.
General Hospital No. 17, Markleton, Pa.
Letterman General Hospital, San Francisco.
United States Army Hospital, Fort Des Moines, Iowa.
Plattsburg Barracks Hospital, Plattsburg Barracks, N. Y.
General Hospital, Fort Bayard, N. M.

POLICY TO BE FOLLOWED

The policy to be followed in these hospitals, as announced by the Surgeon-General, is that hereafter no member of the military service disabled in line of duty, even though not expected to return to duty, will be discharged from service until he shall have attained complete recovery or as complete recovery as may be expected when the nature of his disability is considered. In furtherance of this policy, physical reconstruction is defined as complete mental and surgical treatment carried to the point of maximum functional restoration, both mental and physical. To secure this result all methods recognized by modern medicine as conducive to cure will be utilized. In other words, not only the ordinary means of medicine and surgery, including all specialties, will be utilized, but also physical measures such as are employed under physiotherapy, including hydro, electro, and mechanotherapy, active exercises, indoor and outdoor games and passive exercise in the form of massage. Provision in the form of adequate buildings and equipment for physiotherapy have been adopted in each of the hospitals.

FUNCTIONAL RESTORATION FINAL AIM

Modern medical treatment does not end with physical cure. Functional restoration is the final aim of the modern physicians and surgeons. It is conceded that the physical rehabilitation of disabled men is peculiarly dependent on their mental attitude. The more serious the disability, the greater the danger of mental depression, and an indisposition to respond to medical and surgical treatment. The educational work should begin, therefore, at the moment when the man has arrived at the stage where he begins to worry about his future, whether in this country or overseas. The first problem is to divert his attention by simple recreation, through reading, pictures, games, handiwork occupations, and the like, with a view to securing a genuine interest in the attainment of some worthy end—the end most certain to hold his attention and to claim his best efforts in his future vocation. Hence, by gradual steps he may be induced to supplement his previous vocational experience by academic, scientific, or technical instruction, or to choose a new vocation and begin preparation for it if such a course is necessary.

NEED OF "CHEER-UP" WORK

The need of "cheer-up" work in the hospitals extends to all who are mentally capable of planning for their own future. This means a relatively large proportion of the entire number. The beginning is made at the bedside with handicrafts of various kinds grouped under the term "occupational therapy." When the man is able to leave the ward and can be benefited physically by technical training, he has the opportunity of working at specific trades either in the curative work shop, in specially provided classrooms, or out of doors.

The teachers for this work have been secured from the convalescent disabled soldiers who are already skilled in their vocations and from the enlisted personnel of the Army secured by transfer or by induction of registrants disqualified for general military service, but qualified for special limited service. These instructors work under the direction of educational officers chosen for their professional standing in civil life and commissioned in the Sanitary Corps of the Medical Department. The General Staff has just authorized commissions for 119 educational officers for this purpose.

THREE CLASSES OF DISABLED SOLDIERS

From the military standpoint disabled soldiers may be placed in three general classes:

- (a) Those who can be restored to full duty.
- (b) Those who can be fitted for limited service.
- (c) Those disabled to the extent of unfitting them for further military service.

It is the announced policy of the Surgeon-General that patients of the first class (a) should have, when circumstances warrant it, the benefit of therapeutic treatment through play, work and study, as may be prescribed by medical officers, in order that their morale may be stiffened, their special skills improved, their future usefulness increased, and their recovery hastened.

Patients of the second class (b) should have, whenever conditions permit and the medical officers approve, such specific training—physical and vocational—as will in the judgment of the educational officers best fit such patients for limited service of a particular kind. At present patients are being trained in general hospitals for limited service as general and vocational teachers, typists, printers, tailors, cobblers, harness makers, welders, motor mechanics, painters, machine workers, woodworkers, bookkeepers, statisticians, telegraphers, photographers, telephone operators, cooks, storekeepers, electricians, etc.

LIST TO BE EXTENDED

The list will be extended with the advice and cooperation of the committee on education and special service of the War Department to meet other needs as they arise. In connection with the large general hospitals there is abundant opportunity for practice in many trades and occupations. At Fort McPherson, for example, practical experience can be gained in twenty different trades. Moreover, there is immediately adjacent to the hospital a large quartermaster's mechanical repair shop, covering all phases of mechanical repair and construction to which men can be assigned for limited service or to gain experience.

Patients of the third class (c) should be encouraged in every possible way to accept the benefit accorded them for vocational training by the Federal Board for Vocational Education. To this end they should have while in the hospital such physical training and general education as will best promote their physical reconstruction and at the same time contribute most to their vocational training. Patients who do not elect or who are not eligible to continue their education under the federal board should receive such training as the medical and educational officers deem best in each individual case.

CORRECTIONS

In the "Honor Roll" published June 1, the following officers of the Medical Reserve Corps on duty in the Philippines, and giving Manila, P. I., as their home addresses, were not included: Capt. A. C. GARTON, B. L. BURDETTE, J. A. JOHNSTON, C. R. JOHNSON and P. M. LOWELL.

The order of Capt. GEORGE L. PEIRCE which appeared in THE JOURNAL announced that he had been ordered to duty from Maryland. This should have been Bower, W. Va.

In THE JOURNAL of August 17, under the heading "Orders to Officers of the Medical Reserve Corps," appears the name of Lieut. B. B. SMITH of Philadelphia ordered from Fort Oglethorpe to Newport News for duty. The home address of Lieutenant Smith is Erie, Pa., instead of Philadelphia.

In THE JOURNAL of August 10, under the heading "Commissions Accepted, Medical Reserve Corps, U. S. Army," appears the name S. W. COFFMAN of Broadview, Ill. We are informed that Dr. Coffman's home is at Maywood, Ill.

COMMISSIONS ACCEPTED, MEDICAL RESERVE CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22, and 29, July 13, 20 and 27, August 3, 10 and 17.

ALABAMA

Anniston—Brothers, T. J.
Birmingham—Dedman, J. E.
Kent, J. T.
Wadley—Denney, T. H.

ARKANSAS

DeQueen—Hopkinson, R. L.
Hamburg—Simpson, J. C.
Leslie—Hollabaugh, C. B.
Little Rock—Staples, D.
Round Pond—Powell, C. V.
Stuttgart—Swindler, E. B.

CALIFORNIA

Fresno—O'Hannesian, F.
Los Angeles—Frary, B. S.
Granger, A. S.
Holgate, C. E.
Lettice, F. E.
McCombs, V. J.
McKenna, W. J.
Mitchell, H. B.
Monrovia—Pottenger, J. E.
Parlier—McKenney, J. A.
Pomona—Smith, R. T.
Ripon—Gould, N. B.
San Francisco—Boskewitz, G. H.
Graham, L.
Tulare—Fuller, R. N.
Vallejo—Dempsey, R. D.

COLORADO

Boulder—Spencer, F. R.
Pueblo—Hoag, D. E.
Silverton—Condit, E. G.

CONNECTICUT

Bethel—Moore, H. F.
Bridgeport—Watts, J. F.
Hartford—Deming, C. D.
Lyme—Devitt, E. K.
New Haven—Falsey, E. T.
Waterford—Gosselin, G. A.

DELAWARE

Millsboro—Dodd, H. H.
Selbyville—James, G. E.

DISTRICT OF COLUMBIA

Washington—Carr, W. B.
Guerra, A. L.
Warden, H. F. W.

FLORIDA

Jacksonville—Dobbs, C. H.
Heggie, N. M.
Miami—Brunner, E. C.
Tampa—Marney, C. R.
West Palm Beach—Cooley, R. O.

GEORGIA

Alamo—Yawn, B. W.
Americus—Grubbs, L. F.
Atlanta—Giuffrida, F. J.
Berlin—Edmondson, H. T.
Brunswick—Wilson, T. B.
Butler—Montgomery, R. C.
College Park—Henley, J. T.
Colquitt—Baughn, E. B.
Columbus—Blanchard, M.
Macon—Respass, H.
Ray City—Anderson, G. M.
Savannah—Barrow, C.
Bishop, E. L.
Bray, S. E.
Dancy, W. R.
Iseman, E.
Johnson, G. H.
Lee, L.

Sylvester—Tipton, W. C.
Thomasville—Ferguson, C. H.
Waycross—Folks, W. M.

IDAHO

Coeur D'Alene—Dwyer, J. C.

ILLINOIS

Blue Island—McCowan, D. C.
Breese—Warren, H. B.
Burlington—Roach, D. C.
Chicago—Casserly, E. A.
Challenger, C. J.
Gammage, A. E.
Graf, J. P.
Hagerty, T. W.
Herrman, C. B.
Jackson, H.
Manning, L.
Mosher, G. W.
Naughton, M. T.
Olkon, D. M.
Plice, W. A.
Roche, N. J.
Sharp, C. E.

Chicago—Trudel, J. L.
Wolf, S.
Wolman, N.
Wood, F. M.
Crete—Blim, S. P.
East Moline—Love, H. J.
Ochs, L. M.
Griggsville—Lovelass, H. C.
Jacksonville—Norris, F. A.
Lanark—Wales, A. H.
Lonest—Schonneschoffer, W.
Minier—McLaughlin, S. M.
Moline—Beck, H. E.
Ohio—O'Malley, J. M.
Oregon—Cottlow, B. A.
Peoria—Hinckle, W. A.
Miller, S. M.
Simpson, O. W.
Rockford—Ackemann, H. W.
Rushville—Munson, H. O.
Springfield—Morrison, H. T.
Tiskilwa—Hess, H. R.
Horner, C. F.

INDIANA

Bloomfield—Cook, T. R.
Bloomington—Whetsell, L. E.
Bluffton—Metts, F. A.
Cannelton—Schriefer, E. E.
Colfax—Botts, H. H.
Denver—Waymire, E. S.
Evansville—Frick, H. C.
Hobart—MacKey, D.
Kokomo—Bennett, E. N.
Linnsburg—Riley, F. H.
Morristown—Patten, V. C.
New Middletown—Smoots, S. A.
South Bend—Gordon, J. M.
St. Bernice—Green, S. I.

IOWA

Amana—Hermann, C. H.
Boneparte—Whitely, J. H.
Conrad—Gould, G.
Gilmore City—Herrick, R. C.
Glenwood—Lacey, T. B.
Grinnell—Buck, S. C.
Hartley—Hand, W. C.
Lake City—McVay, M. J.
Marengo—Manahan, C. A.
Sioux City—Magoun, C. E.
Waterloo—Hoffman, A. A.
Winfield—McConaughy, J. T.
Yale—Thornburg, W. V.

KANSAS

Baxter Springs—Scates, H. R.
Emporia—Williams, J. O.
Independence—Demott, C. W.
Kansas City—Bantleon, V. H.
Meriden—Preston, R. O.
Topeka—Vansant, L.
Wellington—Downing, R. H.

KENTUCKY

Adairville—Morgan, E. C.
Covington—Adams, F. T.
Louisville—Fugate, I. T.
Jenkins, W. A.
Stephens, O. T.
Littrell—Webb, J. R.
Sandy Hook—Hunter, C. R. H.
Simmons—Lake, W.

LOUISIANA

Baton Rouge—Hyde, A. S. J.
Carson—Callihan, P. W.
Villa Rica—Malone, W. H.

MAINE

Freeport—Lewis, W. J.
Limestone—Damon, A. H.
Livermore Falls—Heald, H. M.
Madison—Vose, S. N.
Sangerville—Freeman, F. H.
Swans Island—Fuller, A. J.
Wayne—Chenery, F. L., Jr.

MARYLAND

Baltimore—Darby, W. A.
Dehoff, G. W.
Lentz, C. S.
Emmitsburg—Flanagan, J. L.
Midland—Holdsworth, J. C.
Pocomoke City—Parker, A. A.

MASSACHUSETTS

Boston—Codman, T. A.
Grant, W. H.
Hyde, H. V.
Wheeldon, T. F.
Brookline—Barnes, H. A.
Saeger, E. T.
Brookton—Lupien, H. J.
Cohasset—Hinchliffe, F.

East Weymouth—Libby, J. H.
Fall River—Dedrick, A. C.
Holyoke—Cox, S. C.
Lynch, H. E.
Malden—Gay, F. W.
North Abington—Wheatley, F. G.
West Stockbridge—Hull, E. F.
Winthrop—Grainger, E. J.
Worcester—Ljungberg, D. G.

MICHIGAN

Ann Arbor—Langford, T. S.
Detroit—Brooks, C. D.
King, J. E.
Pratt, J. P.
Dowagiac—Herkimer, G. R.
Grosse Pointe—Griswold, D. M.

MINNESOTA

Beardsley—Weir, J. D.
Le Roy—Warren, C. L.
Minneapolis—Cavanor, F. T.
Mt. Iron—Parsons, F. L.
St. Paul—Kunze, F. E.
Windom—Ravn, B.

MISSISSIPPI

Alligator—Nichols, J. L.
Jackson—Rembert, G. W. F.
Meridian—Denson, E. G.
Murphy—Ferrell, L. T.
Sunflower—Higdon, B. H.

MISSOURI

Clarksdale—Elliott, J. R.
Columbia—Meanwell, W. E.
Craig—Ottman, J. C.
Ebenezer—Potter, A. E.
Greenridge—Hite, H. A.
Kansas City—Lux, P.
Major, R. H.
Miller, L. B.
Malden—VanCleve, J. D.
Rockport—Chamberlin, O. M. C.
St. Joseph—Forgrave, L. P.
Spencer, F. H.
St. Louis—Ambrose, O. A.
Creveling, H. C.
Frochlich, E. J.
Gundlach, A.
Harris, I. J.
Harris, R. C.
Herchenroeder, L. C.
Jansen, R. W.
Mellies, G. A.
Mulach, A. A.
Rogers, C. H.
Sullivan, F. J.
Young, A. O.
Waverly—Johnston, E. L.
Windsor—Jennings, R. J.

MONTANA

Butte—Biddle, G.
Roundup—Lewis, G. A.

NEBRASKA

Kearney—Robinson, L. S. B.
Talmage—Thompson, H. H.
Wausa—Newmann, E. V.

NEVADA

Aurora—Riley, W. H.

NEW HAMPSHIRE

Amherst—Pettengill, F. G.

NEW JERSEY

Lakewood—Thompson, O. C.
Mindham—McMurtire, W. A.
Newark—Hurff, J. W.
Orange—Gore, M. E.
Trenton—Costill, H. B.

NEW MEXICO

Albuquerque—Jameson, C. H.
Santa Fe—Hedding, B. E.

NEW YORK

Broad Channel—Both, J. L.
Brooklyn—Perrotta, N.
Phillips, W. G., Jr.
Hoosick Falls—Wilson, G. T.
Hudson—Mambert, J. W.
New York—Bloom, D. M.
Dinnerstein, M.
Franklin, J. W.
Kingery, L. B.
Kirby, G. H.
Levy, E. C.
Maddox, A. S.
Markofsky, D. M.
Miller, S. W.
O'Malley, T. S.
Ryder, M.
Sautter, C. M.
Stauffer, F. L.
Weller, W.
Poughkeepsie—Newman, T. W.
Rochester—Gibson, W. J.
Staten Island—Skidmore, E. L.
Warsaw—Thomson, W. R.
Warwick—Vosburgh, T. J.

NORTH CAROLINA

Allen—Smith, W. P.
Carthage—Kelly, A. P.
Durham—King, M. N.
Ryland—Spencer, J. R.
Winston Salem—Davis, T. W.

NORTH DAKOTA

Bismarck—Dunlap, L. G.
Crystal—Scott, R. A.
Grand Forks—Dean, A.

OHIO

Cincinnati—Fogel, E. I.
Cleveland—Dinsmore, R. S.
Drach, A. E.
Follansbee, R. G.
Manley, R. M.
Sobal, S. A.
Columbus—Beam, E. C.
Dayton—Werner, E. R.
Hudson—Miller, G. A.
Lakewood—Saddler, J. L.
Marble Cliff—Miller, S. H.
Massillon—Zintsmaster, L. B.
Nelsonville—Dew, C. G.
North Baltimore—Cavett, C. S.
Oberlin—Colegrove, P. C.
Paulding—Fauster, J. U.
Scott Town—Mayberry, I. W.
Springfield—Jones, C. L.
St. Paris—Hamsher, J. F.
Sylvania—Halbert, V. B.
Tiffin—Gosling, J. A.
Toledo—Lehman, F. J. J.
Louy, C.
Wright, J. F.
Woodville—Trumbull, H. N.
Xenia—Finley, R. K.

OKLAHOMA

Coalgate—Sadler, F. E.
Enid—Swank, J. R.
Frederick—Mitchell, L. A.
Henryetta—Boswell, H. D.
Minco—Little, J. S.
Oklahoma City—Maxwell, J. H.
Wells, W. W.
Tulsa—Trainer, W. J.
Vion—Morris, C. H.

OREGON

Albany—Riggs, G. E.
Portland—Ellis, R. H.
Parker, H. C.

PENNSYLVANIA

Avondale—Magraw, G. T.
Bellfonte—Huff, S. M.
Burgettstown—McKee, G. L.
Cassville—Koshland, J. G.
Clearfield—Rowles, L. C.
Darlington—Watterson, R. W.
Doylestown—Fox, C. D.
East Brady—Kelsea, W. H.
Minersville—Monaghan, J. M.
Philadelphia—Beck, A. F.
Loewenburg, S. A.
Stalberg, I. Z.
Pittsburgh—Baker, T.
Mackrell, J. S.
Steinsville—Fetherolf, W. J.
Swissvale—Caldwell, C. S.
Trumbauersville—Grim, H. C.
Woodlawn—Bryson, W. S.

RHODE ISLAND

Providence—Baker, N. C.

SOUTH CAROLINA

Abbeville—Hill, J. C.
Saluda—Boozer, H. T.

SOUTH DAKOTA

Lead—Clough, F. E.
Jackson, A. S.
Markel, I. J.
Northville—Bates, W. A.
Sioux Falls—Culver, C. F.
Donahoe, S. A.

TENNESSEE

Arlington—Harvell, W. T.
Knoxville—Skaggs, H. R.
Lynnville—Denham, R. H.
Memphis—Andrews, J. L.
Baird, W. O.
Walker, O. P.
Nashville—DeWitt, P.
Parrish, H. B.
Simpson, J. W.
Spain, W. C.

TEXAS

Benton—Hodde, F. H.
Childress—Jernigan, J. H.
College Station—Ehlinger, O.
Ft. Bliss—Bowman, M. H.
Galveston—Gammon, W.
Gatesville—Graves, E.
Houston—Alexander, J. C.
Grimes, G. D.
Marlin—Sewall, F. B.

McGregor—Blailock, H. F.
Mineral Wells—McConnell, L. H.
Munday—Hammond, J. E.
Petroliia—Russell, I. D.
Quannah—Frizzell, T. D.
San Antonio—Pagenstecher, G. A.
Sherman—McElhannon, A. M.
Temple—Lehman, C. F., Jr.
Parker, W. L.
Throckmorton—King, J. E.

UTAH

Bingham Canyon—Bruckheimer, R. M.
Hageman, P. S.
Smith, U. H.
Salt Lake City—Kirtley, H. P.

VERMONT

Hardwick—Crane, E. M.
Warren—Warren, A. B.

VIRGINIA

Richmond—Blanton, H. W.

WASHINGTON

Lamont—Preucel, J. E.
Seattle—Lazelle, H. G.
Spokane—Burger, T. D.
Rosenthal, S. E.
Wellpinit—Wise, A. H.
Yakima—Loudon, J. P.

WEST VIRGINIA

New Martinsville—Schmied, J. D.

WISCONSIN

Bayley—Morrissey, F. B.
Hayward—Pake, S. G.
Kaukauna—Flanagan, G. J.
La Crosse—Flynn, R. E.
Marshfield—Potter, R. P.
Vedder, J. B.
Milwaukee—Burbach, T. H.
Viola—Parke, G.

WYOMING

Rasin—Harris, C. E.
Riverton—Tonkin, A. B.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Capt. F. H. McCONNICO, Montgomery.
To Camp Travis, Fort Sam Houston, Texas, as sanitary inspector, from Fort Oglethorpe, Capt. I. W. PATTON, Madison. Base hospital, Lieut. D. H. SPARKS, Birmingham.
To Fort Oglethorpe for instruction, Lieut. JOSEPH R. CHISOLM, Marion Junction.
To New York City, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Wadsworth, Capt. W. L. THORNTON, Birmingham.
Resignation of Lieut. R. K. BUFORD, Huntsville, accepted.

Alaska

To Camp Lewis, American Lake, Wash., base hospital, Lieut. W. J. PIGG, Petersburg.

Arizona

To Camp Fremont, Palo Alto, Calif., base hospital, from Fort Rosecrans, Lieut. W. O. SWEET, Phoenix.
To Camp Logan, Houston, Texas, as sanitary inspector, from Southern Department, Major H. T. SOUTHWORTH, Prescott.
To Camp Travis, Fort Sam Houston, Texas, base hospital, Capt. V. A. SMELKER, Nogales.
To Mineola, L. I., N. Y., Hazelhurst Field, for instruction, from Lake Charles, Capt. E. W. ADAMSON, Douglas.

Arkansas

To Austin, Texas, State University, for duty, from Camp Kelly, Lieut. B. GWALTNEY, Haskell.
To Camp Beauregard, Alexandria, La., base hospital, Capt. F. R. DORENTO, Fort Smith.
To Camp MacArthur, Waco, Texas, base hospital, Capt. O. J. T. JOHNSTON, Batesville.
To Fort Ontario, N. Y., base hospital, from Fort McPherson, Lieut. F. S. WATSON, Amity.
To Fort Riley for instruction, Lieut. J. F. HALBROOK, Conway; T. J. POOL, Danville; C. E. KITCHENS, De Queen; W. M. MAJORS, Walcott.
To Hampton, Va., Langley Field, for duty, Lieut. W. H. DECLARK, McGehee.
To New Haven, Conn., Yale Army Laboratory School, for duty, from Camp Greene, Lieut. L. H. CORNWALL; from Camp Pike, Lieut. C. M. HYLAND.
To Washington, D. C., for instruction, from Fort Oglethorpe, Lieut. E. B. BUCHANNAN, Texarkana.

California

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp Sevier, Lieut. J. DE ANGILO, Stanford University.
To Camp Bowie, Fort Worth, Texas, base hospital, Capt. J. L. LOHSE, Oakland. For duty, from Camp Kearney, Lieut. E. W. SEAFORTH, San Francisco; from Fort Oglethorpe, Lieut. C. WILSON, Los Angeles.
To Camp Cody, Deming, N. M., base hospital, from San Francisco, Capt. T. O. BURGER, San Diego for duty, Lieut. S. N. ATKINS, Venice.
To Camp Grant, Rockford, Ill., as assistant to camp surgeon, from Camp Fremont, Major S. R. MORRIS.
To Camp Fremont, Palo Alto, Calif., base hospital, Capt. H. W. MURRAY, Pasadena; F. C. GALEHOUSE, Taft; Lieut. H. G. WATERS, Watsonville; N. H. SALTER, Williams. For temporary duty, from Camp Lewis, Lieut. O. M. HARRAH, La Manda Park.
To Camp Kearney, Linda Vista, Calif., for duty, from Fort Riley, Lieut. C. D. FANTON, Riverside.
To Camp Lewis, American Lake, Wash., base hospital, from Camp Kearney, Capt. H. K. BERKLEY, Santa Monica; from San Francisco, Capt. T. J. ORBISON, Los Angeles.
To Fort Oglethorpe for instruction, Capt. J. C. COPELAND, Los Angeles, Lieut. M. D. BAKER, San Jose.
To Fort Ontario, N. Y., base hospital, from Camp Cody, Capt. L. L. RIGGIN, Pasadena.
To Fort Riley for instruction, Capt. A. G. HAYGOOD, Downey; E. A. JONES, Los Angeles; J. E. CLARK, Oakland; R. T. SMITH, Pomona; Lieut. E. V. FALK, Modesto.
To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. C. C. ROSS, San Francisco.
To Fort Sill, Okla., base hospital, from Camp Pike, Major H. C. LOOS, San Diego.

To Hoboken, N. J., base hospital, from Camp MacArthur, Capt. E. DOZIER, Redding.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. M. B. WOLFF, San Francisco.
To Canal Zone, for duty, from Fort McDowell, Major R. L. I. SMITH, Pasadena.
To report by wire to the commanding general, Western Department, for assignment to duty, Capt. R. R. ROOT, Corona. H. M. DALE, B. S. FRARY, Lieut. A. E. SMITH, Los Angeles.
To San Francisco, Letterman General Hospital, for temporary duty, Capt. A. F. HIGGINS, Sacramento.
To the inactive list, from Western Department, Lieut. F. C. E. MATTISON, Pasadena.
The following order has been revoked: To Camp Bowie, Fort Worth, Texas, from Camp Kearney, Capt. R. HAGAN, Los Angeles.

Canal Zone

To Camp Beauregard, Alexandria, La., base hospital, from Camp Pike, Major W. M. JAMES, Ancon.
To Camp Dix, Wrightstown, N. J., for duty, from Newport News, Major S. J. TAYLOR, Cristobal.

Colorado

To Camp Cody, Deming, N. M., base hospital, Capt. H. B. KILLOUGH, Pueblo. For duty, Lieut. W. H. ACKER, Delta.
To Camp Lee, Petersburg, Va., as camp surgeon, from Fort Slocum, Col. C. Y. BROWNLEE.
To Camp Lewis, American Lake, Wash., base hospital, Capt. W. F. BROWNELL, Fort Collins; Lieut. I. J. CLARK, Denver.
To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. J. A. PHILPOTT, Denver.
To Fort Riley for instruction, Lieut. E. G. CONDIT, Silverton.
To New Haven, Conn., for duty, Capt. S. SIMON, Denver.

Connecticut

To Azalea, N. C., for duty, from New Haven, Capt. J. B. GRIGGS, Hartford.
To Camp Devens, Ayer, Mass., for duty, Lieut. G. A. GOSSELIN, Waterbury.
To Camp Hancock, Augusta, Ga., base hospital, Capt. C. O. PURINTON, West Hartford.
To Camp Lewis, American Lake, Wash., base hospital, from Fort Oglethorpe, Lieut. J. I. WOISARD, Bristol.
To Fort Oglethorpe for instruction, Lieut. L. H. FROST, Plainville, from duty as private, Lieut. A. B. GROSS, Hartford.
To Fort Ontario, N. Y., base hospital, from Camp Upton, Lieut. E. J. WHALEN, Hartford.
To Hoboken, N. J., base hospital, from Camp Upton, Lieut. L. HOLMES, Manchester. For duty, from Army Medical School, Capt. A. K. OSHANSKY, New Haven.
To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Meade, Lieut. J. F. SAGARINO, Hartford. Neurological Institute, for instruction, Lieut. C. D. DEMING, Hartford.
To Plattsburgh Barracks, N. Y., for duty, from Camp Dix, Capt. S. L. GOODRICH, Waterbury.
To Tobyhanna, Pa., for duty, Lieut. E. K. DEVITT, Lyme.
To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. J. F. WATTS, Bridgeport.

Delaware

To Camp Abraham Eustis, Lee Hall, Va., for duty, Lieut. G. E. JAMES, Selbyville.
To Fort Sill, Okla., base hospital, from Camp MacArthur, Lieut. J. H. MULLIN, Wilmington.
To Hoboken, N. J., for duty, from Cape May, Capt. E. H. LENDERMAN, Wilmington.

District of Columbia

To Camp Devens, Ayer, Mass., as assistant to camp surgeon, from Southern Department, Major A. B. JONES.
To Camp Jackson, Columbia, S. C., base hospital, and on completion to Camp Hancock, Augusta, Ga., base hospital, Major F. LEECH, Washington.
To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Capt. S. MOSKOWITZ, Washington.
To Camp Zachary Taylor, Louisville, Ky., base hospital, from Washington, Capt. S. C. JOHNSON, Washington.
To Fort Oglethorpe for instruction, from Walter Reed General Hospital, Lieut. W. J. C. THOMAS, Washington.
To Newport News, Va., for duty, from Camp Gordon, Capt. G. S. SAFFOLD, Washington.
To Washington, D. C., for conference and on completion to Fort McPherson, Ga., for duty, from Biltmore, Major J. F. MITCHELL, Washington.

Florida

To Camp Greene, Charlotte, N. C., for duty, Lieut. C. H. DOBBS, Jacksonville.
To Camp Shelby, Hattiesburg, Miss., base hospital, Capt. G. R. HOLDEN, Jacksonville.
To Camp Wadsworth, Spartanburg, S. C., base hospital, from Camp Beauregard, Capt. E. G. BIRGE, Jacksonville.
To Fort Oglethorpe for instruction, Lieut. M. C. KAYTON, Wauchula.
To Plattsburgh Barracks, N. Y., for duty, from Fort Oglethorpe, Capt. E. K. JAUDON, Miami.
To Waynesville, N. C., for duty, from New Haven, Capt. F. J. BOWEN, Jacksonville.
Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. L. W. GLATZAU, Delard.

Georgia

To Camp A. A. Humphreys, Accotink, Va., for temporary duty, Lieut. G. K. TOUCHTON, Douglas.
To Camp Crane, Allentown, Pa., for temporary duty, from Camp Dix, Lieut. C. M. MASHBURN, Atlanta; H. M. BARKER, Flintstone.
To Camp Greene, Charlotte, N. C., for duty, Capt. L. LEE, Savannah; A. J. MOONEY, Statesboro; Lieut. M. BLANCHARD, Columbus; C. MOORE, Lindale.
To Camp Hancock, Augusta, Ga., base hospital, Lieut. A. S. M. COLEMAN, Douglas.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Meade, Lieut. J. F. BURKHALTER, Morven.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, Capt. R. P. GRIFFITH, Columbus; D. E. MORGAN, La Grange; Lieuts. C. L. ELLIS, Kingston; O. DANIEL, Macon; J. L. LEE, Pinehurst; J. L. TYRE, Screven; W. R. THOMAS, Waycross.

To Camp MacArthur, Waco, Texas, for temporary duty, Lieut. S. E. BRAY, Savannah.

To Camp McClellan, Anniston, Ala., as camp surgeon, from Camp Wheeler, Lieut.-Col. L. C. DUNCAN.

To Camp Meade, Admiral, Md., for duty, Lieuts. P. CHEEK, Clemont; J. L. CHANDLER, Rome.

To Camp Sherman, Chillicothe, O., as camp surgeon, from Fort Oglethorpe, Major H. B. MCINTYRE.

To Camp Wadsworth, Spartanburg, S. C., for duty, Capt. N. J. COCKER, Canton; E. L. BAKER, Columbus; E. C. CRUMMEY, Jesup.

To Camp Wheeler, Macon, Ga., base hospital, Capt. W. B. SUMMERALL, Atlanta.

To Fort Oglethorpe for instruction, Capt. H. W. HARRIS, Ashburn; Lieuts. B. W. YAWN, Alamo; H. S. GEHRKEN, Augusta; R. E. BOWMAN, Brownwood; G. H. ELARBEE, Daisy; A. C. DORMINY, Hoboken.

To Fort Sam Houston, Texas, base hospital, Lieut. S. P. WISE, Plains.

To Fort Slocum, N. Y., for duty, from Fort Oglethorpe, Lieut.-Col. E. M. TALBOTT.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. T. H. CLARK, Douglas; O. Y. MALONE, Fayetteville.

To New York City, Neurological Institute, for instruction, Lieut. L. W. WILLIAMS, Savannah.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. C. REED, Hilton.

The following order has been revoked: *To Camp Wadsworth, Spartanburg, S. C., for duty, from Southeastern Department, Lieut. C. J. HIND, Atlanta.*

Idaho

To Camp Custer, Battle Creek, Mich., base hospital, Capt. J. A. DODD, Moscow.

To Camp Dodge, Des Moines, Iowa, for temporary duty, Lieut. W. P. SCROGGS, Eden.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Riley, Lieut. V. G. LOGAN, Rockland.

Illinois

To Azalea, N. C., for duty, from New Haven, Lieuts. O. COHEN, Joliet; J. M. MORAN, Oak Forest; from Walter Reed General Hospital, Major W. A. N. DORLAND, Chicago.

To Camp Beauregard, Alexandria, La., as assistant to division surgeon, from Camp Sheridan, Capt. J. E. WALTON, Medora.

To Camp Crane, Allentown, Pa., for temporary duty, from Des Moines, Lieut. J. O. BAILIFF, Chicago; from Fort Riley, Capt. V. M. JARED, Chicago.

To Camp Custer, Battle Creek, Mich., for duty, Lieuts. B. O. SWINEHART, Cooksville; E. D. SMITH, Springfield.

To Camp Dodge, Des Moines, Iowa, as assistant to division surgeon, from Fort Sill, Major J. G. MAXON, Harvard. As orthopedic surgeon, from Chicago, Lieut. W. C. BLIM, Crete. Base Hospital, Capt. J. A. GREEN, Rockford. For temporary duty, Lieut. L. V. MALONE, Chicago.

To Camp Gordon, Atlanta, Ga., base hospital, Capt. J. M. WASHBURN, Chicago.

To Camp Grant, Rockford, Ill., base hospital, Capt. F. J. EBERSPACHER, Pana; Lieut. P. S. SCHOLES, Canton.

To Camp Greene, Charlotte, N. C., for duty, Lieut. H. C. LOVE-LASS, Griggsville.

To Camp Hancock, Augusta, Ga., base hospital, Capt. L. J. HUGHES, Elgin; Lieut. J. F. DAVIS, Chicago; from Camp Jackson, Lieut. N. C. STAM, Chicago.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Camp Greene, Lieut. L. H. HARNER, Chicago.

To Camp Lewis, American Lake, Wash., base hospital, from Fort Oglethorpe, Lieut. W. F. BUCKNER, Watseka.

To Camp Logan, Houston, Texas, base hospital, Capt. F. G. DYAS, Chicago.

To Camp McClelland, Anniston, Ala., base hospital, Capt. A. H. RUBOWITZ, Chicago; Lieut. J. W. OVITZ, Genoa.

To Camp Meade, Admiral, Md., for duty, Capt. H. J. LOVE, East Moline; H. E. BECK, Moline; Lieuts. C. C. MOE, Berwyn; F. DENSON, Bloomington; R. J. ROCHE, Chicago; W. L. CROUGH, Fairview; O. P. HAMILTON, Forrest.

To Camp Pike, Little Rock, Ark., base hospital, Capt. C. W. COMPTON, Springfield.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. W. J. BUTLER, Chicago.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. B. J. LACHNER, Rock Island.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. B. R. BEERS, Chicago.

To Camp Travis, Fort Sam Houston, Texas, base hospital, from Corpus Christi, Lieut. T. G. ALLEN, Chicago.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Sheridan, Capt. J. W. VANDERSLICE, Oak Park. For duty, Capt. J. W. ELLIS, Chicago; from Camp Meade, Capt. E. M. RUNDQUIST, Rockford.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. J. H. EDGE-COMB, Ottawa; from Camp A. A. Humphreys, Capt. J. K. POLLOCK, Elgin.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. T. W. HAGERTY, Chicago.

To Charleston, S. C., for duty, Capt. S. A. SPRINGWATER, Chicago; Lieut. W. R. BLACKBURN, Virginia.

To Chicago for duty, Capt. F. A. JEFFERSON, Chicago.

To Corpus Christi, Texas, for duty, from Camp Jackson, Major B. M. LINNELL, Chicago.

To Fort McHenry, Md., for temporary duty, from Camp Jackson, Lieut. M. DOKTORSKY, Chicago.

To Fort McPherson, Ga., for duty, from Camp Wadsworth, Lieut. H. W. CARLIN, Chicago.

To Fort Monroe, Va., for temporary duty, Capt. P. L. TAYLOR, Springfield.

To Fort Moultrie, S. C., for duty, Capt. M. T. HAUGHTON, Chicago.

To Fort Oglethorpe for instruction, Capt. J. E. STANTON, Chicago; F. J. MAHA, Dundee; C. J. PRICE, Mount Morris; H. E. PINTLER, Peoria; Lieuts. H. R. STRUTHERS, Ashkum; SOL. S. GOLDEN, H. HOFMANN, L. J. JACOBSON, G. E. PFEIFFER, O. W. REST, Chicago; J. N. BUCHANAN, Freeport; N. B. WILLCOCKSON, Illinois; F. V. CHMELIK, Joliet; S. M. McLAUGHLIN, Minier; from Camp Dodge, Major C. D. WILKINS, Chicago.

To Fort Ontario, N. Y., base hospital, from Camp Upton, Lieut. F. W. FIEDLER, Butchtown; from Fort McPherson, Capt. A. D. WEST, Moline.

To Fort Riley for instruction, Lieuts. H. D. EATON, Harvard; R. C. VERNOR, Nashville; J. R. BIERLY, G. J. MAUTZ, Springfield; C. D. HASKELL, Williamsville.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. F. D. WALK, Chicago.

To Fort Screven, Ga., for duty, Capt. W. SCHOENNESHOEFER, Lstant.

To Fort Sill, Okla., base hospital, from Camp Bowie, Lieut. T. B. KELLY, Du Quoin. For temporary duty, from Camp Dodge, Major E. C. G. FRANING, Galesburg.

To Governors Island, N. Y., for duty, Lieut. B. A. COTTLOW, Oregon.

To Mineola, L. I., N. Y., for instruction, Capt. G. W. MOSHER, Chicago.

To New Haven, Conn., for duty, Capt. H. C. MILLER, Chicago; Lieut. E. LEVY, Winfield. To Yale Army Laboratory School, for instruction, Lieut. E. A. CASSERLY, Chicago.

To New York, Bellevue Hospital, for instruction, and on completion to Camp Devens, Ayer, Mass., base hospital, Lieut. P. H. FURNO, Chicago. On completion to Camp Dix, Wrightstown, N. J., base hospital, Lieut. J. T. MEYER, Chicago. On completion to Camp Meade, Admiral, Md., base hospital, Capt. C. E. POWELL, Polo. To Neurological Institute for instruction, Lieut. F. M. SYLVESTER, Oak Park.

To report by wire to the commanding general, Eastern Department, for assignment to duty, from Lakewood, Capt. T. J. O'MALLEY, Chicago.

To Washington, D. C., for duty in the Surgeon-General's Office, Lieut. D. C. SUTTON, Chicago.

To Wichita Falls, Texas, for duty, from Fort Worth, Capt. R. H. KUHN, Chicago.

To Williamsbridge, N. Y., for observation and treatment, from Camp Greene, Capt. T. S. CROWE, Chicago.

The following orders have been revoked: *To Camp Bowie, Fort Worth, Texas, for duty, from Western Department, Lieut. G. A. TANKERSLEY, Owaneco. To Fort Oglethorpe for instruction, from Camp Gordon, Lieut. P. E. GREENLEAF, Bloomington.*

Indiana

To Ann Arbor, Mich., Psychopathic Hospital, for intensive training, Lieut. E. K. HOLT, Indianapolis.

To Camp A. A. Humphreys, Accotink, Va., base hospital, Lieut. E. P. KING, Gary.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Custer, Capt. H. H. THOMPSON, Noblesville, from Camp Wadsworth, Major H. M. HOSMER, Gary.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. E. N. BENNETT, Kokomo.

To Camp Greene, Charlotte, N. C., for duty, Capt. T. R. COOK, Bloomfield; Lieut. D. MACKEY, Hobart; from duty as a private, Lieut. J. M. TITUS, Hebron.

To Camp Meade, Admiral, Md., for duty, Lieut. W. D. INLOW, Manila. To examine the command for nervous and mental diseases, Lieut. B. D. PAUL, Brookston.

To Camp Sevier, Greenville, S. C., base hospital, Capt. O. E. FINK, Terre Haute.

To Camp Shelby, Hattiesburg, Miss., base hospital, Lieut. M. S. HARMON, LaPorte.

To Camp Sherman, Chillicothe, Ohio, base hospital, Lieut. E. B. RUSCHLI, Lafayette.

To Camp Wadsworth, Spartanburg, S. C., base hospital, from Fort Slocum, Major H. M. HOSMER, Gary.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieuts. J. W. CARMACK, F. C. DENNY, Indianapolis.

To Charleston, S. C., for duty, Capt. E. R. SISSON, Greenfield.

To Fort Monroe, Va., for duty, from Camp Upton, Capt. G. W. ANGLIN, Warsaw; from Fort McPherson, Lieut. W. F. JOHNSON, Indianapolis.

To Fort Oglethorpe for instruction, Lieuts. A. C. PEBWORTH, Indianapolis, W. F. GOSSLER, Marion; E. E. PARKER, Oxford; O. A. BYERS, Petersburg; W. McQUEEN, Quincy.

To Fort Ontario, N. Y., base hospital, from Camp Sheridan, Lieut. F. L. REESE, Bicknell.

To Fort Riley for instruction, Capt. L. ROGERS, French Lick; C. A. DRESCH, Mishawaka; Lieuts. V. G. BLACK, Fishers; E. O. NEWLIN, Fontanet; O. D. LUBWIG, F. L. TRUITT, Indianapolis; R. E. DAVIS, Madison; G. L. GIBBONS, Mitchell; H. H. ISAACS, Tangier.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieut. C. S. BLACK, Warren.

To Fort Sill, Okla., for duty, Capt. A. FUNK, New Albany.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. F. A. KIMBLE, Anderson.

To report to the commanding general, Central Department, for assignment to duty, Capt. J. L. McBRIDE, Zanesville.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. H. ALDRICH, Fairmont.

The following order has been revoked: *To Fort Oglethorpe for instruction, Capt. S. C. NORRIS, Anderson.*

Iowa

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. W. C. HAND, Hartley.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. M. B. GALLOWAY, Webster City; Lieut. A. L. DARCKE, Des Moines. For duty, Lieut. D. B. SOLLIS, Bedford.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. M. A. HEALY, Boone, Lieuts. J. G. CLAPSADDLE, Burt; M. C. BRUSH, Shenandoah.

To Camp Grant, Rockford, Ill., base hospital, Capt. A. D. McKINLEY, Des Moines.

To Camp Jackson, Columbia, S. C., base hospital, Capt. G. F. HARKNESS, Davenport; from Tuscaloosa, Lieut. G. H. STEELE, Belmond.

To Camp Meade, Admiral, Md., for duty, Lieut. W. J. LEAMAN, Leaman Place.

To Fort Oglethorpe for instruction, Lieut. W. J. FENTON, Mystic; W. J. FOSTER, Wellman.

To Fort Riley for instruction, Capt. T. LUCAST, Forest City; Lieuts. C. L. BASKIN, Chariton; D. O. KING, Eldora; W. E. LYON, Garden Grove; R. HOUSTON, Nevada; C. H. BARTRUFF, Reinbeck; JUDSON W. MYERS, Sheldon; A. A. HOFFMANN, Waterloo.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Capt. R. HUIZENGA, Rock Valley, Lieut. R. C. HERRICK, Gilmore City.

To Fort Sill, Okla., base hospital, from Camp Bowie, Capt. W. H. FOX, Waucoma.

To New Haven, Conn., for duty, Capt. S. C. BUCK, Grinnell. To Yale Army Laboratory School for instruction, Lieut. W. H. HOM-BACH, Remsen.

To report by wire to the commanding general, Central Department, for assignment to duty, Capt. E. T. JAYNES, Waterloo.

Kansas

To Camp Beauregard, Alexandria, La., base hospital, Lieut. A. J. O'LEARY, Burr Oak.

To Camp Bowie, Fort Worth, Texas, base hospital, Lieut. E. M. IRELAND, Coldwater.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. A. J. LIND, Kansas City.

To Camp McClelland, Anniston, Ala., for duty, Lieut. R. H. DOWNING, Wellington.

To Camp Pike, Little Rock, Ark., base hospital, Capt. L. S. COPLAN, Wellington; from Rock Island, Capt. R. C. HENDERSON, Erie.

To Fort Riley for instruction, Capt. C. W. DE MOTT, Independence; E. B. HAYNES, Madison; Lieuts. A. W. LOVENE, Burdick; R. M. TINNEY, Norton; B. D. THOMAS, Shawnee. For temporary duty, Capt. J. A. SETTLE, Reading.

To Fort Sam Houston, Texas, base hospital, Lieut. R. S. C. FISHER, Wichita.

To New Haven, Conn., for duty, Lieut. C. F. ENSIGN, Lawrence. Honorably discharged, Lieut. E. V. ADAMS, Topeka.

The following orders have been revoked: To Camp Crane, Allentown, Pa., base hospital, from Fort Riley, Capt. H. ATKINS, Pratt. To Rochester, Minn., and on completion to his proper station, from Camp Zachary Taylor, Capt. G. M. GAFFORD, Kinsley.

Kentucky

To Camp Abraham Eustis, Lee Hall, Va., for temporary duty, Major B. F. VAN METER, Lexington.

To Camp Meade, Admiral, Md., for duty, Capt. M. N. BOWMAN, Lexington.

To Fort McHenry, Md., for temporary duty, from Camp Jackson, Capt. L. S. ROBINSON, Madisonville.

To Fort Oglethorpe for instruction, Lieuts. E. J. NESTLEY, Covington; A. D. ECHERT, Newport; C. R. HUNTER, Sandy Hook.

To Fort Porter, N. Y., for duty, from Fort Ontario, Capt. M. H. YEAMAN, Henderson.

To Hampton, Va., Langley Field, for duty, Capt. S. D. WETHERBY, Middletown.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Sheridan, Montgomery, Ala., base hospital, Lieut. W. I. HUME, Louisville.

Louisiana

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. J. B. STAMPER, Caspiana.

To Camp Lee, Petersburg, Va., base hospital, Lieut. T. LATIOLAIS, Breaux Bridge.

To Camp Wheeler, Macon, Ga., for duty, Lieut. A. S. J. HYDE, Baton Rouge.

To Fort Oglethorpe for instruction, Lieut. G. J. DE REYNA, New Orleans; from Camp Beauregard, Lieut. W. T. McNEESE, Angie.

To Fort Sill, Okla., base hospital, from Camp Bowie, Capt. R. M. BLAKELY, New Orleans.

To Newport News, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. R. C. VOSS, New Orleans.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Walter Reed General Hospital, Capt. J. G. MARTIN, Lake Charles.

Honorably discharged on account of physical disability existing prior to entrance into the service. Major R. M. VAN WART, New Orleans.

Maine

To Camp Devens, Ayer, Mass., base hospital, Lieut. J. E. POULIN, Augusta. For duty, Lieut. C. J. TAYLOR, Bangor.

To Fort Oglethorpe for instruction, Lieut. H. E. ANDERSON, Acton.

To New York, Bellevue Hospital, for instruction and on completion to his proper station, from Camp Jackson, Capt. H. M. CHAPMAN, Bangor.

Maryland

To Camp Jackson, Columbia, S. C., to examine the command for nervous and mental diseases, from Baltimore, Lieut. L. B. HOHMAN, Baltimore.

To Camp Meade, Admiral, Md., for duty, Lieuts. G. W. DE HOFF, Baltimore; G. A. LEWIS, Roundup. With the board examining the troops for cardiovascular diseases, from Camp Lee, Capt. A. D. ATKINSON, Baltimore.

To Fort Meyer, Va., for duty, Capt. J. C. HOLDSWORTH, Midland.

To Fort Oglethorpe for instruction, Lieuts. L. P. HOLMES, H. H. JOHNSON, P. G. WEISMAN, Baltimore.

To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Jackson, Lieut. J. T. NELSON, Baltimore. From Camp Meade, Lieuts. C. L. LUCKETT, H. H. WARNER, Baltimore.

The following orders have been revoked: To Fort Oglethorpe for instruction, Lieut. M. H. TIBBETTS, Baltimore. To Mincola, L. I., N. Y., for instruction, Lieut. F. LINTHICUM, Baltimore.

Massachusetts

To Azalea, N. C., for duty, from New Haven, Lieuts. C. W. CLARK, Newtonville; E. D. PILLSBURY, Somerville.

To Boston, Mass., Franklin Union Institute, to make physical examinations and give medical attention to drafted men, Capt. J. H. LAWRENCE, Brockton.

To Camp Beauregard, Alexandria, La., base hospital, Lieut. F. HINCHLIFFE, Cohasset.

To Camp Crane, Allentown, Pa., for temporary duty, Capt. F. R. SIMS, Melrose; from Camp Devens, Lieut. E. A. ROGERS, Boston; from Camp Gordon, Lieut. J. A. GOULD, Westboro; from Camp Jackson, Capt. A. H. PIERCE, Leominster; from Camp Sheridan, Lieut. J. A. KEENAN, Boston.

To Camp Devens, Ayer, Mass., base hospital, Lieuts. G. A. BUCKLEY, Brockton; F. L. LOVELAND, Newton; J. J. PAGLIA, Worcester. For duty, Lieut. E. P. HAND, Holyoke.

To Camp Dix, Wrightstown, N. J., as camp surgeon, from Camp Devens, Lieut.-Col. H. R. BEERY.

To Camp Gordon, Atlanta, Ga., with the board examining the command for nervous and mental diseases, Lieut. E. H. WISWALL, Wellesley.

To Camp Greene, Charlotte, N. C., for duty, Lieut. C. G. MILES, Brockton.

To Camp Meade, Admiral, Md., for duty, Capt. C. MALONE, Jamaica Plain; Lieuts. C. P. WARREN, Amesbury; T. S. DONOVAN, Lawrence.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. W. M. ST. GEORGE, Holyoke.

To Fort Oglethorpe for instruction, Lieuts. HAROLD C. TOOKER, Boston; S. B. ANNIS, Natick; S. F. WILDE, New Bedford; L. O. ASHTON, St. Lawrence; D. B. COLEMAN, Wellesley; from duty as private, Lieut. A. C. MORAN, Fall River.

To Fort Ontario, N. Y., base hospital, from Camp Devens, Lieut. E. A. MESERVE, Boston.

To Governors Island, N. Y., for duty, Capt. D. H. CHASE, Cambridge.

To Lakewood, N. J., for temporary duty, Lieuts. C. STURGIS, Boston; R. C. JONES, Fitchburg.

To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Wadsworth, Lieut. J. J. DONOVAN, Boston; from Camp Zachary Taylor, Capt. W. E. DENNING, Worcester.

To Panama Canal Department for duty, from Camp Raritan, Major J. B. PASCOE, Revere.

To report by wire to the commanding general, Southeastern Department, for assignment to duty, from Camp Hancock, Lieut. P. C. DENNETT, Alston.

To Rockefeller Institute for instruction and on completion to his proper station, from Camp Meade, Capt. H. E. MAYNARD, Worcester. For instruction in the treatment of infected wounds, and on completion to Camp Greene, Charlotte, N. C., base hospital, Capt. F. A. WEBSTER, Boston.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. G. W. SHIRK, Hatfield.

The following order has been revoked: To Camp Wadsworth, Spartanburg, S. C., for duty, Capt. A. K. YOOSUF, Worcester.

Michigan

To Azalea, N. C., for duty, from New Haven, Capt. J. A. ELLIOTT, Battle Creek.

To Camp Crane, Allentown, Pa., base hospital, from Camp Sevier, Lieut. H. A. BECK, Detroit.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. R. C. BUCK, St. Johns; Lieut. H. HENDERSON, Detroit. For duty, Capt. C. D. BROOKS, Detroit; C. H. MURPHY, Lansing; Lieut. C. CAREY, Detroit. To examine the command for nervous and mental diseases, Lieut. R. A. MORTER, Kalamazoo.

To Camp Dodge, Des Moines, Iowa, for temporary duty, from Camp Beauregard, Lieut. L. B. KINGERY, Ann Arbor.

To Camp Meade, Admiral, Md., base hospital, Lieut. J. K. BURNS, Jr., Detroit. For duty, Capt. T. H. E. BELL, Reading; Lieut. W. O. MERRILL, Detroit. With the board examining the troops for tuberculosis, Lieut. R. H. JUERS, Highland Park.

To Fort Oglethorpe, base hospital, from Camp A. A. Humphreys, Major F. H. NEWBERRY, Detroit. For instruction, Capt. H. J. BURRELL, Benton Harbor; D. P. MAYHEW, Detroit; O. G. JOHNSON, Fostoria; Lieuts. C. F. DuBOIS, Detroit; E. A. SCHILZ, Grand Lodge; A. S. EGAN, Muskegon; L. E. GIBSON, Oxford.

To Fort Ontario, N. Y., for temporary duty, Lieut. H. A. REYE, Detroit.

To Fort Riley for instruction, Lieut. JOHN G. RULISON, Lansing.

To Governors Island, N. Y., for duty, Capt. G. H. HERKIMER, Dowagiac.

To Lakewood, N. J., for temporary duty, from Camp Jackson, Lieut. E. M. CHAUNCEY, Albion.

To New York, Bellevue Hospital, for instruction and on completion to Camp Dix, Wrightstown, N. J., base hospital, Lieut. F. L. HONHART, Detroit. On completion to Camp Meade, Admiral, Md., base hospital, Capt. R. K. YOUNG, Detroit. On completion to his proper station, from Camp Wadsworth, Lieut. S. C. BLACK, Rochester.

To report to the commanding general Central Department, for assignment to duty, Capt. H. S. GARNER, Detroit. To report to the commanding general, Southeastern Department, for assignment to duty, from Camp Hancock, Lieut. J. RHINES, Laurium.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from Fort Oglethorpe, Capt. A. E. OWEN, Lansing.

To Washington, D. C., for duty, from Camp Custer, Capt. O. H. CLARK, Kalamazoo.

Minnesota

To Belleville, Ill., Scott Field, for duty, Capt. G. T. AYRES, Ely.

To Camp Custer, Battle Creek, Mich., base hospital, Capt. M. W. SMITH, Red Wing; W. E. RICHARDSON, Slayton; Lieut. L. W. ANDERSON, Atwater.

To Camp Dodge, Des Moines, Ia., base hospital, Lieut. T. GRATZKE, St. Paul.

To Camp Gordon, Atlanta, Ga., base hospital, Lieut. W. J. KREMER, Minneapolis.

To Camp Grant, Rockford, Ill., base hospital, Capt. S. C. SCHMITT, Minneapolis; M. M. GHENT, St. Paul; Lieut. J. A. DAHL, Minneapolis.

To *Camp Greene*, Charlotte, N. C., for duty, Lieuts. A. E. AMUD-SEN, Oslo; R. B. J. SCHIOCH, St. Paul.

To *Camp Sevier*, Greenville, S. C., base hospital, Capt. H. L. ULRICH, Minneapolis.

To *Camp Shelby*, Hattiesburg, Miss., for duty, Capt. A. E. BENJAMIN, Minneapolis; Lieut. P. E. STANGL, St. Cloud.

To *Fort Oglethorpe*, for instruction, Lieut. E. O. SWANSON, Brainard.

To *Fort Riley*, base hospital, Capt. A. J. RUDOLF, Waseca. For instruction, Lieuts. L. J. HOLMBERG, Canby; A. M. CRANDALL, Fairfax; F. T. CAVANOR, Minneapolis.

To *Fort Sam Houston, Texas*, for duty, from Fort Riley, Lieut. W. J. KUCERS, Hutchinson.

To *Hot Springs, Ark.*, for observation and treatment, Lieut. F. P. FRISCH, Kimball. For temporary duty, from Camp Colt, Lieut. R. N. JONES, Minneapolis.

To *Mineola, L. I., N. Y.*, Hazelhurst Field, for duty, from Surgeon-General's Office, Capt. A. S. HAMILTON, Minneapolis.

To *New Haven, Conn.*, for temporary duty, from Camp Custer, Capt. C. R. CHRISTENSON, Starbuck.

To *New York*, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Sherman, Lieut. H. J. A. HARTIG, Minneapolis.

To report to the commanding general, Central Department, for assignment to duty, Capt. J. D. WEIR, Beardsley; A. G. MOFFATT, Howard Lake.

To *Rockefeller Institute* for instruction in laboratory work, and on completion to *Army Medical School* for duty, Lieut. H. H. WARNER, St. Paul.

To *Rock Island, Ill.*, for duty, from Camp Custer, Major C. H. CLARK, Duluth.

To *San Francisco, Calif.*, Letterman General Hospital, for duty, from Camp Kearney, Lieut. A. F. STRICKLER, Sleepy Eye.

To *Whipple Barracks, Ariz.*, for duty, from Camp Dodge, Capt. J. W. DANIELS, St. Peter.

The following orders have been revoked To *Fort Oglethorpe* for instruction, Capt. A. MacLAREN, St. Paul; Lieut. A. G. BEYER, Red Wing.

Mississippi

To *Azalea, N. C.*, for duty, from New Haven, Capt. T. D. BOURDEAUX, Meridian.

To *Camp Beauregard*, Alexandria, La., for duty, from New Orleans, Capt. M. C. HENRY, Bentonla.

To *Camp Bowie*, Fort Worth, Texas, base hospital, Lieut. H. M. SMITH, Natchez.

To *Camp Crane*, Allentown, Pa., for temporary duty, from Camp Devens, Lieut. E. E. FARMER, Dockery.

To *Camp Greene*, Charlotte, N. C., for duty, Lieut. G. C. DAVIS, Leesburg.

To *Camp Meade*, Admiral, Md., for duty, from Walter Reed General Hospital, Lieut. J. D. SAULS, Clarksdale.

To *Fort Oglethorpe* for instruction, Lieut. C. RUFF, Tammolen.

To *Fort Ontario, N. Y.*, base hospital, from Camp McClellan, Lieut. J. S. ADAMS, DeKalb.

To *New Haven, Conn.*, for duty, Lieut. B. C. BERNARD, Senatobia.

Honorably discharged, Lieut. C. A. MARTIN, Chunky.

Missouri

To *Ann Arbor, Mich.*, State Psychopathic Hospital, for intensive training, from Camp Pike, Lieut. T. N. TOOMEY, St. Louis.

To *Azalea, N. C.*, for duty, from New Haven, Capt. P. G. PAUGH, St. Louis.

To *Camp Crane*, Allentown, Pa., for temporary duty, from Camp Fremont, Lieut. G. L. HARRINGTON, Independence.

To *Camp Dix*, Wrightstown, N. J., for duty, from Hoboken, Lieut. C. H. WESTERMAN, St. Louis.

To *Camp Grant*, Rockford, Ill., base hospital, Capt. E. T. SENESEY, St. Louis.

To *Camp Hancock*, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. F. F. HAAS, St. Louis.

To *Camp Jackson*, Columbia, S. C., base hospital, Lieut. U. S. SHORT, St. Louis.

To *Camp Lee*, Petersburg, Va., base hospital, Lieut. J. B. McCUBBIN, Fulton.

To *Camp Lewis*, American Lake, Wash., base hospital, Lieut. H. A. CALVERT, Smithville.

To *Camp Logan*, Houston, Texas, base hospital, Lieut. L. P. FORGRAVE, St. Joseph.

To *Camp Meade*, Admiral, Md., with the board examining the troops for tuberculosis, Lieut. F. JAMES, Sheldon.

To *Camp Pike*, Little Rock, Ark., base hospital, Capt. P. H. SWAHLEN, St. Louis.

To *Camp Sevier*, Greenville, S. C., base hospital, Lieut. R. M. CATER, Marcelline.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, Lieut. A. L. HERTEL, St. Louis. To examine the command for nervous and mental diseases, Capt. M. L. UNDERWOOD, St. Joseph.

To *Camp Wadsworth*, Spartanburg, S. C., to examine the command for nervous and mental diseases, Lieut. E. B. M. CASEY, St. Louis.

To *Cape May, N. J.*, for temporary duty, from Camp Colt, Lieut. J. R. VAUGHAN, St. Louis.

To *Fort Oglethorpe* for instruction, Capt. W. E. MEANWELL, Columbia, Lieut. E. L. DALLWIG, St. Louis.

To *Fort Riley* for instruction, Capt. H. BRYAN, Carthage; J. P. VAN ALLEN, Cole Camp; F. L. FINLEY, East Prairie; J. E. MUSGROVE, Excelsior Springs; J. R. MABEE, Huntsville; J. MIDDLETON, Kansas City; R. L. FOGLE, Otterville; B. B. KELLY, Purdy; A. GUNDLACH, C. A. HOBerecht, JULIUS J. JEUDE, St. Louis; Lieuts. T. J. DRISDEL, Dadeville; M. T. EDMONSON, Fair Grove; W. R. KING, Joplin; P. LUX, Kansas City; J. O. BRADSHAW, Lebanon; J. T. BRICE, Mount Moriah; J. H. YOUNG, Ozark; O. M. CHAMBERLAIN, Rockport; O. T. MOREY, Salisbury.

To *Fort Sam Houston, Texas*, base hospital, Capt. W. M. WEST, Monett; F. H. SPENDER, St. Joseph. For duty, from Fort Riley, Capt. G. F. ALTON, Barry.

To *Fort Sill, Okla.*, base hospital, from Camp Zachary Taylor, Lieut. O. P. McPHERSON, Kansas City. For duty, from Camp MacArthur, Lieut. J. H. ARMSTRONG, Glendale.

To *Newport News, Va.*, for duty, Capt. T. M. PAUL, St. Joseph, from Camp Crane, Major W. E. LEIGHTON, St. Louis.

To *New York*, Neurological Institute, for instruction, Lieut. O. B. ZIENERT, St. Louis.

To report to the commanding general, Central Department, for assignment to duty, Capt. O. C. O'KELL, Excelsior Springs; S. D. REYNOLDS, Gower.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. J. W. RICE, Kansas City.

The following orders have been revoked: To *Fort Oglethorpe* for instruction, Capt. C. D. CANTRELL, Kansas City. To *Fort Riley* for instruction, Lieut. J. B. STOKES, St. Louis.

Montana

To *Camp Grant*, Rockford, Ill., base hospital, Capt. E. W. THUERER, Billings.

To *Fort Riley* for instruction, Lieuts. F. C. VICARS, Livingston; J. R. McDOWELL, Wibaux.

To *New York*, Neurological Institute, for instruction, Lieut. A. G. BIDDLE, Butte.

Nebraska

To *Camp Custer*, Battle Creek, Mich., base hospital, Capt. H. E. BURDICK, David City.

To *Fort Oglethorpe* for instruction, Lieut. C. S. LENTZ, Omaha.

To *Fort Riley*, base hospital, Capt. J. J. HOMPEs Lincoln. For instruction, Capt. J. P. FEESE, H. C. SMITH, Franklin; R. T. VAN METRE, Fremont; Lieuts. R. R. CRAFT, Exeter; A. A. ASHBY, Fairmont; D. L. BARTLING, Hermon.

To *Fort Sam Houston, Texas*, for duty, from Fort Riley, Capt. J. G. W. WESTERHOFF, Carleton; C. B. CALBREATH, Hastings.

To *Fort Sill, Okla.*, base hospital, from Camp MacArthur, Lieut. C. D. SPIVEY, Lincoln. For duty, from Camp Kelly, Capt. C. MINNICK, Curtis.

To *Lake Charles, La.*, for duty, from Camp Kelly, Lieut. FRANK H. MORROW, Columbus.

To *Waterliet, N. Y.*, for duty, from Camp Sherman, Capt. J. BUIS, Pender.

Nevada

To *Fort Sam Houston, Texas*, for duty, from Fort Riley, Lieut. H. A. PARADIS, Bauvard.

New Hampshire

To *Camp Greene*, Charlotte, N. C., for duty, Lieut. H. R. AMDEN, Concord.

To *Camp Meade*, Admiral, Md., for duty, Lieut. C. E. HIGHT, Groveton.

To *Fort Oglethorpe* for instruction, Capt. C. E. JOHNSTON, Portsmouth; Lieuts. E. W. COATES, Farmington; P. J. KITTREDGE, Portsmouth.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Wadsworth*, Spartanburg, S. C., base hospital, Capt. G. C. WILKINS, Manchester.

New Jersey

To *Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, Lieut. L. M. COLLINS, Greystone Park.

To *Camp Kearney*, Linda Vista, Calif., as division surgeon, from Camp Dix, Lieut.-Col. J. L. SINOR.

To *Camp MacArthur*, Waco, Texas, with the board examining the troops for tuberculosis, from Camp Cody, Capt. G. THORBURN, Newark.

To *Camp Meade*, Admiral, Md., base hospital, Capt. F. R. SHEPPARD, Millville. For duty, Capt. P. B. CREGAR, Plainfield; Lieut. M. E. GORE, East Orange.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. W. L. THOMPSON, Jersey City.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, from Army Medical School, Lieut. G. FASANO, Newark.

To *Fort McHenry, Md.*, for temporary duty, from Camp Jackson, Lieut. I. E. DEIBERT, Camden.

To *Fort Moultrie, S. C.*, for duty, Capt. H. S. COSTILL, Trenton.

To *Fort Oglethorpe* for instruction, Capt. M. J. SULLIVAN, Englewood; Lieuts. C. B. MAXSON, Jersey City; A. W. JUSTIN, Union Hill.

To *Fort Sill, Okla.*, base hospital, from Camp Sevier, Capt. S. T. QUINN, Elizabeth.

To *Governors Island, N. Y.*, for duty, Capt. J. R. POLLARD, Chatham.

To *Plattsburg Barracks, N. Y.*, for duty, Lieut. W. D. SILKWORTH, Newark.

To report to the commanding general, Eastern Department, for assignment to duty, Capt. A. S. MADDOX, Ashbury Park; J. S. HEWSON, Newark.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to his proper station, from Camp Devens, Capt. C. R. NEARE, East Orange; J. S. MACLAY, Paterson.

To *Tobyhanna, Pa.*, for duty, Capt. G. W. FITHIAN, Perth Amboy.

The following orders have been revoked: To *Camp Forrest*, Chickamauga Park, Ga., for duty, Lieut. JOHN P. REEVES, Elmer. To *Camp Meade*, Admiral, Md., for duty, Lieut. R. STEWART, Secaucus.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, from Camp Dix, Capt. A. F. McBRIDE, Paterson. To *Camp Wadsworth*, Spartanburg, S. C., for duty, from Hampton, Lieut. J. G. COLEMAN, Hamburg.

To *Fort Oglethorpe* for instruction, Capt. J. L. FEWSMITH, Newark.

To *Garden City, L. I., N. Y.*, for duty, Lieut. R. D. HENDERSON, Jersey City.

New Mexico

To *Camp Cody*, Deming, N. M., base hospital, Capt. D. D. SWEARINGEN, Roswell.

New York

To *Azalea, N. C.*, for duty, from New Haven, Lieuts. H. J. SEIFF, New York; S. L. WANG, Staten Island.

To *Camp Abraham Eustis*, Lee Hall, Va., for duty, Lieut. B. R. BASS, Brooklyn.

To *Camp Crane*, Allentown, Pa., base hospital, from Fort Riley, Lieut. A. M. RABINER, Albany. For temporary duty, from Camp Joseph E. Johnston, Lieut. H. HERSHBERG, New York; from Camp Upton, Capt. C. F. CLAASSEN, Brooklyn; from Fort Oglethorpe, Lieut. S. S. FERN, New York. To examine the command for nervous and mental diseases, from Camp Custer, Lieut. B. GLUECK, Ossining.

To *Camp Custer*, Battle Creek, Mich., base hospital, Major T. H. McKEE, Buffalo. To examine the command for nervous and mental diseases, from Mineola, Major A. S. MOORE, Middletown.

To *Camp Devens*, Ayer, Mass., base hospital, Lieuts. A. T. JACOBS, New York; F. F. McCAULEY, Schenectady. From Camp Sheridan, Major L. T. GRIFFITH, New York. From Rockefeller Institute,

Capt. A. H. TERRY, New York. For duty, Capt. S. W. BRAD-STREET, Irondequoit; Lieuts. H. P. JOFFMAN, Buffalo; F. S. WESTMORELAND, New York.

To Camp Dix, Wrightstown, N. J., base hospital, Lieut. J. P. HENNESSY, New York. For duty, Lieut. M. L. SOLKOW, New York.

To Camp Dodge, Des Moines, Ia., base hospital, from Fort Des Moines, Capt. K. E. WILLIAMS, Rome.

To Camp Greene, Charlotte, N. C., for duty, Lieuts. H. T. CARTWRIGHT, C. H. ROGERS, New York.

To Camp Hancock, Augusta, Ga., base hospital, Lieut. J. COLOMB, New York.

To Camp Jackson, Columbia, S. C., base hospital, from Camp Hancock, Capt. J. H. EVANS, Virgil, from Waynesville, Capt. M. E. LEARY, Rochester.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. D. J. TILLON, Elmira.

To Camp Lee, Petersburg, Va., base hospital, Capt. J. R. GRAHAM, New York.

To Camp Lewis, American Lake, Wash., base hospital, from Fort Sam Houston, Lieut. A. G. DE SANCTIS, New York.

To Camp MacArthur, Waco, Texas, for duty, from Fort Sill, Lieut. L. D. CREMIN, Ossining.

To Camp McClellan, Anniston, Ala., base hospital, Capt. F. M. O'GORMAN, Buffalo.

To Camp Meade, Admiral, Md., base hospital, Lieut. J. W. BABCOCK, New York. For duty, Lieut. J. L. BOTH, Edgemore, L. I.

To examine the command for nervous and mental diseases, Capt. T. I. TOWNSEND, Binghamton. With the board examining the troops for cardiovascular diseases from Fort Thomas, Capt. H. JAMES, New York.

To Camp Shelby, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. P. W. FETZER, New York.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Camp MacArthur, Lieut. L. L. HOLLENBECK, New York.

To Camp Upton, L. I., N. Y., with the board examining the command for nervous and mental diseases, Lieut. H. E. SCHORR, New York.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Capt. D. WEST, New York. For duty, from Camp Meade, Lieut. P. J. HIRST, Middle Grove.

To Camp Wheeler, Macon, Ga., base hospital, from Baltimore, Capt. C. H. SANFORD, New York.

To Camp Zachary Taylor, Louisville, Ky., for duty, from Camp Sherman, Capt. D. R. ROBERT, Brooklyn.

To Carlisle, Pa., for duty, from Camp Devens, Lieut. H. SMITH, New York.

To Fort Des Moines, Ia., base hospital, from Camp Sevier, Major T. WRIGHT, Buffalo.

To Fort McHenry, Md., for temporary duty, from Camp Jackson, Lieut. R. H. OPPENHEIMER, Blackwell's Island.

To Fort Monroe, Va., for duty, from Fort McPherson, Lieut. W. W. BELL, New York.

To Fort Niagara, N. Y., for duty, Capt. N. B. FORD, Owasco.

To Fort Oglethorpe as instructor, Major W. H. STEWART, New York. For instruction, Major O. M. SCHWERTFEGER, New York; Capt. G. T. WILSON, Hoosick Falls; F. S. HEIMER, Mt. Upton; J. J. HARRINGTON, New York; Lieuts. M. T. RAUH, L. D. VOLK, Brooklyn; M. A. MURPHY, Hoosick Falls; T. J. RYAN, New York.

To Fort Ontario, N. Y., base hospital, from Camp McClellan, Lieut. W. L. WEEDEN, Clifton Springs.

To Fort Sill, Okla., base hospital, from Camp Bowie, Lieut. A. G. MOTT, Yonkers.

To Fort Snelling, Minn., for duty, from Camp Grant, Major A. S. CLARK, New York.

To Hampton, Va., Langley Field, for temporary duty, from Fort Oglethorpe, Lieut. S. S. INGALLS, Parish.

To Hoboken, N. J., for duty, from Camp Sevier, Lieut. M. T. KOVEN, Brooklyn.

To Hot Springs, Ark., for temporary duty, from Camp Colt, Lieut. M. O. HOWARD, New York.

To Lakewood, N. J., for temporary duty, Capt. J. B. RINGLAND, Oswego.

To New Haven, Conn., for duty from Otisville, Capt. T. F. ELLIS, New York. To Yale Army Laboratory School for instruction, Lieut. D. M. MARKOFFSKY, New York; from Fort Leavenworth, Lieut. D. JUNG, Buffalo.

To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp Jackson, Lieut. W. C. MACDONALD, New York; from Camp Meade, Lieut. F. C. CARR, New York; from Camp Zachary Taylor, Lieut. R. G. CARLIN, New York. Neurological Institute, for intensive training, Lieut. M. KOHLENBERG, Brooklyn.

To Plattsburg Barracks, N. Y., for duty, Lieut. J. W. MAMBERT, Hudson; from Camp Wheeler, Capt. C. K. VAUX, Central Islip, from Fort Porter, Capt. J. G. STOWE, Buffalo.

To Rockefeller Institute for instruction in the treatment of infected wounds and on completion to Camp Devens, Ayer, Mass., base hospital, Capt. W. M. HALSEY, Oswego; Lieut. E. F. BRIGGS, Bedford Hills. On completion to Camp Greene, Charlotte, N. C., base hospital, Capt. C. E. FARR, New York. On completion to Camp Upton, L. I., N. Y., base hospital, Lieut. T. J. Ryan, New York.

To Syracuse, N. Y., for duty, from Camp Crane, Capt. D. E. BRACE, New York.

To Washington, D. C., St. Elizabeth's Hospital, for duty, from Walter Reed General Hospital, Capt. H. L. RAYMOND, Collins.

To Waynesville, N. C., for duty, from New Haven, Capt. E. C. JOYCE, New York.

To Wichita Falls, Texas, as flight surgeon, from Mineola, Capt. S. A. MUNFORD, Ithaca.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. F. W. FILSINGER, Buffalo; Lieut. D. M. GILDERSLEEVE, Brooklyn.

The following orders have been revoked: To Camp Abraham Eustis, Lee Hall, Va., base hospital, from Camp Lee, Capt. E. G. MACFARLAND, Clinton. Camp hospital, Lieut. J. L. EVERLOG, Brooklyn. To Fort Oglethorpe for instruction, Lieut. W. STEINHAUSER, New York.

North Carolina

To Camp A. A. Humphreys, Accotink, Va., for temporary duty, Lieut. A. P. KELLY, Carthage.

To Camp Dix, Wrightstown, N. J., for temporary duty, Lieut. B. M. BRADFORD, Hope Mills.

To Camp Dodge, Des Moines, Ia., for duty, from Fort Oglethorpe, Lieut. L. E. GUION, Waxhaw.

To Camp Greene, Charlotte, N. C., for duty, Capt. M. J. KING, Durham.

To Fort Oglethorpe for instruction, Lieut. C. McGOWAN, Plymouth.

To Fort Ontario, N. Y., base hospital, from Camp Devens, Lieut. R. L. DANIELS, Goldsboro.

To Fort Slocum, N. Y., for duty, from Fort Thomas, Capt. A. DURHAM, Charlotte.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. A. H. HARRISS, Wilmington.

The following order has been revoked: To Camp Wadsworth, Spartanburg, S. C., for duty, from Southeastern Department, Lieut. M. R. FARRAR, Greensboro.

North Dakota

To Fort Riley for instruction, Lieut. W. C. WILSON, Grand Forks.

Ohio

To Ann Arbor, Mich., State Psychopathic Hospital for intensive training, from Camp Sherman, Lieut. A. E. KISER, Cincinnati.

To Belleville, Ill., Scott Field, for duty, Lieut. A. J. SHOEMAKER, Columbus.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Pike, Lieut. O. E. TOWNSEND, Cleveland; from Des Moines, Major F. C. HERRICK, Cleveland.

To Camp Custer, Battle Creek, Mich., for duty, Lieuts. A. H. CALHOUN, Canton; M. P. MOTTO, Cleveland; P. C. COLEGROVE, Oberlin.

To Camp Devens, Ayer, Mass., for duty, Lieut. L. E. KERR, Toledo.

To Camp Dix, Wrightstown, N. J., for temporary duty, Lieuts. J. C. STAATS, Cincinnati; W. L. LATHROP, Metamora.

To Camp Greene, Charlotte, N. C., base hospital, Capt. B. B. KIMMEL, Cleveland. For duty, Capt. O. P. KIMMEL, New Madison.

To Camp Meade, Admiral, Md., base hospital, Capt. A. M. STEINFELD, Columbus. For duty, Capt. J. A. HURT, Cleveland; Lieut. F. J. J. LEHMANN, Toledo; from Washington, Capt. H. L. TAYLOR, Cleveland.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. W. A. DEERHAKE, St. Mary's.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. G. C. SULLIVAN, Dayton.

To Camp Zachary Taylor, Louisville, Ky., base hospital, Lieut. F. B. CROSS, Cincinnati.

To Cleveland, Ohio, Lakeside Hospital, for duty, Lieut. R. G. PEARCE, Cleveland. To examine applicants, Lieut. C. A. BOWERS, Cleveland.

To Fort McHenry, Md., for duty, from Washington, Capt. M. G. BALDWIN, Toledo.

To Fort McPherson, Ga., for duty, from New York, Lieut. C. H. Hyman, Payne.

To Fort Meyer, Ga., for duty, Capt. I. H. HUNTER, Toledo.

To Fort Monroe, Va., for duty, from Fort McPherson, Lieut. N. C. MAYER, Cleveland.

To Fort Niagara, N. Y., for duty, Lieut. W. E. KNEALE, Akron.

To Fort Oglethorpe for instruction, Capt. J. A. LYTTLE, Cleveland; L. B. ZINTAMASTER, Massillon; Lieuts. W. J. SMITH, Arcanum; A. M. SHAFER, Canal Fulton; H. L. WELLS, Cambridge; H. C. WAYBLE, Cincinnati; R. S. DINSMORE, H. S. THOMPSON, Cleveland; R. R. BOND, Dayton; H. C. WAITE, Columbus; G. A. MILLER, Hudson; H. B. VAN RYNING, Lakewood; T. P. JOHNSTON, Mount Giliad; E. V. BERRY, Newscomerstown; W. P. ULTES, Springfield; H. K. BECKWITH, Toledo.

To Governors Island, N. Y., for duty, Lieuts. C. S. CAVETT, North Baltimore.

To Hampton, Va., Langley Field, for duty, Lieut. R. E. FINLEY, Xenia.

To Hoboken, N. J., for temporary duty, from Camp A. A. Humphreys, Major F. WINDERS, Columbus.

To Hot Springs, N. C., for temporary duty, from Army Medical School, Lieut. R. B. STEVENSON, Columbus.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. J. H. WARVEL, Bradford.

To New York, Bellevue Hospital, for instruction, and on completion to Camp Jackson, Columbia, S. C., base hospital, Lieut. G. W. MILLER, Columbus. On completion to Camp Lee, Petersburg, Va., base hospital, Capt. U. K. EESSINGTON, Newark. On completion to his proper station, from Camp Jackson, Lieut. M. S. GRIFFITH, Batavia. Neurological Institute, for instruction, from Camp Jackson, Lieut. B. B. NEUBAUER, Cleveland.

To Pittsburgh, Pa., for duty, Capt. R. R. HENREDSHOTT, Tiffin.

To Rochester, N. Y., to examine drafted men, from Camp Lee, Lieut. B. H. GILLESPIE, Akron.

To Syracuse, N. Y., for duty, from Camp Upton, Lieut. F. B. SNODGRASS, Kenton.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. F. T. MILES, Salem.

The following orders have been revoked: To Camp Crane, Allentown, Pa., for duty, Lieut. J. E. MCCLELLAND, Cleveland. To Fort Oglethorpe for instruction, Lieut. H. GRAEFE, Sandusky.

Oklahoma

To Camp A. A. Humphreys, Accotink, Va., base hospital, Capt. J. M. COOPER, Oklahoma City.

To Camp Cody, Deming, N. M., base hospital, Lieut. H. P. PRICE, Tulsa. For duty, Capt. S. C. DAVIS, Oklahoma City.

To Camp Hancock, Augusta, Ga., base hospital, from Fort Oglethorpe, Lieut. R. L. WESTOVER, Okmulgee.

To Camp Lewis, American Lake, Wash., base hospital, from Camp Travis, Lieut. T. A. HARTGRAVES, Soper.

To Camp McClellan, Anniston, Ala., for duty, Lieut. C. H. MORRIS, Vion.

To Camp Travis, Fort Sam Houston, Texas, base hospital, Lieut. B. C. RUTHERFORD, Oilton.

To Fort Bayard, N. M., for duty, from Camp Travis, Lieut. W. R. LEVERTON, Hobart.

To Fort Oglethorpe for instruction, Lieut. W. M. GALLAGHER, Shawnee.

To Fort Riley for instruction, Lieuts. W. H. KINGMAN, Bartlesville; T. T. CLOHESSY, Berlin; F. E. SADLER, Coalgate; L. L. SMITH, Keifer; E. E. GOODRICH, Tecumseh; W. J. TRAINOR, Tulsa; J. A. MUNN, Wilburton.

To Fort Sam Houston, Texas, for duty, from Fort Riley, Lieuts. E. J. REICHLEY, Helena; C. E. SEXTON, Stillwater.

To Fort Sill, Okla., base hospital, from Camp Bowie, Lieut. M. H. FOSTER, Alderson.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. V. L. McPHERSON, Boswell.

To Newport News, Va., as orthopedic surgeon, from Fort Oglethorpe, Lieut. W. H. DERSCH, Carmen.

To New York, Bellevue Hospital, for instruction, and on completion to his proper station, from Camp A. A. Humphreys, Major R. L. KURTZ, Nowata.

To report to the commanding general, Southern Department, for assignment to duty, Capt. J. M. SALTER, Sulphur; from Camp Cody, Lieut. C. W. ALEXANDER, Temple.

Oregon

To Camp Meade, Admiral Md., for duty, from Camp Abraham Eustis, Lieut. E. J. GAMBLE, Portland.

To Fort Riley for instruction, Lieuts. G. E. RIGGS, Albany; H. J. SCHIENK, Lebanon.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. J. H. THOMPSON, Enterprise.

To New York, Neurological Institute, for instruction, Lieut. G. N. PEASE, Portland.

To report to the commanding general, Western Department, for assignment to duty, Lieut. C. H. FRANCIS, Bond.

Panama

To Camp Sheridan, Montgomery, Ala., as assistant to camp surgeon, from Canal Zone, Major W. C. H. PROSSER.

To Camp Wadsworth, Spartanburg, S. C., as assistant to camp surgeon, from Canal Zone, Major C. LE BARON.

Pennsylvania

To Camp A. A. Humphreys, Accotink, Va., for duty, from Camp Meade, Lieut. E. H. REBHORN, Scranton.

To Camp Cody, Deming, N. M., base hospital, Lieut. J. L. ZIMMERMAN, Hershey.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp Custer, Capt. C. H. STIMSON, Philadelphia; from Camp Dix, Lieut. H. H. LAMB, Braddock, from Camp Gordon, Lieut. N. W. WINKELMAN, Bridgeville; from Camp Grant, Lieut. H. I. NEWCOMET, Reading; from Camp Jackson, Lieut. G. S. VOGAN, Pittsburgh; from Camp Sherman, Lieut. F. FRALEY, Philadelphia; from Washington, Lieut. H. L. CARNCROSS, Philadelphia.

To Camp Devens, Ayer, Mass., base hospital, Lieut. J. E. WYATT, Fountain Springs. For duty, Capt. I. N. FREYMAN, Weatherly; Lieut. T. R. FERGUSON, Kirkwood.

To Camp Dix, Wrightstown, N. J., base hospital, Capt. L. D. SARGENT, Washington. For temporary duty, Lieut. D. L. McCANDLESS, Butler.

To Camp Dodge, Des Moines, Iowa, base hospital, Capt. C. S. CALDWELL, Swissvale.

To Camp Greene, Charlotte, N. C., for duty, Capt. L. C. ROWLES, Clearfield.

To Camp Hancock, Augusta, Ga., base hospital, Capt. F. B. UTLEY, Pittsburgh; Lieut. J. S. MORGAN, Crafton.

To Camp Holabird, Baltimore, Md., for duty, Lieut. F. G. STUBBS, Philadelphia, from Walter Reed General Hospital, Lieut. E. J. KALODNER, Philadelphia.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. R. J. FORD, Pittsburgh; from Walter Reed General Hospital, Lieut. J. A. PERKINS, Philadelphia.

To Camp Las Casas, San Juan, P. R., for duty, Capt. J. E. MADARA, Mauch Chunk.

To Camp Lee, Petersburg, Va., base hospital, Capt. W. K. SWANN, Monroe; W. H. MORROW, Swissvale; Lieuts. E. M. HUGHES, Butler; V. P. VIESLET, Charlaroi; E. D. RUSSELL, Reamstown.

To Camp Meade, Admiral Md., as orthopedic surgeon, from Boston. Capt. C. A. COHN, Lancaster. Base hospital, Capt. R. M. ALEXANDER, Reading. For duty, Lieuts. S. J. DICKEY, Conneautville; M. J. SCHWARTZ, Philadelphia; W. L. GROUNDS, Roaring Springs; from Camp Hancock, Lieut. C. O. W. BARTINE, Philadelphia.

To Camp Sevier, Greenville, S. C., as sanitary inspector, from Fort Oglethorpe, Major W. K. EVANS, Chester.

To Camp Sheridan, Montgomery, Ala., base hospital, Capt. M. W. REED, Bellefonte. For duty, Fort Oglethorpe, Lieut. D. R. SZABO, Duquesne.

To Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. J. E. FERRINGER, Stoneboro. For duty, Lieuts. F. G. WRIGHT, Chambersburg; W. M. McWILLIAMS, Hillsville; from Camp Devens, Lieut. F. D. LEVY, Philadelphia.

To Camp Wheeler, Macon, Ga., base hospital, Capt. A. M. STEVENSON, Pittsburgh.

To Charleston, S. C., for duty, Lieut. J. P. SHAW, Pittsburgh.

To Fort Des Moines, Iowa, base hospital, from Camp Dodge, Lieut. A. K. CORT, Wilson.

To Fort Monroe, Va., for duty, Major E. LAPLACE, Philadelphia; from Fort McPherson, Lieut. W. J. BASLER, Harrisburg.

To Fort Niagara, N. Y., for duty, Major S. M. HUFF, Bellefonte; Capt. J. N. W. ANDERSON, Pittsburgh.

To Fort Oglethorpe for instruction, Capt. G. L. McKEE, Burgettstown; G. E. PATTERSON, Washington; Lieuts. J. P. EGAN, Braddock; C. B. NORCROSS, Clairton; P. T. HOHE, Mercer; T. J. McGURL, Minersville; J. SHATAK, Nesquehoning; M. B. BERNARD, Philadelphia; A. F. KAMENS, J. D. KISTLER, Pittsburgh; G. I. YEARICK, Portage; H. E. MASSY, Sharon.

To Fort Ontario, N. Y., base hospital, from Camp Dix, Lieut. M. A. BLUMER, Pittsburgh; from New York, Lieut. G. L. LAVERY, Harrisburg. For duty, from New York, Lieut. J. E. DWYER, Polk.

To Fort Thomas, Ky., for duty, from Columbus Barracks, Lieut. S. W. MILLER, Jr., Lancaster.

To Governors Island, N. Y., for duty, Lieut. H. W. TITTLE, New Florence.

To Houston, Tex., Ellington Field, as flight surgeon, from Millington, Major R. J. HUNTER, Philadelphia.

To Lakewood, N. J., for temporary duty, Capt. W. P. HUGHES, Pittsburgh.

To Mincola, L. I., N. Y., Hazelhurst Field, for instruction, Capt. J. H. McKEE, Philadelphia.

To New Haven, Conn., for duty, Lieuts. N. D. MacARTAN, Cresson; M. DEPTA, Pittsburgh. To Yale Army Laboratory School, for instruction, Lieuts. J. A. COEN, Briestoria; A. D. WALTZ, Philadelphia.

To New York, Neurological Institute, for instruction, Capt. R. J. BEHAN, Pittsburgh; Lieuts. A. B. HAMILTON, Freeland; R. P. BATCHELOR, Palmerton.

To Pittsburgh, Pa., for duty, Lieut. J. M. MONAGHAN, Minersville. To report by wire to the commanding general, Eastern Department, for assignment to duty, Capt. S. O. BRUMBERG, Huntingdon.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Dix, Wrightstown, N. J., base hospital, Lieut. W. E. GARDNER, Pittsburgh. On completion to Camp Hancock, Augusta, Ga., base hospital, Capt. W. C. MINNICHI, McKees Rock. On completion to Camp Wadsworth, Spartanburg, S. C., base hospital, Lieut. J. P. HARLEY, Williamsport. On completion to his proper station, from Camp Dix, Lieut. L. C. RUMMAGE, Sweet Valley; from Camp McClellan, Lieut. M. E. SMOCZYNSKI, Philadelphia.

To Tuscaloosa, Ala., University of Alabama, for duty, from Camp Wadsworth, Lieut. J. STEIN, Scranton.

To Walter Reed General Hospital, Takoma Park, D. C., for temporary duty, Lieut. I. WILLIAMS, Pittsburgh; from the Surgeon-General's Office, Lieut. S. B. PEARCE, Pittsburgh.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. R. K. WILSON, Jeannette; Lieut. J. L. HEARD, North East.

The following orders have been revoked: To Camp Bowie, Fort Worth, Tex., base hospital, from Southern Department, Lieut. D. M. AIKMAN, Brockwayville. To Camp Shelby, Hattiesburg, Miss., base hospital, from Fort McPherson, Capt. S. D. INGHAM, Philadelphia. To Fort Oglethorpe for instruction, Lieut. H. M. HALL, Jr., Pittsburgh. To Walter Reed General Hospital for observation and treatment, Capt. C. D. E. PANNACI, Gloversville.

Rhode Island

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. T. S. FLYNN, Woonsocket.

To Camp Lewis, American Lake, Wash., base hospital, from Camp Fremont, Major J. HAMILTON, Jr., Providence.

To Camp Meade, Admiral Md., for duty, Lieut. H. DEWOLF, Bristol.

To Fort Oglethorpe for instruction, Capt. N. C. BAKER, Providence.

To Governor's Island, N. Y., for duty, Capt. H. W. HEATON, Providence.

South Carolina

To Camp Greene, Charlotte, N. C., base hospital, Lieut. J. R. SPARKMAN, Spartanburg. For duty, Capt. J. H. LAWRENCE, Pendleton; Lieuts. J. C. HILL, Abbeville; R. M. FULLER, McCormick.

To Camp Kearney, Linda Vista, Calif., as assistant to the division surgeon, from Fort Oglethorpe, Lieut. T. MADDOX, Union.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. V. M. ROBERTS, Blackburg.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. J. W. MOLE, Brinson.

To Camp Wheeler, Macon, Ga., base hospital, Lieut. R. H. LONG, Carlisle.

To Fort Oglethorpe for instruction, Capt. L. A. RISER, Columbia; J. W. VALLEY, Pickens.

To Hoboken, N. J., for temporary duty, from Camp Devens, Lieut. J. D. COLSON, St. Stephen.

South Dakota

To Biltmore, N. C., for temporary duty, from Camp Custer, Capt. A. V. ELLIOTT, Bersford.

To Camp Custer, Battle Creek, Mich., for duty, Lieut. F. W. FLETCHER, Tyndall.

To Camp Dodge, Des Moines, Iowa, base hospital, Lieut. H. L. CRANE, Lead.

To Camp Grant, Rockford, Ill., base hospital, Capt. F. E. CLOUGH, Lead; Lieuts. T. J. DEVEREAUX, Aberdeen; V. R. HODGES, Terry.

To Camp Sherman, Chillicothe, Ohio, base hospital, Capt. C. F. CULVER, Sioux Falls.

To Fort Oglethorpe for instruction, Lieut. F. D. GILLIS, Mitchell.

To Fort Riley, base hospital, from Camp Grant, Capt. J. F. ADAMS, Aberdeen; from Camp Travis, Lieut. A. P. KIMBALL, Colome. For instruction, Lieuts. W. W. STEVENSON, Vermillion; R. B. FLEEGER, Lead; I. J. MARKEL, Lead.

Tennessee

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp Gordon, Lieut. J. P. SCHELL, Nashville.

To Azalea, N. C., for duty, from New Haven, Lieuts. L. T. STEM, B. SULLIVAN, Chattanooga.

To Camp Crane, Allentown, Pa., for temporary duty, from Camp A. A. Humphreys, Lieut. S. H. BARRETT, Chattanooga.

To Camp Custer, Battle Creek, Mich., for duty, Lieut. J. R. MILLER, Joelton.

To Camp Greene, Charlotte, N. C., for duty, Lieut. B. E. DELOSIER, Townsend.

To Camp Joseph E. Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. G. T. WILHELM, Memphis.

To Camp Sheridan, Montgomery, Ala., for duty, from Fort Oglethorpe, Lieut. L. O. WILKERSON, Stanton.

To Fort Oglethorpe for instruction, Capt. G. F. ST. JOHN, Harri-man; J. D. BREWER, Newbern; J. E. NELSON, Rockwood; Lieuts. B. S. MAYO, Dresden; D. L. JONES, Dukedom; M. THARP, Nashville.

To Fort Sill, Okla., base hospital, from Camp Bowie, Lieuts. W. D. RICHARDS, Elowah; S. HUNT, Knoxville.

To Hoboken, N. J., base hospital, from Fort Oglethorpe, Lieut. J. A. MCINTOSH, Memphis.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. R. H. DENHAM, Lynnville.

Texas

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Camp Travis, Lieut. C. W. STEVENSON, Loraine.

To Camp Bowie, Fort Worth, Tex., base hospital, Lieut. C. H. BROOKS, Waco.

To Camp Cody, Deming, N. M., for duty, Lieut. R. K. SMITH, Elmendorf.

To Camp Logan, Houston, Tex., base hospital, Capt. A. S. LOVE, Ballinger; Lieut. W. TAYLOR, Victoria.

To Camp MacArthur, Waco, Tex., base hospital, Lieut. E. W. RHEINHEIMER, El Paso.

To *Camp McClellan*, Anniston, Ala., for duty, Lieuts. T. P. LYNCH, Coleman; F. RANDOLPH, Conio; J. L. AUSTIN, Rock Wall; W. F. LONG, Sulphur Springs.

To *Camp Sevier*, Greenville, S. C., base hospital, Lieut. R. G. FERGUSON, Dallas.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, from Camp MacArthur, Major J. G. FLYNN, Galveston.

To *Camp Sheridan*, Montgomery, Ala., for duty, from Fort Oglethorpe, Capt. J. C. MICHAEL, Houston; Lieut. ST. J. R. MURCHISON, Marshall.

To *Camp Sherman*, Chillicothe, Ohio, for temporary duty, from Fort Oglethorpe, Lieut. C. H. TILLOTSON, Dalhart.

To *Camp Travis*, Fort Sam Houston, Tex., base hospital, Capt. I. J. MORRIS, Dallas; A. M. FREELS, Denison.

To *Camp Upton*, L. I., N. Y., for duty, from Camp MacArthur, Major S. NORMAN, Texas City.

To *Fort Oglethorpe* for instruction, Capt. D. A. MANN, Beaumont; W. C. DURINGER, Fort Worth; Lieuts. R. E. HILBURN, Antelope; B. E. PICKETT, Big Wells; H. E. ROGERS, El Paso; E. RANDALL, JR., Galveston; C. C. HOWARD, Garner; T. M. GORDON, Stehenville; W. L. McWHIRTER, Waco; from Army Medical School, Lieut. J. R. HOLDERNESS, Commerce.

To *Fort Riley*, base hospital, Capt. B. U. SIMS, Bryan. For instruction, Capt. F. D. TEAS, Canadian; J. H. JERNIGAN, Childress; L. R. SMITH, Tyler; Lieut. L. PENROD, Gonzales.

To *Fort Sam Houston, Tex.*, for duty, from Camp Travis, Lieut. M. E. HASTINGS, Galveston; from Fort Riley, Capt. J. A. DENMAN, Belton.

To *Fort Sill, Okla.*, base hospital, from Camp Beauregard, Lieut. E. L. GRAHAM, McGregor, from Camp Wheeler, Capt. T. R. SEALY, Santa Anna. For duty, from Camp Kelly, Capt. W. F. BONNER, San Antonio; Lieut. D. L. LOWRY, Deus.

To *Houston, Tex.*, Signal Corp Aviation School, for duty, from Camp Gordon, Lieut. J. H. HICKS, Elkhart.

To *New Haven, Conn.*, for duty, from Camp Bowie, Lieut. C. R. GOWEN, Carlsbad. Yale Army Laboratory School, for instruction, Lieut. J. M. HARRIS, Fort Davis.

To report by wire to the commanding general, Southern Department, for assignment to duty, Capt. J. T. WATSON, Dallas; G. C. LAMB, El Paso; Lieut. B. A. RUSSELL, Southmayd.

The following orders have been revoked: To *Camp Lee*, Petersburg, Va., base hospital, Lieut. A. M. HUFFMAN, Polytechnic. To *Camp Hadsworth*, Spartanburg, S. C. for duty, from Camp Humphreys, Lieut. O. H. TIMMINS, San Antonio. To *New Haven, Conn.*, for duty, from Camp MacArthur, Lieut. A. J. STREIT, Marlin.

Utah

To *Camp Fremont*, Palo Alto, Calif., base hospital, Capt. F. N. McHUGH, Salt Lake City.

To *Fort Riley*, base hospital, Capt. A. J. MURPHY, Salt Lake City. For instruction, Capt. J. U. GIESY, Salt Lake City.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. P. S. HAGEMAN, Bingham Canyon.

To *Talmadge, Calif.*, Mendocino State Hospital, for intensive training, Lieut. F. J. CURTIS, Salt Lake City.

Vermont

To *Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, from Camp Upton, Lieut. C. N. PERKINS, Burlington.

To *Camp Meade*, Admiral, Md., for duty, Capt. E. M. CRANE, Hardwick; Lieut. A. E. WARREN, Warren.

To *Fort Oglethorpe* for instruction, Lieut. W. H. GRINNELL, Rutland.

To *Millington, Tenn.*, Park Field, as flight surgeon, from Fort Worth, Capt. A. L. LARNER, Burlington.

Virginia

To *Camp Abraham Eustis*, Lee Hall, Va., base hospital, from Newport News, Lieut. R. K. STACY.

To *Camp Dix*, Wrightstown, N. J., for temporary duty, Lieut. R. H. BROCKWELL, Barnetts.

To *Camp Greene*, Charlotte, N. C., for duty, Capt. E. C. LEVY, Richmond.

To *Camp Logan*, Houston, Tex., for duty, from Washington Barracks, Major L. Powell, Alexander.

To *Camp Meade*, Admiral, Md., for duty, Lieut. F. P. NELSON, Crzet.

To *Camp Sevier*, Greenville, S. C., as division surgeon, from Camp Lee, Lieut. Col. C. E. FRONK.

To *Camp Zachary Taylor*, Louisville, Ky., for duty, from Fort Monroe, Major B. HILLSMAN, Richmond.

To *Fort Oglethorpe* for instruction, Lieut. J. L. HANKINS, Fordwick.

To *Fort Ontario*, N. Y., for temporary duty, from Fort Monroe, Major J. W. HOPE, Hampton.

To *Newport News, Va.*, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. M. FADELEY, Falls Church.

To *New York*, Neurological Institute, for instruction, Lieut. J. L. McDONALD, Richmond.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to *Camp Dix*, Wrightstown, N. J., base hospital, Capt. J. H. COLE, Bennington.

The following order has been revoked: To *Fort Oglethorpe* for instruction, Lieut. E. M. CORNS, Gate City.

Washington

To *Camp Dodge*, Des Moines, Iowa, base hospital, from Vancouver Barracks, Lieut. L. B. COLLIER, Seattle.

To *Camp Lewis*, American Lake, Wash., base hospital, Lieut. W. H. CARVER, Yakima.

To *Camp Logan*, Houston, Texas, as division surgeon, from Camp Lewis, Major H. M. WALSON.

To *Camp Meade*, Admiral, Md., for duty, Lieut. F. P. NELSON, Eustis, Capt. F. H. COLLINS, Goldendale.

To *Fort Ontario*, N. Y., base hospital, from Camp Lewis, Capt. A. H. PEACOCK, Seattle; from Jefferson Barracks, Lieut. G. I. HURLEY, Hoquiam.

To *Fort Riley* for instruction, Capt. H. A. MOUNT, Waitsburg; Lieut. F. A. LONGAKER, Olympia; G. BURKE, Tacoma.

To *Fort Slocum*, N. Y., for duty, from Camp Dix, Lieut. K. S. STAATS, Tacoma.

To *San Francisco*, Letterman General Hospital, for temporary duty, Lieut. S. E. ROSENTHAL, Spokane.

The following order has been revoked: To *Fort Oglethorpe*, for instruction, Lieut. R. S. VAN PELT, Tacoma.

West Virginia

To *Camp Crane*, Allentown, Pa., for temporary duty, from Fort McPherson, Lieut. J. E. HUBBARD, Hinton.

To *Camp Greene*, Charlotte, N. C., for duty, Lieut. H. A. TURK, Newell.

To *Camp Meade*, Admiral, Md., with the board examining the troops for tuberculosis, from New Haven, Lieut. J. W. GILMORE, Wheeling.

To *Camp Shelby*, Hattiesburg, Miss., base hospital, from Camp Jackson, Lieut. L. J. BUTLER, Hansford.

To *Fort Caswell*, N. C., for duty, Capt. A. L. PETERS, Fairmont.

To *Fort Oglethorpe* for instruction, Lieut. C. R. McGUFFIE, McMechen.

To *Walter Reed General Hospital*, Takoma Park, D. C., for duty, from Fort Porter, Capt. C. A. BARLOW, Beverly.

The following order has been revoked: To *Fort Oglethorpe* for instruction, Capt. J. W. McDONALD, Fairmont.

Wisconsin

To *Azalea*, N. C., for duty, from New Haven, Lieut. A. A. PLEYTE, Delafield; Lieut. E. P. ALLEN, Waukesha.

To *Camp Custer*, Battle Creek, Mich., base hospital, Capt. W. ACKERMAN, Milwaukee; Lieut. G. C. WAUFLE, Jamesville. For duty, Lieuts. F. G. DUTTON, Green Bay; G. A. THIELKE, Wausau.

To *Camp Grant*, Rockford, Ill., base hospital, Lieut. J. B. VEDDER, Marshfield. For duty, Lieut. M. A. FRONEY, Racine.

To *Camp Hancock*, Augusta, Ga., base hospital, from Fort Riley, Capt. W. P. FORKIN, Chilton.

To *Camp Joseph E. Johnston*, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. C. N. SONNENBURG, Sheboygan.

To *Camp Sevier*, Greenville, S. C., base hospital, Lieut. J. N. DOYLE, Princeton.

To *Camp Sherman*, Chillicothe, Ohio, base hospital, Lieut. A. J. WEBER, Milwaukee.

To *Fort Oglethorpe* for instruction, Lieuts. L. A. HOFFMAN, Campbellsport; P. C. HODGES, Madison; W. G. SEXTON, Marshfield.

To *Fort Riley* for instruction, Capt. H. A. JEFFERSON, Clintonville; Lieuts. H. J. CRAMBLING, Milwaukee; C. A. HEFTY, New Clarus.

To *Fort Sam Houston, Tex.*, for duty, from Fort Riley, Lieut. C. H. OLIVER, Boyerville.

To *Madison University*, Wis., for duty, Major J. A. E. RYSTER, Madison.

To *Plattsburg Barracks*, N. Y., for duty, from Fort Slocum, Capt. S. BLANTON, Madison.

To *Rochester, Minn.*, Mayo Clinic, for instruction and on completion to *Camp Dodge*, Des Moines, Iowa, base hospital, Capt. E. L. MASEN, Eau Clair.

The following order has been revoked: To *Camp Meade*, Admiral, Md., base hospital, from Camp Crane, Lieut. C. B. RYDELL, Superior.

Wyoming

To *Fort Riley*, base hospital, Capt. G. A. FOX, Cheyenne. For instruction, Capt. M. A. NEWELL, Sheridan.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

College Suspended.—The College of Physicians and Surgeons of San Francisco has discontinued the teaching of medicine, but will retain a nominal existence for the next three years so as to grant diplomas to such students as shall complete their work satisfactorily in other medical schools.

FLORIDA

Appropriation for Venereal Disease Work.—The city council of Jacksonville, July 16, appropriated \$5,000 to the health department for the work of combating the social evil in the city.

The Cleaning of Pensacola.—Dr. Fletcher L. Tatum, assistant health officer, West Florida, during the last three weeks in July inoculated 1,200 people of Pensacola against typhoid fever. Since May, Dr. Tatum has given 3,300 inoculations against typhoid. He has also inaugurated the cleaning up of the waste places of Pensacola.

Health Conference.—A conference of city health officers from Florida municipalities was held in Jacksonville, August 1 to 3, under the presidency of Dr. William H. Cox, city health officer. About forty were present, and among the principal topics of discussion were: the opportunities and obligations of a city health officer, legal procedure, the rights in health work, the methods and needs for keeping correct statistical records, malarial work as a public health measure, soil pollution work, and the venereal disease problem and its relation to public health.

Personal.—Dr. Henry O. Snow, Tampa, has been appointed head of the bureau of venereal diseases for the state of Florida. This assignment carries with it the appointment as acting assistant surgeon, U. S. P. H. S. Dr. Snow will establish clinics in Tallahassee and other cities of Florida for the treatment and control of venereal diseases.—Dr. H. Mason Smith, superintendent of the Florida Hospital for the Insane, Chattahoochee, has resigned to accept a commission in the United States service and has been succeeded by Dr. William M. Bevis, formerly assistant superintendent of the institution.

ILLINOIS

Licenses Revoked.—At a meeting of the Illinois Department of Registration and Education, held August 19, according to report, the licenses of the five following physicians were revoked: William Lewis LeBoy and James Russell Price of Chicago, Samuel Ringgold Harwood of East St. Louis, Edward E. Rohrabough of Hanna City and William L. Owen. The last named is at present serving a term in the Federal Prison at Atlanta, Ga., for illegally prescribing narcotics. Since his conviction in New York his licenses in New York, Pennsylvania, California and now in Illinois have been successively revoked.

INDIANA

Sanatorium Enlarged.—Sunnyside Sanitarium, near Oaklandon, is to be enlarged by a at least sixty-five beds for tuberculous patients. Sixty-five soldiers have been returned to Marion County from training camps throughout the country and more than 5,000 cases of the disease are known to exist in the county. Every effort will be made by the Marion County Society for the Prevention of Tuberculosis to care for these people.

Personal.—Dr. Davis L. Field, Jeffersonville, has been appointed physician at the Indiana Infirmary.—Dr. Cyrus A. Gardner, Kendallville, has been appointed local physician for the Fort Wayne and Northwestern Railroad succeeding Dr. Harold O. Williams.—Dr. John C. Sharrer, Francesville, while driving over a grade crossing at Galien, Mich., July 30, was struck by a Michigan Central train, his automobile was destroyed and he was thrown a distance of more than 100 feet, and on account of the serious nature of his injuries was taken to Mercy Hospital, Benton Harbor.

LOUISIANA

State Board Report.—The biennial report of the Louisiana State Board of Health for 1916-1917, made by Dr. Oscar Dowling, Shreveport, president, March 30, calls attention to the imperative need for the further inspection of important activities, such as the statistics of births, deaths and reportable diseases, the sales of caskets, the control of tuberculosis and other preventable diseases, and the venereal peril. The records of typhoid fever for 1917 show a slight increase over the previous year—due possibly to the greater return of certificates during the latter period—and an increasing demand for antityphoid inoculation. The report also details the excellent results of the extensive community campaigns which were introduced in the state through the help of the Rockefeller Sanitary Commission and the International Health Board. The principal recommendations of Dr. Dowling are that adequate funds be provided, a minimum of 12½ cents per capita, to operate more effectively the thirteen bureaus of general administration, food and drugs, laboratories, finances, vital statistics, child hygiene, public education, preventable diseases, venereal diseases, tuberculosis, sanitary inspection, sanitary engineering and oil inspection; that the service be placed on a merit basis with tenure of office dependent on efficiency; that the state be divided into health districts, preferably eight, with a whole-time officer as director of each appointed by the state board of health, this work requiring the appropriation of \$30,000; that the model law be enforced; that persons suffering from communicable diseases, be isolated; and that more generous appropriations be made for hospitals for the insane and for the state tuberculosis sanatoriums. For this and the other work of the board an appropriation of \$274,074.96 is asked. The report is illustrated and contains morbidity and mortality tables, and reports, also in tabular form, of the sanitary inspections undertaken by the board during the biennium.

MARYLAND

Outbreak of Typhoid.—There have been eighteen or twenty cases of typhoid fever in the upper part of Anne Arundel County during the past week, due to infected milk. It seems

that a workman in a dairy serving the community was ill of typhoid, but his case was diagnosed as malaria. His daughter, who also was ill, was thought by her physician to have been suffering from malaria.

Personal.—Dr. George Edward Lancaster, Baltimore, formerly resident physician at the Dr. Lewis H. Gundry Sanatorium, Relay, has been sent to Fort Slocum, N. Y., for duty.—Dr. Harry H. Johnson, Baltimore, superintendent of Sydenham Hospital, has resigned and expects to leave immediately for Fort Oglethorpe, Ga.—William Drew has been promoted to the position of superintendent of pasteurization in the health department of Baltimore, succeeding Charles McLaughlin, resigned.

Morgue Overcrowded.—Owing to the overcrowded condition of the Baltimore morgue by deaths from heat, Health Commissioner John D. Blake reported to Mayor Preston that he feared an ice famine would seriously interfere with the successful operation of the temporary morgue on President Street. It is not equipped with a cold storage plant and has facilities for only seven bodies. Dr. Blake recommended the erection of a modern plant, with a room for the use of coroners, facilities for seventy-five or 100 bodies, and a room equipped for making necropsies.

New Home for Soldiers.—Through the kindness of Dr. Howard A. Kelly, 160 acres of ground has been set aside on the Severn River as a convalescent camp for soldiers. This camp has been named Camp Purnell, in honor of Colonel Purnell of Fort McHenry. The sick and wounded soldiers from overseas who are brought to this district and placed at Fort McHenry, will, when convalescent, be sent to this spot to regain health and strength. Camp Purnell will likewise be opened to convalescents from all army and naval camps and stations in this section who pass through the wards at Fort McHenry.

MASSACHUSETTS

Personal.—Dr. John F. O'Brien, Boston, has been appointed chairman of the board of trustees of the Municipal Consumptives' Hospital.—Dr. Marion Shepard, Northampton, has been appointed associate professor of physical education and medical adviser of women in the University of Pittsburgh, and will assume the duties of her new position in September.—Dr. Herbert F. Gammons, Boston, has been appointed assistant medical director of the Minnesota State Advisory Committee and will take charge of the Deerwood Tuberculosis Sanatorium.—Dr. Merrill E. Champion, Wollaston, state district health officer, has been appointed director of the division of hygiene of the state department of health.

NEW YORK

State Laboratory Association.—The second annual meeting of the State Association of the Public Health Association was held recently and the following officers were elected: president, Dr. Warren B. Stone, Schenectady; vice president, Dr. J. S. Lawrence, and secretary-treasurer, Dr. Howard I. Davenport, Auburn.

Personal.—Dr. James B. Conant, Amsterdam, who has been under treatment at the Amsterdam Hospital since August 2 on account of an infected wound of the finger, is reported to be convalescent.—Dr. Franklin C. Gram, health commissioner of Buffalo, recently celebrated the twenty-fifth birthday of his connection with the staff of the health department.—Dr. Joseph C. Palmer, health director of the public schools in Syracuse, expects to sail for Italy this month as a member of the American Commission on Tuberculosis in Italy.—Dr. Mary E. Walker, Oswego, is reported to be dangerously ill at her home.—Dr. M. D. Dickinson has been appointed health officer of Troy, succeeding Dr. Calvin E. Nichols, who has resigned after holding the position for eighteen years.

New York City

Nurses' Training Schools Opened.—A nurses' training school is to be opened in September as an adjunct of the United States Base Hospital No. 1, The Bronx, and another in connection with the United States Debarkation Hospital at Fox Hills, Staten Island. These are the second and third nurses' training schools to be established in connection with base hospitals in this country. The first was opened at Spartanburg.

Personal.—Dr. David Hershfield was seriously injured in an automobile accident at Montrose, and is under treatment at the Peekskill Hospital.—Major Edward W. Lee, M. C., U. S. Army, who is on duty in Porto Rico, is reported to be seriously ill with typhoid fever.—Lieut. M. Philip Cowett,

house physician at Bellevue Hospital from 1915 to 1917, has been awarded the *Croix de Guerre* by the French government for gallantry in battle.—Dr. Frank J. Monaghan of Brooklyn has been appointed acting deputy commissioner in charge in Brooklyn.

Course for Laboratory Aids.—New York University and Bellevue Hospital Medical College have arranged a special three months' course for those who wish to qualify as laboratory assistants in bacteriologic work for immediate service in camps and hospitals. The Surgeon-General's Office has issued a call for those assistants. The course is arranged by Dr. William H. Park, director of laboratories for the health department, and Dr. Anna W. Williams, assistant director. It will open September 4. The fee is \$75; a few scholarships may be available. Preference will be given to college women with some preliminary training. Applications may be made to Dr. Park at the New York Department of Health.

Yonkers Convalescent Home for Government.—Construction work is to be started in a few weeks on the convalescent home for which provision was made in the will of Mrs. Caroline Neustadter. Mrs. Neustadter bequeathed \$1,000,000 for this purpose, of which \$250,000 is to be used in the construction of buildings, and the income from the remainder is to be used for maintenance. The trustees announce their intention of offering the institution to the government when it is completed and fully equipped to be used as a hospital for officers. The plans provide accommodations for seventy-five patients, but it will be possible to care for a much larger number.

Influenza Arrives in New York.—Two steamships, one from Norway and one from another Scandinavian port, arrived in New York, August 14 and 15, having on board a number of cases of so-called Spanish influenza. The ships were not held up at quarantine, as influenza is not a quarantinable disease and such a procedure would interfere to too great an extent with shipping to be adopted with any affection other than those diseases generally recognized as proper diseases against which to declare marine quarantine. The United States Public Health Service has received full reports of the presence of Spanish influenza in New York but will take no steps to establish a quarantine against the disease. The New York Department of Health, following a conference on the subject, has inaugurated a campaign against influenza and all similar diseases. Every ship which brings a case of influenza will be registered with the board of health and the health inspectors will obtain from the immigration authorities the destination of the cases reported.

NORTH CAROLINA

Typhoid.—There are said to be sixteen cases of typhoid fever in Forsyth County, eleven in Broad Bay Township. This epidemic is attributable to bad sanitary conditions, mainly, open unsanitary privies.—A typhoid epidemic is reported among the German sailors and civilians at the Internment Camp, Hot Springs, where it is said there have been 150 cases with eleven deaths. Shallow wells are said to be responsible for the infection.—During the three weeks in July there were 220 cases of typhoid fever reported, bringing the total for the first three weeks of the month up to 596 cases. The state board of health is furnishing typhoid vaccine free to all who apply for it. Mecklenburg County leads the state in the number of cases of typhoid.

Failure to Report Disease.—During the past month more than twenty physicians have been prosecuted for violations of the state quarantine laws in failing to report communicable disease. The requirements of the law are plainly stated in the act itself, and every practitioner has had placed in his hands copies of the statute during the last year, and every effort has been made by the authorities to secure reports without presenting physicians to the courts. The importance of the subject in relation to the draftees from every community reporting to the various mobilization camps throughout the nation renders more imperative than usual the enforcement of the laws requiring the reporting of all contagious and infectious disorders. The fines assessed were very nominal for first offenses, totaling in twenty-one cases \$59.01, but it is understood the trial judges have announced their intention to make second or later convictions yield much larger sums for the school funds which receive the income from fines in criminal cases in this state. The net cost of the prosecution of the cases was \$320.

PENNSYLVANIA

Course in Public Health Nursing.—Beginning October 1, the Carnegie Institute of Technology announces that a four-year course in public health nursing will be opened by the general science department at the Margaret Morrison Carnegie School. The schedule of studies includes English, physics, chemistry, biology, physiology, foods, hygiene and physical training in the freshman year; microbiology, sanitary science, public health, industrial hygiene, public health nursing, dietetics and social work in the sophomore year, and theoretical and practical instructions in nursing for those who satisfactorily finish the first two years' work, in the junior and senior years. The graduates may be expected to find employment in school inspection, factory and industrial, public health and welfare work.

Philadelphia

Personal.—Dr. Robert Howland Chase has resigned as medical superintendent of the Friends' Hospital, Frankford (Frankford Insane Asylum), after a service there of twenty-five years. Dr. Albert C. Buckley, who became assistant at the Friends' Hospital in 1906 and who was promoted to clinical director two years ago, has been made medical superintendent to succeed Dr. Chase.

Campaign Against Tuberculosis.—Plans have been completed for a campaign of education among negroes in Philadelphia to check the spread of tuberculosis. The work will be under the direction of physicians and nurses in cooperation with the Philadelphia Tuberculosis Committee. The campaign was opened with a mass meeting at the McCoach Playground, Catherine and Seventeenth Streets. The members of the committee in charge of the work are: Isadore Martin, Dr. T. Spotuas Burwell, A. L. Manley, Mrs. A. W. Blackwell and Dr. Algernon B. Jackson.

SOUTH CAROLINA

Hospital Items.—The board of governors of the Greenville City Hospital, finance committee of the city council and the mayor of Greenville held a conference, July 29, and decided that the work on the new hospital building be started at once. The building will cost \$130,000, will be an addition to the present structure, will be three stories in height, practically fireproof, and will contain about forty rooms for the accommodation of patients.—The Union Hospital, Union, was incorporated, July 18, with a capital stock of \$1,800.

SOUTH DAKOTA

Reorganization Meeting.—The Third District Medical Society, which was divided at the last state meeting, held at Mitchell in May, met for the purpose of reorganization, at the Lake Madison Chautauqua Grounds, July 31, under the presidency of Dr. Burtis T. Green, Brookings. Dr. John C. Baker, Ramona, is secretary of the association which includes the counties of Beadle, Kingsbury, Brookings, Miner and Lake.

Personal.—A farewell dinner was given at Sioux Falls to Capt. William F. Keller and Lieut. D. Willard Craig, who have entered the military service. The mayor presided as toastmaster. Captain Keller was for twelve years city health officer.—Dr. William M. Housman, Dell Rapids, was seriously injured by the overturning of his automobile, near Dell Rapids, July 9. His injuries consist of a punctured right lung, three fractured ribs, and a number of contusions about the head and body.

UTAH

Personal.—Dr. Ephraim G. Hughes, consulting surgeon of the State Memorial Hospital, Provo, has resigned.—Dr. Edwin M. Neher, Price, chairman of the local medical advisory board who is leaving the state, was the guest of honor at a dinner, July 31.—Dr. Ephraim G. Gowans, Salt Lake City, was elected chairman of the child welfare committee of the State Council of Defense at its meeting, August 2.

WISCONSIN

Quarantine for Infantile Paralysis.—Platteville has been quarantined on account of the presence of infantile paralysis in the city. Children under 16 years of age are forbidden to leave their home premises, and no children are permitted to leave or enter the city until notification by the authorities.

Site for Wolcott Statue Selected.—The bronze equestrian statue of Dr. Erasmus B. Wolcott, for the erection of which his widow provided \$31,500 in her will, is to be erected in Lake Park, Milwaukee, near the concrete bridge on the lake

drive. Dr. Wolcott was a pioneer resident of Milwaukee, and surgeon-general of the state during the Civil War.

Personal.—Dr. Herbert L. Wright, for three years health commissioner of Kenosha, has resigned to accept a similar position at Lansing, Mich.—Fond du Lac County Medical Society tendered a supper, July 30, to Drs. Frederick M. Harris, Fond du Lac, and John M. A. Baasen, North Calvary, who are ordered to duty at New Haven, Conn., and Fort Riley, Kan., respectively.

Health Conference.—The fourth biennial conference of health officers of Wisconsin was held in Madison, August 7 and 8. Among the more important subjects discussed were serum and vaccines, public health work, the guarding of health in war times, water supplies and sewage disposals, summer resort sanitation, industrial waste problems, institutional treatment for venereal disease control, open air schools, nuisances and their control by the local health officer, health officers who are not physicians, health work in townships and laboratory service of the state, necessary activities of boards of health, the power to enforce quarantine, how and where a city or village can be in a sanitary condition, and the control of infantile paralysis.

CANADA

Public Health Notes.—Dr. Charles J. C. O. Hastings, M.O.H., Toronto, is asking the board of health of that city to undertake a survey of citizens to ascertain the prevalence of tuberculosis in Toronto, and to see if present methods of control are adequate and if the money is being spent to the best advantage. Nine years ago there were six institutions in Canada caring for the tuberculous. The accommodation was then 350 beds; now it is about 3,000 beds. It cost about \$150,000 nine years ago to maintain those institutions, whereas at the present time about \$900,000 is spent on maintenance, apart from that spent by the Soldiers' Aid Commission. Three million dollars have been spent in plants in Canada which is considerably less than that spent on ordinary hospitals with similar accommodation.

Hospital News.—A new hospital is being built at Kanaskis, near Banff, Alta. It is to cost \$400,000, of which the Dominion government and the Province of Alberta will each pay one half, and will accommodate 300 patients.—The Saskatchewan Hospital Unit is now stationed in Lorraine, France.—Winnipeg General Hospital is asking the city for \$60,000 to meet urgent expenses.—The wards in the Isolation Hospital, Toronto, are no longer free. Rates in the public wards are \$1.25 a day; semiprivate, \$2, and private wards, \$3.—The revenue of the Winnipeg General Hospital last year was \$417,292, and the expenditures, \$476,507. There were 4,387 general operations, and 22,130 in the roentgen-ray and the hydrotherapeutic departments.—The MacLaughlin Companies, Oshawa, Ont., have donated a maternity hospital to the town. It is called the Llewellyn Maternity Hospital.

GENERAL

Dairy Food Convention.—The twenty-second annual convention of the Association of American Dairy Food and Drug Officials will be held in Chicago, August 27 to 30. The principal sessions will be held at the Congress Hotel, and the chief subjects for discussion will be the safeguarding of the country's food supply, food scarcity, high prices, and the temptation offered to unscrupulous dealers and manufacturers to place on the market unhealthful substitutes and inferior products.

Five Conferences on Tuberculosis.—The National Tuberculosis Association announces that it has plans under way for five conferences covering the country in geographic sections to consider practical measures for coping with tuberculosis as a war problem. The questions discussed will be means of providing adequate care for the thousands of soldiers and sailors already discharged from the Army and Navy on account of tuberculosis, and the still greater number rejected in the draft for the same reason, and also the question of educating the civilian population more fully regarding tuberculosis during the war and thus combating its further spread in the community. The conferences are to be held as follows: Spokane, Wash., September 27-28; Denver, October 2-4; Birmingham, Ala., October 11-12; Pittsburgh, October 17-18; Providence, R. I., October 25-26. The association is making efforts to have the attendance at these conferences as large as possible. All health officers, dispensary physicians, visiting nurses and others interested in the problem of tuberculosis are urged to attend.

FOREIGN

Deaths in the Profession Abroad.—Dr. A. Key-Aberg, professor of legal medicine at the University of Stockholm, and the only regular professor of this branch of science in Sweden, which he taught in connection with pathologic anatomy. He had published important works on sudden death from arteriosclerosis, child murder, etc.—The *Hospitalstidende* mentions the death of M. Wilms, the successor of Trendelenburg in the chair of surgery at Leipzig and later of Czerny at Heidelberg, aged 50.

Oil from Marshes.—The *Nederlandsch Tijdschrift* states that R. Francé, the biologist, living in Munich, has succeeded in expressing the oil from the cells of a low organism which lives in stagnant waters. The oil is said to have a melting point of 40 C., and the chemist Buchner affirms that it is the equal at least of coco oil. It is estimated that 100,000 kg. of good oil can be obtained per month in this way, and ichthyol, silicium and a nitrogenous fertilizer can be obtained from the waste.

Sanatorium and Hospital for Refugee Children.—A villa at Posillipo has been fitted up for a hospital and sanatorium for the refugee children in the province of Naples. It is in charge of Prof. G. Tropeano, and provisions have been made for ten pavilions. One, for observation, has 25 beds, the eye pavilion has 40 beds, the surgical 80, the skin diseases pavilion 40, the gastro-intestinal 100 beds and the diseases of the chest 80 beds. There is a station for heliotherapy, equipped with 100 beds, and a seacoast station, in connection, with 200 beds. At present 250 children are housed in the institution and others in the annexed stations.

School for Training in Infant Welfare Work.—The commencement exercises of the Ecole de puériculture at Bordeaux, France, recently graduated thirty-seven women who had completed the course. The school trains for positions as superintendents, assistants, visitors, inspectors and other positions in the general system of welfare work for young children, such as day nurseries, milk stations, nursing consultations and quarters where mothers working in factories can leave their children and come to nurse them. The school plans further to train in mothercraft, mothers, young girls, nurse girls and others. The school is under the patronage of the Union des femmes de France.

Extra Rations for the Sick in Norway.—In both Denmark and Norway, the sick are able to obtain extra rations on a medical certificate. In Norway the matter has been simplified by having a list of the different foods in question printed on the ration card, and the physician has merely to inscribe the quantity. The physicians have already been informed by a circular from the government for what diseases certain food can be allowed in extra ration. On the ration card he has merely to state that the disease is acute or chronic. For chronic disease the certificate is good for twelve weeks; for acute, merely during the period he specifies. All the certificates are to be examined to protect against abuses, to prevent one person getting certificates from several physicians, or one physician being too prodigal in giving out certificates. The authorities also will seek to prevent a person's getting extra rations under different claims for different diseases.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Annual Meeting of Brazilian Neurologists and Psychiatrists.—The date, November 3, has been appointed for the second Congresso Brasileiro de Neurologia, Psiquiatria e Medicina Legal, which is to convene at São Paulo this fall. Prof. F. da Rocha of S. Paulo is to preside; Dr. E. Vampré is the secretary.

Peru to Have a Sanatorium for the Tuberculous.—Our Lima exchanges give the details of the first antituberculosis sanatorium to be constructed in Peru, for which plans are now being made by the Sociedad de Beneficencia of Lima, a sum of about \$50,000 having been bequeathed to the society for the purpose some years ago. A sanatorium with pavilions for paying and for charity patients is planned, and it is proposed to locate it near the city of Jauja as suggested by the testator. This site is not regarded by the commission in charge of the matter as particularly well chosen. As natural drainage is out of the question, the septic tank system is to be installed. The water supply will be by wells. The buildings now planned will cost considerably more than twice the amount of the bequest, so that only the free pavilions are to be erected at first.

BUENOS AIRES LETTER

BUENOS AIRES, July 9, 1918.

South American Conference on Hygiene, Microbiology
and Pathology

The second biennial reunion of those interested in these branches of science is to be held at Rio de Janeiro, October 15 of the current year, according to the announcement of the committee of organization. The first conference of the kind convened at Buenos Aires in September, 1916, and a volume of the transactions has been published. All the countries in South America have been invited to the approaching meeting.

Conferring of Degrees and Prizes

The medical faculty of the university here at the annual exercises conferred degrees and awarded the following prizes: The Faculty prize for the best thesis was given to Dr. A. Gutierrez, a 1916 *ex-alumno*, for his thesis on the topographic anatomy of the peritoneum; the E. Wilde prize for the best thesis on legal medicine was awarded to Dr. O. Loudet, a 1916 *ex-alumno*, for his thesis on "Passion in Crime." The prize for the best work published in the country was conferred on Dr. P. Escalada for his work on radium therapy, entitled "Curoterapia." The gold medal awarded by the school of pharmacy was given to señorita Lola Pastorelli, and *diplomas de honor* were given to A. Arnaboldi, Sara L. Irigoyen, Maria Deco and Alberto Dondiz. The recipients of the gold medal awarded by the school of odontology were the *ex-alumnos* L. T. Larequi and J. P. Icart, with a *diploma de honor* given to M. P. Meurville. The school of obstetrics conferred *diplomas de honor* on Margarita D'Abbondio, Juana de Franco and Elisa B. de Rodriguez.

The gold medal awarded by the medical school for the 1916 course was given to Dr. O. M. Pico, and *diplomas de honor* were given to Drs. A. J. Vitale, C. A. Correas, R. B. Moron, Virginia Peradotto, A. Astiz, Sara Satanowsky, J. L. Celazco, E. Icasati and D. B. Brian.

The Campaign Against Cancer

Dr. Angel H. Roffo, who has specialized in experimental research on cancer, delivered a lecture, July 1, at the Instituto Popular on the anticancer campaign. He described his own extensive and prolonged investigations on the transplantation of tumors of white rats, and his attempts at chemotherapy, commenting on the scanty local initiative devoted to this object. The Academia de Medicina began the construction of an institute for cancer research, with a small hospital annexed, but its construction has been suspended. The Departamento Nacional de Higiene maintains a cancer section, in charge of Roffo, in the Instituto Nacional de Bacteriologia.

LONDON LETTER

LONDON, July 16, 1918.

Trinitrotoluene Poisoning

The report of the factory inspectors on trinitrotoluene has just been issued. The investigations into this form of poisoning made during the war have resulted in a gratifying decrease in the number of cases. A remarkable feature of the disease is the length of time that may elapse between absorption of the poison and the development of jaundice or anemia. The most extreme case reported was that of a woman, who, after two months' work in processes in the manufacture of trinitrotoluene, was transferred to another department. Over seven months later a sparrow fell on her head. Toxic jaundice developed a week later, and proved fatal in a fortnight. Skin absorption of trinitrotoluene is a difficult condition to overcome. Gloves were provided and worn by the million, but they never adequately protected the skin, and eventually were regarded more as a source of danger than a safeguard, and their use given up. It was the same also with the continuous wearing of respirators, which has proved an impracticable remedy; but it is not so, fortunately, with regard to exhaust ventilation locally applied.

Dearth of Drugs

At the annual meeting of the British Pharmaceutical Society, the president, Mr. C. A. Hill, dealt with the supply of drugs in war time. In some instances, he said, stocks are becoming dangerously low—in fact, approaching exhaustion—and are not replaceable without government assistance. Among the drugs referred to were: Asafetida: Almost a famine prevails in this article, as with most others from the

Persian Gulf. Calumba root: There is at present a famine in this drug, and anything available would fetch more than twelve times the prewar price. Cascara sagrada: Stocks have steadily diminished, and the price is steadily advancing. Ergot: Little is coming in from Russia, and the market is now dependent on Spain and Portugal. Galbanum: This is now unobtainable. Liquorice root: The present price is fourteen times as great as the prewar price, and the quality is much inferior. Balsam of Tolu: The shipping difficulty is answerable for the scarcity. Benzoin: Every parcel which arrives realizes extravagant prices. Buchu leaves: The prices realized are exorbitant. Jalap: Owing to the scarcity, prices have quadrupled since the war. Sarsaparilla: Owing to its bulky nature, shipping space can seldom be secured. Turmeric: The market is bare of all grades. The following drugs from enemy countries are quite unobtainable: storax, hellebore, Austrian stramonium, uva urst, scammony, Turkish opium, Turkish tragacanth and Bulgarian attar of roses. Fortunately, the cultivation of certain drugs in this country has furnished adequate supplies; these drugs are colchicum, digitalis, poppy heads, belladonna and henbane. Referring to the scarcity of saccharin, the president said that as the article was controlled by the government there was no safety valve such as would be provided by the law of supply and demand in the form of an increased price. The reply given by the French government to the British government in answer to an inquiry regarding the reasons which had led to the ban on saccharin foodstuffs in France was to the effect that where sugar entered into an article for other than mere sweetening purposes it was not considered desirable in the public interest that it should be omitted and its place taken by some less useful substitute, plus the small quantity of saccharin necessary for sweetening.

American Hospitals in England

The accommodation for American wounded in England is constantly increasing. Near Southampton, Sarisbury Court, a military hospital for nearly 3,000 men is being erected. The old Manor House will be the center of 10 acres of huts. The old vegetable garden will be intensively cultivated so as largely to supply the hospital. The ambulances which meet the hospital ships will carry the wounded to a very pleasant estate. In London the Army Council has arranged to take over the southern and northeastern hospitals of the Metropolitan Asylums Board for Americans. In Portsmouth the corporation has agreed to hand over the local mental hospital for the same purpose.

PARIS LETTER

PARIS, July 11,, 1918.

Death of Professor Grasset

Dr. Joseph Grasset, honorary professor in the Montpellier Medical Faculty, has recently died, aged 69. Grasset was born in Montpellier in 1849, studied, worked and died there. He was a hospital intern in 1871, assistant in therapeutics in 1875, and professor in 1881. In 1886 he assumed the chair of clinical medicine which he held for the remainder of his active life as a teacher. Grasset early began to specialize in diseases of the nervous system. In 1878, he published his "Traité pratique des maladies du système nerveux," which went through four editions (the fourth in collaboration with Professor Rauzier appeared in 1894). Later he took up the study of psychology, normal and morbid. In 1904 he published a study, "Spiritisme devant la science"; in 1908, "L'Occultisme hier et aujourd'hui" (translated into English). He also published a series of works on the responsibility of criminals, notably a book entitled "Demi-fous et Demi-responsables," (also translated into English). During the later years of his professorial work he taught pathology and general therapeutics, and published two voluminous treatises, "Physiopathologie clinique" in three volumes (1910-1912) and on "Thérapeutique générale" in two volumes (1913-1914). Professor Grasset was national associate of the Académie de médecine since 1898.

Ear Disturbances of Military Aviators

Dr. A. Castex recently reported the results of his examination of aviators at the military hospital at Villemin, at Paris and at the *Centre d'aviation* at Borget. During the ascent the disturbances of which the aviator may be the victim are characteristic of a general fatigue due to the rapid fall of atmospheric pressure. In full flight, at a height of about 5,000 meters, he suffers from pain in the ears, fulness of the head, somnolence and apathy. During the descent, there is again pain and buzzing in the ears, which cease as

soon as the aviator makes a landing. Finally, after landing, he may have transitory deafness and sometimes a reeling gait. Otoscopy showed that during the descent a congestion of all the auditory apparatus is produced.

In some aviators a progressive diminution of labyrinthine perception is noted. At times, latent disturbances in the superior respiratory tract may be adjuvant causes of the deafness (tubotympanic catarrh, the beginning of an otosclerosis, hypertrophic rhinitis, malformation of the septum, adenoids and enlarged tonsils). Most of these disturbances are due to the changes in atmospheric pressure, caused by the differences in air pressure, from which the aviators will be relieved if, during the ascent, they will make use of Valsalva's experiment and during the descent, of Toynbee's.

Factitious Mumps

Dr. F. Trémollières and L. Caussade called the attention of the Société médicale des hôpitaux de Paris to a little known method of simulating mumps which they had occasion to witness among the soldiers of a regiment of Moroccan tirailleurs. In order to produce a swelling in the parotid region the soldier inflated his cheeks forcibly by pinching his nares and placing his hand over his mouth.

Obligatory Revaccination of Public Officials

A decree has been issued by the minister of the interior which makes it obligatory on all persons—whatever the age—who are attached to the permanent, temporary or auxiliary personnel of the administration of the state, and of all the subordinate services, to be vaccinated or revaccinated if they cannot, within ten days at the latest, furnish a medical certificate stating that they had been vaccinated successfully within the preceding five years. Infraction of this decree is punishable by a fine, without prejudice of the *sanction disciplinaires*.

Prize Awarded by the Academy of Sciences

Among the prizes offered by the Academy of Sciences is the Montyon prize, consisting of 2,500 francs. This prize has been awarded to Drs. Henri Guillemard and André Labat, of the Medical Faculty of Paris, for their research work on asphyxiating gases.

Death of Dr. Bonnaire

Dr. E. Bonnaire, a member of the medical faculty of Paris and obstetrician to the hospitals, died at the age of 60 years from a malady contracted on a tour of inspection of the *pouponnières d'usines de guerre* (arrangements for children whose mothers are working in war factories).

Personal

At the meeting of July 30, the Académie de médecine elected a vice president for 1918 to succeed the late Professor Pozzi. Dr. Delorme, médecin inspecteur général of the Service de Santé militaire and director of the Ecole d'application de médecine et de pharmacie militaires of Val-de-Grâce, was elected to this office. Conforming to the regulations of the Academy, the vice president succeeds to the presidency the following year.

Marriages

CAPT. ALFRED ISADOR LOWENTHAL, M. R. C., U. S. Army, New York City, on duty with the U. S. Base Hospital at Edgewood, Md., to Miss Dora Bernice Bryfogle of East Akron, N. Y., August 6.

LIEUT. EMMETT CHARLES SCHOOLFIELD, M. R. C., U. S. Army, Cleveland, on duty in Denton, Texas, to Miss Blanche M. Featherstone, also of Cleveland, recently.

LIEUT. JOHN JOSEPH McDERMOTT, M. R. C., U. S. Army, Patchogue, L. I., N. Y., to Miss Margaret Louise Feiner, at Ann Arbor, Mich., August 14.

FRANCIS MANLY STUMP, San Bernardino, Calif., to Miss Edith Helen Miller of Loma Linda, Calif., June 30.

WILLIAM LEIGH WILLIAMSON, Bayonne, N. J., to Miss Mary T. O'Neill of West Hoboken, N. J., August 15.

JAMES CLAUDE KESSLER, Iowa City, Iowa, to Miss Laura Ethel Sayre of St. Charles, Iowa, June 27.

CHARLES HENRY PEETE to Miss Lucy Pettway Jones, both of Warrenton, N. C., July 3

Deaths

Luther Halsey Gulick, New York City; New York University, New York City, 1889; aged 52; an associate Fellow of the American Medical Association; for many years physical director of Y. M. C. A., in Michigan and Massachusetts and in the public schools of New York City; editor of *Physical Education*, from 1891 to 1896; of the *Association Outlook*, from 1897 to 1900; of the *Physical Education Review*, from 1901 to 1903, and of the *Gulick Hygiene Series*; a member of the Olympic Games Committee in 1906 and 1908; consultant to the New York Hospital for Deformities and Joint Diseases; president of the American Physical Association, from 1903 to 1906; of the Public Physical Training Society, from 1905 to 1908; and of the Playground Association of America from 1906 to 1909; an authority on physical training and author of many books and monographs on the subject; died at his summer home in South Casco, Maine, August 13.

William Houston Greene, Philadelphia, Jefferson Medical College, 1873; aged 64; a Fellow of the American Medical Association; assistant professor of chemistry from 1870 to 1877; and demonstrator of chemistry from 1875 to 1877 in his alma mater; demonstrator of chemistry in the University of Pennsylvania, from 1879 to 1880; professor of chemistry of the Central High School, Philadelphia, from 1880 to 1892; author of many works on chemistry and American editor of Paul Berts' *First Steps in Scientific Knowledge*; a chemist of international repute; died in his summer home, Wenonah, N. J., August 8, from heart disease.

Frederick Lyman Hills, Pittsford, Vt.; College of Physicians and Surgeons in the City of New York, 1892; aged 47; a Fellow of the American Medical Association, and a member of the American Medico-Psychological Association; and National Association for the Study and Prevention of Tuberculosis; who was appointed first assistant to the New Hampshire Hospital, Concord, N. H., in 1897, and was later one of the commission to select this site for the State Sanatorium, and later in 1907 became superintendent of the State Sanatorium, Rutland, Mass., and in 1910 of the Maine State Hospital, Bangor; died in New York City, July 29, from pneumonia.

Jacob H. Gallinger, Concord, N. H.; New York Homeopathic Medical College, 1868; aged 81; a practitioner of Concord from 1862 to 1865; surgeon-general of the state with rank of brigadier-general in 1879 and 1880; a member of the state legislature from 1872 to 1873, and in 1891; state senator from 1878 to 1880 and during the last two years president of the senate; a member of the forty-ninth and fiftieth Congresses and United States Senator from New Hampshire since 1891; died in the Franklin (N. H.) Hospital, August 17, from arteriosclerosis.

William Phillip Mathews, Richmond, Va.; Medical College of Virginia, Richmond, 1890; aged 50; a Fellow of the American Medical Association; a member of the Southern Surgical and Gynecological Association; professor of anatomy and orthopedic surgery in his alma mater; orthopedic surgeon to the Old Dominion Hospital, Richmond; president of the Board of Health of Manchester, Va., during 1900 and 1901; died at his home, July 25.

Capt. Paul Eugene Betowski, M. R. C., U. S. Army, Waverly, N. Y., Long Island College Hospital, Brooklyn, 1907; aged 37; a Fellow of the American Medical Association; from 1912 to 1917 surgeon-in-chief of the New York State Soldiers and Sailors Home, Bath; attached to the Six Hundred and Sixty-Sixth Aero Squadron, American E. F., France; died, July 2, from injuries due to an automobile accident.

John Shields McGinness, Lock Haven, Pa.; University of Pennsylvania, Philadelphia, 1864; aged 77; assistant surgeon of the Two Hundred and Seventy-Seventh and One Hundred and Ninety-Ninth Pennsylvania Volunteer Infantry, and later surgeon of the One Hundredth New York Volunteer Infantry, and Thirty-Ninth Illinois Volunteer Infantry during the Civil War; died at his home, August 8, from heart disease.

Capt. John Carmichael, C. A. M. C., Collingwood, Ont.; Queens University, Kingston, Ont., 1915; aged 29; who had been in France for nearly two years, and was attached to No. 8 Canadian Field Ambulance; while on duty at an advanced dressing station, and returning from a visit to the regimental aid post of one of the battalions in the trenches, April 4, was wounded and died eight hours later.

Frederick Nelson Tannar, Baltimore; Maryland Medical College, Baltimore, 1900; aged 43; professor of pediatrics

and medical jurisprudence in his alma mater; attending physician to the Franklin Square Hospital, and Robert Garrett Hospital for Children; died at the Church Home and Infirmary, Baltimore, August 5, after a surgical operation for disease of the intestine.

Helen Crittenden, Evanston, Ill.; Northwestern University Woman's Medical School, Chicago, 1894; organizer and director until her death of the Social Service Registration Bureau of the Chicago Bureau of Charities; president of the Social Service Club in 1913, and a lecturer in the Chicago School of Civics and Philanthropy; died at her home, August 15.

August H. Rickoff, Chamois, Mo.; St. Louis College of Physicians and Surgeons, 1893; aged 54; a member of the Missouri State Medical Association; coroner of Osage County; local surgeon for the Missouri Pacific System, and representative from Osage County in the forty-ninth General Assembly; died at his home, August 4, from cerebral hemorrhage.

Edgar John Leary, Sudbury, Ont.; University of Toronto, Ont., 1912; aged 31; who had seen two years' service in France as a medical student, and later was a member of the staff of the Mimico, Ont., Hospital for the Insane, and then entered the service of the Canadian Copper Company, was drowned in Meat Bird Lake, near Sudbury, Ont., August 8.

Samuel Frederick Anderson, Brooklyn; Long Island College Hospital, Brooklyn, 1890; aged 53; a member of the Medical Society of the State of New York; assistant laryngologist to the Methodist Episcopal Dispensary; died at his country home, Seaside Park, N. J., August 5, from acute gastritis.

Joseph Edward Ziliak, Evansville, Ind.; University of Michigan, Ann Arbor, 1893; aged 40; local surgeon to the Evansville and Terre Haute Railroad; for several years milk inspector of the city; died at St. Mary's Hospital, Evansville, July 16, a day after an operation for the relief of disease of the stomach.

Lieut. Francis Oral Vicars, M. R. C., U. S. Army, Livingston, Mont.; Chicago College of Medicine and Surgery, 1907; aged 38; was drowned by the overturning of his boat while crossing the Yellowstone River at Carter's Bridge, on his way to the Vicar's ranch, July 23.

Freeman R. Chaffee, Lucy, Tenn.; Memphis, Tenn., Hospital Medical College, 1904; aged 43; a Fellow of the American Medical Association; local surgeon for the Illinois Central System at Lucy; died at his home, August 2.

Lon Naylor, Hickman, Ky.; Louisville, Ky., Medical College, 1898; aged 42; a Fellow of the American Medical Association; and president of the Fulton County Medical Society; died in Denver, July 12, from tuberculosis.

Benjamin F. Green, Hickory, Ky.; St. Louis College of Physicians and Surgeons, 1889; aged 64; a member of the Kentucky State Medical Association; died at his home, near Hickory, July 11, from basilar meningitis.

William Henry Lawrence, Summit, N. J.; New York University, New York City, 1877; a member of the Medical Society of New Jersey; formerly sheriff of Union County, N. J., died at his home, August 5.

Judson Thomas Beall, Akron, Ohio; Starling Medical College, Columbus, Ohio, 1881; aged 60; a Fellow of the American Medical Association; died at his home, August 9, from cerebral hemorrhage.

Charles M. Taylor, Corinth, Miss.; Tulane University, New Orleans, 1892; aged 51; a Fellow of the American Medical Association; died in the Baptist Memorial Hospital, Memphis, Tenn., July 19.

Howard H. Dawson, Phoenix, Ariz.; Denver College of Medicine, 1890; aged 51; formerly local surgeon of the Rio Grande Southern Railroad, at Rico, Colo.; died at his home, August 9.

Frank Albert Crossman, Dorchester, Boston; New York University, New York City, 1882; aged 59; a member of the Massachusetts Medical Society; died at his home, August 5.

William S. Gass, Royal Oak, Mich.; Detroit College of Medicine and Surgery, 1899; aged 44; died at his home, July 30, from carcinoma of the tongue.

Kurre W. Ostram, Quakertown, Pa.; Royal University, Upsala, Sweden, 1888; aged 52; died at his home, March 20, from pneumonia.

John Swiney Amyx, Amsterdam, Mo.; Kansas City, Mo., Medical College, 1896; aged 54; died at his home, June 26.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

IODINIZED EMULSION (SCOTT) AND CREOSOTONIC (SCOTT)

Report of the Council on Pharmacy and Chemistry

"Iodinized Emulsion (Scott)" and "Creosotonic (Scott)" are proprietary preparations of the Dawson Pharmacal Company, Dawson Springs, Ky. The latter preparation used to be known as "Iodinized Emulsion (Scott) with Hypophosphites, Guaiacol and Creosote." In 1907 these preparations were considered by the Council and found inadmissible to New and Nonofficial Remedies. Examination of the preparations having been again requested, the Council considered them anew because the composition and claims had been changed somewhat and because at the previous consideration no report was published.

The reports which appear below were sent to the Dawson Pharmacal Company for comment before publication. In reply the company offered to revise its claims for the preparations. The Council replied that the report sent explained that both preparations are irrational mixtures, and hence a revision of the claims would not make them eligible for New and Nonofficial Remedies. It advised that publication of the report would be withheld sixty days and that it would be revised if new information or evidence was submitted permitting such revision. After expiration of the stipulated postponement, the Dawson Pharmacal Company wrote that no new advertising matter had been prepared but that the old circulars were not being sent out.

As these irrational preparations were still sold and advertised to the medical profession and presumably used by some physicians, the Council directed publication of its report with this explanation.

W. A. PUCKNER, Secretary.

Iodinized Emulsion (Scott)

The label for Iodinized Emulsion (Scott) declares:

"Each fluidram contains: Alcohol, m. $4\frac{3}{4}$; Rectified Ol. of Turpentine, m. $3\frac{1}{2}$; Iodin, gr. $\frac{1}{8}$; Phenol, gr. $\frac{1}{2}$; Glycerine and Elixir Lactated Pepsin with Aromatic Oils in the form of a perfect emulsion."

A circular, which gives what is asserted to be the composition of Iodinized Emulsion, declares that, among other ingredients, each fluidram contains "one and three quarters m. Tincture of Iodine." Both the statement on the label that the preparation contains "iodin" and the one in the circular that tincture of iodine is present in the product are incorrect, for the A. M. A. Chemical Laboratory reports that no free iodine could be detected in the preparation, and that it responded to tests for iodide instead.

An advertising circular for Iodinized Emulsion (Scott) makes unwarranted claims for the therapeutic properties of the constituents. For example:

"... the great usefulness of Turpentine in diseases, especially of the Intestinal Infection, such as the Meteorism and Tympanites of Typhoid."

And this absurdity:

"... where Turpentine, Carbolic Acid or Iodine or even Pepsin is indicated, that it will give satisfaction in each and every case."

Iodinized Emulsion (Scott) is not a "pharmaceutical triumph"; it is an irrational mixture—a reminder of a decadent polypharmacy—sold under misleading and unwarranted claims. It is inadmissible to New and Nonofficial Remedies for conflict with Rules 1, 6, 8 and 10.

Creosotonic (Scott)

Creosotonic (Scott), advertised as a "reconstructive tonic" for the tuberculous, according to the label, contains in each fluidram:

"Alcohol, m. 2½; Creosote and Guaiacol sulphonates of each, gr. 1; Compound Hypophosphites, gr. 1 (including Quinine Hypophosphites, gr. 1/36 and Strychnine Hypophosphites, gr. 1/256), with Iodinized Emulsion (Scott) m. 30."

As in the case of Iodinized Emulsion (Scott), the advertising makes exaggerated therapeutic claims for the individual constituents of the preparation and for the heterogeneous mixture of guaiacol and creosote sulphonates, hypophosphites, quinin, strychnin, turpentine, phenol, iodine, "lactated pepsin," etc. Thus, while it is well established that in guaiacol sulphonate and creosote sulphonate the phenolic constituent is bound so firmly that, when administered, but very little is split off in the organism, yet the advertising claims "that the system can be saturated in a shorter time and with smaller doses of creosote and guaiacol sulphonates than with any other form of these drugs" and that (on the false premise that the guaiacol and creosote from these drugs will permeate the tissues of the lungs) "they help to clear up the local infection and thus aid in returning to normal the diseased mucous membrane."

In the advertising pamphlet, following a discussion of the effect of climate and food in the treatment of the tuberculous, we read:

"While admitting the great importance of the foregoing points, we are firmly of the opinion that proper medication is a great aid in the treatment of pulmonary tuberculosis, and, with this in view, we offer to the profession Creosotonic (Scott) believing that in it we have a superior preparation for this purpose."

This is unwarranted. Of course suitable medication to meet special conditions is proper in the treatment of tuberculosis, but the routine administration of a complex and irrational mixture such as Creosotonic (Scott) is bound to cause inattention to the prime requisites for the proper treatment of the tuberculous—hygienic surroundings and good food.

Creosotonic (Scott) is an irrational mixture, sold under misleading and unwarranted claims. It is inadmissible to New and Nonofficial Remedies for conflict with Rules 1, 6, 8 and 10.

"DEPENDABILITY OF DOSAGE IN TABLETS" —A CORRECTION

To the Editor:—We note with surprise in an article appearing in the department "The Propaganda for Reform" entitled "Dependability of Dosage in Tablets" published in the issue dated July 27, 1918, a reflection on the Tailby-Nason Company which is wholly unwarranted. We feel sure that the reflection resulted through inadvertence in an investigation of fact.

In that article, which treats of the variation of medicinal content in the making of tablets, you include the Tailby-Nason Company, with a number of other corporations as having manufactured tablets found deficient in the above respect. The facts on which your article is based were undoubtedly obtained in part from the report of the Connecticut Agricultural Experiment Station, *Bulletin No. 200*, published under date of December, 1917. Item 11609 on page 167 of *Bulletin No. 200* reads as follows:

"11609. Calomel Tablets, made by Tailby-Nason Co.; stock of Dr. W. R. Hanrahan, Bristol. Claimed per tablet: Calomel 2 grs. Found: Weights of 18 tablets ranged from 153.2 to 169.5, average, 161.7 mgms. Tablets contained 69.34 per cent. of calomel, or from 1.64 to 1.82, average, 1.73 grs. Tablets deficient in calomel."

As soon as we discovered this item in the above publication, we brought to the attention of Dr. E. H. Jenkins, the director and treasurer of the Connecticut Agricultural Experiment Station, the facts, already known to state officials at Hartford, that the statements in the report as to the Tailby-Nason Company were wholly erroneous, as the tablets in question were not manufactured by the Tailby-Nason Company and we were in no way responsible for them. Dr. Jenkins thereupon published a correction of *Bulletin No. 200*, mailing the same to all persons on his mailing list as follows:

CORRECTION

It is stated on page 167 of *Bulletin No. 200* (being the Food and Drug Report of this station for 1917), that the Calomel Tablets numbered 11609 were made by the Tailby-Nason Company. This statement is

incorrect and was based on misinformation given to this Station. The name of the manufacturer cannot be ascertained, but the aforesaid company is not responsible for them.

E. H. JENKINS, Director.

We assume that the writer of the article appearing in THE JOURNAL did not have the copy of the correction before him. You will doubtless appreciate that the error in your article has resulted in giving wide currency to a story already retracted by Dr. Jenkins and is creating a serious injury to our reputation. We are confident that you will be as anxious to avert this injustice as Dr. Jenkins was, and therefore trust that you will make a prompt retraction of the unwarranted, unjust and erroneous reflection upon the Tailby-Nason Company and will give your retraction as much prominence before your subscribers as you have already given to the article appearing in your publication of July 27, 1918.

TAILBY-NASON COMPANY, Frank T. W. Nason, Treasurer,
Boston, Mass.

[EDITORIAL NOTE.—The letter from the Tailby-Nason Company is self-explanatory. It is greatly to be regretted that the correction sent out by the Connecticut Agricultural Experiment Station was neither sent to, nor brought to the attention of, THE JOURNAL until after the article had appeared in this department. THE JOURNAL regrets that it has inadvertently done the Tailby-Nason Company an injustice.]

Correspondence

"RECONSTRUCTION AND REHABILITATION OF THE TUBERCULOUS SOLDIER"

To the Editor:—The article by Lieut.-Col. E. H. Bruns of the National Army (THE JOURNAL, Aug. 3, 1918, p. 373) on the "Reconstruction and Rehabilitation of the Tuberculous Soldier" presents in an interesting manner the plans of the Army Medical Corps in the matter of rehabilitation and vocational training of this class of disabled soldiers. As this is a matter largely of departmental or possibly governmental domestic policy, as stated by Colonel Bruns, it is not my intention to enter into any discussion of it except to say that if the plan can be carried out it would seem that the Federal Board for Vocational Education and the Bureau of War Risk Insurance would have little opportunity to exercise the functions delegated to them by law after the Army Medical Corps had decided to "order all to tuberculosis hospitals" suffering from that disease, and following it by complete vocational training in the industrial shops which are to be built in connection with the hospitals.

The following paragraph from the article, however, interests me, and my purpose in this letter is to correct a statement made probably unintentionally, but nevertheless in ignorance of the facts and the law. Colonel Bruns writes:

The Bureau of War Risk Insurance of the Treasury Department attends to the financial side, for as soon as a tuberculous soldier is discharged, provided his disability is in line of duty, he is entitled to compensation and, if insured, war risk insurance.

The Bureau of War Risk Insurance in pursuance of its compensation and insurance features is charged by law to furnish "such reasonable governmental medical, surgical and hospital services, and with such supplies including artificial limbs, trusses and similar appliances, as the director may determine to be useful and reasonably necessary." This bureau already has a medical section fully organized in several divisions (relief, compensation, tuberculosis, prosthetics, etc.), with men specially trained in medical, surgical and sanitary work, and it is caring for discharged soldiers requiring hospital treatment, numbering thousands at the present time, and is not acting solely as paymaster, as would be implied by this article. Hundreds of tuberculous soldiers are already in sanatoriums all over the country sent by this bureau at its expense, and the United States Public Health Service Sanatorium at Fort Stanton, N. M., the pioneer in government tuberculosis work, is already filled to its capacity and is to care for a large overflow in tents and shacks. These men have gone there voluntarily, not under orders, and I find

them not only willing but eager to go, in order to effect a cure.

To assume that it is necessary to use Army discipline to compel a tuberculous soldier to enter a sanatorium is to deny all professional experience in dealing with that class of cases. It may be true that the old Regular Army man of experience may refuse to go to a sanatorium for reasons not necessary to state here; but I think Colonel Bruns has erred in assuming that the men of the selective army will entertain similar views. Thousands of the selective army come from excellent home environment, and there is a considerable proportion of patients who can be properly and successfully managed in their own homes under the care of their trusted family physicians. Many of them are from the rural districts where they can live in the open under the most favorable hygienic conditions.

In pursuing the course of treatment outlined by Colonel Bruns, the Army Medical Corps will not only deprive the soldier and his family of the compensation for disability which is payable to him only after his discharge, but I venture the opinion that this illegal detention of men unfit for further military service will result in an embarrassing number of legal procedures instituted by the families of these men to procure their freedom and their return to civil life where they belong. Return to civil life is the plan followed in England. I quote from an article by Major P. Horton-Smith Hartley, C.V.O., on "The Care of the Tuberculous Soldier" (*British Medical Journal*, 1918, 1, 609), in which he writes:

As soon as it is evident that the patient is suffering from phthisis, or even when this is strongly suspected, he is sent home to one of the military hospitals in this country. If there is no doubt about the diagnosis he comes before a medical board, and in due course is invalided from the army, his further treatment being undertaken by the civil authorities.

This is in line with the logical policy of the act creating the Bureau of War Risk Insurance which authorizes the compensation and, in certain cases, the payment of insurance for discharged men, and is the civil authority charged with providing men of no further military value with hospitalization whenever and wherever necessary. The existing sanatoriums for the treatment of tuberculosis throughout the country, with their experienced and already trained staffs, are not only able but also eager to open and extend their establishments for these discharged soldiers, as I know from official dealings with them. The proposed plan means the development of an enormous permanent military establishment, seeping into all the common activities of civil life, and whatever its theoretical value from the standpoint of the disciplinary treatment of tuberculosis, it is sure to invite widespread opposition from the soldier himself, whose right to a discharge cannot be successfully denied.

CHARLES E. BANKS, M.D., Washington, D. C.
Chief Medical Adviser, Bureau of War Risk Insurance.

SAVING THE WASTE IN DRUGS

To the Editor:—In an attempt to reduce the drug bills at the Bryn Mawr Hospital, the following experiment has been tried:

A list of all the stock on hand was prepared by the night nurses, and it was found that there were, for the seventy beds, about 650 articles on the medicine shelves. This list, of course, included many duplicates or different preparations of the same drugs, as digitalis, and many different strengths of the same drug, for example, eight preparations of calomel in various denominations and in combination with various amounts of soda. There were also many special preparations that had been used a few times in the remote past and had been untouched since.

A list of drugs that seemed an irreducible minimum was then prepared, the editorial on "Sodium versus Potassium" (*THE JOURNAL*, June 1, 1918, p. 1601) being borne in mind, and submitted to the staff for its approval or correction. It comprised some sixty standard preparations, including, for example, calomel in halves and tenths only, morphin in quarters and twelfths, strychnin in thirtieths and fortieths, etc., from which other strengths could readily be made.

It is intended that all future orders shall be made in accordance with this list, and that no special prescriptions shall be written under unusual circumstances. From experience in other hospitals, I have no doubt there is a vast amount of medicine "rusting" on the shelves throughout the country.

FREDERIC C. SHARPLESS, M.D., Bryn Mawr, Pa.

A SMALLPOX EPIDEMIC AMONG THE MIAO PEOPLE OF HAINAN

To the Editor:—May 1, 1918, a man came out of the mountains in the interior of Hainan from a Miao village, stating that smallpox had broken out, and asking for vaccine. The Miao people are semiaboriginal, and live by themselves in the depths of the forest. An epidemic of any kind is liable to be extremely disastrous to them.

An assistant was sent in with vaccine. June 13, the chief of the village came to the hospital and reported that smallpox had carried off nearly half of the village. Knowing that the vaccine sent in had been fresh, this information was surprising, and close inquiry brought out the following facts:

1. The epidemic had been extremely fatal.
2. All unvaccinated persons infected died. There were a number in the village not vaccinated, because a sufficient supply was not available, and it takes from two to three weeks for a supply to come from Hongkong.
3. About seven of those vaccinated contracted the disease and died, but in each of these cases the onset was less than four days after vaccination.
4. Several of those vaccinated contracted the disease, but only in a mild form. In these cases the onset was from six to seven days after vaccination.
5. The remainder of those vaccinated did not contract the disease.
6. Surrounding villages escaped the epidemic by voluntarily shunning all intercourse with the stricken village.

These facts are interesting because all the points reported were noted by the chief himself, and conform with remarkable accuracy to our knowledge of the epidemiology of the disease.

NATHANIEL BERCOVITZ, M.D., Kachek, Hainan, China.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

DIPLOSAI AND ACETYLSALICYLIC ACID

To the Editor:—For five or six years I have been using diplosal entirely instead of the soluble, irritating, nauseous salicylates. Since the war has been going on, diplosal has become so scarce that its cost is prohibitive to my poorer patients. I would regret having to return to sodium salicylate, so I am writing to ask if American pharmacy is supplying a practical substitute or equivalent of diplosal. If not, please advise me what I can best prescribe.

SAMUEL E. WOODY, M.D., Louisville, Ky.

ANSWER.—Possibly because it is not now advertised, the demand for diplosal is not sufficient to induce American manufacturers to apply to the Federal Trade Commission for a license to manufacture this product in the United States. Diplosal is the salicylic ester of salicylic acid, and in the intestine is broken up into salicylate. The only advantages of diplosal over sodium salicylate, as pointed out by our correspondent, consist in its lesser solubility, and therefore in the taste. The same advantages are possessed by acetylsalicylic acid, which may be used in the same dosage as diplosal.

GRIMBERT'S METHOD—HAY SULPHUR TEST

To the Editor:—1. Please describe Grimbert's method for determining bile pigments. 2. What is the Hay sulphur test for bile salts in the urine?

LOUIS HANNAH, M.D., Sandersville, Ga.

ANSWER.—1. Ten parts of urine are treated with 5 parts of barium chlorid solution, and the precipitate is filtered off and then suspended in 4 parts of alcohol containing 5 per cent.

hypochloric acid. The mixture is heated one or two minutes on the steam bath. A green color or fluorescence signifies bile pigments. If a brown coloration is present, addition of hydrogen peroxid will change it to green. The absence of bile pigment is indicated by no coloration (Merck's Reagenzien-Verzeichnis, 1913, p. 136).

2. Hay's test, described in Webster's "Diagnostic Methods," depends on the reduction of the surface tension of the urine in the presence of bile acids. A pinch of powdered sulphur is sprinkled on the surface of the urine, which should be preferably at a temperature of 17 C. In normal urines the sulphur will float on the surface. If bile acids are present the sulphur may sink at once, indicating 1 part in 10,000, or may sink only after a few seconds, indicating 1 part in 50,000. Phenol or anilin compounds also lower the surface tension of the urine so that their presence may lead to wrong conclusions.

ALLOTMENT TO FAMILIES OF PRIVATES

To the Editor:—I understand that in the case of privates in the Army the government pays an amount equal to that allotted by the private to his family. Does the same rule apply to the officers of the Medical Reserve Corps?

O. S. TENLEY, M.D., Wabeno, Wis.

ANSWER.—This does not apply to commissioned officers.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

- ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.
ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.
HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.
IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.
IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.
MASSACHUSETTS: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.
MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.
MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.
MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.
RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

Ohio June Examination

Dr. H. M. Platter, secretary of the Ohio State Medical Board, reports the oral, practical and written examination held at Columbus, June 4-7, 1918. The examination covered 10 subjects and included 100 questions. According to information supplied, 127 candidates were examined, of whom 126 passed and 1 failed. Twenty candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Physicians and Surgeons, Boston.....	(1907)		76
Harvard University	(1918)		88.6
Tufts College Medical School	(1917)		89.9
Columbia University	(1915)		89.6
University and Bellevue Hosp. Med. College.....	(1918)		88.9
Cleveland Homeopathic Medical College	(1903)		77.4
Eclectic Medical College (1917) 77; (1918) 75.3, 76.6, 78.4, 81, 81.7, 82.1, 82.8, 83.3, 83.8, 85.4, 86.5, 86.5, 87, 87.1.			
Ohio State University College of Medicine (1918) 80.6, 81.5, 82.5, 83.4, 84.3, 84.4, 84.9, 85.2, 85.2, 85.6, 86.2, 86.6, 86.8, 87.3, 88.4, 88.8, 88.9, 89.6, 90.4, 91, 91.7, 95.3.			
Ohio State University College of Homeopathic Medicine (1918) 78.1, 81, 82.5, 82.7, 83.6, 84.3, 85.7, 86, 86.4, 87.4, 89, 91.7.			
University of Cincinnati (1918) 81.9, 82, 82.9, 82.9, 83.4, 83.8, 84.1, 84.4, 84.5, 85, 85.7, 86.1, 86.6, 87.2, 87.5, 87.7, 88.2, 89.3, 89.4, 90.0, 90.3, 90.5, 91.5.			
Western University (1918) 84.1 84.2, 84.4, 84.4, 84.8, 84.9, 85.3, 85.5, 85.9, 86, 86.1, 86.2, 86.6, 86.7, 86.9, 87.1, 87.3, 87.3, 87.4, 87.4, 87.5, 87.7, 88.2, 88.2, 88.2, 88.3, 88.6, 88.7, 88.9, 89.5, 89.6, 89.8, 89.9, 90.8, 90.9, 91.3, 91.5, 91.6, 92.3.			
Hahnemann Medical College of Philadelphia	(1879)		88.5
Temple University	(1917)		81.6

University of Pennsylvania	(1917)	80.2
University of Pittsburgh	(1917)	88.4
Meharry Medical College	(1916)	75, 75.9
University of Toronto	(1911)	83.3
National University, Athens	(1895)	75+

FAILED

Meharry Medical College	(1917)	71.3
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College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Medicine and Surgery.....	(1917)		Illinois
Hahnemann Medical College and Hospital of Chicago.....	(1873)		Illinois
University of Louisville	(1916)		Kentucky
University of Maryland	(1903)		Maryland
Harvard University	(1905)		Vermont
Detroit College of Medicine and Surgery	(1917)		Michigan
University of Michigan Homeo. Med. School (1910) (1914)			Michigan
Barnes Medical College	(1898)		Illinois
University Medical College of K. C.	(1903)		Kansas
Eclectic Medical College	(1913)		California
Miami Medical College	(1892)		Kentucky
Starling-Ohio Medical College	(1913)		W. Virginia
University of Pennsylvania	(1890)		Penna.
University of Pittsburgh	(1913)		Penna.
Meharry Medical College	(1913) (1914)		Alabama
Marquette University	(1916)		Wisconsin
University of Vienna, Austria	(1900)		Missouri
National University, Athens	(1905)		Minnesota

Delaware June Examination

Dr. Henry W. Briggs, secretary of the Medical Council of Delaware, reports the practical and written examination held at Wilmington, June 18-20, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 7 passed and 1 failed. Six candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Phys. and Surg., Baltimore.....	(1912)		78.9
University of Maryland	(1917)		87.6
New York Homeo. Med. Coll. and Flower Hosp.....	(1918)		75
Hahnemann Med. Coll. and Hosp. of Philadelphia....	(1918)		83
Jefferson Med. Coll.	(1916) 82; (1918) 82.6, 88.6		

FAILED

University of Maryland	(1917)	73.6
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College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Maryland	(1901) (1916),		Maryland
Columbia College in the City of New York	(1894)		New York
Jefferson Medical College	(1904) (1912) (1914)		Penna.

Book Notices

LES LÉSIONS DU CORPS THYROÏDE DANS LA MALADIE DE BASEDOW. Par Gustave Roussy, Professeur agrégé à la Faculté de Médecine de Paris. Paper. Price, 3 francs. Pp. 135, with 10 illustrations. Paris: Masson et Cie, 1914.

This monograph was prepared for presentation at Luxembourg in August, 1914, before the Twenty-Fourth Congress of Alienists and Neurologists of France and those countries speaking the French language. It is a comprehensive statement of fact and theory concerning the symptomatology, etiology, pathology and treatment of exophthalmic goiter. The author submits anatomic and physiologic observations of his own and of Clunet's in the development of his theme, laying particular emphasis on the association of a persistent thymus with certain changes in the thyroid gland as characteristic of exophthalmic goiter. On the histologic side he emphasizes as features of diagnostic importance the presence in the thyroid of islets of eosinophilic thyroid epithelium as well as aggregations of lymphoid cells. Colored plates illustrate his findings. After discussing the nervous or sympathetic theory, which accounts for the symptomatology and signs of exophthalmic goiter as a result of stimulation of the cervical sympathetic, he passes on to the relation of the thyroid gland to the other glands of internal secretion (genital glands, hypophysis, suprarenals and pancreas), ending with emphasis of the importance of a persistent thymus with changes in the thyroid as a cause of the disease. In discussing the treatment of the intoxication resulting from an "adulterated secretion" of the hyperplastic thyroid gland, he expresses the opinion that radiotherapy will ultimately replace the surgical interference commonly practiced now in cases not amenable to rest and internal medication. The subject in all its aspects is developed along historical lines with a

decidedly French perspective. The chief object of the author apparently (judging from the audience for which the treatise was written as well as from repeated statements in the text) was to convince certain authors, especially the French, that exophthalmic goiter is the result of a derangement of certain glands of internal secretion (the thyroid and the thymus), and that the disease should, therefore, not be classified "among the affections of the nervous system." His own contributions incorporated in the monograph would certainly not justify the lengthy presentation of facts so generally known to most medical men.

BURNS AND THEIR TREATMENT, INCLUDING DERMATITIS FROM HIGH EXPLOSIVES. By J. M. H. Macleod, M.A., M.D., F.R.C.P., Physician for Diseases of the Skin, Charing Cross Hospital. Cloth. Price, \$2. Pp. 160, with 19 illustrations. New York: Oxford University Press, 1918.

One of the favorite topics of war medicine in England is burns. Perhaps for this reason many authors present complicated descriptions of treatment. Thus, Macleod classifies burns from heat under six degrees—a classification that surely is more of a burden than an aid. In the discourse on the technic of treatment, Macleod seems to lack the faculty of giving simple, clear directions. Of course, no book on this subject would be complete without including the paraffin film treatment, but the author evidently has accepted Hull's work entirely, without referring at all to the American contributions. He gives the composition of Ambrine as "paraffin, resin and oleum succini"; the Chemical Laboratory of the American Medical Association reported it to be composed mostly of paraffin, with small amounts of an asphalt-like body and a fatty oil resembling sesame. Macleod also gives the complicated formula of Hull for making a "hot" wax, wherein no attention is paid to the important physical attributes of the paraffin. He neglects entirely to mention that paraffin alone, of proper consistency, has been found by the advanced workers in America to be as good as the wax mixtures, if not better. Besides the chapters on burns from heat, there are chapters on burns from electricity, corrosives, the roentgen ray, the sun and corrosives, and a chapter on dermatitis from high explosives. The book is one of a series of war primers published in England, somewhat like the series of medical war booklets published by the Surgeon-General's Office of the United States Army. In common with this series the Oxford War Primers seem to be rather high in price for the quantity and quality of material furnished.

A HANDBOOK FOR SCHOOL NURSES. By Helen W. Kelly, R.N., Superintendent of Field Nurses, Department of Health, Chicago, and Mabel C. Bradshaw, R.N., Superintendent of School Nurses, Board of Education, Milwaukee. Cloth. Price, \$1. Pp. 109. New York: The Macmillan Company, 1918.

The authors believe that no prophetic vision is required to foresee a rapidly extending field of activity for the school nurse, and think that in the near future she will be known, not as the school nurse, but as the director of school hygiene. As such, she should be charged with the responsibility for all the health conditions of the school, ventilation, heating and lighting, and should lecture on hygiene and physiology and be general health adviser to the entire school population. They state also that if social hygiene is to be taught in the schools, the school nurse is the proper person to teach it. The book starts with a historical sketch of the subject, and then goes on to discuss at length the work of the school nurse and the medical inspection of schools. It should be of interest to parents as well as to nurses.

SILICEOUS DUST IN RELATION TO PULMONARY DISEASE AMONG MINERS IN THE JOPLIN DISTRICT, MISSOURI. By Edwin Higgins, A. J. Lanza, F. B. Laney and George S. Rice. Bulletin 132, Department of the Interior, Bureau of Mines. Paper. Price 25 cents. Pp. 116, with 38 illustrations. Washington: Government Printing Office, 1917.

This bulletin gives a useful general review of the origin and effects of mine dust, as well as a study of the special conditions mentioned in the title. It is evident that the morbidity is high among workers in mines where the dust is of a siliceous character, and that the health problem is a serious and important one. Such studies as this by the proper governmental organizations are of great value.

Society Proceedings

COMING MEETINGS

- Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
- Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
- American Association of Railway Surgeons, Chicago, Oct. 16-18.
- American Public Health Association, Chicago, Oct. 14-17.
- Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
- Colorado State Medical Society, Estes Park, Sept. 9-11.
- Delaware State Medical Society, Wilmington, Oct. 8.
- Indiana State Medical Association, Indianapolis, Sept. 25-27.
- Kentucky State Medical Association, Louisville, Sept. 3-6.
- Minnesota State Medical Association, Duluth, Aug. 28-30.
- Missouri Valley Medical Society, Omaha, Sept. 19-20.
- New Mexico Medical Society, Albuquerque, Oct. 7-8.
- Ohio State Medical Association, Columbus, Oct. 1-3.
- Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
- Utah State Medical Association, Salt Lake City, Sept. 10-11.
- Vermont State Medical Society, Burlington, Oct. 10-11.
- Virginia State Medical Society, Richmond, Oct. 22-25.
- West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
- Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Physiology, Baltimore

July, 1918, 46, No. 4

- 1 *Effects of External Temperature, Morphin, Quinin and Strychnin on Thyroid Activity. C. A. Mills, Lawrence, Kan.—p. 329.
- 2 *Physiology of Stomach. Gastric Secretion and Urine Ammonia. A. C. Ivy, Chicago.—p. 340.
- 3 *Effects of Epinephrin on Distribution of Blood. Venous Discharge from Suprarenal Glands. R. E. L. Gunning, Chicago.—p. 362.
- 4 Antigenic Property of Closed Intestinal Loop Fluid. C. A. Dragstedt, L. R. Dragstedt and C. S. Chase, Iowa City.—p. 366.
- 5 *Studies on Thromboplastic Action of Cephalin. S. A. Waksman, Berkeley, Calif.—p. 375.
- 6 Activities of Decerebrate and Decerebellate Chicks. E. G. Martin and W. H. Rich, San Francisco.—p. 396.
- 7 Effect on Body Temperature Induced by Thermal Stimulation of Heat Center in Brain of Cat. A. L. Prince and L. J. Hahn, New Haven, Conn.—p. 412.
- 8 Effect of Volume of Hind Limb Induced by Heating and Cooling Corpus Striatum of Rabbit. A. L. Prince and L. J. Hahn, New Haven, Conn.—p. 416.
- 9 *Physiology of Stomach: Studies in Water Drinking. A. C. Ivy, Chicago.—p. 420.
- 10 Experiments on Nature of Sense of Smell in Common Catfish, *Amiurus nebulosus* (Lesueur). J. M. D. Olmsted.—p. 443.
- 11 Relation of Dorsal Roots of Spinal Nerves and Mesencephalon to Control of Respiratory Movements. H. C. Coombs, New York.—p. 459.
- 12 Effect of Epinephrin on Irritability and Contractility of Mammalian Nerve Muscle Preparations After Death. C. M. Gruber and A. P. Fellows.—p. 472.
- 13 Supposed Relation of Sympathetic Nerves to Decerebrate Rigidity, Muscle Tone and Tendon Reflexes. S. Cobb, Baltimore.—p. 478.
- 14 *Noneffect of Corpus Luteum Preparations on Ovulation Cycle of Rat. G. W. Corner and F. H. Hurni, San Francisco.—p. 483.

1. **Factors Influencing Thyroid Activity.**—Mills found that high external temperatures cause a diminished activity of the thyroid glands of animals, as judged by morphology, together with a slowing of the rate of growth. Low external temperatures, on the contrary, increase the thyroid activity and also seem to cause a faster rate of growth. Morphin and quinin appear to decrease the activity of the gland, probably as a result of the lessened metabolism and diminished heat production. Strychnin, on the other hand, causes greater thyroid activity, very likely by increasing metabolism through its action on the spinal cord.

2. **Gastric Secretion and Urine Ammonia.**—Ivy says that the ammonia excretion after the ingestion of a meal varies slightly in the same individual and markedly in different individuals. There was an increase in urine ammonia after the ingestion of a meal in the majority of cases studied in this series. A marked increase occurred in the dogs worked on. During gastric stimulation by food or by water followed by absorption in the intestine there is an increase in urine ammonia. The degree of increase in urine ammonia on the

absorption of acid chyme is dependent on the rate of absorption of the acid chyme or, in other words, its fluid consistency. During gastric secretion not followed by absorption in the intestine no increase in urine ammonia occurs. The absorption of water from the intestine (distal or proximal) causes some diuresis but no change in urine ammonia. The absorption of alkali from the intestine causes diuresis with a marked decrease in urine ammonia. The absorption of acid from the intestine causes some diuresis with an increase in urine ammonia. Diuresis per se causes no change in urine ammonia. Intravenous injection of water causes some gastric stimulation but no increase in urine ammonia or urine output. So gastric secretion and urine ammonia are related in that the urine ammonia is increased by the absorption in the intestine of the acid product of gastric secretion, provided that this acid secretion is absorbed before neutralization occurs, that is, at a relatively fast rate.

3. Venous Discharge from Suprarenal Glands.—Intravenous injections of epinephrin produced no essential changes in the blood flow through the suprarenal glands. The changes produced passively follow the general arterial pressure. The splanchnic nerves do not carry vasomotor fibers to the suprarenal glands.

5. Thromboplastic Action of Cephalin.—In testing the thromboplastic action of cephalin Waksman adopted the method of Howell with the following modifications: (a) Blood plasma containing 0.2 to 0.25 per cent. of sodium citrate was found to be well suited for these tests; (b) a standard solution of calcium hydrate can be substituted for serum, thus eliminating one or more unknown factors. The function of the serum in the plasma serum-cephalin mixture consists in supplying the calcium necessary for neutralizing the excess of anticoagulant in the plasma and probably in supplying more prothrombin. By using calcium hydrate to neutralize the excess of anticoagulant in the plasma, an optimum concentration is found, above which the excess of calcium will delay the coagulation of the plasma. There is always a maximum concentration of the cephalin in the water solution which gives the most rapid coagulation; a further increase in the concentration of the cephalin will not result in an increase in the rapidity of coagulation; by decreasing the concentration of the cephalin below this maximum a delay in the coagulation will result. This concentration seems to fall between 0.25 and 0.30 per cent. for the lots tested. Cephalin kept in a vacuum acts much better as a thromboplastic agent than the same lot of cephalin kept in loosely stoppered containers. The cephalin obtained from the brains of different animals does not differ greatly as a thromboplastic agent; the slight differences obtained were probably due to the impurities and methods of keeping the material. Cephalin dissolved in water loses to some extent its thromboplastic properties, particularly old lots of cephalin kept exposed to the air. Since coagulation of the blood is an enzymatic phenomenon it is much more rapid both in the presence and in the absence of cephalin at 37 than at room temperature. Serum 7 days old is less active than fresh serum in accelerating the clotting of the blood; this was corrected, with the method used, by the addition of a solution of calcium hydrate; fresh serum is not depreciated in its action on the plasma-cephalin mixture by the presence of old serum but is even slightly accelerated. Surgical gauze impregnated with cephalin was also tested by the above method and found to increase the rapidity of the coagulation of the plasma.

9. Studies in Water Drinking.—According to Ivy's observations the ingestion of water with the meals (400 to 800 c.c.) increases the amount and the free and total acidity of the gastric juice. The ingestion of water with the meals decreases the emptying time of the stomach, due to the dilution of the stomach contents. Food in the stomach retards the evacuation of water. The emptying time of water from the normal human stomach varies, conservatively from 400 to 100 c.c. in fifteen minutes. The manner of the discharge of water from the dog's stomach is, according to the observations on four dogs, rhythmic and could very possibly correspond to peristaltic waves. All stomachs do not respond to stimula-

tion by water, there being a marked variation in different individuals. Those stomach that empty water slowly (150 c.c. or less in fifteen minutes when 400 c.c. are drunk) respond much more than those that empty water fast. From the observations in this study water cannot be substituted for the Ewald meal. The latent period of the gastric glands of man when stimulated by water is from five to seven minutes. It was impossible to demonstrate a fatigue of the gastric glands when stimulated by water or by gastrin for a period of ten to twenty-six minutes.

14. Effect of Corpus Luteum on Ovulation Cycle.—The intraperitoneal injection of large doses of desiccated mammalian corpus luteum substance does not inhibit ovulation in the rat.

Boston Medical and Surgical Journal

August 1, 1918, 179, No. 5

- 15 Modern Principles in Control and Management of Cancer. E. Reynolds, Boston.—p. 147.
- 16 Energy Content of Extra Foods. C. G. Benedict and F. G. Benedict, Boston.—p. 153.
- 17 Impacted Stones of Bladder and Urethra. W. D. Bieberbach, Worcester.—p. 163.
- 18 Training School for Hospital Apprentices at Boston City Hospital. J. A. Foley, Boston.—p. 162.

Journal of Biological Chemistry, Baltimore

July, 1918, 35, No. 1

- 19 Isolation and Identification of Stachydrin from Alfalfa Hay. H. Steenbock, Madison, Wis.—p. 1.
- 20 *Determination of Cholesterol in Blood Serum. A. Bernhard, New York.—p. 15.
- 21 Choice Between Adequate and Inadequate Diets, as Made by Rats. T. B. Osborne and L. B. Mendel, New Haven, Conn.—p. 19.
- 22 *Amino-Acids of Mature Human Placenta. V. J. Harding and C. A. Fort, Montreal, Canada.—p. 29.
- 23 Rate of Color Production in Alkaline Solutions of Dextrose and Picrate. T. Addis and A. E. Shevsky, San Francisco.—p. 43.
- 24 Modification of Picrate Method for Blood Sugar Determinations. T. Addis and A. E. Shevsky, San Francisco.—p. 53.
- 25 *Dietary Qualities of Barley. H. Steenbock, H. E. Kent and E. G. Gross, Madison, Wis.—p. 61.
- 26 Origin of Creatin. L. Baumann and H. M. Hines, Iowa City, Iowa.—p. 75.
- 27 Effect of Variations in Available Alkali on Yield of Acetone in Oxidation of Butyric Acid with Hydrogen Peroxid. E. J. Witze-mann, Chicago.—p. 83.
- 28 *Ammonia Excretion as Influenced by Ingestion of Alkalies. W. Denis and A. S. Minot, Boston.—p. 101.
- 29 *Casein of Human Milk. A. W. Bosworth and L. A. Giblin, Boston.—p. 115.
- 30 Preparation of Ovalbumin and Its Refractive Indices in Solution. A. R. C. Haas, Berkeley, Calif.—p. 119.
- 31 *Preparation of Pure Casein. L. L. Van Slyke and J. C. Baker, Geneva, N. Y.—p. 127.
- 32 Method for Making Electrometric Titrations of Solutions Containing Protein. J. C. Baker and L. L. Van Slyke, Geneva, N. Y.—p. 137.
- 33 Free Lactic Acid in Sour Milk. L. L. Van Slyke and J. C. Baker, Geneva, N. Y.—p. 147.

20. Determination of Cholesterol in Blood Serum.—The method presented by Bernhard can be completed in about five hours, and shortens the number of operations necessary to complete the determination. The results are almost identical with those obtained by the Henes method. The revised method obviates the necessity of extraction for twenty-four hours with alcohol and again for twenty-four hours with ether, since treatment with alcohol-ether mixture insures complete extraction of cholesterol almost immediately. By the use of the alcohol-ether mixture both steps are combined in one operation. The calcium hydroxid precipitate of cholesterol after saponification is dried in an electric oven instead of allowing it to dry in the air over night. An absolutely dry sediment is thus obtained. Treatment of this dry sediment with ether for half an hour is sufficient for complete extraction of the cholesterol, whereas Henes extracts the sediment with ether for twenty-four hours.

22. Amino-Acids of Human Placenta.—A determination of the amino-acids in mature human placenta has been made by Harding and Fort according to the nitrogen distribution method of Van Slyke. The distinguishing feature of the placenta protein is a high arginin content. This is double the arginin content found in other human organs (breast, liver, heart, kidney and muscle). Corresponding to this difference, there must be ascribed to the placenta a function

differing from that of other organs. The placenta from a chemical standpoint cannot be regarded entirely as a passive organ.

25. Dietary Qualities of Barley.—In this paper are presented the results of experiments with barley which in themselves may not offer any striking peculiarities, yet they may serve to allay the fears of those dietitians concerned over the use of barley as a wheat substitute. By comparison of these data with such data as are available for maize, oats, and wheat it is indicated that the barley kernel does not differ essentially from these grains in its nutritive properties. Barley alone is unable to meet the demands of the growing animal or even to allow noteworthy amount of growth to take place. The addition of the fat-soluble vitamine in the form of butter fat improves its growth promoting quality to some extent, but the addition of casein is of little if any benefit. In fact the animals on this latter ration seemed to be more susceptible to cutaneous infection. Of the single additions, the salt mixture by satisfying the demands of the animal for the elements in the group calcium, chlorin, and sodium exerted the most beneficial influence. When only these were supplied, however, the animals were not able to maintain themselves as long as when the complete salt mixture was added. Gaseous intestinal fermentation with abnormal distention of the tract seemed to be the immediate cause of death. The important rôle of the mineral elements is again brought out when multiple additions were made; only where salts were one of the additions was substantial growth noted. Where all these additions, that is, salts, protein and fat-soluble vitamine, were made, normal growth, reproduction, and rearing of the young became possible.

Barley contains an abundance of the water-soluble vitamine. Even when the amount of barley was reduced to 60 per cent. of the ration it was found possible for a female to rear a litter of young. On 40 per cent. of barley growth was entirely normal, but no young were reared. On 20 per cent. growth was not quite normal. Barley is deficient in the fat-soluble vitamine. The protein content of barley (13.6 per cent.) is too low for continued growth at the normal rate. The primary growth determinant in barley is inorganic salts. Of secondary importance, but no less urgent, are protein and fat-soluble vitamine.

28. Ammonia Excretion as Influenced by Ingestion of Alkalis.—By the intermittent administration to nephritics of small doses of sodium bicarbonate it has been possible to obtain urines absolutely free from even traces of ammonia. An attempt to duplicate these results on normal subjects has been unsuccessful. The authors' results furnish support to the theory that the sole use of urinary ammonia is for the neutralization of acids found during the normal metabolic processes, and would seem to render superfluous the speculations regarding the residual ammonia fraction of urine.

29. Casein of Human Milk.—A considerable quantity of pure casein has been prepared by Bosworth and Giblin from human milk. This casein was found to resemble the casein from cow's and goat's milk in the following respects: It has the same nitrogen, phosphorus and sulphur content; it has the same degree of valency, and gives the same series of salts with bases; it has the same molecular weight; it is acted on by rennin in the same manner; the paracasein produced by the action of rennin is similar to the paracasein produced by the action of rennin on the casein of cow's milk.

31. Preparation of Pure Casein.—Casein in pure form, free from inorganic phosphorus, calcium and hydrolytic products, is prepared by treating undiluted milk with normal acid, preferably lactic or a mixture of 1 part of hydrochloric and 2 parts of acetic. The acid is introduced slowly into the undiluted milk below the surface, the tip of the tube carrying the acid into the milk being so arranged that it is very close to a mechanical stirrer revolving at a high speed and also near the bottom of the vessel containing the milk. Under these conditions the acid does not cause coagulation of the casein at the point where the acid first comes into contact with a portion of the milk. Details of precipitation, washing and drying of the casein are given. Ash and phosphorus

contents are unusually low, being about 0.10 per cent. of ash and 0.80 per cent. of phosphorus, with no calcium. By this method casein can be prepared within ten hours. Excess of acid with danger of hydrolysis is avoided. Contact with reagents is reduced to a minimum. The product is a very fine white powder. It contains neither inorganic phosphorus nor calcium. It dissolves at once in dilute solutions of monobasic alkalies and also in excess of lime water to a clear solution. Lime water solutions of this casein, when neutral, are opalescent. The yield of the casein from milk is practically quantitative.

Kentucky Medical Journal, Bowling Green

August, 1918, 16, No. 8

- 34 Prostatism. W. T. Briggs, Lexington.—p. 334.
- 35 Case of Typhus. J. A. Flexner, Louisville.—p. 339.
- 36 Camp Sanitation. L. R. Poust, Camp Zachary Taylor.—p. 348.
- 37 Acute Articular Rheumatism. U. V. Williams, Frankfort.—p. 350.
- 38 Rhinoliths. W. D. Levi, Louisville.—p. 351.
- 39 Some Common Remedies in Every Day Use. L. L. Solomon, Louisville.—p. 352.
- 40 Acute Secondary Parotitis or Sialo-Adenitis, Following Abdominal Operations. C. G. Forsee, Louisville.—p. 358.
- 41 Gallbladder Cases. C. W. Karraker, Louisville.—p. 360.
- 42 Clinical Study of Falcial Tonsil in Adult and Its Treatment. A. L. Bass, Louisville.—p. 363.
- 43 Chorea Minor. W. L. Mosby, Bardwell.—p. 369.
- 44 Unusual Case of Lobar Pneumonia. F. C. Askenstedt, Louisville.—p. 370.
- 45 Cholera Infantum. H. T. Crouch, Bardwell.—p. 371.

Medical Record, New York

August 3, 1918, 94, No. 5

- 46 Modern Standards in Abnormal Obstetric Cases and Their Treatment. J. W. Markoe, New York.—p. 177.
- 47 War Neuroses in Women. G. F. Boehme, Jr., New York.—p. 180.
- 48 Cancer, Disease of Deficiency. J. Round, London.—p. 184.
- 49 Point of Entry. D. H. Stewart, New York.—p. 191.
- 50 Congenital Laryngeal Stridor; Report of Two Cases. J. Levy, Newark, N. J.—p. 193.
- 51 Drug Addiction and Medical Practitioner. T. W. Edgar, New York.—p. 194.
- 52 Simple Therapeutic Test of Thyroid Function. H. R. Harrower, Los Angeles.—p. 196.

Michigan State Medical Society Journal, Grand Rapids

August, 1918, 17, No. 8

- 53 Fragilitas Ossium; Report of Three Cases. F. L. Rose, Jackson.—p. 307.
- 54 Thyroid Gland with Special Reference to Goiter. J. G. Sherrill, Louisville.—p. 309.
- 55 So-Called Bladder Diseases. S. Levin, Lake Linden.—p. 316.
- 56 Roentgentherapy in Gynecology. G. E. Pfahler, Philadelphia.—p. 320.
- 57 Three Cases of Organic Brain Disease with Aphasia and Agnosis. A. M. Barrett, Ann Arbor.—p. 330.
- 58 Case of Transverse Myelitis from Bullet Wound. C. L. Washburne, Ann Arbor.—p. 334.
- 59 Etiology and Treatment of Dystocia of Cervical Origin; Report of Four Cases. H. Henderson, Ann Arbor.—p. 336.

Modern Hospital, St. Louis

August, 1918, 11, No. 2

- 60 Standardization of State Hospitals. A. L. Bowen, Springfield, Ill.—p. 81.
- 61 Nurses' Home of Hackensack Hospital. F. P. Washburn, Hackensack, N. J.—p. 84.
- 62 Methods of Indexing Hospital Clinical Records. M. Byrne, Chicago.—p. 86.
- 63 Has Every Hospital an Inherent Right to an Intern? J. M. Baldy, Philadelphia.—p. 89.
- 64 Floating Hospital of St. John's Guild Again at Work. J. W. Beckman, New York.—p. 92.
- 65 Green Operating Room at St. Luke's Hospital, San Francisco. H. M. Sherman, San Francisco.—p. 97.
- 66 State Sanatorium and Labor Problem. S. A. Douglass, Mount Vernon, Ohio.—p. 99.
- 67 Hospital Accounting. C. A. Porter and H. K. Carter.—p. 102.
- 68 Little Journeys to Places and People Worth Knowing. M. J. Robinson, Chicago.—p. 108.
- 69 Conduct of Hospitals. R. W. Corwin, Pueblo, Colo.—p. 113.
- 70 Business of Medicine and Profession of Medicine. J. G. Bowman, Chicago.—p. 123.
- 71 General Hospital. A. J. Ochsner, Chicago.—p. 124.

New York Medical Journal

August 3, 1918, 108, No. 5

- 72 Ophthalmic Changes in Tabes and Paresis. I. S. Wechsler, New York.—p. 181.
- 73 Successful Treatment of Chronic Pathogenic Infections of Lower Respiratory Tract. I. W. Voorhees, New York.—p. 189.

- 74 Why Is Asparagus Forbidden During Gonorrhea? H. G. Klotz, White Plains.—p. 191.
- 75 Rectal Cases. A. A. Landsman, New York.—p. 194.
- 76 How Can We Get Enough Sleep? E. F. Bowers, New York.—p. 196.
- 77 Hirschsprung's Disease with Eventration of Right Half of Diaphragm. E. A. Aronson, New York.—p. 196.
- 78 Examination of Recruits for Tuberculosis. R. C. Matson, Portland, Ore.—p. 199. To be concluded.

Philippine Journal of Science, Manila

March, 1918, 13, Sec. B, No. 2

CORRECTION

- 79 *Infections with Coccidium and Isospora in Animals in Philippine Islands and Their Possible Clinical Significance. F. G. Haughwout, Manila.—p. 79.

79. Infections with Coccidium.—In THE JOURNAL, April 27, 1918, p. 1262, an error was made in abstracting Haughwout's article. His paper is not a report of cases occurring in the Philippines, but a review of the general problem of human coccidiosis and its possible relation to animal coccidiosis. So far as Haughwout has knowledge, no case of human coccidiosis has been reported in the Philippine Islands, but conditions supervening on the war have led to the discovery in other parts of the world of many cases of undoubted coccidial infection, and these cases, taken in conjunction with older but less exact reports of similar infections, Haughwout believes justify the belief that coccidiosis of man may in time to come be looked on as a definite clinical entity and a condition that may crop up at almost any time or place. The thirty-four cases referred to by him in this paper are recorded in the literature but were not seen by Haughwout.

Haughwout and his co-workers have found coccidia in domestic animals and the morphology of these organisms is being studied exhaustively. The author emphasizes that the main thing that the observer must be on his guard against is the confusing of the cysts of helminths, particularly the eggs of trematodes and of hookworms, with coccidial cysts and vice versa. As a rule, the eggs of helminths will be found to be much larger than the sporozoan cysts, but there is no denying the fact that unsegmented eggs of this type do bear a striking resemblance to the oocysts of coccidia, and this resemblance may even extend to the early stages of segmentation of the eggs, particularly the two-cell stage. The best plan is to dilute the stool with a considerable quantity of water and set a number of the cysts aside in a moist chamber for two or three days.

In the coccidial cysts the protoplasm entirely fills the cyst in the early stage, but later it contracts to a spherical mass in the center, leaving clear spaces at each pole of the cyst. Eventually this mass divides, in the case of *Isospora* into two masses and in the case of *Coccidium* into four masses. A cyst membrane forms around each of these daughter masses, and some hours later sporozoites and a mass of residual protoplasm can be made out in each of the sporocysts that are continued within the oocyst. *Isospora* forms four sporozoites in each sporocyst and *Coccidium* two. This establishes the identification beyond a doubt. All these changes may be seen by making examinations of the cysts under the microscope at varying intervals, or the cysts may simply be set aside in the moist chamber for from forty-eight to seventy-two hours and then examined. It is a comparatively simple matter to isolate individual cysts with a capillary pipet under the microscope.

South Carolina Medical Association Journal, Greenville

July, 1918, 14, No. 7

- 80 What Shall We Do With Hernia Cases? J. H. Johns, Westminster.—p. 170.
- 81 Common Head Colds. E. W. Carpenter, Greenville.—p. 172.
- 82 Some Popular Ideas About Insanity. R. L. Leak, Columbia.—p. 176.

Surgery, Gynecology and Obstetrics, Chicago

July, 1918, 27, No. 1

- 83 Surgery of Double Kidney; Report of Case of Resection of Upper Segment for Calculous Pyonephrosis. H. H. Young and E. G. Davis, Baltimore.—p. 1.

- 84 Supernumerary and Single Ureters Opening Extravesically; Two Cases. E. S. Judd, Rochester, Minn.—p. 13.
- 85 Mixed Tumors of Salivary Glands. A. Fraser, New York.—p. 19.
- 86 *Cysts and Pseudocysts of Pancreas; Report of Cases. A. A. Kerr, Salt Lake City, Utah.—p. 40.
- 87 Congenital Ranula of Tongue Developed in Left Blandin-Nuhn Gland. R. T. Aguirre, Guatemala, Central America.—p. 45.
- 88 Globocellular Sarcoma of Right Testicle. Orchidectomy Under Local Anesthesia (Allen's Technic). R. T. Aguirre, Guatemala, Central America.—p. 47.
- 89 Present Status of Surgery of Bile Tract. A. D. Bevan, Chicago.—p. 49.
- 90 *Surgery of Posterior Spinal Roots; Results in Two Hundred and Forty-Four Operations. C. R. Steinke, Akron, Ohio.—p. 55.
- 91 Study of Fractures of Lower Extremity of Humerus. H. A. H. Bouman, Minneapolis.—p. 58.
- 92 *Mesenteric Vascular Occlusion; Three Cases. A. A. Eisenberg and H. A. Schlink, Cleveland.—p. 66.
- 93 *Dislocation of Spleen. J. Saliba, Elizabeth City, N. C.—p. 73.
- 94 Two-Stage Operation for Carcinoma of Pregnant Uterus Under Paravertebral Anesthesia. N. R. Mason and F. C. W. Konrad, Boston.—p. 75.
- 95 *Formaldehyd-Phenol in Camphor Paraffin. K. Connell, New York.—p. 81.
- 96 Essential Points in Method of Hernia Operation. A. B. Keyes, Chicago.—p. 85.
- 97 End-Result with Bone Plate on Fractured Femur. C. G. Swenson, Chicago.—p. 86.
- 98 *Cerebral Hernia; Method for Its Surgical Treatment. A. Schwyzer, St. Paul, Minn.—p. 87.
- 99 Blood Transfusion Simplified by Use of Citrate Ointment. H. W. Abelman, Chicago.—p. 88.
- 100 Cesarean Section, Local Anesthesia. H. H. Trout, Roanoke, Va.—p. 95.
- 101 *Action of "Female Remedies" on Intact Uteri of Animals. J. D. Pilcher and R. T. Mauer, Omaha.—p. 97.

86. Cysts and Pseudocysts of Pancreas.—Kerr cites two cases. He says that pancreatic and pseudopancreatic cysts, while not rare, are of sufficient importance to be recorded. The roentgen ray is an important aid in diagnosis in showing the position of the cyst in relation to the stomach and other organs. The treatment is surgical, usually incision and drainage. Sometimes it is practical to remove the entire cyst in favorable cases. Diabetes is an occasional complication of pancreatic cysts, and when present renders the operation more dangerous, although one should not hesitate when less than 4 per cent. of sugar is present after giving a diabetic diet and a course of alkaline treatment to minimize the acidosis, to give even these the benefits of operations. An antidiabetic diet is advisable following operations on the pancreas, especially where the discharge is irritating. Paraffin ointments are serviceable to allay the irritation.

90. Surgery of Posterior Spinal Roots.—The work of forty-seven different operators is analyzed by Steinke so that no one man's technic can be accredited with the general good results. The amount of root resected varied from 3 mm. to 3 cm. In the spastic cases four were cured, fifty greatly improved, and forty-seven somewhat improved. In the tabetic cases fourteen were cured, and thirty-seven improved. Operation for pain gave seven cures, and nine improved out of thirty-nine cases. When one considers the gravity of the operation the mortality is not high. With these facts at hand, Steinke says, we may conclude that the operation of resection of the posterior spinal roots, when properly carried out, is one of great value to the patient and should be performed more frequently.

92. Mesenteric Vascular Occlusion.—Mesenteric vascular occlusion is not an extremely rare condition. Eisenberg and Schlink found about 400 cases recorded in the literature. The occlusion is most frequently in the arteries. By far the most common lesion produced is hemorrhagic infarction of the intestine. The most common cause of the occlusion is embolism resulting from infection and injury. There is no difference clinically between the arterial and the venous occlusion, regardless as to whether it is due to embolism or thrombosis, in the superior or the inferior vessels. The clinical diagnosis should be made on sudden onset, acute colic-like abdominal pain, distention and tenderness, signs of shock and collapse; often there may be vomiting and constipation; if diarrhea is present, it is almost always accompanied by melena. Three cases are reported.

93. **Dislocation of Spleen.**—Saliba reports a case of dislocation of spleen into the pelvis and its firm fixation into the uterus. The rational treatment of a dislocated spleen is splenopexy. This is true if the spleen is healthy, but a dislocated spleen is rarely a healthy one and, therefore, splenectomy is often the operation indicated. Taking into consideration the patient's physical and constitutional condition, Saliba did a hysteropexy and splenopexy fixing the uterus and the spleen to the abdominal wall. The patient made a good recovery. This case is said to be of interest because it is the first case on record where the spleen so shaped itself as to ride astride the fundus of the uterus. No hemorrhage occurred from the spleen when catgut stitches were inserted into its substances, at first, to control the oozing following the separation of the adhesions to the colon, and, secondly, to fix it to the abdominal wall. Saliba suggests that this might be due to a general increase of the fibrous tissue of the spleen, which could not be verified without a microscopic section.

95. **Formaldehyd-Phenol in Camphor Paraffin.**—The combination described by Connell was the result of a laboratory survey by new methods of the various clinically useful antiseptics. A preliminary trial of this antiseptic in the traumatic crushed wound of civil surgery at the Roosevelt Hospital, New York, has demonstrated that it is a powerful and efficient combination of time tried antiseptics. It combines the rapid sterilizing action of formaldehyd with the slow embalming action of phenol. The painful properties of the former antiseptic and the local and general toxicity of the latter agent are mitigated by dissolving them in an anhydrous, slowly spilling reservoir, namely, the camphor paraffin solvent. The purpose of this combination was to produce an antiseptic of high efficiency and lowered toxicity, which, when employed as the first major surgical dressing together with efficient drainage in the surgery of the advance dressing station, may possess such power of diffusion through organic matter and such permanency of bacterial inhibition that the crushed infected tissue of the war wounds may reach the service of the rear, well drained, without extending infection or local putrefaction. The ultimate product, therefore, to obtain the highest advantage physically and as an antiseptic was compounded as follows: *A.* To 70 parts by weight of pulverized camphor add 30 parts of phenol, liquefied by heat. A clear solution results. *B.* Next melt together paraffin of 52 C. melting point, about 3 parts, and paraffin oil 9 parts, adjusting the proportions until the mixture frosts on the bulb of a test thermometer at 40 C. Add 45 parts of *A* to 50 parts *B*. Obtain a solution freezing at 35 C. *C.* Prepare 10 per cent. of formaldehyd in alcohol. Most readily accomplished by adding formaldehyd solution to alcohol and dehydrating by desiccated sodium sulphate. To 9 parts of *A B* at 40 C. slowly add 5 parts of *C*. A clear solution of all ingredients results which freezes and melts at 36 C. Store in open mouth bottles with paraffined corks or pour directly into tightly wadded gauze packing for ultimate consumption.

Indications for use of formaldehyd-phenol in camphor paraffin. This preparation is to be used as the first major wound antiseptic in civil surgery and in the surgery of the advance dressing stations. It sterilizes and embalms crushed devitalized wounds for transportation or for long immobilization without redressing.

Method of application. Free surgical drainage should be established. Gauze saturated with the antiseptic should be applied as packing into all clefts and pockets. The interior of the wound should be packed firmly, but the drainage openings should be packed loosely. It should be spread as a sheet on all open wounds and covered with paraffined gauze. (On wounds for primary suture, it should be employed as is tincture of iodine.)

R. by weight, formaldehyd, 0.5 per cent.; phenol, 13.5 per cent.; camphor, 31.5 per cent.; alcohol, 4.5 per cent.; paraffin, 52 C.; paraffin oil, 50 per cent.

98. **Cerebral Hernia.**—In one case cited Schwyzer made use of a bridge flap, including the external table, which was slid over the defect in the skull in the manner of a visor of a

helmet. The dependably secured nutrition for the flap, the firm and steady pressure of the flap on the defect, the degree of which can be chosen by the greater or less width and obliquity of the pedicles of the bridge, and finally the hermetic bony closure of the defect are the outstanding benefits of this procedure.

101. **Action of Female Remedies on Intact Uteri of Animals.**—This paper concludes the study of the so-called female remedies (*THE JOURNAL*, Aug. 12, 1916, p. 490; *Arch. Int. Med.*, November, 1916, p. 557; December, 1916, p. 752). These experiments demonstrate conclusively that all the female remedies are quite void of action on the uterus in situ, thus confirming the interpretation of the results of the work on the excised uterus and intestine. They cannot, therefore, influence the tone or contractions of the uterus through any central innervation or through the blood stream, no matter whether the uterus is in a state of normal, increased or decreased tone. The following drugs were all found to be inactive in doses that were far above the average therapeutic dose: unicorn root, pulsatilla, Jamaica dogwood, figwort, valerian, lady's slipper, wild yam, life root, skull cap, blue cohosh, black haw (*Viburnum prunifolium*), cramp bark, squaw vine, false unicorn, passion flower and motherwort.

Tennessee State Medical Association Journal, Nashville July, 1918, 11, No. 3

- 102 Surgery of Thyroid. J. B. Haskins, Chattanooga.—p. 51.
- 103 Surgical Management of Chronic Gastric and Duodenal Ulcers. R. L. Sanders, Memphis.—p. 57.
- 104 Laryngeal Tuberculosis; Its Early Recognition and Curative Treatment. C. A. Robertson, Ridgetop.—p. 60.
- 105 New Treatment of Epithelioma. G. C. Savage, Nashville.—p. 66.
- 106 Physician's Duty and His Responsibility to Government in Crisis. F. D. Smythe, Memphis.—p. 74.
- 107 Induration of Corpora Cavernosa: Fibrous Cavernositis. P. Bromberg, Nashville.—p. 78.

Washington Medical Annals July, 1918, 17, No. 4

- 108 Hernia into Lesser Peritoneal Cavity Through Foramen of Winslow. I. S. Stone, Washington.—p. 249.
- 109 Care of Child Throughout Ages. J. A. Foote, Washington.—p. 251.
- 110 Case of Ovarian Tumor in Mulatto. I. S. Stone, Washington.—p. 253.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Children's Diseases, London April-June, 1918, 15, No. 172-174

- 1 *Cases of Urinary Disease in Children. R. Thompson.—p. 81.
- 2 *Erythema Nodosum Associated with Tuberculosis. E. Bronson.—p. 91.
- 3 Nature of Von Jaksch's Disease. G. Ward.—p. 101.
- 4 Smallpox in Childhood. H. W. L. Barlow.—p. 110.
- 5 Can Clinical Manifestations of Congenital Heart Disease Disappear with General Growth and Development of Patient? F. P. Weber.—p. 113.
- 6 Case of Erythema Iris. F. P. Weber.—p. 115.
- 7 Case of Hemophilia with Effusion into Knee Joints. P. B. Roth.—p. 116.
- 8 Pregnancy Occurring in Child Aged Fourteen Years. J. Burnet.—p. 119.
- 9 Infantile Kala-Azar in France. M. Labbé, Targhetta and Ameuille.—p. 120.
- 10 Epidemic of Familial Syphilis. E. Jeanselme and Chatelain.—p. 122.
- 11 Fifth Cusp and Hereditary Syphilis. C. Mantoux.—p. 123.

1. **Urinary Disease in Children.**—Cases of urinary disease in children are not so common as in adults. Thompson suggests that this is owing, perhaps, to the want of obstructive causes, such as enlarged prostate or pregnancy. Obstructive lesions, however, may occur following on tuberculous peritonitis and adenitis. Pyonephrosis may occur due to aberrant blood vessels, renal calculi, or fibrous adhesions kinking the ureter. Vesical calculus in children has a bad prognosis; a lithotomy should always be preceded by a cystoscopy. Traumatic stricture of the urethra has a bad outlook, and, if possible, should be excised and buried deeply.

2. **Erythema Nodosum Associated with Tuberculosis.**—Bronson cites a case of erythema nodosum in which a tuberculous pleural effusion supervened in a typical example of this eruption occurring in a boy, 9 years of age.

British Medical Journal, London

July 13, 1918, 2, No. 3002

- 12 Future of Medical Profession. B. Dawson.—p. 23.
- 13 Clinical Organization of Profession from General Practitioner's Point of View. M. G. Biggs.—p. 26.
- 14 *Sympathetic Nervous System and Irritable Heart of Soldiers. F. Fraser and R. M. Wilson.—p. 27.
- 15 Psychoneurotic Factor in Irritable Heart of Soldiers. B. S. Oppenheimer and M. A. Rothschild.—p. 29.
- 16 Chemotherapy of Gonorrhea. J. E. R. McDonagh.—p. 31.
- 17 Treatment of Pregnant and Parturient Woman in Prevention of Maternal and Infantile Deaths: Neonatal Life—and Death. J. W. Ballantyne.—p. 32.
- 18 Maternity Hospital and Antenatal Centers. C. Berkeley.—p. 33.

14. **Sympathetic Nervous System and Irritable Heart of Soldiers.**—Patients with irritable heart and healthy subjects have been compared by Fraser and Wilson in respect to their reaction to epinephrin and apocodein. In the case of each drug minute doses produced a greater action in the patients than in the controls. It is concluded, therefore, that the sympathetic system of nerve fibers, using the term in its physiologic rather than in its anatomic sense, is relatively unstable in that it appears to be more susceptible to the stimulating and depressing influences, respectively, of these drugs.

Glasgow Medical Journal

May, 1918, 89, No. 5

- 19 Uterine Fibroids, or Myomas of Uterus Complicating Pregnancy, Labor and Puerperium. W. D. Macfarlane.—p. 257.
- 20 Rickets in Its Relationship to Housing. L. Findlay.—p. 268.
- 21 Case of Hematemesis and Hyperpyrexia, Probably of Hysterical Origin. J. M. Melvin.—p. 276.

June, 1918, 89, No. 6

- 22 Postmalarial Severe Anemia. A. W. Harrington and W. White-law.—p. 321.
- 23 Soamin (Sodium Arsanilate) in Treatment of Bronchial Asthma. B. N. Ghosh.—p. 343.

Indian Medical Gazette, Calcutta

May, 1918, 53, No. 5

- 24 Sodium Antimonyl Tartrate Vel Tartar Emetic in Kala-Azar. L. Rogers.—p. 161.
- 25 Rat Destruction as Means for Prevention of Plague. G. W. P. Dennys.—p. 164.
- 26 Hemoglobin Index and Other Factors in Newly Recruited Coolies to F. M. S. M. J. Fatray.—p. 168.
- 27 Metals Gold, Silver and Arsenic in Colloid State. T. C. Boyd.—p. 170.
- 28 Improved Technic for Detection of Hookworm Eggs. C. Lane.—p. 173.
- 29 Tetanus and Technic. A. Hooton.—p. 174.
- 30 Case of Bilharzia Infection (Imported from Mesopotamia, and Occurring in Civil Population at Karachi). D. F. Curjel.—p. 176.
- 31 Relapsing Fever. M. Ali.—p. 178.
- 32 Case of Gangosa at Alipore Jail. J. Roy.—p. 180.

Journal of Tropical Medicine and Hygiene, London

July 1, 1918, 21, No. 13

- 33 Enteromonas Hominis and Protetramitus Testudinis. A. J. Chalmers and W. Pekkola.—p. 129.

Lancet, London

July 13, 1918, 2, No. 4950

- 34 Modern Views on Diabetes. E. P. Poulton.—p. 31.
- 35 *Absence of Influenza Bacillus in Exudate from Upper Air Passages in Present Epidemic. T. R. Little, C. J. Garofalo and P. A. Williams.—p. 34.
- 36 *Some Unusual Forms of Epidemic Disease. A. K. Chalmers, R. M. F. Picken and A. MacLean.—p. 35.
- 37 Outbreak of Acute Febrile Disease in Three Factories and Industrial School in Glasgow. A. MacLean.—p. 36.
- 38 Clinical Study of Craniotabes. E. Hughes.—p. 36.
- 39 Nervous Sequelae of Cerebrospinal Fever. C. Worster-Drought.—p. 39.
- 40 *New Method of Preparing Gonococcus Antigen. D. Thomson.—p. 42.
- 41 *Quick Method of Diagnosing Type of Meningococcus in Cases of Cerebrospinal Fever. A. S. G. Bell and I. M. Harmer.—p. 43.
- 42 Loss of Complementing Power in Kept Serum. J. S. C. Douglas and J. W. Bigger.—p. 44.

- 43 Kala-Azar in Malta; Two Cases Treated by Intravenous Injection of Tartar Emetic. H. I. W. Kerr.—p. 45.
- 44 Technical Reeducation in Italy. E. Levi.—p. 53.

35. **B. Influenzae and Present Epidemic.**—The authors are of the opinion that although the epidemic now prevailing in Europe has been called influenza for the want of a better name, it cannot properly be considered such for the following reasons: 1. The clinical course, though similar to that of influenza, is of very short duration, and there is, so far as they have observed, an absence of relapses, recurrence or complications. 2. The present epidemic is not characterized by a sharp leukocytosis and polynucleosis, but rather by a very slight leukocytosis with a proportional lymphocytosis of the small mononuclear variety. 3. The organism of influenza, namely, *B. influenzae* was in all cases absent and there was present with no exception a gram-positive diplococcus.

36. **Unusual Forms of Epidemic Disease.**—A considerable number of cases were examined by Chalmers and others. In the cases investigated by Picken nervous symptoms were a predominant feature. In MacLean's inquiry the majority of the cases occurred among groups of workers in industrial establishments. All these cases were of a mild type, characterized by sudden onset, severe headache, prostration and rapid recovery, usually within two to four days. This group contained 420 persons and the symptoms suggested influenza. Excluding the influenza element, this disease appears to be an affection which attacks the central nervous system, alternately the brain or cord, and falls within the group of affections for which the name Heine-Medin (a combination of the names of two observers of outbreaks last century) has been adopted. Of these the form best known is where the cord is the chief seat of the disease (infantile paralysis or poliomyelitis), of which the outbreak in New York in 1916 is probably the most recent on a large scale. It is possible, as Picken suggests, that the form simulating "botulism," is an aberrant form of this, chiefly affecting the brain, and in some parts of France where it has been recently present it has been called "lethargic encephalitis" to distinguish it from the more commonly recognized affection of the cord and as possibly due to a separate cause. In any case it would appear to be an affection of the gray matter of the brain as distinct from disease of the corresponding portion of the cord.

The precise methods of spread are somewhat obscure. The occurrence of isolated cases has suggested the agency of insects, and the stable fly has come under suspicion. With regard to preventive measures, it would seem obvious that the best defense of the population against the spread of the disease lies in a rigid attention to the details of personal and domestic cleanliness, including vigorous action against vermin and insect pests of all sorts. The disease tends to increase during warm weather, and court and stair cleansing and the frequent removal of stable litter should be rigorously enforced.

40. **New Method of Preparing Gonococcus Antigen.**—The serum to be tested is inactivated by heating to 55 C. for ten minutes in a water bath before dilution. The complement should be titrated against the stock antigen diluted 1 in 10 with 0.85 per cent. saline as used in the test. To twelve Wassermann tubes add 0.1 c.c. of guinea-pig serum complement diluted from ten to 120 times. To each add 0.1 c.c. of the diluted antigen (1 in 10) and 0.1 c.c. of saline. Shake the tubes and place the tray in the ice-chest for one hour. Then put tray in water bath at 37 C. for half an hour. Add to each tube 0.1 c.c. of fully sensitized sheep's corpuscles (3 per cent. suspension). Replace tray in water bath at 37 C. and take the readings after fifteen minutes. The highest dilution of complement which produces complete hemolysis should be taken as 1 minimum hemolytic dose. The test: Three tubes, A, B and C, are employed. (a) To A and B add 0.1 c.c. (at a dilution of 1 in 20) of the inactivated serum to be tested. To C add 0.1 c.c. of normal saline. (b) To A add complement 0.1 c.c. containing 3 minimum hemolytic doses. To B add complement 0.1 c.c. containing 2 minimum hemolytic doses. To C add complement 0.1 c.c. containing 2 minimum hemolytic doses. (c) To A, B and C add 0.1 c.c. compound antigen (diluted 1 in 10). Tube C acts as the control. (d) Place the tubes in the ice-chest over

night and next morning add to each 0.1 c.c. of a 3 per cent. emulsion of fully sensitized corpuscles. Then place the tubes in the water bath at 37 C. and take the reading after fifteen minutes. The control tube C should show complete hemolysis. Hemolysis in A and B indicates a negative reaction. No hemolysis in A and B indicates a strong positive. No hemolysis in B alone indicates a weak positive.

41. Meningococcus in Cerebrospinal Fever.—An antigen is made by dissolving all cocci in twentieth normal sodium hydroxid and bringing the solution back almost to the neutral point by the addition of twentieth-normal hydrochloric acid. This antigen is used in a dilution equivalent to 100 million cocci per c.c. The patient's serum is tested in dilutions of 1:50, 1:100 and 1:200. It is found to be advisable to use all three dilutions for each test, as the readings are not sufficiently clean cut for a single dilution only to be used. A sheep hemolytic system is used and complement is obtained from the ear of a guinea-pig. In the titration of the complement the following method is followed: Increasing doses of a 1:10 solution of complement, namely, 0.15 c.c., 0.2 c.c., 0.25 c.c., etc., are added to tubes already containing antigen and 1:50 normal human serum in the proportions subsequently used in the actual test. These are incubated in the 37 C. water bath for half an hour before the hemolytic couple is added. The exact amount of complement required to bring about complete hemolysis under these conditions is then used in the test proper. A control is put up of the serum of the patient without the antigen and a further control of the antigens only.

Practitioner, London

July, 1918, 101, No. 1

- 45 *Investigation of Four Hundred and Sixty-Three Cases of Supposed Dysentery; Treatment of Some with Emetin Adsorption Product. R. Donaldson, A. B. Clark and R. C. McLean.—p. 1.
- 46 Review of Recent Literature on Diseases of Heart. C. W. Chapman.—p. 11.
- 47 *Heart Reserve in Military Training. A. Johnson.—p. 21.
- 48 Review of Recent Literature on Urinary Surgery. J. W. T. Walker.—p. 23.
- 49 Malignant Chorionepithelioma in Male. Fatal Intraperitoneal Hemorrhage from Rupture of Metastatic Growth in Liver. F. P. Weber.—p. 31.
- 50 Some Uncommon Causes of Pelvic Hemorrhage in Women. G. Taylor.—p. 37.
- 51 An Unorthodox View of Diseases of Appendix. J. C. Barker.—p. 40.
- 52 *Value of Early Lumbar Puncture in Meningism. A. S. Gillett.—p. 49.

45. Dysentery Treated with Emetin Adsorption Product.—From a study of the type of case dealt with in this paper, it would appear that while three examinations of the excreta will probably detect about 95 per cent. of carriers among those convalescent from bacillary dysentery, at least five examinations ought to be made in the case of persons suspected of having had dysentery. It is important to bear in mind that the urine may be a possible source of infection. In the search for protozoal cysts Donaldson and his associates recommend the double stain process in preference to the simple iodine method, in order to minimize the risk of missing positive cases, especially when the infection is a light one. As regards treatment, while exact data concerning the amount of emetin given abroad subcutaneously are wanting, the results, judging from the cases examined, appear to indicate comparative inefficacy of that form of administration. Two preparations have been used in treatment, namely, emetin bismuthous iodid and an emetin adsorption product. These appear to be of equal potency as regards rendering the stools negative, and superior to emetin given subcutaneously. B. E. I., however, is handicapped by reason of its disturbing effect on the patient, and, in the authors' opinion is inferior in this respect to the emetin adsorption product which, for the most part, can easily be tolerated. As their cases appear to show that not more than 50 to 60 per cent. may be regarded as possible cures after one course of twelve doses. Donaldson and his co-workers urge that the minimum course of twelve doses should be increased. As the unfortunate concomitant effects of B. E. I. preclude its prolonged use, they recommend that the emetin adsorption product should be used in its place as a routine treatment.

47. Heart Reserve in Military Training.—Johnson concurs that in carrying out a scheme for finding the limitations of heart reserve standard and varying physical strains would be necessary for the test. Marching progressive distances, parades, physical exercise to pick out the weaklings and, for those who showed ability for severe strains, doubling on the level and uphill. Therefore, he suggests that an old but reliable test might be applied: that of taking the pulse rate before the test, allowing three minutes to elapse, or for the more severe strains five minutes after the test, and then timing the pulse rate again. If, after comparing the results, it is found that the pulse rate is accelerated, this man is doing too much; repetition will only lead to further dilatation of his heart, and he should be put to training involving less strain. The test for any but those who have managed the severest tests should be applied at intervals of from one week to one month, according to the requirements of the case. Thus, each man would be trained according to his capabilities, and there would be no opportunity of deceit or fraud on the part of the man under observation. A method such as this would not throw much extra work on the medical department, but would rather turn their energies from dealing with men broken with bad training to the prevention of crowding the hospitals and the everlasting "Attend B." (or no duty). Medical orderlies could easily be instructed in timing the pulse accurately, and referring those who failed in physical test to the medical officer.

52. Diagnosis of Meningism.—Gillett analyzes sixty-five cases. Rash was absent in forty-eight; ten showed a diffuse scarlatiniform rash, observed between the seventh and twelfth days of disease. Petechial hemorrhage was apparent in three, one being very profuse. Four cases presented a papular rash within the first five days, the earliest observed being on the first day of disease. The pulse was extremely variable, no two cases being alike; increased in fifty-eight and keeping about normal (70 to 90) in the remaining seven cases. Features common to all were irregularity and variability, the frequency rarely being as high as the temperature would lead one to expect. An irregular, quickly variable pulse is nearly always present when the disease has obtained a firm foothold. In the majority of cases (fifty) the temperature rose suddenly to a height varying from 101 to 105. In eleven cases the rise was more gradual, taking from eight to sixteen hours to register above 100, and four cases were entirely afebrile. Headache was always present, but only in twenty-three cases was it definitely allocated to the occipital region, the remainder showing a general ache all over the head of a severe and, in a few cases, unbearable nature.

The general appearances in the majority of patients was typical: A flushed face of a slightly dusky tinge, and an extremely worried and anxious expression, coupled with dulness and apathy. General malaise and, in a few cases, a very definite nasopharyngeal catarrh, such as precedes measles. Vomiting was absent in thirty-two cases. Herpes, when present, always affected the lips, but fifty-two cases showed no sign at all of this affection. The pupils: Two main features were noticed in all cases as being constant: (1) dilatation generally equal, sometimes unequal; (2) reaction to light, always sluggish. Strabismus was absent in fifty-six cases; nystagmus, absent in fifty cases; ptosis, absent in fifty-five cases; conjunctivitis, absent in fifty-five cases; suppurative choroiditis was present in three cases. The knee jerks were absent in sixteen cases; Babinsky, present in twenty-three cases; abdominal reflexes absent from the first in fifty-six cases. A leukocytosis was present in all cases. The counts varied from 28,000 to 32,000.

Stiffness of the neck: This sign was of the utmost value. In no single case was the stiffness absent, varying naturally in amount from the severe type—giving later the true retraction of the head and perhaps opisthotonos—to the milder cases with comparatively slight stiffness, increased when the head is flexed. Definite retraction was observed in forty-two cases, but it was not a decided feature until a date varying from two to five days after the onset of the disease. Kernig's sign, too, was almost equally constant, there being only three

cases in which it was not present from the first. The sign was bilateral in fifty-eight out of the sixty-five cases. These details make it quite evident that, apart from stiffness of the neck, no data whatever can, in the early stages, justify dogmatic diagnosis. A more constant clinical aid is lumbar puncture, and its resulting bacteriologic investigation. Gillett urges that lumbar puncture should be performed at the earliest moment and not, as is often the case, only when the condition has become markedly indicative of meningeal irritation. It can do no possible harm; and, on the other hand, the value of such a procedure is incalculable. He suggests that this course be adopted more frequently in patients presenting a fever of uncertain origin, manifesting the general appearance and condition as noted above.

Archives Médicales Belges, Paris

Decemher, 1917, 70, No. 12

- 53 *Eye Symptoms with Spirochete Jaundice. Moret.—p. 1105.
54 Present Treatment of Syphilis. B. Dujardin.—p. 1116.
55 *Vocational Training of the Maimed. R. Van Roy.—p. 1133.
56 *Localization of Pulmonary Tuberculosis. A. de Marneffe.—p. 1139.
57 Strangulated Hernia of the Lung. P. Van Reeth, J. Voncken and M. Stassen.—p. 1142.

53. Ocular Disturbance with Spirochetosis Icterohemorrhagiae.—Moret found disturbances on the part of the eyes in all the severer cases among the seventy-two patients with spirochete jaundice in his service at the Belgian military hospital at Bourbourg, to which all the jaundice cases in the Belgian forces were sent. During the acute phase, the tendency to congestions involves the membranes of the eyes, with sometimes hyperemia of the deep membranes. This seems to be due to disturbance in the suprarenal control of the blood vessels, not to an inflammatory process in the eye. There may be hemorrhages in the eye membranes. The spirochete has been known to settle in the iris and induce iritis. During the stage of anemia the eye may show the changes liable with any severe anemia.

55. Vocational Training of the Wounded.—Van Roy discusses the measures to be taken when there is a chance that the man disabled by crippling can regain functional control of his wounded limb so that he can return to active or limited service. This functional restoration should be aimed at from the very first, and measures to realize it should accompany the physiotherapy without any interval. Institutions devoted to those capable of recuperation should not waste time on the severely wounded, who require vocational training. Dr. Hullin, in charge of the medical department of a Belgian accident insurance company, sets the injured man to work again at his trade at the earliest possible moment, having him work mornings only, and spend the afternoon at the institute for physiotherapy, but paying him the full sick benefit all the time. Van Roy exclaims "How many cases of cicatricial retraction and contracture might have been avoided if, instead of keeping the men in the hospitals, convalescent homes, etc., they had been invalided on 'convalescence leave' not to loaf, but on 'leave for compulsory work,' compelling them to work at their old trade for a specified part of the time." This not only benefits the man, but would help to relieve the scarcity of man power. When the wound is such that full recuperation is out of the question, garden or field work is the best all-around preparation for vocational training. Convalescents do not belong in city institutions; gardens and fields are indispensable. The tendency in the hospitals to keep the wounded until they are fully restored, should be vigorously combated. In the hospital, the wounded man takes much longer to recuperate his physical strength, his resilience and his endurance, while the interests of the country suffer.

When the maiming is such as to render full recuperation out of the question, the aim should be all for after-the-war. It is advisable, he reiterates, to adapt the man to resume his old trade rather than to train him in a new one. He learns better and quicker, and he has a better chance to get along among his old friends and mates. In short, vocational training of the wounded differs as it is for army or civil life, for functional restoration, for physical reeducation, or for vocational training of those absolutely unable to work at their

former trade. He has seen men whose legs had been amputated who had successfully returned to their trade as a baker.

56. Localization of Pulmonary Tuberculosis.—De Marneffe recalls that every time the muscles of the arm contract forcibly, the respiration is modified. The respiratory expansion of the chest, corresponding to the group of muscles involved, grows less during the moment of their strong contraction. The effect is felt most in the apex region of the chest on that side. This checking of the expansion of the chest can be observed with whole series of the ordinary movements of life, at table or horseback, in school and workshop. The right hand is employed for all vigorous movements, and the right apex thus feels their effect first and foremost. The violinist, on the other hand, grasps his violin with the left hand, and the muscular effort to hold the violin firm is felt by the left apex. Marneffe advances this theory to explain the localization of pulmonary tuberculosis, adding that by avoiding the special muscular efforts which tend to check the expansion of the chest on that side, we aid in warding off tuberculosis. Exercises which at the same time lift the clavicle and the first ribs, avoid this deleterious influence. Among the exercises of this kind are the raising of the hands to the clavicles, to the back of the neck, vertically above the head, etc.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 8, 1918, 48, No. 23

- 58 *Compulsory Insurance against Accident and Sickness in Switzerland. H. Zangger.—p. 753. Concluded in No. 24, p. 796.
59 *Accident Insurance and Ophthalmology. Vogt.—p. 762.
60 *Prophylaxis of Venereal Diseases. Bloch.—p. 768.
61 *Pneumothorax from Injury while Blocking Nerve. A. Vischer.—p. 772.

58. Connection Between Accident and Disease.—This article was the closing lecture of Zangger's course on the medical features of the new accident insurance legislation in Switzerland. He emphasizes the special points of difference in the medical aspect of the case, between single private insurance and collective compulsory insurance. Knowledge of the accident process, that is, of the etiology of the disturbances noted, is all important. If a fracture occurs from a comparatively slight force, we can assume some special cause in the body, and the prognosis is modified thereby, as we seek to discover the predisposing cause. He reiterates the importance of the first examination, determination of the causal connection, for the insured know well that if they can once convince the physician, mislead him from the start, it is practically impossible for their malingering to be detected later, because the true causal connection then can no longer be determined, and also because the courts depend so implicitly on the findings at the first examination. No matter what other reports may be made later, the courts depend on the first report. If concussion of the brain, for example, is specified in the first report, nothing that can be said later will convince the judge that there had been no concussion. Many insured workmen plot how to get the physician to accept a *Kausalzusammenhang*, and physicians must be on their guard against being exploited in this way. By uncovering these would-be malingerers they also serve the state.

Zangger has encountered one case in which thirty different physicians had taken the patient's statements at their face value, and had certified to severe injuries from insignificant accidents, so that the man had been paid "compensation" at least twelve times by different railroads and tram lines. The first report should include specification of the present status from the standpoints of etiology, prognosis and treatment, with the data on preexisting disease which introduced, occasioned or modified the accident. This includes the known affections, which might be concealed, the visible, which cannot be concealed, and the unknown affections, that is, those whose symptoms the patient misinterprets unconsciously or wilfully, or which had caused no symptoms until the accident, such as cerebral hemorrhage, perforation of the stomach, etc.

The Swiss legislation goes beyond any other in the world in accepting certain morbid conditions without visible manifestations as accidents entitling to compensation. This includes industrial poisoning from chronically acting poisons, such as is becoming more and more common during the war.

A causal connection seems more probable when several in the same factory present an acute disturbance, with little or no fever, and look badly, with discoloration of the skin. The physician must draw on his knowledge of medicine, toxicology, hygiene and natural science to aid in discovering the cause, as the workman himself very seldom knows what is inducing the trouble, and may mislead the physician with honestly meant but erroneous deductions—workingmen usually regard as poisonous only substances that smell badly or induce nausea. Several poisonous substances may have acted together, thus masking the symptoms from each. Elderly persons, children and the young, and those with cardiovascular disease may react to a poison in an entirely different manner from men in the prime of life. Nowhere else is the correct diagnosis so important for prophylaxis as with industrial poisoning. Sickness which is exclusively or predominantly traceable to a toxic acting substance ranks with industrial accidents in the Swiss law. Anthrax and glanders, on the other hand, have been dropped from the list for the present, but yellow fever, malaria, typhus and relapsing fever, befalling Swiss workingmen in the employ of a Swiss firm anywhere are regarded as entitling to insurance benefit, as they are the result of insect bites. Some of the private insurance companies have already paid indemnities to policy holders who had contracted typhus during the war.

In concluding this comprehensive study of ways and means to discover the causal connection in the insurance sense, Zangger warns of the danger of crime and suicide being managed so as to present the evidence of an accident entitling to insurance money. He relates instances in which the criminals were actually being paid by the state for their crime, as when a woman caused the death of her husband by closing the damper in the stove. In several such cases, some casual circumstance first suggested suspicion, not the physician's report. The physician had accepted matters as he had found them on the surface. The identity of the corpse must be verified, as otherwise the indemnity might be paid for some policyholder who had merely left the country. He has had occasion to examine eight cadavers in which death occurred in an epileptic seizure. The mouth and nose in one case were plugged with the wet sand in which the body was lying, and the tongue had been bitten, but the family denied that the man was an epileptic. Inquiry in his home town in Italy revealed that he had long been subject to epilepsy. In conclusion, Zangger reiterates that the Swiss social insurance is on a more comprehensive scale than in any other country. It places great authority in the hands of physicians, and its success depends on them and especially on their report at the first examination.

59. **Accident Insurance and Ophthalmology.**—Vogt discusses the injuries of the eyes of the insured which the general practitioner can treat, and those for which specialist treatment from the first is imperative.

60. **The Swiss Preventive Society.**—Bloch states that the present aim of the newly founded Swiss Preventive Society is propaganda and enlightenment of the public. The time is not yet ripe for placing the venereal diseases where they belong, namely, on the list of communicable diseases requiring compulsory notification. This, he says, is *Zukunftsmusik*, but in fact syphilis and gonorrhea are endemic diseases such as leprosy and smallpox once were, and they can be eradicated only by applying the same measures as have proved effectual with leprosy and smallpox. This would have been done long ago if it had not been for the fact that syphilis and gonorrhea have been exclusively labeled venereal, sexual diseases, burdened with the stigma of all the prejudices of centuries in regard to sexual life. Under the stress of war, the views on this subject have been materially modified in the last year or two in the belligerent countries, and the propaganda of preventive societies may modify public opinion along the same lines elsewhere.

61. **Pneumothorax from Injury while Blocking the Brachial Plexus.**—Vischer reports what he thinks is the second case on record of fatal pneumothorax from injury of the apex of the lung in anesthetizing the brachial plexus. The patient was a woman of 61, and the accident occurred while blocking the plexus preliminary to removing the breast, the seat of

malignant disease. There was no disturbance from it at first, but symptoms of pneumothorax became apparent the second night, with death the fifth night. The injury of the lung was merely a prick, as was determined at necropsy. The needle introducing the anesthetic to block the plexus had punctured the left lung. Schepelmann reported a similar case in 1915 in which the threatening symptoms were arrested by introducing a trocar, into the pleura, over the outer end of which a rubber cot was tied. A slit in the rubber allowed expiration of air while the collapse of the rubber during inspiration closed the slit. The condition rapidly improved after three or four days. In introducing the needle to block the plexus, if the first rib is missed, the needle strikes the lung close to the plexus. The two cases related show that even the finest prick may be enough to induce fatal pneumothorax. Tracheal stenosis from a goiter may have contributed to the fatal outcome in this case, the inspiratory stridor hindering the closure of the minute opening, and also masking the symptoms from the pneumothorax. It is possible that an evacuating puncture might have saved the patient if the pneumothorax had been diagnosed earlier. The woman's heart was too weak to stand the strain.

Riforma Medica, Naples

June 15, 1918, 34, No. 24

62 *Food Requirements. F. Bottazzi.—p. 461.

63 *Malaria. R. Secchi.—p. 466.

64 Botryomycosis in Man. E. Aievoli.—p. 469.

65 Necessity for Compulsory Course on Ear, Nose and Throat in Medical Curriculum. G. Gradenigo.—p. 476.

66 *Compulsory Insurance against Sickness. G. Cristalli.—p. 477.

62. **Food Requirements.**—Bottazzi protests against the tendency displayed by some recent writers to estimate at a lower figure the number of calories and the proportion of protein regarded as necessary for the soldier's ration. At the beginning of the war, the Italian soldiers' ration represented 3,013 and 4,182 calories, but this was soon reduced, and at one time it consisted only of 2,380 and 2,700 net calories. It has been increased since, but the calory value of the ration at present has not been made public. It probably does not reach the 3,000 and 3,600 net calories which the recent Inter-Allied Food Conference accepted unanimously as the standard ration for all the allied forces. The proportion of fat was accepted as 75 gm., or 100 gm. for the soldier on active service. Bottazzi reiterates that Chittenden was suffering from chronic rheumatism, and his conclusions should not be applied to healthy men. Bottazzi approves of reducing the meat ration for civilians, as they can make up the protein in other ways, and, in any event, the sacrifices should be made by civilians rather than by the soldiers.

"The navy has also been suffering from the application to them of Chittenden's estimates—forcing the sailors to eat according to what a man with chronic rheumatism and gout found to suit him best." Bottazzi protests further against the assumption that the men in the navy do not do as much work as the men in the army and hence do not need so much food. The passive and active movements on shipboard, the wind, the sea air, the sunshine, etc., intensify the metabolism and stimulate the appetite, to say nothing of the muscular exercise required in the care of the ship, etc. He cites a leading physiologist's statement to the effect that the ration in the Italian army, "as a result of action based on Chittenden's conclusions, was cut down in February, 1917, from 3,435 to 3,036 calories, a wholly insufficient amount for men on active service. It is impossible to avoid the conclusion that this under-feeding played a considerable part in the recent unfortunate events in Italy."

63. **Malaria.**—Secchi relates some experiences which show that men from nonmalarial districts were more susceptible to malaria when sent into a malarial country, than men from districts where malaria is more or less prevalent, but none were immune. He has been successful in treating malaria by giving quinin, 1.6 or 1.8 gm. of the bisulphate or 1.5 gm. of the hydrochlorid by the mouth seven hours before the time of the anticipated attack. This amount of the quinin is taken in three doses in the course of an hour and a half. This is repeated daily for six or eight days; then it is suspended for

five days, and then resumed for three consecutive days, and suspended again for five and so on for two months. Fowler's solution is given at the same time, from 4 to 20 drops a day. In cases with daily malarial attacks he gives the quinin at the time of the lowest temperature, both by the mouth and subcutaneously, remembering that the drug reaches its highest concentration in the blood in six or seven hours when given by subcutaneous injection. The results with this technic, he says, have been *insuperabilmente eccellenti*. Over 2,500 men with malaria have been treated in his service since June, 1915, and there was hemoglobinuria from intolerance in only two cases.

66. Compulsory Insurance Against Sickness.—Cristalli is an advocate of compulsory insurance of every one against sickness, with a fixed salary for the attending physicians, under civil service rules.

Anales de la Facultad de Medicina, Lima

May-June, 1918, 1, No. 3

- 67 *Tumors in Mediastinum. E. Odriozola.—p. 203.
68 *Forensic Medicine in Peru. L. Avendaño.—p. 210.
69 The Various Functional Kidney Tests. M. A. Velasquez.—p. 234.
70 Nosography of Tropical Medicine. J. Arce.—p. 240.
71 *Psychotherapy. H. Valdizan.—p. 250.
72 Protozoon Found in Peruvian Lizard. E. Escomel.—p. 272.

67. Tumor in Mediastinum.—The experiences related by Odriozola teach the necessity for specific treatment as for syphilis whenever there are signs of a tumor in the mediastinum. This should be done even when radioscopy shows merely a nonpulsating tumor. The remarkable cures that follow when syphilis is a factor justify tentative treatment in all cases when pain, spasmodic cough, fatigue, difficulty in swallowing and supplementary venous circulation show compression by an encroaching tumor or mediastinitis.

68. Forensic Medicine in Peru.—Avendaño remarks that the teaching of legal medicine now enters on a new era in Peru with the completion of the new model morgue at Lima. He pleads to have this made the basis for an official institute of legal medicine. There is none to date in South America. He reviews the history of forensic medicine in Peru, which dates officially only from the beginning of the nineteenth century.

71. Psychotherapy by the Nonspecialist.—Valdizan comments that medicine began in prehistoric days as psychotherapy. "Ancient medicine was intuitively psychotherapeutic, and contemporaneous medicine is scientifically psychotherapeutic." The physician must strive in every way to maintain and enhance the patient's confidence in him, not for egotistic benefit but for the direct benefit of the patient. He warns that the physician should not depreciate his services or ascribe the success to Nature. It is better for the patient to have exaggerated confidence in the physician's skill, and ascribe his recovery to this alone. If the physician depreciates this excessive tribute to his skill, he can rectify the matter in speaking to the friends or family of the patient, but with the patient himself he should seek in every way to maintain the confidence and hope which are the precious product of a harmless error.

The listening to the patient's account of his sickness is a vital factor in winning his confidence. In the examination the physician should never let the patient see by his expression the emotions induced by the lesions encountered, as the patient is watching every gesture and expression. The diagnosis should never be said over the patient in making hospital rounds with visitors. In conclusion Valdizan reiterates that extrapsychiatric psychotherapy has triumphed in surgery even more brilliantly than in medicine, especially the results of Crile's research which marks an era in the annals of surgery, although the principle itself is nothing new.

Anales de la Facultad de Medicina, Montevideo

March-May, 1918, 3, No. 1-2

- 73 *Gastro-Intestinal Disease in Infants. L. Morquio.—p. 1. To be continued.
74 Valvular Incompetency. P. E. Nuñez.—p. 126.
75 Associated Friedreich's and Pott's Diseases? A. Carrau and J. C. M. Fournier.—p. 138.
76 Capillary Ureometer for the Blood. P. Bonavia.—p. 150.
77 The Sodium Chlorid in Wassermann Test. A. Prunell.—p. 155.

73. Gastro-Intestinal Disturbance in Infants.—In this 125-page instalment of his serial comprehensive study of infant pathology, Morquio discusses the treatment for the different types of bowel derangement according as they are purely functional, or of dyspeptic, toxic-infectious or nutritional origin. He says of buttermilk that it has been used extensively in his service and that although the first enthusiasm has been much diminished, yet it is regarded as useful for certain indications, to supplement breast feeding, and in treatment of gastro-intestinal derangement, acute or chronic. A few children had to be kept on buttermilk exclusively all summer, as this was the only food on which they thrived. The older infants do not like the taste, and it had to be well sweetened for them at times. Fever on taking the buttermilk can usually be traced to an exacerbation of the toxic or infectious phenomena; the buttermilk is not responsible for it.

Archivos Españoles de Pediatría, Madrid

April, 1918, 2, No. 6

- 78 *Fourth Disease. C. Aguilar.—p. 193.
79 *Thymus Death. J. Palancar and L. R. de Arcaute.—p. 208.
80 *Physiologic Value of the Tonsils. E. Prada.—p. 242.

78. Fourth Disease.—Aguilar presents arguments to show that the so-called fourth disease cannot be regarded as a morbid entity.

79. Thymus Death.—Palancar and Arcaute declare that microscopic findings are more conclusive as testimony than the mere size and shape of the thymus, in cases of sudden death for which the thymus seems to be responsible. In one of their two cases the thymus of the 4 months child weighed 28 gm. Except for a convulsion at 2 months, the child seemed healthy and the parents were young and healthy. The microscope showed indications of intense functional activity and proliferation. Another child in the family had died suddenly at the eleventh month, but the thymus was not investigated in this case. Their conclusion is that the thymus in certain cases may exert a toxic influence independent of any mechanical action. With hyperplasia of the thymus there may be perverted functioning, which may entail the gravest accidents. In their cases the lymphatic system seemed to be otherwise normal. This suggests that there is not the connection between the thymus and the lymphatic apparatus which some assume. Children have been born with hyperplasia of the thymus but the writers know of no instance of congenital hyperplasia of the lymphatic system. Probably the mechanism is not always the same in the cases of sudden thymus death, toxic factors in some and mechanical factors intervening in others. Perverted functioning of the thymus is most common and most evident in infants under the age of 16 months. The toxic action seems to be most injurious for the cardiovascular system. The microscopic findings in the case mentioned showed a remarkable number of subpericardial and subcapsular ecchymoses, one apparently in every terminal arteriole. The microscopic findings are illustrated and the literature on thymus death is analyzed.

80. Tonsils in Childhood.—Prada found the hemoglobin percentage very much higher after the tonsils had been removed, in his examination of thirty children before and after tonsillectomy. The better respiration and oxygenation of the blood after the enlarged tonsils had been removed amply explain this improvement in the blood. Tests by Abderhalden's technic, as to defensive ferments, confirmed the apparently insignificant rôle played by the tonsils in the organism of children, so far as our present means of research can determine. He advises tonsillectomy when the child is inclined to deafness, and also when the child has had diphtheria, as the tonsils are liable to harbor the bacilli long, as well as when the tonsils are subject to recurring inflammation or merely obstruct respiration.

Brazil-Medico, Rio de Janeiro

May 4, 1918, 32, No. 18

- 81 Nematode Cucullanus Pulcherrimus. N. sp. A. L. de B. Barreto.—p. 137.
82 *Syphilis of the Liver. A. Pedro.—p. 138.
May 11, 1918, 32, No. 19
83 *Superficial Epitheliomas. C. De Rezende.—p. 145.

82. **Syphilis of the Liver.**—The data presented show that in the first of Pedro's two cases, the syphilitic origin was evident, although the clinical picture was that of a typical case of Laennec's cirrhosis. Under treatment for the syphilis, the liver returned to clinically normal and there has been no further disturbance during the seven years since. In the other case, there was nothing to suggest syphilis and the diagnosis of cancer of the liver seemed certain, particularly as there was extreme cachexia. As a last resort, treatment for syphilis was tentatively instituted and the whole picture of the syphilitic hypertrophic hepatitis with chronic jaundice promptly subsided, and has shown no signs of recurrence during the five years to date. The diagnosis was made solely on the result of the treatment; in two months complete health had apparently been regained.

83. **Superficial Epitheliomas.**—De Rezende calls attention anew to the excellent results he has obtained in treatment of epitheliomas of the skin with a salve which penetrates rapidly into the tissues and requires no dressing to hold it in place. In five cases in the last three years the epithelioma of from three to six years' standing was completely cured with one or two applications a week, first removing crusts and dead tissue, and suspending the applications if the tissues around become inflamed. Illustrations are given of some of the cases. The formula calls for 0.20 gm. each of arsenious acid, copper sulphate, methylene blue and methyl violet; with 0.50 gm. quinin hydrochlorid; 0.75 gm. tartar emetic, and 1 gm. each of camphor, menthol, phenol and antipyrin. The last four ingredients are mixed together first. They deliquesce and form the vehicle for the other ingredients, which are added in turn, leaving the methylene blue and methyl violet till the last. He describes the special function expected of each these ingredients.

Medicina Ibero, Madrid

April 13, 1918, **3**, No. 23

- 84 Exophthalmic Goiter. S. A. Echevarria and J. Blanc.—p. 29. Commenced in No. 22, p. 6.
- 85 Iodin in Therapeutics. S. Alvarez.—p. 31.
- 86 Importance of Early Diagnosis of Contracted Pelvis. D. G. Puente.—p. 36.

Siglo Medico, Madrid

May 18, 1918, **65**, No. 3362

- 87 *Trauma of the Urinary Apparatus in Relation to Workmen's Compensation. S. Pascual.—p. 384.

May 25, 1918, **65**, No. 3363

- 88 *Alimentary Disturbances in Infants. B. H. Briz.—p. 401.
- 89 *Vacuum Extraction of Cataract. B. Castresana.—p. 403. Commenced in No. 3362, p. 382.
- 90 *Retrovesical Echinococcus Cysts. A. Martin.—p. 406.
- 91 Differential Diagnosis of Tuberculous Acne of the Nostril and Syphilids. Sicilia.—p. 407.

87. **Trauma of the Kidney.**—Pascual discusses two cases in which contusion of the kidney region was followed by nephritis, transient in one case and chronic in the other. In the transient case there is still some pain and tenderness in the region but nothing to suggest kidney disease otherwise, the urine findings being normal. The only thing to be done in such a case is to keep the patient under observation and examine him anew from time to time. Catheterization of the ureters is not called for merely by the slight painfulness in these workmen's compensation cases. Actual chronic nephritis can scarcely develop after a contusion of the region unless the kidney was already damaged at the time. Even if albuminuria and certain disturbance in the urinary secretion persist for years, this does not constitute actual Bright's disease. It is impossible, he says, to lay down any laws; each case has to be studied for itself, with minute and repeated examination to determine that the nephritis is not transient. The French evaluate the incapacity from unilateral kidney disease at 25 per cent. and bilateral at 50 per cent. This is too schematic, he declares, but it affords a basis on which the individual case can be estimated.

88. **Gastro-Intestinal Disturbance in Infants.**—Briz reiterates that breast milk contains ferments, antitoxins, alexins and agglutinins. On other milk the child is liable to have all its functions disturbed until it reaches an extreme degree

of malnutrition although it may seem to be doing well at first. In one case a young mother gave her child the breast for ten minutes, watch in hand, following some one's advice. The child was unable to get enough in the ten minutes, and it was suffering from undernourishment, while the breast did not get enough work to maintain the lacteal secretion. In cases of extreme athrepsia, or decomposition, nothing but breast milk will answer. He has witnessed a number of actual resurrections when the child seemed moribund, as soon as it was given good breast milk, very little at a time at first. He supplemented this with a daily injection of 20 c.c. of sea water or a mixture of 8 parts sodium chlorid and 10 parts sodium sulphate in 1,000 parts water, with a few drops of epinephrin solution. Along with this he gave hot brine baths.

89. **Vacuum Extraction of Cataract.**—Castresana describes his comparatively extensive experience with Barraquer's pneumatic method of extracting cataract in the capsule. (It was described in these columns, Dec. 8, 1917, p. 2006.) Its great advantages are that the method can be applied without waiting for the cataract to ripen; there is no chance for secondary cataract to develop, while the procedure is gentle and effectual. The drawbacks are only that the opening has to be made a little larger than with other technics as the drawing out of the aspirating cup plus the cataract entire takes up room. Iridectomy he found indispensable to avoid injury of the iris in drawing out the cataract. So far as loss of vitreous is concerned, he could not see that this vacuum method had any advantage over the older technics, although others claim that there is less danger of this.

90. **Retrovesical Echinococcus Cysts.**—Martin reports a case of retrovesical cyst in a boy of 13 which he treated by aspiration of the fluid contents of the cyst through the rectal wall, followed by injection into the cyst of Van Swieten's solution. Very little of the antiseptic is necessary; the conditions for success are that the parasite is alive, and that the fluid can reach it by diffusion, however large the cyst. This method has proved completely successful in the four cases in which he has applied it to otherwise inaccessible cysts, no by-effects being observed and the cyst being evidently harmlessly absorbed in less than a month.

Hospitalstidende, Copenhagen

May 29, 1918, **61**, No. 22

- 92 *Sweating Sickness in Greenland. H. Kier.—p. 721. Commenced in No. 21.

June 5, 1918, **61**, No. 23

- 93 *Renal Glycosuria. E. Jarløv and S. Kraunsøe.—p. 753.
- 94 Present Status of War Nephritis. O. V. C. E. Petersen.—p. 770. Commenced in No. 22, p. 736.

June 12, 1918, **61**, No. 24

- 95 *Medical Diseases of the Kidneys. V. Rubow.—p. 785.
- 96 Pathogenesis of Orthostatic Albuminuria. C. Sonne.—p. 800.

92. **Sweating Sickness in Greenland.**—Kier describes several epidemics of miliary fever that have occurred in Danish possessions during recent centuries, especially in Greenland. The disease does not seem to spread in the towns as much as in rural districts. The phenomena observed seem to indicate that all affected get the disease from the same source. The M. Erichsen exploring party in 1902 had one member affected with the disease on the long sledge ride from the western coast of Greenland to Cape York, and the polar Eskimos at the latter place then developed the disease, with thirty victims among the 200 members of the tribe. The disease may simulate meningitis or poliomyelitis at first. In treatment, a hemostatic injection of serum and saline infusion seem almost the only reliable measures in treatment, but the physician must be on his guard against the disease himself. The French advocate ferric chlorid. In Greenland the prognosis on the whole was benign, but the epidemics are capricious.

93. **Familial Renal Glycosuria.**—This communication describes in minute detail several cases of high sugar content of the urine with normal sugar content of the blood, all in one family. One young man had probably had the glycosuria for seventeen years; it was casually discovered during an

attack of febrile jaundice after pneumonia in the boy of 4. But he had always been healthy otherwise, except for an intercurrent scarlet fever at 16, and was fond of athletics. The glycosuria did not seem to be modified by restriction of carbohydrates, but when the diet was of an antidiabetic nature, acetone appeared in the urine. This acetone content was still more marked in this young man's cousin, who had been treated for severe diabetes in boyhood and returned ten years later for treatment, as his physician in Hamburg had advised him to return to Denmark as it was impossible for him in Hamburg to obtain the fat he needed in his diet. Closer analysis of the case, however, disclosed none of the characteristics of diabetes to correspond to his high glycosuria, and the metabolic findings over long periods are tabulated and compared with the diet. On a milk diet, at the age of 8, the urine contained 16 up to 44 gm. sugar, a range of from 2.5 to 4.5 per cent. Under three months of hospital treatment, he gained 1,200 gm. in weight but the sugar content of the urine was still 1.8 per cent. when dismissed, and there were traces of acetone. He returned a year later with 5 per cent. sugar, and again this was reduced under treatment, but with the appearance of diacetic acid and acetone, and sugar content of 1.6 per cent. by the end of the month. At 19 the percentage was 3.3, and this was reduced by antidiabetic diet to 0.5, but diacetic acid and acetone then were constant. The blood sugar content was continuously normal, and the patient's general health was constantly good. The glycosuria was only slightly modified by restriction of carbohydrates. Acidosis was never observed when the patient was on an ordinary diet, but it developed under antidiabetic dietary restrictions every time, and disappeared anew as soon as the ordinary diet was resumed. The young man's immediate family showed no tendency to glycosuria, but his cousin was the first case mentioned above, and this young man's brother has 1 per cent. sugar in the urine with normal blood content. The mother and one sister present alimentary glycosuria, but the father, three sisters and a nephew have normal sugar content of the urine. There is no history of actual diabetes or nervous or thyroid disease in the family.

In the two severe cases of glycosuria referred to above, the amount of sugar eliminated in the urine seems to be too considerable to be explained merely by extra permeability of the kidneys, and hence the term "renal glycosuria" is scarcely appropriate, but will have to answer for the present. Similar cases described by others are analyzed in connection with these cases. They all teach that attempts to banish the sugar from the urine by antidiabetic diet are not only unnecessary and futile, but that they are directly harmful, bringing on acidosis, during which the patients feel sick, while they are subjectively in the best of health on an ordinary diet. The cases teach further the folly of regarding every glycosuria as of diabetic origin. When the so-called juvenile glycosuria is seen to persist year after year without progressing and without impairment of the general health, this can scarcely be regarded as a disease, or as contraindicating marriage or life insurance.

95. Medical Kidney Disease.—Rubow remarks that the three main groups of medical kidney diseases are those due to epithelial degeneration, to glomerular nephritis, and to sclerosis of the vessels in the kidney. The blood pressure is inclined to go up as soon as the glomeruli become involved. He warns that if the blood pressure naturally is low, as frequently happens in the young, there may be a considerable rise in the arterial pressure while it still is within approximately normal range. In certain cases the high blood pressure is almost the only certain sign of pathologic conditions in the glomeruli, and he queries whether from this alone, along with the following hypertrophy of the heart, we can draw the conclusion as to serious damage of the glomeruli and sclerosis of the vessels. Functional tests of the kidney may prove misleading, with negative responses, as the normal range of functioning in human organs is so great. Healthy kidneys are capable of at least three times the work ordinarily imposed on them. This explains the long latent stage with chronic kidney disease, and shows that ordinary functional tests may give apparently normal findings for a long time

even with encroaching disease. Only when the test is applied up to the maximal limit of normal functioning, can the findings be depended on to reveal slight degrees of functional deficiency, and therewith the beginning kidney disease. It is difficult and possibly dangerous to apply a maximal test of this kind.

Even the determination of the residual nitrogen in the blood may prove misleading, if the residual nitrogen happens to be anchored in the solid tissues, in the liver, for example and is not circulating in the blood. Some deny the possibility of this, but Monakow's research in 1914 on this historetention of residual nitrogen not only confirmed it but showed that the residual nitrogen in the blood is an unreliable index of the amount retained. He had a patient with reflex anuria for five days, and the fifth day the blood showed 50 mg. percentage of residual nitrogen in the blood, corresponding to about 3 gm. nitrogen. When the anuria stopped, it was found that there had been retention of 62 gm. nitrogen, in addition, to 7.5 liters water. There must have been 55 gm. of nitrogen retained in the solid tissues; that is, the tissues were able to retain eighteen times as much as the blood. Determination of the residual nitrogen has proved useful in many ways, but it cannot be counted on to reveal incipient disease of the glomeruli. It is possible that applying the test in connection with maximal overburdening of kidney functioning may prove instructive. For example, one man of 53 with high blood pressure and hypertrophy of the heart had residual nitrogen in the blood, in the morning, 34 mg. per cent., but twenty-four hours after intake of 20 gm. urea, the figure was 62 mg. per cent.—a figure essentially higher than would be presented by a normal person under the same test. In a second case with apparently the same high pressure and enlarged heart, twenty-four hours after the intake of 20 gm. urea, the blood showed a residual nitrogen content only at the upper limit of normal.

The same conditions are inherent in the determination of chlorids. Only with extreme degrees of renal insufficiency is the chlorid content of the blood very high; the surplus is anchored in the solid tissues. When the glomeruli are unable to eliminate as usual, the consequent retention of urea and salt acts as a stimulant to extra functioning on the part of the glomeruli still capable of functioning, as these substances have a diuretic action. Another means by which the organism seeks to compensate the deficient glomeruli is by sending the blood through the kidneys under greater pressure. The rise in blood pressure and consequent hypertrophy of the heart occur early, and in many cases this alone answers the desired purpose of keeping renal elimination within practically normal range. The high blood pressure and hypertrophy of the heart, in combination with slight albuminuria, are therefore the bases for the diagnosis. Polycythemia may complicate kidney disease, and in the one typical case that has come to necropsy, chronic glomerular nephritis was found. The high blood pressure with kidney disease persists unmodified by repose in bed and dieting. The numerous transitional cases between glomerular nephritis and renal angiosclerosis show that there is no essential difference between them. The cardiovascular form may be regarded as a more or less protracted phase of a compensated stage of kidney sclerosis, while the uremic form is the stage of insufficiency when compensation is failing, or when from the first it has been inadequate. Death may occur from hemorrhage in the brain or from heart failure while the kidney trouble is still in the compensated phase. The findings in the kidney then will be quite different from those with death from uremia.

Norsk Magazin for Lægevidenskaben, Christiania

June, 1918, 79, No. 6

- 97 *Retronasal Tumors. F. Leegaard.—p. 617.
- 98 *Autointoxication Psychosis. S. Dahlström.—p. 648.
- 99 *Poisoning from Hexamethylenamin. Y. Ustvedt.—p. 657.
- 100 *Tubercle Bacilli in the Stools. T. Schram.—p. 661.
- 101 *Virulence of Diphtheria Bacilli in Convalescents. K. Utheim.—p. 678.

97. Retronasal Tumors.—Leegaard reports a case of primary sarcoma in the nasopharynx of a girl under 5. The first symptom was pain; vomiting soon followed and the

eyeballs protruded and were immovable while vision was soon lost and death ensued in less than three months from the first sign of trouble. There was extreme cachexia but no hemorrhage. Necropsy showed an extension of the sarcoma backward into the region of the sella turcica. In another case a boy of 15 presented a tumor in the nasopharynx which proved to be a lymphangiomatous myxofibroma and was successfully removed. There had been no bleeding and the lad seemed otherwise normal, except for a tendency to nocturnal enuresis. The tumor was 6.5 cm. long by 4 cm. wide. Two years later he returned with a recurrence of the fibroma which was likewise removed. This tumor was 10 cm. long by 8 cm. at the widest portion; it was removed through the mouth. It proved impossible to anesthetize the patient by the usual technic as he had evidently become accustomed to get along with the minimum of inhaled air, and it was necessary to give the anesthetic through a tracheal cannula. Leegaard has encountered seventeen cases of juvenile fibromas, and tabulates the details of the fourteen operative cases, including one with recurrences through several years compelling four operations. His experience confirms the general assumption that these fibromas start as a rule in the body of the sphenoid bone, especially in the sphenoid-ethmoidal recess—always within the nose area. These and six other cases observed in the Rikshospital were all males, and all were in the fibroma age, that is, between 10 and 20, with one exception, a boy of 6. There does not seem to be anything to suggest a connection between the tumors and the pituitary body. Spontaneous involution is possible, but not to be counted on while the growth of the tumor may injure the adjoining tissues beyond repair. In one of his cases neither the clinical course nor the findings at the operation suggested this, but necropsy showed that the bone had been eroded and that the growth had spread inside the cranial cavity. He cites further Ingals' case in which the tumor had completely subsided so that not a trace could be found of it fifteen years after the first observation at the age of 13; but in the meanwhile the young man had become blind in the eye on that side. The actual cautery and electrolysis might induce hemorrhage, and fatalities are known with them. In any event they had better be reserved for cases approaching the immune period, the twenty-fifth year. Two of Leegaard's patients died and one of Wolfheim's three. Milligan has reported a case of death twenty-four hours after the operation, which he is unable to explain; there was very little bleeding. In other fatal cases the death was ascribed to the combined effect of the chloroform and bleeding. Leegaard queries whether local anesthesia may not prove important progress. Denker's method seems to have obvious advantages for removal of retronasal tumors, but it is wise to loosen up the tumor all around before attacking the tumor tissue itself; when it can be removed whole there is much less danger of hemorrhage, which otherwise hampers the operation. When the last scrap of the tumor is removed, the bleeding may stop at once. Among his fourteen cases four developed otitis after the operation. This suggests the necessity for not leaving the tampon any longer than is strictly necessary; it cannot be dispensed with altogether.

98. Psychosis from Autointoxication.—Dahlstrøm reports the case of a young sailor who within two days became unconscious and then delirious, with pulse of 48 to 56. Under a purgative he voided nine liters of stools and the next day three more liters, after which there were no further signs of the psychosis. Winge has reported a similar case in which the pulse was 40 during the psychosis, and it subsided as the enormously overloaded bowels were cleared out.

99. Toxic Action on Kidneys from Hexamethylenamin.—Ustvedt had prescribed the drug for a man of 31 with poliomyelitis symptoms for two days: five 1 gm. doses during the night, four similar doses the next day, and three the following night. At noon of this day the urine was dark red with blood but there was no vomiting or headache, although the poliomyelitis pains persisted after the medication as before. The urine showed blood and albumin for five days after this total of 12 gm. hexamethylenamin in the course of thirty-six hours. No effect on the poliomyelitis symptoms was apparent.

100. Tubercle Bacilli in the Feces.—Schram tabulates the findings in eighty-five cases, confirming the common occurrence of tubercle bacilli in the stools in advanced, especially febrile pulmonary tuberculosis. Reh's ether method is a simple and reliable method to determine their presence. The scrap of stool is mixed with distilled water and ether is added, in an Esbach tube. After the tube is well shaken and the coarser particles have sunk to the bottom, the ether extract is centrifuged and the sediment is dissolved in a little ether and spread on a slide. Positive findings are seldom encountered in the earlier stages of tuberculosis in adults.

101. Virulence of Diphtheria Bacilli Found in Convalescents.—Utheim has found the bacilli pathogenic for guinea-pigs in convalescents and carriers. The bacilli were cultivated from the secretions of the nasopharynx on beef serum, bouillon and Thiel's medium, sugar agar, etc., and the guinea-pigs were injected intradermally with a loop of the serum culture suspended in 1 c.c. salt solution, 0.01 c.c. being used for the injection. In forty-eight hours there is necrosis at the spot in the positive cases, and when this is thrown off an ulceration is left. One or two of the 125 strains were thus injected in each guinea-pig, and positive results were obtained repeatedly in every one of the seventy-nine convalescents up to the sixtieth day of the convalescence, and also in the eleven chronic carriers. The bacilli isolated from two healthy children from an institution where diphtheria had not been known for over a year caused no reaction in the guinea-pigs. Eighteen of the total ninety-two children had diphtheria bacilli in the nasopharyngeal secretions when they were dismissed from the hospital, but no return cases have been known from them during the year since. Utheim cites further the conclusions adopted by various health boards, etc., in respect to carriers. Everything points to the conclusion that the factor of individual susceptibility has to be considered as much as the virulence of the bacilli. With undiminished virulence, the diphtheria bacilli have to meet a susceptible individual before the disease can develop.

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June 6, 1918, 80, No. 23

102 *Tracheitis. J. Møller.—p. 905.

103 *A Typhoid Bacilli Carrier. E. Lenstrup.—p. 911.

102. Tracheitis.—Møller remarks that most cases of tracheitis are mistakenly diagnosed as "pharyngitis and nervous cough." In all his experience he has never encountered a case of a purely nervous cough; some lesion could always be discovered by looking for it. The tracheitis induces coughing and hawking, mostly mornings, the rest of the day being free from cough, except in the severer cases. The characteristic cough with acute tracheitis comes on at night when the patient gets warm in bed, and it keeps up for a half hour or hour until a small amount of sputum is coughed up. This may return several times during the night and again in the morning. The cough may be spasmodic so that in children it may be difficult to distinguish between tracheitis and whooping cough. In the severer cases, the cough returns periodically as a small amount of sputum accumulates. Hoarseness is another symptom of tracheitis. The accumulation of phlegm on the vocal cords is the cause of the inability of certain singers to sing in the morning, but respiration is not impeded with pure tracheitis. In treatment, the main thing, he declares, is change of climate, the mountains, a sea voyage, but if this is impracticable, medication should aim to promote expectoration or check the irritation in the throat, with inhalation of a fine spray of some solution of ethereal oils, eucalyptus or balsamics. Painting the throat with iodine or mercuric chlorid or silver nitrate is of not the slightest use when the trouble is in the trachea. Warm drinks may be useful, and cautious exercising of the speaking and singing voice may aid in the cure. Often a little exercise in singing may conquer the last traces of the tracheitis.

103. A Typhoid Carrier.—A woman contracted walking typhoid in 1894, and has been responsible for cases of typhoid in her vicinity in 1895, 1904, 1913, 1917 and 1918. The agglutination test was positive, but only one of repeated examinations of the stools. Evidently the elimination of the bacilli occurred only at long intervals.

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RESPONSIBILITY OF NATION, STATE AND COUNTY FOR RURAL SANITATION *

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When this paper was written, no appropriate action had been taken to retard or prevent the rapid disorganization of public health agencies incidental to our national plan of medical preparedness. At that time, it seemed almost futile to discuss any phase of public health administration. With reliable assurance that this matter of paramount importance, to wit, the maintenance of public health agencies during the war, would be properly dealt with in Washington during the past week, I have selected a subject of national scope and importance, once the maintenance of our public health agencies is assured.

My subject, the "Responsibility of Nation, State and County for Rural Sanitation," seems to be logically divisible into three sections: (1) the size and nature of the problem of rural sanitation; (2) the relative responsibility of nation, state and county for rural sanitation, and (3) the coordinate responsibility of nation, state and county for rural sanitation.

SIZE AND NATURE OF THE PROBLEM OF RURAL SANITATION

In size, the problem of rural sanitation has to do with 60,000,000 people, comprising 53 per cent. of our population, and 99 per cent. of the area of this country. It is the larger part of the general problem of sanitation.

In nature, rural sanitation is primary and fundamental to sanitation in general; in the natural order, the country and then the city. The city is made of wood and brick and stone and men and ideas—the built and the builders—all brought in from the country. The vital current flows from the country to the city. The urban settlement, village or metropolis, the little pond or big lake, is quantitatively and qualitatively what flows into it from the woods and fields. Purify the stream at its source, and the rural influx will not muddy the water for the health department, but will make it clear.

One more word with respect to the nature of the rural health problem: It concerns a population that both in knowledge and in means is least able to care for itself and, therefore, most in need of our consideration.

RELATIVE RESPONSIBILITY FOR RURAL SANITATION

The recent invoice of the vital resources of this country, showing 33 per cent. of the healthiest age group unfit for military service, one third of our force eliminated from the struggle before they could reach the trenches, is enough at this critical period of our history to raise the question of governmental responsibility. In this question of responsibility, unfortunately, like most questions of responsibility, there are several responsible agencies or divisions of government concerned. There are three divisions of government naturally interested in, and with means and opportunity to improve, and, therefore, responsible for, rural sanitation. These three divisions of government are our primary and constitutional governments, our national, state and county governments. Here, then, the question of general responsibility shifts to one of relative responsibility. Which one of the three branches of government is most concerned, most responsible for rural sanitation, and, therefore, which one of the three divisions of the government should assume leadership in solving our rural sanitation problems?

In the first place, rural sanitation is a matter of profound interest not to one or a few, but to all of the states—it is a problem of national scope. Methods of solving this problem for one state are applicable to many, and the experiences of each state would be helpful and should be available for all the states through some central governmental agency or clearing house. The problem is not an intrastate but an interstate problem, a national problem from many angles.

Then again, the present international crisis makes the physical man power not of one or a few counties or states, but of the entire nation, a matter of national and fundamental importance. County and state lines have become almost imperceptible; our governmental powers have become united and solidified to the point at which the national government is stronger in influence, means and authority than ever; and with this greater strength goes greater relative responsibility.

Lastly, it may be said that the three governments are like partners in a firm. Their common property is the rural citizen. The national government is the largest stockholder. It owns sixty times more stock than the average state government, and three thousand times more stock than the average county government. The national partner is supposedly the best equipped in both means and understanding. If seniority, larger interests, and ability are factors in determining responsibility for leadership, then the question of greater relative responsibility rests with the national partner. The answer to this question will be the adoption and the inauguration by the

* Chairman's address, read before the Section on Preventive Medicine and Public Health at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

federal government of a definite, comprehensive and adequate plan of rural sanitation. Such a plan will from the very outset recognize the principles of coordinate responsibility for rural sanitation.

COORDINATE RESPONSIBILITY FOR RURAL SANITATION

This principle of coordinate responsibility recognizes the interests and the obligations of the three partners in caring for their common property—the rural citizen. This means that (1) there must be a plan of rural sanitation satisfactory to all three interests—nation, state and county, and (2) all three interests must help, contribute of their energy and means, in carrying the plan into effect.

It is not sufficient, it is not right, for one of the partners to tell or to demonstrate to the other how to take care of the common interest. Demonstration is all right so far as it goes. It doesn't go far. And then it is a bit egotistic and distant; not a friendly helper. The show-you-how-to-do-it type of mind is good in a way, but the let-me-help-you spirit is your real friend. The present policy of the federal government with reference to rural sanitation is, to use the exact terms, "for demonstration purposes." The states and counties, the majority of the people of this country, are not satisfied and are never going to be satisfied with that half-hearted policy. Measured by its interests, the United States government is not fulfilling its obligations in its present demonstration policy for dealing with the problem of rural sanitation.

Fortunately for those of us who believe that this principle of coordinate responsibility means cooperative help on the part of all three governments concerned, we have with us the state public health agencies, recorded in strong resolutions adopted at the Conference of Secretaries of State and Provincial Boards of Health in June, 1917, and also two departments of the United States government, the Department of Commerce and the Department of Agriculture, the only two departments of the federal government, the Department of the Treasury excepted, that have to do with rural living conditions. The Departments of Commerce and Agriculture have been instrumental in securing legislation based on what is generally spoken of as the federal aid extension principle, which recognizes and puts into active service for the people this principle of coordinate responsibility of the three governments for rural welfare. The federal good roads act, under the Department of Commerce, and the Smith-Hughes and Smith-Lever acts for agricultural education, under the Department of Agriculture, are of inestimable value not only to the rural citizens of our country, but also to the entire country. This form of legislation, briefly, provides a federal appropriation to be equitably apportioned among the states, each state to receive its apportionment when the state appropriates a like amount. The combined federal and state appropriation is again appropriated to the counties of a state when the county appropriates one dollar for two received from the federal and state governments, and the combined fund, the contribution of the three partners, one third from each, is spent on a plan of work approved by all three participants.

If similar legislation were enacted to care for the problem of rural sanitation, the federal government would appropriate, say, from \$1,000,000 to \$2,000,000 annually to be apportioned to the various states and territories in accordance with the rural population and the square mile area of each state and territory,

the state apportionment to be available to the state when the state appropriated a like amount to that received from the federal government; and the combined fund would be apportioned to those counties of the state that would appropriate one dollar for two of the combined federal and state apportionment. The total fund then available for the county would be expended on a plan of rural sanitation submitted by the county to the state board of health, approved by the state board of health, and then submitted to and approved by the public health agency of the United States government. Such a plan would make available, almost at once, from \$50,000 to \$100,000 for county health work for the average state. Each state board of health would become a clearing house of information for all the counties, and the federal health agency would become a clearing house for rural sanitation for all the states. The question of coordinate responsibility of the governments for rural sanitation would be wisely, justly and satisfactorily answered.

ABSTRACT OF DISCUSSION

DR. J. W. SCHERESCHEWSKY, Washington, D. C.: There is no question about the great value of rural sanitation. The plan Dr. Rankin has proposed is a practical one, if it is possible to secure the necessary legislation. We have been endeavoring to increase the appropriations given by Congress for this purpose. The general statements made with regard to rural sanitation by the Appropriations Committee are to the effect that they conceive the function of the federal government in this respect to be that of a demonstrating agency, so that demonstrations of rural sanitation in various counties to show the great value of the work should be of sufficient educational influence to create a desire on the part of the people of the state to have this work carried on continuously. Of course, if from the purely legislative standpoint a proposition is made to finance the rural portion of the United States in health work, then, municipalities and larger centers might ask that the federal government contribute to the support of public health work of any kind all over the country. That is the general attitude which has been adopted by Congress. Now, as one who is intensely interested in this problem of rural sanitation, who appreciates as well as any one else that in the municipality we have the opportunity for mass action, for collective action, whereas in rural-centers sanitary principles must be applied to a greater extent by the individual, it is evident that there is some difference in the situation when comparing the rural population with the municipal population. Again, the larger centers have very much larger financial returns from taxes, thus placing much larger sums at the disposal of the municipality of which a certain amount can be set aside for public health purposes. In the rural communities this is not the case. The principle of cooperative sanitation in rural communities is susceptible of legislative defense. However, to bring this about, it is necessary to convince Congress that such action is desirable on the part of the federal government. As a public health proposition, as a means of extending public health work, such a proposal as this should appeal from the legislative standpoint. A desire for such public health work must come from the people themselves. Government agencies are especially constituted to carry out the will of the people, and when the people direct them to do a thing, then they do it. For that reason all government agencies must, to a certain extent, rely on direction from the people for the execution of certain measures, although it is clearly their function, by educational and demonstration methods, to point out the desirability and the ways to improve health protection.

The United States Public Health Service has this great system of cooperation, so far as rural agricultural methods are concerned, with the states because there has been a definite demand on the part of agriculturalists for such action, and they have been able to make representations to Congress

that such line of action was not only desirable from the economic view point, but that it had behind it the united demand of all persons from those rural sections. In similar fashion, to make progress along public health lines, if it is the desire of the people that public health measures shall be extended, then it is necessary for the people to come to the federal government with that demand. As soon as they make that demand I am convinced that the necessary funds will be forthcoming to permit the extension of public health work in any direction which it seems proper that it should take.

DR. OTTO P. GEIER, Cincinnati: I wish that in closing the discussion Dr. Rankin would say just how he has conceived of making this a permanent factor in national public health work. I concede that we might, by interesting Congress, secure such appropriations. Under their present status the U. S. Public Health Service comes into communities only by invitation. The plan proposed would cost the government tremendous sums of money. If such subsidies would be expended in cities as well as in rural communities (for I doubt if you could make such legislation stand unless it did include cities as well as communities), we would then have the basis of a forceful federal supervision of all state health work. Would not this plan call for a new constitutional arrangement since the Public Health Service would actually impose its will in health matters on the various states? As I understand it, all experimental health work and surveys, etc., are carried on in the states on invitation of the communities where the experimental work is to be done. In other words, the Public Health Service cannot initiate health work within the borders of the respective states.

DR. H. B. HEMENWAY, Springfield, Ill.: In England the Local Government Board is a national board. It exerts an influence on the local administration in this way: Every division of the state is supposed to have a health administration, and under certain conditions, practically those of agreement, the Local Government Board provides one-half of the expense for the salary of a competent health officer, but on condition that no man shall be appointed who does not have the approval of the Local Government Board, and that no man shall be removed from service without the consent of the Local Government Board. That is to insure the appointment of competent men. Arrangements may be terminated by the local health authority or by the Local Government Board at any time when they are satisfied that conditions are unsatisfactory. That scheme might possibly be worked out in this country.

DR. JOHN N. HURTY, Indianapolis: It is most desirable from certain points of view to appropriate money for the purpose of protecting public health, but we must go slow in mixing up government and state and county, and assembling and combining our appropriations for that work. It is a matter that ought to be considered thoroughly. Dr. Rankin considers county and rural sanitation as the same. Are they? Generally they are, but here is a county that has a large city in it; that city belongs to the state. Its entire powers are derived from the state. It cannot exist without the state. The same way with the county. So that that statement could be challenged, for not in all instances would we find county and country sanitation or hygiene to be exactly the same. We will have to take into account other considerations, otherwise we might be lost on that point. We must take a broad view from every point imaginable and not from only one.

DR. JAMES A. HAYNE, Columbia, S. C.: The idea that the government should do this county health work does not mean that it should come down into our counties or our states and actually build privies and make sewer connections and perform the other functions of public health service, but at present what we need is education. Even doctors need education. I find it hard in my state to teach the doctors the fundamental principles of public health—harder than to teach the general public. The doctor has the impression that when he gets his degree from some institution he is an expert in public health. He decides whether it is necessary to report disease or not. What we want from the government is an educational campaign in our counties, and that costs a lot of money. We are at present spending in some of our small counties \$9,200 on

purely educational work, counties of only thirty or forty thousand inhabitants. Educational work does not mean writing pamphlets that are sent to the community in batches. Nobody reads them. Nobody pays any attention to them. We are interested in public health work, and we feel all the people should be interested in it, but they are not. Even the Council of National Defense does not recognize that public health work is a necessity. What is necessary is the same thing that is done by the farm demonstrator. He goes out in the field and talks with the farmer and gets the farmer's point of view and tries to turn the farmer's point of view to the right point of view. That is what the demonstrators have to do in the country, and that costs money. It means a house-to-house visit. It means catching the farmer when you can and catching the farmer's wife and all his children through the schools, and so forth, and teaching them. After a while they will learn, but it takes an awful long time and an awful lot of money. Our states are poor in public health spirit. For instance, I raised \$112,000 in my county for Red Cross work. I found it impossible to get that same county to employ a two thousand dollar whole-time health officer because, they said, they were too poor. The same state that raised \$25,000,000 for Liberty Bonds refused to make an appropriation of \$20,000 for public health work because they were not educated up to it. How did we sell Liberty Bonds? Why did these people subscribe to the Red Cross? By a combined educational effort in every state and county. That is what we want the government to do.

DR. W. S. RANKIN, Raleigh, N. C.: I do not want to be understood as saying anything to discourage the U. S. Public Health Service in its demonstration work in rural sanitation. This work should be extended. However, we should recognize that the demonstration principle as followed by that service is very limited as an administrative measure as compared with the principle of governmental cooperation advocated in my paper. Just what the net result of the demonstration work in rural sanitation of the Public Health Service has amounted to I do not know. It would be interesting to know in how many counties this work had been carried on and how many of these counties had been influenced by this work in establishing permanent health departments. The question of including cities in the proposal set forth in my paper has been raised. There are two reasons for not proposing the inclusion of cities at present in this principle of governmental cooperation: (1) We have a precedent for rural work, none for urban work; (2) cities are more able financially to take care of themselves than rural districts. The per capita wealth of cities is from five to ten times greater than the per capita wealth of rural districts. The distribution of public funds by the government to those that most need help seems to be pretty well established. The question of centralization has been raised. According to the plan proposed, the initiative would always rest with the county. The county would come to the state with its plan of work. If the state approved the plan, the plan would then go to the Federal agency for consideration and approval. When approved by all three participants, the work would begin. Dr. Schereschewsky raises the question of the responsibility of governmental agencies for initiating legislation. Every county health officer, every city health officer here knows that he would be very far back in his work, comparatively speaking, if he had not undertaken to interest his people, the public, in what was needed in his field—if he himself had not taken the initiative. Dr. Schereschewsky knows that no successful state health agency nor successful city health agency sits still and waits for the public to take the initiative and leadership in the development of a health department. And if this holds true for states and cities, why should it not hold true for the Federal Government?

Illegitimacy in Norway.—National recognition of the rights of illegitimate children is for the first time afforded by the laws of Norway, according to a bulletin of the Children's Bureau. The state holds both parents equally and continuously responsible for these children in the matter of maintenance, training and education.

PNEUMONIA AT A BASE HOSPITAL

OBSERVATIONS IN ONE THOUSAND ONE HUNDRED
CASES AT CAMP PIKE, ARK.*

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CAMP PIKE, LITTLE ROCK, ARK.

Since the opening of the base hospital at Camp Pike, Ark., in September, 1917, to April 27, 1918, there were admitted to the medical wards 1,285 pneumonia patients; 857 of these had lobar pneumonia and 428 of these had bronchopneumonia.

The majority of the cases in September and October, sixty-nine in number, were of the lobar pneumonia type, which we are used to seeing in civil practice, and I felt that the pneumonia question in military service was to be one of great interest and great hope, because of the comparatively low mortality in these months. Unfortunately, this opinion was rapidly changed, and in the following months the change was one which caused great anxiety and apprehension.

During the month of September there were no deaths from either bronchopneumonia or lobar pneumonia, and during the month of October, there were also no deaths from bronchopneumonia; but there were six deaths with a 10 per cent. mortality from lobar pneumonia. The cases observed in September and October were typical of the lobar pneumonia described in textbooks. There were the sudden onset with chill, high temperature, rusty sputum and well marked areas of consolidation. The cases of bronchopneumonia did not differ in any marked way and were essentially the same as those seen in civil practice.

In November there were 170 cases of lobar pneumonia and seventy-five of bronchopneumonia; in December there were 225 of lobar pneumonia and 139 of bronchopneumonia. The mortality of these two months of the lobar pneumonia cases was, respectively, 32 and 29 per cent., and of bronchopneumonia, 4 and 29 per cent. In January the mortality of lobar pneumonia was 29 per cent. and of bronchopneumonia 53 per cent. The percentages of deaths gradually declined, and up to April 27, 1918, the total percentage of deaths in lobar pneumonia was 28. The total percentage of mortality in bronchopneumonia was 26, and from both bronchopneumonia and lobar pneumonia up to April 27, 1918, it was 26.07 per cent.

It is difficult to give a definite reason for the difference in the mortality in the later months compared with that of the first two months. It is possible, first, that the large number of cases of bronchopneumonia that followed measles may have been a potent factor. Up to March 22, 1918, 33 per cent. of all pneumonias were those that followed measles. There were in the hospital up to the middle of April, 1918, 3,100 cases of measles. Secondly, in wards in which there have been a great number of patients with respiratory diseases, the streptococci undoubtedly gain in virulence by their passage through the human host. Thirdly, because of the large number of patients in a ward who are infected with streptococci, it must undoubtedly follow that the patients in that ward are receiving a larger number of organisms than they otherwise would.

Many of the cases of bronchopneumonia have begun with the most trivial subjective symptoms and with practically no objective signs. These men have been sent to the hospital because they have been coughing for a few days and have had a rise of temperature with a rather severe headache in the majority of cases. Many of these patients, on their entrance to the hospital, say that they are not feeling ill and should not have been taken from their duty.

The physical signs are trivial and slight. In the majority of cases a few fine, moist râles are heard, usually at the back and near the angle of the scapula. This may occur on one or both sides. On percussion this area shows a slight amount of dullness. These are often the only physical signs present, and there are no subjective complaints of any kind, except a slight cough that is nonproductive. Examination made of the same patient from twelve to twenty-four hours afterward will often show a disappearance of these objective signs. The same patient examined in another twelve to twenty-four hours will show in the same area well marked consolidation with an increased number of moist râles and often bronchovesicular or tubular breathing. The fever is usually not high, rarely going above 103. The pulse is not very rapid and does not become so during the course of the disease.

Unusual and peculiar as it may seem, the large majority of these patients do not present a respiratory distress of any kind. There is practically no dyspnea until dissolution approaches.

Cyanosis, in our series of cases, is very rare and has been seen in only about 2 per cent. of the fatal cases.

At first there is no expectoration; it gradually becomes more free, but has always been moderate in amount. In practically all cases, the sputum is mucopurulent, though at times it is streaked with blood. In this connection it is interesting to note that at times the amount of blood in the sputum has been so extensive that it might easily have been mistaken for hemoptysis due to tuberculosis of the lung, but on post-mortem examination, tuberculosis was proved not to exist. In none of the bronchopneumonia cases has the sputum been rusty in color, nor has it had the gummy consistency seen in lobar pneumonia.

In contradistinction to this mild type of bronchopneumonia, we have had a most malignant and fulminating type, which is illustrated by Case 1:

CASE 1.—Private M., who was drilling in the afternoon, complained of feeling slightly ill. He entered the hospital at 7 o'clock that evening and died next morning at 6. On examination, he presented practically no signs of pneumonia, except a few moist râles which were distributed over both lungs and not confined or isolated to any particular part of the lung. He did, however, show the following signs of meningitis: headache, depression, hyperesthesia and stiff neck. There was no rash, no Kernig sign, no Babinski reflex, no Oppenheim sign and no Gordon reflex. The diagnosis of bronchopneumonia was not made before death on account of the trivial findings. The postmortem examination disclosed a small number of bronchopneumonia patches in the left lung and in the lower lobe of the right lung. There were no signs of meningitis. There was an acute and well marked lymphadenitis of the bronchial lymph nodes. There was a cloudy swelling of the liver and kidney and an acute splenitis.

I have had to change in a very decided way my previous ideas of the occurrence of bronchopneumonia. We have had many cases in which there

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

were signs of bronchopneumonia only in one lung, and we have had some cases in which there was a bronchopneumonia in one lung and a lobar pneumonia in the other lung.

In case 2, both lobar and bronchopneumonia occurred:

CASE 2.—Private B., admitted to the base hospital, March 26, 1918, had become suddenly ill the day before, with pain over the lower chest and abdomen, and with sore throat, cough and mucopurulent expectoration. There were definite signs of consolidation of the entire left lung and many coarse, moist râles all over the right lung, with a few small areas of tubular breathing. The patient was evidently very ill; his temperature on entering the hospital was 104, and remained at about this point until the day of his death, when it dropped to 101.8. The respiration on entrance was 38; on some days it was as low as 28, and did not go above 44 until shortly before he died, when it went to 46. The highest pulse rate was 122, and the lowest was 86, on the fourth day of his illness. The patient was very toxic, and death occurred on the fifth day after admittance; sputum culture revealed the Type IV pneumococcus and the *Streptococcus hemolyticus*. Necropsy disclosed lobar pneumonia of the entire left side; serofibrinous pleuritis of the left side, with fluid enmeshed in the fibrin; bronchopneumonia of the right side, most marked in the lower lobe; bilateral purulent bronchitis; cloudy swelling of the liver and kidneys, and the spleen not enlarged but soft.

Empyema has occurred in 9.002 per cent. of the total number of pneumonia cases. It has been a most difficult matter to detect the presence of fluid, and because of this difficulty, exploratory puncture is made in every case in which the physical or constitutional signs indicate fluid or pus. There is a standing order in the pneumonia wards that roentgenoscopy be performed in all cases of pneumonia in which there is the slightest suspicion of fluid, and in every case of pneumonia at the expiration of fourteen days.

In some cases it is impossible to detect the formation of pus. This is especially true when an isolated abscess cavity is formed by adhesions between the pericardium and the visceral and parietal layers of the pleura near the median line. In other cases the pus is contained in a fibrinous exudate, which acts not unlike a sponge, and confines the pus and limits its border as definitely as if it were surrounded by a coffer-dam.

At times, the formation of pus is so slow that its presence is almost impossible to discover, for in many of these cases it simply plasters itself over the surface of the lung in a layer that is about one-half inch thick, so that the signs of the consolidated lung beneath it are transmitted through this layer, and there are no signs of the presence of fluid. In a recent case, fluid had developed in what to us was a unique position. It enveloped and entirely covered the top of the right lung, fitting over it and displacing it down to the third rib in front and the fourth rib behind, capping it as an extinguisher does a candle. The upper lobe was pushed downward, forward and inward and accounted for the increased tympany, which was found on percussion over and to the right of the sternum. The fluid was held in this peculiar and elevated position because of the dense adhesions, which existed in the whole of the pleural cavity below it. The formation of this fluid was extremely rapid, for over the area occupied by the fluid and twenty-four hours before death, there were all the signs of a consolidated lung with well defined tubular breathing. The breath sounds gradually became fainter and a tympany developed near the right margin of the sternum from

the third rib downward. These were the only signs that were found, and their significance was misinterpreted. On the other hand, there were cases in which empyema developed with a tremendous rapidity. Fortunately, in the majority of these cases all the signs were well marked; and when the other clinical signs were not well marked, our most helpful sign was the displacement of the apex beat. The care of both of these types of empyema, from the surgical standpoint, will be described by Major Hugh McKenna, M. R. C.

Of the sputum examinations that have been made, 48 per cent. of the pneumonias have been due to the pneumococcus, of which there have been 21 per cent. of Type I, 34 per cent. of Type II, and 45 per cent. of Type IV. Streptococci have been found in 46 per cent. of the total number of cases. Of these, 46 per cent. were nonhemolytic and 54 per cent. were hemolytic.

In Ward 1, twenty-three blood cultures have been taken from patients in whom the clinical diagnosis was pneumonia. The blood cultures were taken as soon after admission as possible. The time of cultures relative to that of the prodromal symptoms ranged from three to seven days. Of the twenty-three cases examined, six gave blood cultures showing the *Streptococcus hemolyticus*. In none of these positive cases was the diagnosis of empyema made at the time or prior to the taking of the blood culture. In one case a blood culture was reported positive; but neither clinical examination, the exploratory needle nor the roentgen ray revealed the presence of fluid in the pleural cavity. A few days later, however, the exploratory needle revealed fluid which contained the same streptococcus as was secured from the blood. Three patients with positive streptococcus findings in the blood developed empyema. Two of the cases developed in the pleural cavity, the fluid containing the *Streptococcus hemolyticus*. In all of these cases the blood culture was taken not later than seven days after the onset of the disease, and in none of them was the patient in a serious or moribund condition when the culture was taken.

The incidence of complications has been somewhat peculiar. During the months of October and November, 90 per cent. of all pneumonia patients had herpes of some kind, whereas in the following months and up to the present time, herpes is practically unknown.

Many patients have been received at the hospital with the diagnosis of meningitis and have been considered as having meningitis until a spinal puncture proved the error. On entering, there would be no clinical signs of pneumonia, but there would be many of the signs of meningismus, that is, a stiff neck, Kernig sign, severe headache, mental hebetude and hyperesthesia; but on lumbar puncture, the spinal fluid was found to be negative in every way. In a few hours, well marked signs of pneumonia would develop, and in those that have come to necropsy, there has not been found any objective sign of meningitis.

A large number of cases, for some hours, simulated appendicitis; and only after waiting for clinical signs to develop has it been possible to show that these cases were pneumonia and not appendicitis.

Jaundice has not been infrequent and, in the negroes suffering from pneumonia, has taken place in 10 per cent. of the cases. About 5 per cent. of all pneumonia patients have had fibrinous pericarditis. There have been three cases of purulent pericarditis.

Pneumothorax has occurred five times, on one occasion accompanied by pus in the pleural cavity, but this was complicated with chronic tuberculosis. Two cases in the service were diagnosed as pneumothorax and were demonstrated as such to various members of the medical staff, because of the remarkable coin sound that was present. Both of these cases came to necropsy, and it was shown that pneumothorax did not exist and that the coin sound was due to a distended colon. The coin sound in both of these cases was present up to and over the second interspace of the left side and throughout the whole of the axillary space.

Otitis media has occurred frequently, and in many cases has been followed or accompanied by mastoiditis. Strange as it may seem, mastoiditis has occurred and been found postmortem without having given any objective or subjective signs during life.

PERCENTAGE OF INCIDENCE OF PNEUMONIA TO THE TOTAL
NUMBER OF MEN IN THE CANTONMENT

Month		Per Cent.
October, 1917	.....	0.31
November, 1917	.....	0.78
December, 1917	.....	1.10
January, 1918	.....	0.73
February, 1918	.....	0.34
March, 1918	.....	0.52
Average	.....	0.65

The percentage of the incidence of pneumonia to the total number of men in the cantonment for the months from October to March is rather interesting, and is given in the accompanying table. It is hard to say definitely what is the cause of the high incidence of pneumonia at this camp. For the first four months, the physical condition of the men was very poor; a tremendous amount of dust was present; many of the men had the habit of going to bed in their wet underclothes without properly covering themselves, and sudden changes of temperature took place. Undoubtedly by this exposure they were made more susceptible to respiratory infections. The large number of men suffering from measles predisposed them to infections of the respiratory tract. In addition, practically in every one of these men there were enlarged tonsils. The teeth and gums also were in a very bad condition. The factors mentioned above, namely, measles, the physical condition of the men, the large amount of dust, and carelessness in barracks, together with the exposure and fatigue, must all be considered as factors in the incidence of the different pneumonias.

SUMMARY

Probably the three most potent factors in the predisposition to pneumonia in this camp were:

1. The large number of men suffering from measles.
2. The large amount of dust.
3. Carelessness of the men in their barracks, giving rise to what were at first minor respiratory infections.

These three factors all give rise to coryza, laryngitis, tracheitis or bronchitis and so cause conditions predisposing to infections that ultimately may result in pneumonia.

Importance of a Sanitary Code.—As a basis for the activities of the health authorities, a sanitary code or set of rules and ordinances or regulations should be promulgated. These regulations should be prepared with extreme care and permit of intelligent application and enforcement.—P. A. Surg. Paul Preble, *Public Health Reports*, March 2, 1917.

EPIDEMIC OF STREPTOCOCCUS PNEUMONIA AND EMPYEMA AT CAMP
DODGE, IOWA *

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CAMP DODGE, IOWA

From Sept. 20, 1917, until May 10, 1918, 675 patients, whose cases were diagnosed as lobar pneumonia, have entered the base hospital at Camp Dodge, Iowa. This does not include a limited number of cases diagnosed clinically as bronchopneumonia. At necropsy, however, not infrequently it was found that, in reality, we were dealing with a confluent bronchopneumonia which was localized chiefly or entirely in a single lobe. Inasmuch, however, as these cases, if necropsy had not been performed, would have been placed on record as lobar pneumonia, they have been so considered in this discussion.

Although measles was quite prevalent throughout the entire winter, pneumonia as a complication was very infrequent; only since about May 1 has pneumonia as a complication of measles reached any considerable number, and this period is not connected with the epidemic of streptococcus pneumonia, which at the time mentioned was on the wane.

The ordinary clinical lobar pneumonia, due to the pneumococcus, prevailed until about March 20; then, abruptly the streptococcus type predominated, with a very great increase in the incidence of the disease. From September 20 until March 20, which marks the period of ordinary lobar pneumonia, 276 cases were treated; from March 20 to May 10, 400 patients with pneumonia entered the hospital.

A very mild type of pneumonia prevailed during the early autumn, with a mortality in the first hundred of 7 per cent. The onset was usually severe and evidence of intense toxemia prevailed, but the course of the disease was short. In the first eighty-eight cases terminating by crisis, the duration in seven was 2 days; eleven, 3 days; thirteen, 4 days; thirteen, 5 days; eighteen, 6 days; nine, 7 days; ten, 8 days; two, 9 days, and five, 10 days or more. In this series of 276 cases, empyema was present in thirty-one, or 11.2 per cent. Even in these early cases, however, there was a marked tendency to multiple pus foci and the mortality from empyema was high. In those of this series where the type of pneumococcus was determined, Type I was found in 22.8 per cent.; Type II, typical and atypical combined, 46.8 per cent.; Type III, 7.6 per cent., and Type IV, 22.8 per cent.

The colored troops were much more susceptible than the white, 116 being colored and 159 white, and one American Indian. The colored troops did not enter camp until we had received forty white soldiers with pneumonia. Allowing for this, it is seen that there was about an equal number of the two races, although the colored troops made up only about one sixth of the total strength of the camp. The mortality among the colored troops was also somewhat higher—12.9 per cent., with 9 per cent. among the white troops,

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

the total average mortality being 11.2 per cent. Empyema occurred in 8.6 per cent. of the cases of pneumonia in the colored troops; in the white troops, 13 per cent. It was much more fatal among the former, 70 per cent. dying as compared to 57 per cent. among the latter. This is in striking contrast to the results observed in the streptococcus empyemas. The mortality in the thirty-one empyemas was 61.3 per cent., which is accounted for by the marked tendency to multilocular pus collections. This feature, so characteristic of the streptococcus empyemas, also prevailed in our early cases of pneumococcus pneumonia, although in the majority of these, streptococci were found in the pleural exudate, either alone or in conjunction with the pneumococcus.

The epidemic of streptococcus pneumonia appeared suddenly between March 18 and 20, continued with great severity for six weeks, then gradually became less intense, still continuing, however, May 10 at the rate of four or five cases daily. The virulence of the epidemic, however, became less marked after the first three weeks, although the number of new cases remained high.

It was immediately recognized by the ward surgeons that we were dealing with a different type of pneumonia. Evidence of severe intoxication appeared very early; empyema became very frequent and developed extremely early, two patients entering the hospital with pleural exudate who had been drilling the day previous. While the involvement in the lung maintained a lobar type, clinical evidence of complete consolidation was far from constant. Dulness with suppressed breathing and subcrepitant râles, but inconsistent or localized bronchial breathing were the usual findings; rusty sputum, provided there was expectoration, was the rule. Early roentgenoscopy showed that the infiltration was lobar in character. The development of an exudate was often exceedingly difficult to determine by the ordinary physical findings, aided by the roentgen ray, and it became necessary to resort to frequent exploratory aspirations. These were often repeated several times before the fluid could be located. Early this exudate was only moderately turbid, contained numerous polynuclear leukocytes and showed on smear short chain streptococci. Gradually the fluid became definitely purulent.

The bacteriologic findings in ninety-five of these exudates showed pure streptococci in eighty-eight, all being hemolytic. Pneumococci combined with streptococci were found in three: two of Type II and one of Type I. Pneumococci without streptococci, but often combined with other bacteria, were found in four cases: one of Type I, two of Type II and one of Type IV.

At the outbreak of the epidemic, a special effort was made in taking the history to determine predisposing causes or evidence of any infection antedating the onset. It might be stated that the month of March was exceedingly dry, and clouds of dust hung over the cantonment. Either as a result of this, or independently, a mild tracheitis was very prevalent. Wherever a large group of soldiers congregated, the prevalence of coughing was very noticeable. It was, therefore, not surprising that many patients gave a preliminary history of mild sore throat, often of several days' duration, but more frequently a preliminary history of cough. History of great fatigue, or chilling was noted occasionally, but not with significant

frequency. Not infrequently from apparently good health, the onset was ushered in with a chill. While our patients came from all parts of the camp, there were certain organizations where the disease was more prevalent. Of the first fifteen cases, ten came from a colored regiment, which had been in Camp several months, and throughout the course of the epidemic this organization furnished the highest percentage. No one company in any organization furnished an unusual number of cases. The depot brigade, which was made up largely of new arrivals, suffered the least. At the time the epidemic began, the camp was not crowded and the number in each barrack was much less than it had been in the winter. The ventilation in the barracks, on account of the mild weather during March, was probably much better than it had been in the two preceding months.

As an aid to early diagnosis and exact localization of the involvement, the roentgen ray was found to be of considerable value. It was of much less assistance in differentiating between consolidated lung and pleural exudate, although when repeated frequently and compared with the ward findings, it proved to be of great value. In the beginning, an order was issued to all ward surgeons in the Medical Service that every pneumonia suspect should be roentgenographed within twenty-four hours, and in addition, every case diagnosed as bronchitis, where the temperature remained above 101, for twenty-four hours. By this means all pneumonias were detected early, and it furthermore stimulated the ward surgeon in that a more careful physical examination be made, as he knew that his findings would be checked up with the roentgen ray. Furthermore the roentgenoscopy was repeated every fifth day until the patient's temperature had been normal for one week. This was of considerable assistance in detecting empyema. The roentgen ray also gave us accurate data regarding the incidence of the lobe first involved. In 596 cases of both types, the first involvement occurred in the lower left lobe in 253; lower right, 252; upper right, 45; upper left, 23; middle, 12; entire right lung, 5; entire left lung, 1, and in both lungs, 5.

Complication with pus formation was very frequent. While empyema developed in 11 per cent. of the pneumonias previous to the epidemic, it appeared in 34.8 per cent. of the cases during the epidemic. One case of suppurative peritonitis was found in the 276 cases of pneumonia preceding the epidemic and five cases in the first 364 streptococcus cases. In three of these it was associated with suppurative pericarditis and in all cases with empyema. It was interesting that four of these cases developed within a few days of each other. Suppurative pericarditis was found in fifteen of the 142 cases of empyema, or 10.5 per cent. It was only found in association with empyema, and in only one case was it found in a colored soldier. Rectus abscess, which was more or less frequent in similar epidemics in other camps was not present in the first 364 cases, but one abscess developed in a more recent case. The colored soldiers developed empyemas in 20 per cent. of the pneumonias and the white soldiers in 45 per cent. The empyema mortality was 44 per cent. in the colored and 64.8 per cent. in the white soldiers. This lessened tendency to empyema and suppurative pericarditis in the colored troops was striking. The deaths from uncomplicated streptococcus pneumonia in the colored was 19.97 per cent.,

and 10.7 per cent. in the white. These figures show that the colored soldiers show a much higher mortality from uncomplicated pneumonia than the white soldiers, but a lower mortality from empyema.

The mortality in 142 streptococcus empyemas was 60.4 per cent. This is considerably higher than the average in other camps. There is no apparent explanation of this unusually high mortality, as the method of treatment was similar to that carried out elsewhere. It is true that in only a moderate percentage of these cases, death was due not to empyema itself, but rather to severe infection, the majority of the patients dying with merely a turbid fluid, the time being too short for it to become thick and creamy. The mortality in 346 streptococcus pneumonias was 32.5 per cent. as compared with a mortality of 11 per cent. in the previous pneumococcus type.

Arthritis as a complication appeared in only six cases. Suppurative otitis media was quite common. Erysipelas developed as a complication in seven cases. These were facial except in one case, where it developed at the site of the exploratory puncture. It was also interesting that four out of six cases of scarlet fever in nurses during this period occurred in nurses working in the pneumonia wards, although all wore masks and gowns, and were instructed regarding the disinfection of the hands.

The treatment of the pneumonias consisted in the ordinary hygienic measures. All patients were placed in special pneumonia wards, each bed separated by a sheet suspended from a wire and 1,000 cubic feet of air space to a patient. No attempt was made to reduce temperature by bathing. Every patient received morphin for pain or to control restlessness. Tincture of digitalis in 1 c.c. doses was given every three hours, day and night, from the time the patient entered the hospital until the crisis, unless evidence of its toxic effects developed, and this appeared in only a very few cases. It was decided during the autumn that we would use this cantonment as a control and not use the serum. It is interesting to note that in the 276 cases of pneumococcus pneumonia, only two patients died with Type I infection. The largest number of fatalities occurred in the Type II group.

In the early days of the streptococcus pneumonia, where aspiration showed a turbid fluid containing streptococci, immediate drainage was resorted to. As the mortality was extremely high, this was discontinued and the fluid became definitely purulent in from seven to ten days. The patients were then operated on by rib resection and drainage. The operated empyemas were irrigated and dressed by the surgical service, but held on the medical service in a special ward, the medical department being on the lookout for new accumulations of pus or other complications. When early rib resection was performed, the patients frequently returned from the operating room in a state of shock, from which they did not recover. Sixty-five cases were treated by immediate operation, with a mortality of 53.9 per cent.; fifty-five were aspirated, the operation being postponed as has been stated; 32.7 per cent. of these terminated fatally; four recovered by aspiration alone. The remaining number of the 142 empyemas, namely, twenty-two, reached an early fatal termination so rapidly that either the pus was not detected until necropsy or the patient's condition was such that aspiration was considered inadvisable.

It would appear that the streptococcus empyemas might be divided into three groups: (1) those who die early, no matter what form of treatment is instituted, from acute toxemia; (2) those with multiple pus foci, difficult to detect, because of the inability to locate and drain all foci; these all die, and (3) those who usually recover, either from early operation or aspiration followed by operation; here are included those with moderate toxemia and those with localized pus accessible to drainage.

PATHOLOGY OF THE EPIDEMIC STREPTOCOCCAL BRONCHOPNEUMONIA IN THE ARMY CAMPS*

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BALTIMORE

In a previous paper¹ a peculiar form of bronchopneumonia, caused by a hemolytic streptococcus and prevalent in some of the Army camps, was described. This was based on observations made during February and March at Fort Sam Houston, Texas. Since that time I have been able to study during May a quite similar epidemic at Camp Dodge, Iowa,² where, however, the surrounding conditions, climate, housing of troops, and organization and construction of the base hospital were very different. Another striking difference lay in the great prevalence of measles in the Texas camp, whereas at Camp Dodge measles has not been very common. In the Texas camp we were greatly impressed with the importance of measles as a disease predisposing to secondary invasion of the streptococcus, although we realized the possibility that other diseases, such as scarlet fever or lobar pneumonia, might act as predisposing causes, and that the streptococcus might sometimes be the primary invader.

At Camp Dodge there were only sixty or seventy cases of measles in the wards, and the pneumonia appears to have arisen quite independently of it. In this camp, therefore, it was the prevailing opinion of the medical officers that measles played little part in the production of the epidemic. Of eighty cases studied clinically and bacteriologically by us at this camp, there were only fourteen in which there had been a recent attack of measles. Even this considerable percentage was the result of a small epidemic of postmeasles pneumonia which appeared during our stay. It was very severe among these men and several of them died, so that among the seventeen cases of interstitial bronchopneumonia that we studied at necropsy there were nine following measles. During the earlier part of the epidemic, however, there were, I am told, very few of such cases. In the Texas epidemic we found among twenty cases of bronchopneumonia at necropsy fifteen with a recent history of measles.

We received the general impression that in a community in which measles was very prevalent the hemolytic streptococcus was able to gain a foothold and to

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Cole, Rufus, and MacCallum, W. G.: Pneumonia at a Base Hospital, *THE JOURNAL A. M. A.*, April 20, 1918, p. 1146.

2. This study was made with the assistance of Capt. A. W. Scallards and Lieuts. H. M. Thomas, Jr., and A. B. Lyons.

produce an extremely severe form of bronchopneumonia, but that it is quite possible for this organism to cause an epidemic of bronchopneumonia with a very high mortality without the intervention of measles or other obvious predisposing disease.

In Texas we found measles patients entering the hospital with a relatively small percentage of throats infected with the hemolytic streptococcus, but acquiring this infection rapidly when kept together in the wards, and in many instances developing the severe bronchopneumonia. We suggested the advisability of isolating such carriers of the streptococcus as a means of protecting the more numerous measles patients that entered with uninfected throats, and this measure has since been carried out with success at Camp Zachary Taylor.

In Camp Dodge the conditions were different. There were no great numbers of measles patients, and those that developed a streptococcus infection were carefully isolated. Measures of isolation were carried out with great care throughout the well constructed hospital, and we felt that the transfer of infection from patient to patient within the hospital played no important part. Bedding, linen and utensils were carefully sterilized with steam, and physicians, nurses and orderlies were rigidly compelled to wear caps, gowns and masks. The patients, too, wore masks when not in isolation. The great spread of infection appears to have occurred in the camp itself. During the winter there was a moderate amount of lobar pneumonia caused by various types of pneumococcus; but suddenly, March 20, this mild pneumonia with exceptionally low mortality was replaced by a severe disease which began in the Three Hundred and Sixty-Sixth Infantry, an organization of Alabama negroes, and spread rapidly to other parts of the camp. Since the other organizations in this camp have been moved about a great deal, it is difficult to trace the distribution of the disease accurately; but during the remainder of March, April and May, the epidemic assumed great proportions. The measles patients were removed from the hospital proper to certain nearby barracks, and it was only in May that about ten or twelve cases of bronchopneumonia developed among them.

The conditions with regard to the housing of troops, the cold winter climate, the influences of exposure and fatigue are discussed by others. They appear to be about the same as in other camps where no such epidemic has occurred. On the other hand, cultural study of the throats of large groups of men from several of the organizations in this camp made by the resident staff and in part by us has shown a very considerable proportion of carriers of the streptococcus not only in barracks from which cases of pneumonia had come but even in fresh recruits. It is true that the number of carriers is greatest in those barracks which had a high sick rate, but none of the organizations seems to have been quite free.

It is also true that one must accept with some reserve the results of cultures made in this wholesale fashion from throats, since it is not an easy matter to recognize with certainty pathogenic hemolytic streptococci from such a source. Nevertheless, these cultures have a great comparative value.

ETIOLOGY

Throughout this epidemic, pneumococcus infections resulting in lobar pneumonia continued to appear. In

these cases, as is usual, the pneumococcus could be isolated from the sputum, and in many instances from the circulating blood.

The prevailing infection, however, was with the hemolytic streptococcus, which frequently appeared in connection with the pneumococcus and often overgrew it completely. This organism could be cultivated from the throat, from the sputum or from the pleural exudate, but not from the circulating blood. Indeed, in those cases in which it occurred in combination with the pneumococcus, cultures from the blood might show the pneumococcus but never the streptococcus. About 100 blood cultures were made by Captain Sellards and Lieutenant Tormey, but in no case was the hemolytic streptococcus recovered.

Cultures from the sputum made by Lieutenant Thomas in thirty-nine cases showed various organisms and combinations of organisms, as may be seen from the accompanying table.

It is remarkable that the influenza bacillus was found very frequently in combination with other organisms, although never as the sole cause of the disease; nor, indeed, except in one instance in which it occurred in the pleural exudate, was it found in the internal organs. The same result was obtained in Texas, although there this bacillus was isolated several times from the lungs. The part actually played by this organism in the production or intensification of the disease is not clear.

The pneumococcus occurs in many cases in the sputum, and in such cases lobar pneumonia was usually found. It is noteworthy, however, that in the series of twenty cases studied at necropsy the pneumococcus was found only three times in the organs, while the hemolytic streptococcus occurred nineteen times.

The blood cultures were made in the usual way by adding from 5 to 20 c.c. of blood to from 50 to 200 c.c. of broth. They were of especial interest since we were told by bacteriologists from other camps that they had been able to isolate the streptococcus from the blood in a high percentage of the cases even in their earlier stages. But neither in Texas nor at Camp Dodge have we been able to recover them except in cultures made a few hours before death. It is also the impression among clinicians who have to do with this disease that it must be a septicemia if one may judge from the evidences of intoxication or from the occurrence of arthritis and abscesses in distant parts of the body. We have unfortunately seen no cases of arthritis, and rarely any abscesses or other lesions that might not be due to direct extension of the infection. It seems possible, however, that just as in the case of chronic phthisis, in which scattered minute tubercles in distant organs seem to indicate an occasional transportation of tubercle bacilli in contrast with the generalized miliary tuberculosis, which is more closely dependent on a real if temporary septicemia, so here there may be a rare or occasional transportation of a few streptococci.

Thirty-six cultures were made by Captain Sellards, and of these, two showed the pneumococcus Type II, one the pneumococcus Type IV, while three developed a few colonies of a nonhemolytic streptococcus. All the other cultures were sterile, although taken by choice from the sickest patients who were found to be suffering from a streptococcal infection of the lungs. It is noteworthy that in the two cases in which the pneumococcus Type II was isolated from the blood,

necropsy revealed the existence not only of a lobar pneumonia but also of an interstitial bronchopneumonia caused by the hemolytic streptococcus, although the latter could not be found in the blood.

Cultures from the pleural fluid obtained by aspiration during life were made on blood agar plates, and the fluid itself was examined in smears. In almost all cases a single organism was found in pure culture, but in one case the influenza bacillus occurred in combination with the streptococcus. In only two was the pneumococcus found, while the hemolytic streptococcus was present in pure culture in twenty-one. The pleural fluid gives the most trustworthy evidence as to the nature of the infective agent concerned in the pneumonia, although it is true that the streptococcus, if present, may well have overgrown a pneumococcus which may still appear in the blood.

Cultures made at necropsy, except in the few fatal cases of uncomplicated lobar pneumonia caused by the pneumococcus, showed the hemolytic streptococcus in every situation throughout the respiratory tract and pleura. The heart's blood regularly contained this organism, and it was found in such accessory areas of inflammation as occurred in the mediastinum, and even in the peritoneal exudate in several cases in which there was peritonitis.

SPUTUM EXAMINATIONS*

Organisms	Number
Pneumococcus Type I	2
Pneumococcus Type II	5
Pneumococcus Type III	2
Pneumococcus Type IV	3
Streptococcus hemolyticus	1
Pneumococcus and Streptococcus hemolyticus	2
Pneumococcus and influenza bacillus	6
Pneumococcus, Streptococcus hemolyticus and influenza bacillus	1
Streptococcus hemolyticus and influenza bacillus	5
Staphylococcus and influenza bacillus	3
Streptococcus hemolyticus and staphylococcus	3
Streptococcus hemolyticus and nonhemolytic streptococcus	3
Nonhemolytic streptococcus and influenza bacillus	2
Pneumococcus, staphylococcus and influenza bacillus	1
Total	39

* Pneumococcus, with or without other organisms, appeared in 22 cases. Streptococcus hemolyticus, with or without other organisms, appeared in 12 cases. Influenza bacillus, combined with other organisms, appeared in 18 cases. Staphylococcus aureus, combined with other organisms, appeared in 7 cases. Nonhemolytic streptococcus, with or without other organisms, appeared in 5 cases.

PATHOLOGIC ANATOMY

There is little to add to the description of the anatomic changes in the streptococcal bronchopneumonia that was given in the former paper.

In this epidemic the characteristic lesions designated there as interstitial bronchopneumonia appeared in typical form, especially in those cases which followed measles. Such cases appeared to be much more rapidly fatal than those in which the streptococcus was the primary invader. The patients were extremely sick men, and it was observed, as noted in the Texas epidemic, that they quickly lost the power of producing any voice sounds and spoke only in a hoarse whisper. Many of them died before the development of empyema. At necropsy there was found the most intense congestion of the whole respiratory tract. The lungs could be distended with air, even though they were found to be extensively collapsed. Nodular consolidation could be felt throughout, but especially in the posterior parts of the lungs. On section, the bronchi contained a gray purulent exudate. They were markedly dilated toward the periphery; their mucosa was deep purplish gray. All showed thickening of the walls, and the terminal

bronchioles were especially thickened, so that with the adjacent alveoli they projected in cross-section in the form of small, firm nodules from the center of which a droplet of thick pus could be expressed. Such dense peribronchial nodules were nearly always surrounded by hemorrhage. Even in these very fresh cases there were occasional small areas of more homogeneous consolidation. Microscopically they showed the features already described in detail, which consist essentially in the filling up of the lumen with an inflammatory exudate of leukocytes and blood in which bacteria are numerous, and in the infiltration and thickening of the wall of the bronchioles with mononuclear wandering cells. Great hyperemia and edema of the bronchial wall is soon accompanied by a less evident new formation of connective tissue cells. The adjacent alveoli, so far as they are not filled with red blood corpuscles, are packed with mononuclear cells and dense fibrin. The alveolar walls are infiltrated with mononuclear cells, and are widened.

In this epidemic, however, certain new features should be noted: The number of streptococci seems to be greater than we have seen in other cases. The bronchioles are fairly lined with clumps and tangled masses of streptococci in long and short chains. The mucosa, and even a part of the connective tissue of the bronchial wall, is found to be necrotic and adherent like a false membrane lining the whole of the terminal portion.

In general, the organisms do not penetrate deeply into the tissues, but there are many cases in which in addition to the filling of the adjacent alveoli with dense fibrin, desquamated epithelium and mononuclear cells, there appear areas in which all the alveoli are filled with polymorphonuclear leukocytes loaded with streptococci in short chains. Such areas of lobular pneumonia were described in the former paper and the great numbers of organisms found in the alveoli were mentioned; but this condition seems to have occurred far more frequently in the epidemic at Camp Dodge. Indeed, there were cases in which larger confluent areas of pneumonia resembling closely the lobar pneumonia produced by the pneumococcus occurred in association with typical peribronchial and interstitial changes. From these nothing but the hemolytic streptococcus was isolated. It is, of course, difficult to distinguish between the pneumococcus and streptococcus in stained sections; but one may find the streptococcus in long, flexible chains in these areas, especially in the marginal alveoli, where the exudate is loose or where it consists only of fluid. In such areas of diffuse pneumonia, one finds sometimes the most beautiful hyaline fibrinous thrombi filling all the capillaries of the alveolar walls.

It seems, therefore, that while the very characteristic interstitial bronchopneumonia resulting in the production of firm peribronchial nodules occurs as the most typical result of the invasion of the streptococcus, the rapid growth of the virulent organism may frequently produce even in these cases a more widespread and homogeneous consolidation owing to the filling of the alveoli with a leukocytic exudate loaded with organisms. This may even assume lobar proportions.

Study of the larynx was carried out in all these cases, and in several instances extraordinary changes were found.

There was, of course, intense reddening in all; but in seven cases there was an advanced ulcerative process affecting especially the vocal cords, but also the margins of the epiglottis, the aryteno-epiglottic folds, the walls of the pyriform sinuses, and the lateral walls of the interior of the larynx. In one case there was a deep phlegmonous infiltration of the tissues about the epiglottis which in section revealed great numbers of streptococci in long chains. The ulceration of the vocal cords causes a deep excavation along their whole length, so that the inability to produce voice sounds is easily understood. Of the seven cases in the list, two were said to have followed German measles, four were definitely associated with measles, while one gave no history of previous disease. All, however, were rapidly developed and severe cases.

The largest group of cases comprised those in which empyema developed. This included four of the post-measles cases in which the patients survived long enough for this complication to appear. In these the lungs were even more intensely collapsed, but showed in general the same peribronchial and interstitial changes, often with the addition of patches of lobular pneumonia. The involvement of the interlobular septums and the infection and thrombosis of the lymphatics have been described before.

So, too, has the organization of the exudate in the alveoli and bronchi and on the pleural surface. No new features have been observed in the empyema itself. Beginning with an abundant thin, turbid, brownish fluid, it soon assumes a purulent character, and the pleural layers become thickened by the formation of vascular granulation tissue covered with a thick layer of fibrin. Particularly important from a surgical point of view are the adhesions, which occur in such a way as to imprison part of the exudate. The anterior margin of the lung may adhere to the pericardial sac and thus enclose a quantity of pus between the lung and the pericardium, or two lobes may imprison a pocket between this.

We have encountered many abscesses in the substance of the lung itself. These may reach a great size, and are often multiple. In many instances they communicate widely with large bronchi and thus empty themselves, appearing as ragged cavities into which hang shreddy masses of necrotic tissue. Secondary infection may occur in such open cavities.

Combinations of lobar pneumonia caused by the pneumococcus, and interstitial bronchopneumonia caused by the streptococcus, were again observed in the same lung, and cultures of these organisms were isolated from the corresponding portions of the lung by Lieutenant Lyons.

These are the principal changes which affect the respiratory tract itself. There are few complications which deserve attention.

COMPLICATIONS

Pericarditis is not especially common, but there were three cases in the series with fibrinopurulent exudate and great thickening of the pericardial membranes. In one of these the pericardial sac contained more than a liter of exudate.

Peritonitis of an acute fibrinopurulent character occurred twice. It is not easy to explain its origin, but it seems probable that it is due to extension through the diaphragm.

In one case there was an extensive abscess among the muscles of the neck, reaching from the apex of the pleura up to the mastoid region and downward between the scapula and the vertebral column. This, too, seems to have been due to an extension of the infection, possibly from the empyema or from the infected tissue of the mediastinum.

The abdominal organs presented no lesions that could be ascribed to the streptococcus.

There was found, however, a hyaline degeneration and necrosis of the muscle fibers of the rectus abdominis in one case, without any alteration in the gross appearance of the muscle. This seems quite similar to the hyaline change that occurs in typhoid fever and is known as Zenker's degeneration. In two other cases the same condition was found, but was accompanied by symmetrical rupture of the whole muscle with hemorrhage.

The rectus muscles were torn through on both sides in their lower third, and a considerable hematoma had formed between the retracted ends. In one of these cases the streptococcus was found in the extravasated blood, but in the other there were no organisms. It seems probable that this infection occurred secondarily, just as the abscesses which appear symmetrically placed in the rectus muscle in pneumococcus infections are probably due to a secondary localization of the pneumococcus in such degenerated muscle fibers.

Otitis media occurred in one or two cases, but there was no great prevalence of mastoid suppuration.

SUMMARY

In general, it may be concluded that the *Streptococcus hemolyticus*, with or without predisposing diseases of various sorts, such as measles, gives rise to extensive and fatal epidemics of a peculiar bronchopneumonia which in most cases affects the framework of the lung and the bronchial walls in such a way as to suggest the name interstitial bronchopneumonia. This seems especially severe after measles. It is often associated with a diffuse or patchy lobular pneumonia in which the streptococcus appears finely scattered in the alveolar exudate. Such areas may be confluent and resemble a lobar pneumonia.

Ulcerative laryngitis, which may cause deep destruction of the vocal cords and epiglottis, occurs in the acuter cases and especially in those following measles.

Empyema is an extremely frequent complication, as has been generally recognized; but other complications are not very prominent. Pericarditis, peritonitis, otitis media and occasional abscesses may be mentioned. Hyaline degeneration of the muscle fibers may occur in the rectus abdominis muscles, sometimes leading to their rupture.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. SMALL, MILLER AND
LUSK, AND MACCALLUM

DR. WILLIAM H. WELCH, Baltimore: Let me, in the first place, make one comment: How comes it that there is another discussion on the prevention of pneumonia in another section? The Section on Preventive Medicine is discussing an important paper by Dr. Cole. I call attention to that, as I think it is a mismanagement to have two discussions on pneumonia going on simultaneously in two sections.

How new are the problems which we are discussing here today is evident when we recall that no such discussion could have taken place a year ago. It is true that when we began to prepare for the medical care of the troops in our camps

we foresaw that pneumonia would play an important part, as it always has in large camps in war, especially at certain seasons, and with the view of making available all our newer knowledge of this disease Dr. Cole prepared his admirable monograph on pneumonia, which has been widely distributed and has been most helpful. This monograph treats, however, of the familiar lobar pneumonia due to the pneumococcus, whereas the more important and fatal form of the disease has been streptococcus pneumonia with its complications, which is a quite different disease, concerning which we had relatively little information. It is this latter affection which has been the most serious problem at our camps, and which has been the subject of the most intensive study.

Since visiting Camp Wheeler with General Gorgas last November, when pneumonia was becoming unusually prevalent in the camp, I have had the opportunity of seeing the conditions in many other camps where the disease has existed and have become impressed with the necessity of a combined attack on this problem on the part of the clinician, the bacteriologist, the pathologist and the epidemiologist. It is quite impossible to arrive at any clear understanding of these streptococcus infections, of which pneumonia and empyema are the most important manifestations, by clinical studies alone, or even by clinical and bacteriologic combined. Careful postmortem examinations are absolutely essential. Such examinations should be made in all cases of death in our camps, unless there is some exceptional reason for not making them, and it is most unfortunate that obstacles should be placed in the way of the freest use of this essential aid to advancing medical knowledge.

As I have been attending a discussion on the prevention of pneumonia in another section, going on simultaneously with that in this section, I have unfortunately missed hearing the papers read here, but I should like to indicate some of the problems on which we need more light regarding these streptococcus infections. We need more information regarding *Streptococcus hemolyticus*, the organism chiefly concerned, notwithstanding all the study devoted to it, and it is gratifying to know that some of our best bacteriologists are concentrating their attention on this question. We are not clear as to the precise rôle played by pre-existent infections, especially measles, bronchitis, sore throat and pneumococcus infections, in favoring the development of streptococcal diseases. The clinical and anatomic characters of streptococcal pneumonias and pleurisies need further study, as does the relation of the empyemas to the pulmonary affection. The mode of conveyance of these diseases, and especially the rôle of carriers, is not settled. Especially important are epidemiologic studies intended to elucidate the starting point and the agencies concerned in spreading these streptococcal infections in the camp, the hospital and the civil community. Every effort should be made to furnish, if possible, a sound experimental basis for preventive inoculation and specific therapy, and, failing this, the best methods of prevention and treatment. We already know that much can be accomplished by proper administrative control, segregation and the use of gauze masks. It is important that detention and observation camps for incoming and outgoing troops be constructed and organized and that the receiving wards of the hospital, the observation wards and those for pneumonia and other infectious patients be arranged and administered so as to guard against conveyance of the agents of infection in the most efficient manner possible.

DR. LAWRENCE LITCHFIELD, Pittsburgh: In reply to Colonel Welch's criticism on having two discussions of pneumonia going on at the same time, I will say that the Section on Preventive Medicine considered pneumonia among the other preventable diseases, whereas the Section on Medicine has devoted itself to the study of pneumonia as it has occurred.

COL. F. F. RUSSELL, Washington, D. C.: I have not been able to hear the papers, and what I will have to say will be unconnected with what has gone before. Examining our disease incidence charts, we find that a large proportion of all deaths have been due to pneumonia. Pneumonia is the principal cause of death. In Camps Pike, Beauregard and Wheeler the death rate was 24 or over. In Camps Devens, Upton,

Dix, Meade, Custer, Grant, Sherman, Wadsworth, Hancock, Logan and Lewis the death rate was under 8. If we place these camps in the localities from which the men came, we find that they fall into a natural group. For instance, the three black camps would be placed in Georgia, Florida, Mississippi, Louisiana and Arkansas. The men coming from those regions furnished the greatest number of deaths. The lowest death rate is found in the camps that lie in the north-eastern section of the United States. The death rate is low where the rural population is small. In New England only 17 per cent. of the population is rural, and the death rate is low. On the other hand, where 78 per cent. of the men come from the country districts, the death rate is higher. Pneumonia did not occur extensively among the troops coming from the thickly settled parts of the country, but only among the troops coming from rural regions.

Another point to consider is the number of days in hospital. When the men were admitted to sick report very freely the death rate was low. The more men there were on sick report the lower the death rate. The same relation exists between city and country population and much and little sickness. At Camp Upton, which was made up of men from New York City, the death rate was practically the same as in the city. Camp Wadsworth, which was filled with New York City troops, had an even better rate. Therefore, men from New York City, whether they remained at home or went to camp, did not have any great difference in death rate. Whatever the difference was was in favor of the camp. The same is true of Camp Meade, whose men came from Pittsburgh neighborhood; the men were better off in camp than they would have been had they stayed at home. The same thing is true of the men from Chicago. When we get down South the conditions are reversed. Here is the death rate for New Orleans, which is higher than that in New York. When we compare the troops from New Orleans we find the conditions also reversed. In Louisiana the population is largely rural and nonimmune to the diseases of childhood, and when exposed to these diseases the troops have a high morbidity and mortality. That is the principal thing that has come out from our study of epidemic diseases from this point of view—that is, that the population of the cities and the population of the thickly populated districts seem to be immune to measles and to a certain extent to the other infectious diseases. Persons from the country districts, on the other hand, are not immune to these diseases and have a higher mortality when collected together in camps. If we look back to the Civil War we find that the same conditions existed. That is, northern troops in the southern locations were much more healthy than the southern troops, no matter where they were located.

DR. RUFUS COLE, New York: I regret very much that I had to be present this morning at the meeting of another section, and so have been unable to hear the papers presented here. I imagine that all phases of the pneumonia problem have been considered and fear that anything I may say will be only repetition. However, I should like to emphasize that our Army experience has shown that there are two essentially different kinds of pneumonia, two different diseases; one of them is an endemic disease, and the other is an epidemic disease. The former is due to pneumococci, the latter to streptococci. Streptococcal infections have a tendency to appear in epidemic form and are usually secondary. This, as Dr. Theobald Smith has pointed out, is especially true of streptococcus infections in animals. Such infections are almost always secondary, occur in epidemics and fortunately tend to be self-limited. A possible explanation for this is that streptococci are extremely variable in virulence. On passage through animals the virulence rises quickly, but just as quickly disappears when the bacteria are grown on artificial mediums. What has apparently happened in the Army is that streptococci, infecting measles patients in whom the soil is especially suitable, have grown rapidly in virulence, so that they have been able to infest persons suffering from other mild respiratory diseases, or even normal persons. If this is true, obviously the time to stop an epidemic is at the very onset. To do this requires early diagnosis and isolation of

the first cases arising. This would be possible provided laboratory facilities were available, and provided the cases did not occur with too great rapidity. It is not possible, indeed it is probably not advisable, to stop measles in the Army altogether; but it does seem advisable that an attempt be made to distribute the occurrence of measles over longer periods of time. This could possibly be done by more strict isolation of contacts, and especially by better organization of detention camps.

Much can be done to prevent cross-infections in the hospital, especially to prevent the occurrence of pulmonary infections in measles cases, by more rigid hospital isolation. The Army hospitals were originally organized as general hospitals, with only moderate provision for the reception and care of patients suffering from communicable diseases. Experience has shown, however, that Army hospitals should consist of two distinct divisions, one for the treatment of noncommunicable diseases, and one for the care of patients suffering from communicable diseases. Separate receiving rooms should be provided for the two types of cases, with a sufficient number of observation wards for complete isolation of patients, until positive diagnoses can be made, and until it can be determined whether or not the patients are carriers of hemolytic streptococci. In certain of the camps such a plan has already been put into operation. But it seems that more emphasis should be laid on the separate and proper organization of the infectious disease service in the Army hospitals.

DR. WALTER P. BLISS, New York: The papers have all brought out the importance of the pneumonia problem at our base hospitals in the Army camps and the similarity in these various camps, no matter where located. Our experience at Fort Riley has been the same as the experience at the other camps. The striking things have been the number of empyemas, the high mortality of this complication, the great frequency of the streptococcus as the cause, and the tendency of these empyemas to locate in pockets.

A few points which I might mention may be of practical interest. We have had to revise our criteria for the diagnosis of empyema, largely because of this tendency of the empyemas to pocket. We cannot depend on the ordinary physical signs of fluid to make the diagnosis. In an extensive series of blood counts we found that cases of pneumonia with complicating empyema showed practically the same blood count as those that were uncomplicated. In other words, we could not depend on leukocyte counts in showing the presence of this complication. Furthermore, as Major Miller brought out, the roentgen ray was of little value in showing small accumulations of fluid. If temperature, pulse or respiration remain elevated after six days we should begin to look very vigorously for fluid. We have frequently obtained pus from patients with absolutely normal temperatures. We have obtained pus from patients whose respirations and pulse were not elevated, so that if any one of these factors were elevated, it was our practice to make particularly careful examination for fluid and not to spare the aspirating needle. We had a high mortality in empyema when the operation was performed early. We attributed it usually to a spread of the empyema to the other side following operation. It would not always occur immediately after operation, but sometimes several days or a week after. Consequently, we adopted the method of aspirating repeatedly and operating ten or fifteen days after the pus was first diagnosed. We found it of particular value after operation to irrigate the chest cavity with Dakin's solution daily. It deodorized the pus and caused apparently a diminution in the amount of discharge.

Early in our experience we did both costectomy and simple thoracotomy. We feel, however, that costectomy is to be preferred. We have paid particular attention in treatment to digitalization. We have used a tincture of digitalis which was standardized for us by Dr. Cary Eggleston of Cornell after the cat method of Hatcher and Brody. Our tinctures standardized to a dose of 0.17 c.c. per pound of body weight of patient. The total dosage was given during the first thirty hours as a rule (that is, a man weighing 120 pounds would receive about 20 c.c.) in order to avert later the possibility of cardiac failure. In emergencies we used digipuratum intra-

venously, but later could not obtain it, and now we use digitalone intravenously or Nativelle's crystalline digitalin by mouth. Serious cases were treated in open air wards.

In regard to serum: We have had but few cases of Type I pneumonia, but we have had very good results with the Type I antipneumococcus serum. There were but five deaths, of which two were complicated by meningitis and one by empyema; so, excluding these, our mortality in Type I was low. A series of cases was treated with Dr. Kyes' chicken serum. We thought there was reduced toxicity in these cases, but the number of cases was so small we do not feel justified in drawing conclusions at this time.

DR. GEORGE F. DICK, Chicago: I had the opportunity to observe the pathology of these streptococcus pneumonias in both Camp Pike and Camp Dodge, and I was impressed with the prevalence of one type I saw at Camp Pike which I did not see at Camp Dodge. It was a streptococcus pneumonia. The sputum cultures showed no pneumococci, only a streptococcus; the blood cultures were positive for streptococci in the early stages. A bacteriologic examination of the lung tissue itself showed streptococci. Another bacteriologic finding in Camp Pike which I did not see at Camp Dodge was nonhemolytic streptococci. These streptococci produced no effect on the blood whatever and fermented no sugar. They were present in some cases of pneumonia of lobar distribution; that is, they were isolated from the lung tissue.

In studying pneumonia at Camp Dodge I was impressed by the fact that many of these cases gave a history of pneumonia following overexertion. I do not believe that has been brought out enough. Particularly after so-called hikes the men would come down with pneumonia.

With relation to Colonel Russell's figures on death rates and sick lists, the fact was that many cases of streptococcus pneumonia followed bronchitis, and I do not think there has been enough care in isolating these cases of bronchitis, and deciding who ought to go on with training and who ought not. These epidemics vary a great deal in severity, and too much reliance should not be placed on figures. At Camp Dodge I am told that the mortality was high in the early part of the epidemic, no matter what the treatment was, and in the latter part, since I have been there, the ordinary surgical treatment has resulted in a high percentage of recoveries.

DR. EDWARD C. ROSENOW, Rochester, Minn.: The studies reported in this symposium emphasize as never before the immensity of the streptococcus problem in its larger sense. Through combined intensive clinical, laboratory and pathologic study a definite advance of our knowledge has been made. The great prevalence of disease due to the pneumococcus-streptococcus group of micro-organisms, with its high mortality rate, should lead to the most intensive effort to prevent its recurrence. In the case of pneumococcus infections there is some hope that this may be done. Lister has shown that persons can be protected against pneumonia by prophylactic inoculation of pneumococci for at least nine months.

Major Stone's report on the use of the autolyzed pneumococcus antigen furnishes valuable additional evidence that this form of treatment of lobar pneumonia has definite beneficial effects. This antigen has the power to rapidly stimulate the formation, or cause the mobilization of antibodies and to protect animals against pneumococcus infection. It should be used in the early stages of lobar pneumonia due to pneumococci other than Type I. In Type I pneumococcus pneumonias Cole's serum should take preference, but since two thirds of the pneumonias and most of the deaths are due to other than Type I pneumococci, there is a large field for this form of apparently effective active immunization. Of its harmlessness, at least, there can be no question, and its intensive use is indicated.

DR. EDWARD C. G. FRANING, Camp Dodge, Des Moines, Iowa: We emerged from the epidemics of pneumonia in the various camps with a new idea of pneumonia. Hereafter pneumonia will be classified bacteriologically and pathologically, and the prognosis will depend greatly on the classification, the streptococcus, especially the hemolytic variety, being most fatal. During the epidemic at Camp Dodge there were many complications, among them sinus infections and arthritides, espe-

cially of the knee, but the most frequent was empyema. This was a very serious and relatively fatal complication. The death rate from the empyemas and pneumonias with empyema in the streptococcic class rose and fell with the rise and fall of the epidemic, no matter what method of treatment or operation was used. Also other infections incident to other departments of the hospital rose and fell with the tide of the epidemic. Expectant treatment, repeated aspiration, pleurotomy or costectomy all have about the same results in the empyemas. The fluids obtained from the empyemas was usually thin, slightly cloudy, brown, yellowish brown, or walnut juice colored, sometimes with flakes of yellowish fibrin, or thicker yellowish fluid. Whenever the latter was found the prognosis seemed better. This sort of fluid was obtained more in the latter part of the epidemic. The mortality in the epidemic empyema complicating pneumonia was very high for two reasons: First, because the patients sent to the operating room were so extremely sick, whether sent early or late, it would seem they would die no matter what method one would pursue; second, the fluid was so often sacculated, and pockets were situated anywhere and everywhere, that unless the whole pleural cavity was explored and adhesions broken up, which was very shocking to the patients and especially under local anesthesia, considerable fluid was left behind, sometimes even a large amount. I should like also to warn against mistaking these early pleurisies and central pneumonias with their somatic abdominal pain and rigidities for appendicitis, the differentiation of which I had to make in many cases this last winter. The character of the pain, and the abdominal rigidity, and blood count, below 22,000 suggesting appendicitis and above pneumonia, and close watching differentiated practically always.

THE PRINCIPLES OF THYROID SURGERY*

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Goiter has received medical and surgical attention, as annals of medicine make record, from time immemorial. Because of its conspicuous location, diseases of the thyroid are far more noticeable than those of other duct-bearing or ductless glands, and yet most of the knowledge concerning it has been acquired within the last fifty years. The chronic character or cyclic recurrence of some diseases of the thyroid is evidenced by the remarkable number of remedies, supposed to be exceedingly effectual, which have been used in their treatment; surgery was employed only as a last resort. Because of the high mortality, most operations were done only when necessitated by obstruction to respiration or circulation. A surgical vicious circle ensued; a high mortality led to late operation, and late operation to a high mortality. The seriousness and frequency of infection was also a great factor in retarding surgery, and progress was not made until the period of antisepsis and asepsis, which developed methods of safety and advanced all surgical knowledge.

The thyroid has a single anlage developing between the portions of the tongue, which very rarely remains in this location. We have seen but three such in 12,000 goiter patients operated on, and in several thousand more unoperated patients with goiter. Midline cysts of the neck are occasionally seen in the hyoid region, incident to defects in development, and are usually connected with a small remnant of the gland

behind the hyoid. The pyramidal lobe, occurring in a considerable percentage of persons, is the result of a stringing out of the gland through the attachment of the central portion to the hyoid in its descent.

From the care with which nature has guarded its blood supply, the thyroid, weighing approximately but an ounce, is a gland the secretion of which is of the utmost importance; this we see proved in the vegetative type of animal existence which occurs in cretins who are born without this gland, or those who subsequently lose it—the myxedematous. No other gland in the body has been so well cared for in its circulation by nature as the thyroid, all of the blood in the body passing through it once an hour. With its four regular arteries supplied by various main trunks, and the anomalies leading to greater circulation, nothing should interfere with it. The gland consists of a mass of alveoli or vesicles lined with a single layer of columnar cells. Having no ducts, it has been assumed that its secretion passes through the lymphatics or through the venous system as a hormone. There is no outlet from the interior of the vesicles, and the secretion of colloid accumulates here. As has been previously stated, it is evidently true that these cells deliver a secretion from their bases, and accumulations within the vesicles, should they ever leave them, are passed back through the cells as a filter.

Our surgery of the thyroid was developed for the removal of goiters causing pressure which interfered with respiration or the circulation or for cases of great deformity. These goiters consisted of colloid adenomas, cysts and fibrocystic, malignant or tuberculous tumors. Another variety of disease, exophthalmic goiter, with its various pseudonyms, was recognized as probably being associated with a diseased thyroid, because in it the gland was palpably changed from the normal. The mortality in operations on the gland in this condition was so high that even masters of surgery, such as Kocher, for a long time did not consider it amenable to surgery. Yet, the foundation of our present knowledge of the thyroid is built on a study of the overworking or hyperplastic thyroid, the normal gland and the hypofunctionating gland of myxedema dropping into their respective relationships after these discoveries were made. The thyroid undoubtedly is one of the most important glands in the body, and while we are far from a complete knowledge of its activities, the work of Plummer and Kendall, through investigations into the physiologic action of its secretion, is such as to bring us to the verge of a realization of its fundamental effect on life. Iodin was discovered in 1812 by B. Courtois. Baumann,¹ in 1895, found iodine to be associated with the thyroid secretion, and Kendall,² in 1915, separated, as a pure crystalline substance, the organic compound which contains the iodine.

Kendall has been able to separate the compound of the thyroid containing iodine from the balance of the gland. This is accomplished by destroying the proteins of the thyroid by means of boiling with a strong alkali, which does not decompose the iodine-containing compound, and, by suitable treatment, it can be separated as a pure crystalline substance containing 65 per cent. of iodine, its formula being $C_{11}H_{10}O_3NI_3$. The

* From the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Baumann, E.: Ueber das normale Vorkommen von Jod im Thierkörper, *Ztsch. f. physiol. Chem.*, 1895, **21**, 319.

2. Kendall, E. C.: The Isolation in Crystalline Form of the Compound Containing Iodine which Occurs in the Thyroid; Its Chemical Nature and Physiologic Activity, *THE JOURNAL A. M. A.*, June 19, 1915, p. 2042; *Tr. Assn. Am. Phys.*, 1915, **30**, 420.

compound contains an organic nucleus called indol, as well as oxygen. Wishing to emphasize these two facts and to relate it to its sources, Kendall called the compound thyro-oxy-indol, which has been abbreviated to thyroxin. Its function is involved in the most fundamental processes of life, that is, the production of energy. Kendall's work has furnished the only pure crystalline compound ever separated from the thyroid that possesses the same physiologic activity as the gland itself. This work places the investigation of the thyroid on a clear chemical basis and has made it possible to study quantitatively the action of the thyroid hormone.

Plummer, in the observation of many thousands of cases of goiter, numerous cases of cretins and of myxedematous patients, has shown that the rate at which energy is produced by the animal organism is controlled by the amount of thyroxin which is acting within the cells of that body. While not the only factor influencing the rate at which we live, it probably has more to do than any other substances with the governing of the speed at which energy is produced in the body. Plummer shows the average basal metabolic rate of exophthalmic goiter patients at the time of coming under observation to be 57 per cent. above normal, and the average rate in those in whom ligations were done and who returned in three months, to be plus 39 per cent. The average rate eighteen days after thyroidectomy is plus 19. Ligation probably causes the metabolic rate to drop approximately 15 per cent. Patients having adenomas of the thyroid also show variations in the output of the gland, the average rate on coming under observation being plus 39, and the average rate eighteen days after thyroidectomy, slightly above normal. The average energy transformation for normal persons is approximately 39 calories to a square meter of body surface an hour. The basal metabolic rate of normal persons does not fluctuate more than 10 per cent. above or below this average. Plummer's observations show that the thyroid hormone (thyroxin) determines the rate of formation of a quantum of potential energy available for transformation on excitation of the cell. The total amount of thyroxin in the tissues of the body of normal persons is in all probability approximately 13 mg. Each increase of 0.033 mg. (approximate) of the thyroxin in the tissues of the body increases the rate of energy output 1 per cent. Other factors being constant, the total energy output of the body varies with the amount of thyroxin in the tissues and the rate of excitation.

The work of Plummer is of the utmost importance in showing the thyroid to be a most active factor in the metabolism of the individual. The metabolic rate is raised or lowered by the activity or nonactivity of the thyroid and is measured by the amount of oxygen utilized from the air in respiration and the output of carbon dioxide in the expired air.

Exophthalmic goiter or gland hyperplasia, and overactivity develops an enormous increase in the metabolic rate, running in cycles of recurrence above the basal metabolism from 16 to 100 per cent. or more, according to the severity of the case. We thus have small exophthalmic goiters which are often more active in their effect than others which are evidently several times larger than normal. There is little or no deposit of colloid, as a rule, in the active cases, the colloid serving as a suspension agent for secretion, being deposited in the interior of vesicles when seen in simple goiters and as occasionally seen in areas of exoph-

thalmic goiter. Therefore, we see that the energy output of the gland may vary greatly and the development of the remaining lobe, or even of half a lobe, after operation or partial thyroidectomy may subsequently cause a metabolic rate of from 40 to 90 per cent. above normal; this, however, rarely happens. It is difficult in some cases to tell the exact amount of gland it is necessary to remove in order to secure a drop in metabolism to nearly normal limits. Thus a few cases require a second, and a still smaller number a third operation. They are not the result of the failure of surgery to cure exophthalmic goiter, but are a still greater proof of the value of surgery in its cure. The removal of a larger portion of the gland accomplishes a cure depending on the activity of the individual gland, as the benefit of the operation is obtained through the reduction of secretion. Thyroid secretion will persist in the body for approximately eighteen days (Plummer). We are still lacking in the knowledge of the activating agent which causes hyperplasia, the discovery of which is undoubtedly impending.

The simple goiters of adolescence are common. Only such of them require operation as are troublesome because of pressure or are unsightly and resist treatment. In some persons they are associated with a demand of the body for thyroxin, and iodine in most any form relieves the gland of its colloid. The gland is not hyperplastic. In persons under 25 years of age, small adenomas in the thyroid and the simple colloid goiters are only occasionally recommended for surgery. Later in life, the degenerations which occur in goiters of long standing, such as encapsulated adenomas and encapsulated colloid areas, when the secretion has become reduced, may develop thyrotoxic conditions. Kocher pointed out the fact that the degenerations often occur in women from 40 to 60 years of age, whose goiters of long standing are altered by iodine treatment. The older the person when goiter develops, the more quickly must degeneration occur. These patients have staring, but not protruding, eyes, widening of the fissure through sagging of the lower lid, and, because of the rapid pulse and tremor, the condition is often looked on as exophthalmic goiter. Plummer has pointed out the distinction between this condition and exophthalmic goiter.

Simple types of goiter or adenomas often grow to enormous size and occasionally may project into the chest, as substernal goiters. In some instances the entire thyroid enlargement is beneath the sternum, and the troubles occurring are due to degeneration or pressure, with great increase in the size of the veins of the neck and chest, showing the impeded return circulation. The roentgen ray is an important factor in disclosing the size and location of such tumors.

The dangers incident to the operation are the condition of the patient, as in exophthalmic and thyrotoxic goiters, and those due strictly to the operation, as loss of blood, secondary hemorrhage, interference with respiration, injury to the recurrent nerves and to the parathyroids. The parathyroids and the recurrent nerve should be guarded in simple goiter by leaving the posterior part of each lobe of the gland on the posterior capsule, and by care in the use of forceps, and care in suturing the remainder of the gland and in the ligation of its vessels. Laryngoscopic examination should be made before operation to disclose the condition and the enervation of the vocal cords, as paresis or paralysis of an abductor or adductor may

be present with but little change in the voice, and especially as unilateral tumors on the right side may produce paralysis of the left recurrent nerves, and surgical injury to the right side may result in total loss of voice. The parathyroids controlling the nitrogen elimination should be preserved as a guard against tetany. Local anesthesia may be used in special cases, but ether and local anesthesia are used in most instances.

The best method of approach is through a low collar incision. The sternothyroid and sternohyoid muscles should be cut high and resutured if they interfere with the surgical exposure of the gland; greater experience seldom requires their division. The isthmus should be removed and double resection is the operation of choice in simple goiter, while in the exophthalmic type, removal of the larger lobe, isthmus and part of the remaining lobe is the most common procedure. Drainage is instituted for twenty-four hours in the majority of cases, although the substernal goiter, the cavity of which does not immediately become obliterated by intrathoracic pressure, should not be drained longer than a few hours, at most, to retain a blood clot for organization; otherwise drainage in such cavities is indefinite.

RECURRENCE OF GOITER

In the simple forms of goiter, the same condition may remain in the portion of the gland preserved, to develop occasionally a recurrence of similar growth. Waves of activity of the gland occur and a small gland occasionally creates a far greater effect than a large one, through variations in its secretion, the quantity of the output or the resistance of the individual. Failure properly to judge this is bound to occur in a small proportion of cases. The cures by operation, however, are practically 70 per cent., with many of the remaining cases improved. Plummer explains to us many questions of recurrence, formerly supposed by medical men to indicate that surgery was not warranted. The results obtained by operation approximate what should be expected from the work of Plummer and Kendall, which I consider at this time the most important advance made in medicine of the chemistry of life.

War Infants—A New Type.—In the report on infant welfare in Germany lately published by the local government board, there is an interesting paragraph in reference to a controversy which has been waged for some time in that country as to whether the war has produced a new type of infant. The claim of having discovered these so-called "war infants" (*Kriegsneugeborene*) is put forward by a Charlottenburg doctor, who states that he has observed a distinctly new type of infant both in private practice and at welfare clinics. They are described as being not actually ailing but small, thin, delicate, backward in growth, with a wrinkled skin suggestive rather of old age than infancy. They are not prematurely born, as the description given would suggest, but underdeveloped at the time of birth. A constant restlessness accompanied by automatic grasping movements was noted as a characteristic feature of this type of infant, and the condition is attributed to the anxiety and nervous strain endured by the mothers, as well as to the restricted diet of insufficient and unsuitable food. The subject was discussed in various journals, but the majority of writers held that the existing war conditions had not produced a special type, though many admitted that the general increase in the number of excitable infants, and that a larger proportion were below the usual weight, developed slowly, and were reared with difficulty.—*The Medical Officer*.

GOITER IN THE SOUTHEAST*

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This paper is based on a routine systematic study of 407 patients with thyroid enlargements, somewhat less than half of whom have come to operation. The observations recorded in the histories have been made by myself, so that the information possesses whatever of merit may attach to personal responsibility, and lacks whatever of incertitude may result from multiple personal equations.

The particular points covered in the histories are some thirty-five in number and, of course, only a few can be commented on in this paper. For the most part the facts do not differ materially from those recorded respecting goiters everywhere. The outstanding features of the exophthalmic type—tachycardia, weakness, loss of weight, nervous instability, cardiac and renal disturbances, lymphocytosis, menstrual irregularities, fluctuation of symptoms, etc.—all run approximately true to recognized form. Among sixty-six patients in this class we have noted only two instances of skin bronzing, and only two instances of the severe vomiting and diarrhea that may accompany acute hyperthyroidism.

CLASSIFICATION

Speaking for myself, I confess that in classifying goiters a certain degree of equivocation cannot be escaped, no matter on what basis the task is undertaken. About three years ago I began to list my patients as carefully as possible under the groups suggested by Wilson and Plummer, whose classification takes into consideration both symptoms and histology. In this effort, as anticipated, quite a large margin of error cannot be denied, since the test of tissue examination, of course, could not be applied when operation was not done. When tissue was removed the agreement between the preoperative and postoperative diagnosis has been rather gratifying, though I cannot claim the approach to infallibility that the larger experience of others may justify. Conscious, in addition, of the attack on thyroid hyperplasia as a factor in determining symptoms, I nevertheless have grouped my cases as in the accompanying tabulation.

CLASSIFICATION OF CASES

GROUP 1. Hyperplastic toxic (16 per cent.)	
A. With exophthalmos	54
B. Without exophthalmos	12
	— 66
GROUP 2. Nonhyperplastic toxic (18 per cent.)	
A. Chronic cardiac type	57
B. With acute symptoms resembling Group 1.....	17
	— 74
GROUP 3. Nonhyperplastic nontoxic (60 per cent.)	243
GROUP 4. Unclassified, doubtful, etc. (6 per cent.)	24
	— 407

I am inclined to believe that the reason the percentage of cases in Group 2 is smaller than the percentage reported by Plummer is that perhaps ultra-conservatism in labeling patients as toxic has been practiced, rather than because there is a real difference here and elsewhere in the incidence of this kind of goiter. Many patients who might more correctly be classified under 2 A have been put in Group 3.

Adenomas and Cysts.—One hundred and forty-six (35 per cent.) of these goiters were adenomas. In

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Group 1 there were four (6.2 per cent.); in Group 2 there were thirty-three (45 per cent.); in Group 3 there were 108 (44 per cent.).

However, when there are eliminated certain thyroid enlargements which were regarded as trivial and symptomless (chiefly in young girls, all in Group 3), the percentage of adenomas is considerably increased, being then 64 per cent. in Group 3 and 43 per cent. of the total number of patients studied. The adenomas in Group 2 B (with acute symptoms resembling exophthalmic goiter) are 50 per cent., as compared with 40 per cent. in 2 A.

The number of thyroidal cysts is small, only six occurring in the series. I am, of course, not listing as cysts the condition of cystic degeneration so common in old goiters.

INCIDENCE

While there are not obtainable figures to show the percentage of people anywhere in the United States who have goiters, it is a matter of common and trustworthy observation that the percentage is smaller in the South than at least in many other parts of the country. In the region of the Great Lakes I have more than once seen 50 per cent. of the waitresses in a restaurant with struma. I believe that one meets, per hundred, from five to ten times more women on the street in Chicago with goiters than on the streets of the average southern city.

Race.—Only eighteen negroes (4.5 per cent.) are represented. I believe goiter is less common among negroes than among white people, but I think the difference is not so great as these figures indicate. The situation is largely explained by the fact that most of these are private patients, and by the further fact that a nontoxic goiter does not usually compel one to consult a physician, and the negro does not do it. These figures, it must be remembered, apply to a territory in which the proportion of white people is somewhat larger than that of colored people. Six of the eighteen colored patients had exophthalmic goiter. Ten of the remaining twelve had nontoxic adenomas. Only one colored patient was listed in Group 2.

Sex.—This list includes only twenty-five males, 6.25 per cent. of the whole series. I think this represents the approximate truth as to local sex incidence. In Group 1 (exophthalmic) there were three (4.6 per cent.); in Group 2 A (toxic nonexophthalmic with chronic symptoms), one (1.4 per cent.); in Group 3 (nontoxic) sixteen (6.6 per cent.), of which twelve were adenomas. The diffuse nontoxic thyroid so

common among young women is almost unseen among men. Four male cases were not classified clearly.

Relatives.—The inquiry included aunts and cousins. Ninety-five (23.5 per cent.) of these individuals had one or more relatives with goiter, a result not very significant.

With the inquiry restricted to the immediate family, fifty-three patients (12.5 per cent.) had fifty-eight relatives with goiter. These percentages are naturally much lower than in localities in which goiter is more prevalent.

The sister of the patient has been more frequently affected than the mother. The history of a relative with goiter is only half as common among the toxic as among the nontoxic thyroids.

Water Supply.—I have been totally unable to associate goiters with drinking water as an etiologic factor. In the average family drinking the same water, only a single goiter has developed. In only two instances has it been found that the same well supplying more than one family has among those drinking its water a suspicious number of goitrous persons; and in those instances it was not possible to get the families concerned to boil the water for observation of the effects. Among the inhabitants of no particular county, and of no particular watershed, and of no particular major geologic formation in the state of Georgia does goiter, in my opinion, exist in a significant manner. All my patients in the state have been charted with particular reference to this point, with negative results.

POSSIBLE EXTRATHYROIDAL CAUSES OF SYMPTOMS

In Group 2, and frequently in Group 3, there are nervous instability, lack of sustained physical endurance, usually a

spare build, frequent transient tachycardia without good reason, etc. Always the question arises whether there is a competent extrathyroidal source of the patient's complaints.

Careful questioning with a thorough physical inventory will not infrequently evolve the unbiased opinion that the patient's thyroid plays a minor, though perhaps real, part in the production of her disability.

Effort has been made to exclude these patients from the present series, but there are memoranda of doubt on the score of such troubles as family cares, worry about lost positions, financial reverses, suspected tuberculosis, prostration following pneumonia, etc., hereditary nervous instability, overwork, family infelicity, menopause, pellagra, nephritis, rheumatism, chorea and pelvic disease.

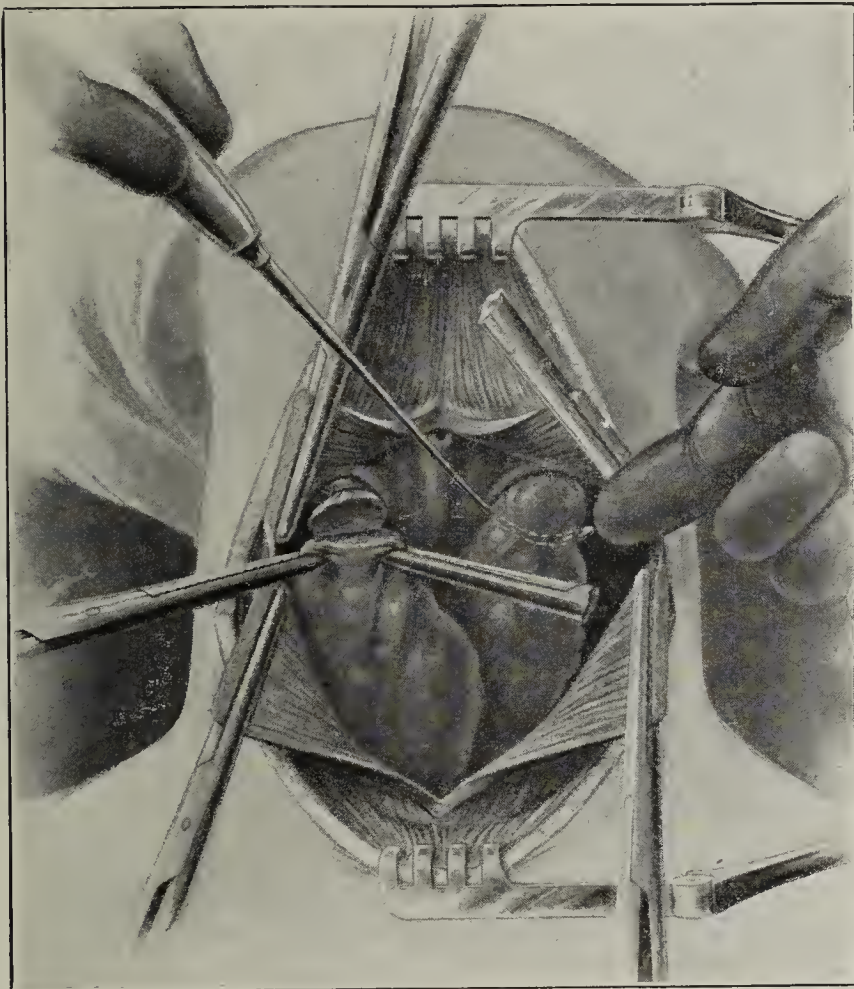


Fig. 1.—Ligation of upper pole before lobe is delivered. There is always between the thyroid cartilage and the pole a relatively avascular space through which the aneurysm needle may be passed. Not infrequently both upper poles may be thus ligated to advantage before either is resected.

Recently I believe one may add to his ability to affirm or deny the major participation of the thyroid by the use of the Goetsch test—a significant prompt exacerbation of hyperthyroid symptoms being produced by the injection of epinephrin if the thyroid is really overactive.

PELVIC DISEASE

As to pelvic disease, there is nothing significant in the histories of patients in Group 3, though the incidence at puberty (and perhaps at the menopause) proclaims the relation between the thyroid and the female sexual glands. In view of the current loose idea that menstrual activity influences the size of a thyroid already enlarged, and in view of the further fact that women are inclined to look for abnormal phenomena in connection with any organ or function during menstruation, it is rather surprising that only 12 per cent. of these women believed that there was

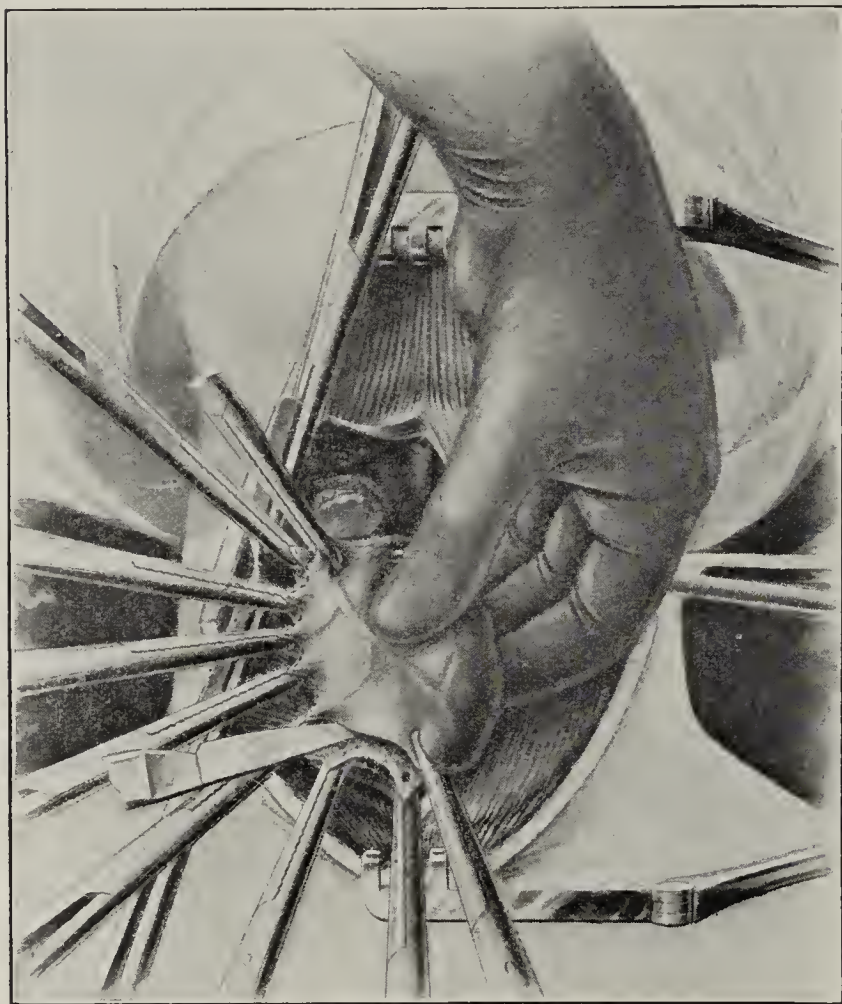


Fig. 2.—Lobe released at upper extremity. Incision should not go entirely through gland at this point.

any change in the size of the growth during the menstrual period. Furthermore, in Groups 1 and 2, a judicious analysis of the information that has been gathered with special reference to this point at the time when the histories have been taken does not justify the statement, so far as these patients are concerned, that goiter is a special consequence of pelvic disease.

Except for the fact that thyroid hypertrophy is admitted frequently to accompany increased ovarian activity, and that increased ovarian activity may be a part of pelvic disease, I see no significant sequence of goiter on pelvic disorder as compared with the sequence of goiter on any other debilitating affection such as pneumonia, nephritis, pellagra, rheumatic fever or tonsillitis. Indeed, even without invoking the interrelation of the ovary and the thyroid, I doubt if the number of goiters following pelvic disorder is suggestive of anything except that thyroid enlarge-

ment may follow any severe or prolonged physical or mental tax.

It is true that of the women in Groups 1 and 2, 31 per cent. gave a history of some sort of pelvic disorder ranging from dysmenorrhea and simple retroversion to pus tubes and fibroid tumors. This, however, must not be interpreted as too significant. In Group 1 all the women included in the 31 per cent. just mentioned were married and most of them had borne children; and in Group 2 nearly all were married. It is probable that 31 per cent. of any considerable group of married women will have some sort of pelvic trouble, so that the number of goitrous women in this series with antecedent pelvic disorder cannot be said to be suggestive.

RELATION BETWEEN APPEARANCE OF GOITER AND APPEARANCE OF SYMPTOMS

Group 1. The average age at which the goiter was first noticed is 27.8 years. More than 50 per cent. appeared before 25; 20 per cent. appeared before 18, and an additional 7 per cent. are thought to have appeared at puberty, disappeared, and reappeared at ages ranging from 26 to 49.

The average at which the patients began to notice symptoms was 30.35, or 2.55 years after the appearance of the goiter. This period, however, is not usually so long as the figures seem to prove. If we disregard seven patients who gave this period of comparative immunity as being from 5 to 29 years, it is discovered that there is somewhat less than twelve months intervening. Indeed, in the average case of exophthalmic goiter the time is shorter still.

Thirteen per cent. of this class thought the symptoms antedated the enlarged thyroid, while 35.5 per cent. thought the goiter and the symptoms appeared simultaneously.

Group 2. The average age at which the goiter is thought by the patient to have appeared is 24½ years. Nearly 50 per cent. appeared prior to 18, and symptoms developed from a few months to seventeen years later.

The average age at which symptoms began to be noticed was 28 plus, three and one-half years after the first known presence of the goiter. This period would be lengthened if we included in this class a number of patients who may clinically belong here, but who have been listed as nontoxic under Group 3. It is also to be remembered that since in this group the symptoms develop gradually, the patient is frequently unable to fix on a date since which her health has been definitely impaired.

MAXIMUM RESECTION

From the beginning of my experience I have followed the plan of resecting both lobes in diffuse enlargements. Only on rare occasions has this rule been disregarded, and then because, when operation had been undertaken on a bad risk, it seemed unwise to tax the patient with resection of the second lobe. And, proceeding on the idea that in toxic goiter the patient is suffering from altered secretion or too much secretion, there has been no hesitation to sacrifice a maximum amount of tissue on both sides. Acting under this plan I have not yet had to operate on a patient the second time. Those few patients whose second lobe was left deliberately, though reluctantly, have not improved to the degree desired, but have become so

much better that they have uniformly declined a second operation. Furthermore, the conviction that the improvement in these patients compares unfavorably with that of those who have had the desired ideal amount of tissue removed cannot be escaped. This statement comprehends the assumption that these few

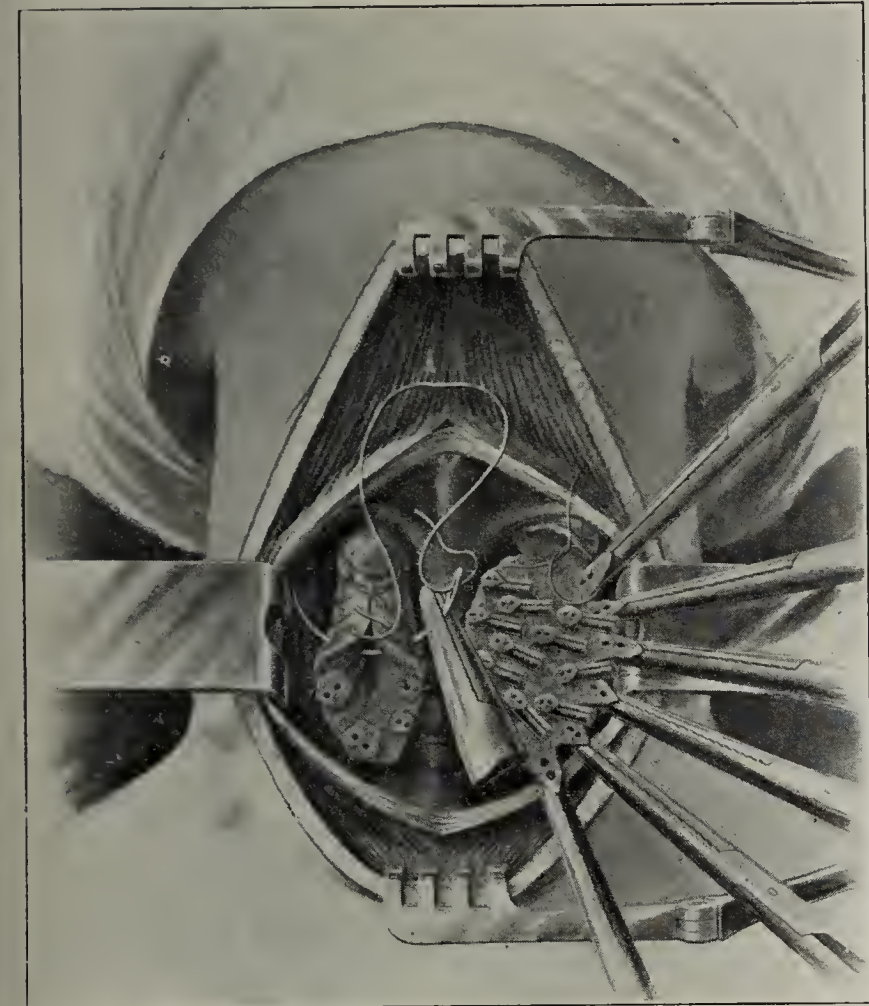


Fig. 3.—Most of the forceps shown can be set before the vessels are cut. Most regurgitant bleeding can be kept under reasonable control by the hand that holds the lobe as the resection proceeds. Covering cut surfaces as indicated in the right lobe is desirable but cannot always be practiced.

patients were, as a class, the most seriously affected by the disease, and therefore might be expected to get the least benefit from any treatment.

Pursuit of this plan has not, in my cases, produced any instance of the least suspicion of postoperative myxedema, nor has it produced in any patient a permanent loss of voice; in fact, in only one person with this particular kind of thyroid enlargement has temporary aphonia resulted. The only patient in the list with some symptoms of postoperative tetany had enormous bilateral adenomas; so that this single occurrence cannot be urged against the procedure in diffuse enlargements or, indeed, against the principle in general.

SUMMARY

1. The incidence in the Southeast of the several types of goiter departs in no significant way from the incidence in other areas where thyroid troubles are not definitely endemic. Sixty per cent. of all goiters are listed as nontoxic; excluding from consideration the symptomless goiters of puberty, 64 per cent. of the nontoxic goiters are adenomas.

2. Goiter in this territory is relatively rare; the colored race exhibits less tendency to a pathologic condition of the thyroid than does the white race; men are less frequently affected than published figures indicate; the occurrence of nontoxic goiters in families is suggestive, but not significant; no particular water supply is under suspicion.

3. There appears in this series no significant relation between pelvic disease and a pathologic condition of the thyroid.

4. Maximum double resection in diffuse enlargements is wise.

TEMPORARY LOSS OF VOICE FOLLOWING THYROIDECTOMY*

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The temporary loss of voice following thyroidectomy is a complication that gives the surgeon in his early thyroid work an untold amount of anxiety and worry. There are several distinct causes of this complication, which if appreciated by the operator will greatly lessen the liability of its occurrence; but in spite of this, the experienced surgeon will occasionally be greatly disturbed by one of his patients who loses her voice after operation, and who is husky or speechless for months following.

The causes of temporary loss of voice may be put under four headings: (1) trauma to the inferior recurrent laryngeal nerves; (2) trauma to the larynx and trachea; (3) syphilis, and (4) hysteria.

Trauma to the nerve should be prevented whenever possible—trauma that is caused by pinching with clamps; including the nerve by suture in tying off vessels or catching it in suturing; and stretching the

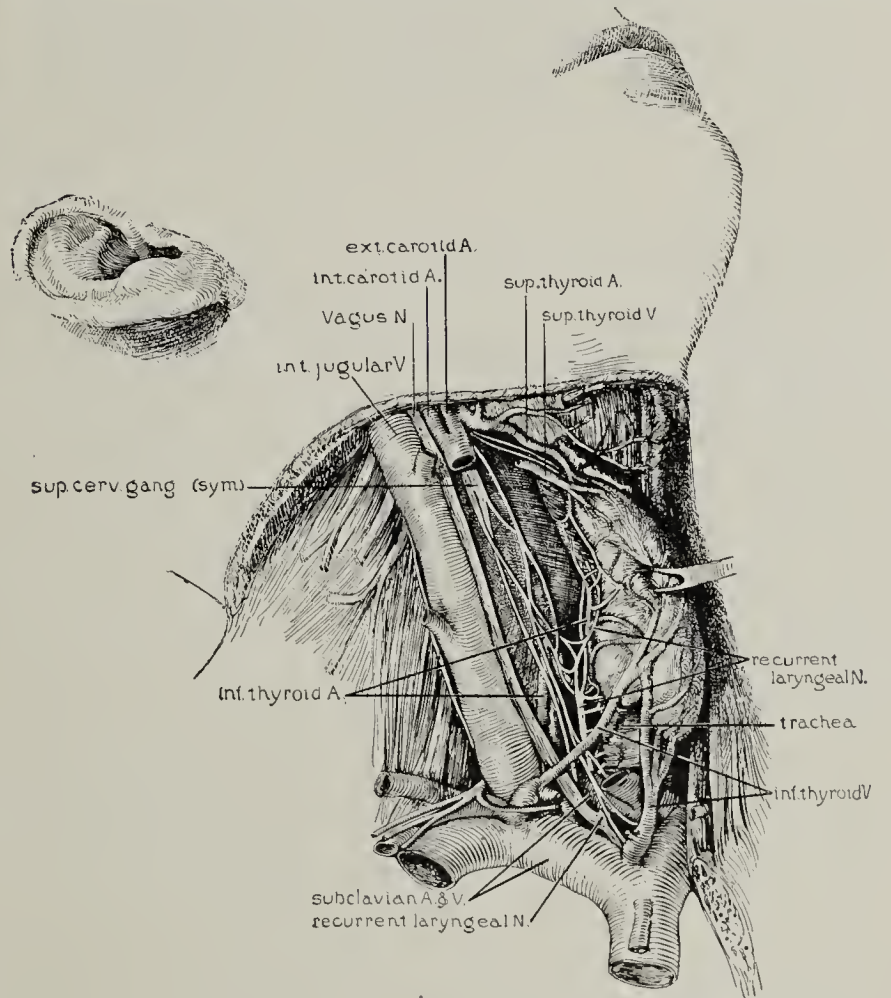


Fig. 1.—Dissection of neck, showing the intimate relation of the recurrent laryngeal nerve to the inferior thyroid artery. The gland has been pulled toward the midline to expose the nerve

nerve in its sheath, causing postoperative edema and by pressure from postoperative blood clot.

To avoid the nerve, the anatomy of the part must be well known. The thyroid gland is entirely enclosed

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by a fibrous capsule which divides posteriorly into two layers, one passing behind the esophagus to unite with the layer from the opposite side, and the other between the trachea and the esophagus. The recurrent laryngeal nerve arises from the pneumogastric nerve, and passes up by the side of the trachea behind the gland and its capsule and next to the esophagus to enter the



Fig. 2.—A broad collar incision for exposure

cricothyroid membrane. On the right side the nerve is intimately associated with the inferior thyroid artery, passing either under or over it. On the left side it is somewhat deeply placed and less often associated with the artery.¹ The nerve on the right side, therefore, is in more danger of being injured than the one on the left (Fig. 1).

To avoid the nerve, the dissection should begin well up on the side of the gland and not down underneath it. The vessels are clamped as they enter the capsule of the gland, and if the nonvascular zone described by Crile is entered, it is surprising how the gland may be dissected out of its bed with little loss of blood. It is important always to stay well within the capsule of the gland, because the nerves lie behind it. In attacking the lower poles of the gland, the forceps should be placed high up on the gland parallel with the long axis of the neck. Judd often includes some of the gland with the vessels in this step of the operation (Fig. 5). Any rough handling, forcible delivery of the gland, or dry gauze dissection in this region should be avoided, for it is here that trauma to the nerve takes place.

In case of severe hemorrhage, it is unwise to attempt to catch the bleeding vessels in a pool of blood. The vessels themselves should be found and clamped individually. If the gland has been resected, as Balfour² advises in large colloid goiters, it is well to remember

the close proximity of the nerve to the lower pole and to the posterior surface of the gland, and make sure that the nerve is not caught in the lock sutures.

Judd, Mann, and New³ have shown that the function of the vocal cords in dogs is permanently lost by section of the nerves. Pinching the nerve directly by hemostats caused temporary loss of function, the length of time varying with the distance of the trauma from the larynx. They also found that if the nerve was ligated with any form of suture material, the function would never return. Pressure from postoperative blood clot also caused suspension of function; but putting the nerve on forcible stretch, temporary or permanent, had no effect on the function of the vocal cords. I cannot believe that stretching the nerve is not a factor in causing temporary loss of voice. We have all seen patients who talked well for a few hours or a day after operation and who showed no symptoms of postoperative tracheitis, lose their voice on the second day. This I have always interpreted to mean edema in the sheath of the nerve with interference of its function.

Trauma to the trachea and larynx is followed by tracheitis and laryngitis and is frequently cause for temporary loss of voice, especially in apprehensive patients. The extent of the tracheitis varies with the amount of the trauma, and it is important to subject the trachea to the least amount of traction and injury during the delivery and the dissection of the gland. It is not wise to deliver or dissect out the thyroid in one set way. A trachea that has been encroached on by an enlarged gland will not stand the same amount of lateral pressure as one that has not been encroached on.

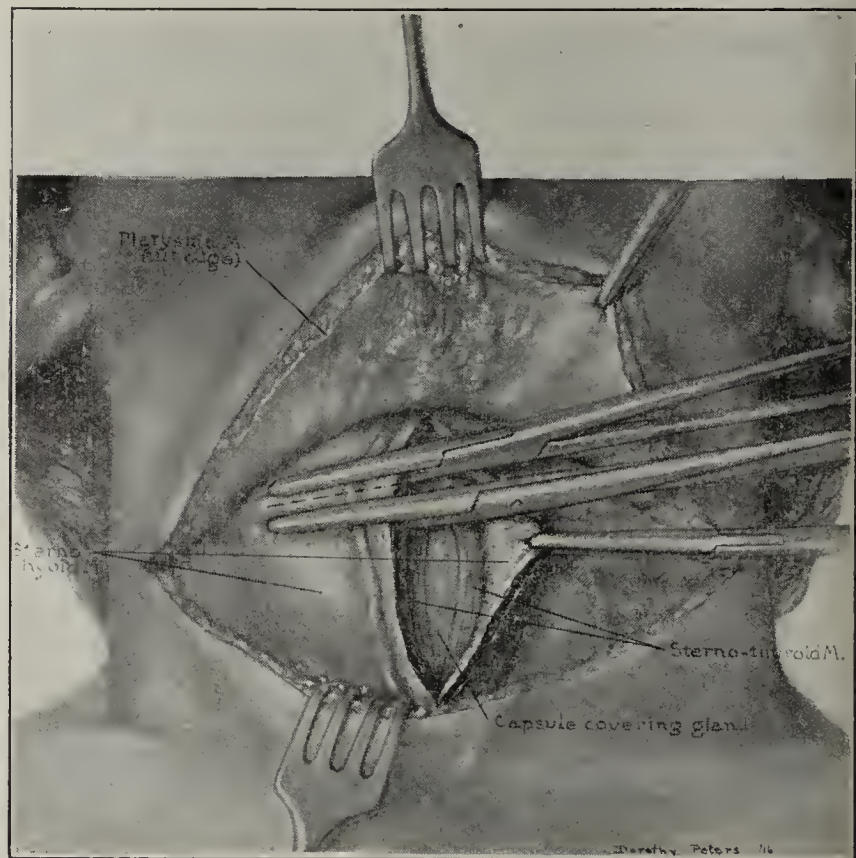


Fig. 3.—Sternohyoid muscle to be cut along line of dashes. Double trap door is often made for greater exposure by cutting sternohyoid of opposite side.

The surgeon should rely on the services of a skilled anesthetist in these operations, for the anesthetist's judgment of the patient's color and breathing should guide him as to just how much traction he may employ with safety or whether he should lessen the amount he

1. Mayo, C. H.: Collected Papers by the Staff of St. Mary's Hospital, Mayo Clinic, 1905-1909, p. 419.
2. Balfour, D. C.: Advantages of Double Resection in Certain Types of Goiter, *Ann. Surg.*, May, 1914.

3. Judd, E. S.; Mann, F. C., and New, G. B.: *Ann. Surg.*, 1918, 67, 257.

is already using. To prevent stretching the nerve it is best to deliver glands from above downward whenever possible (Fig. 4). If this cannot be done it should be attempted laterally or from below upward—any way to safeguard the trachea. Substernal



Fig. 4.—Delivery of the gland from above downward to prevent stretching of nerve.

growths cause anxious moments until they are delivered. Substernal cysts can often be punctured with safety and delivered easily. It is often better to begin the dissection of large colloid goiters with much lateral encroachment from the midline at the isthmus rather than laterally or from either pole (Fig. 6). This method is more difficult and more vascular, but it saves the trachea from an undue amount of trauma. In dissecting the gland off the trachea itself it is better to leave some of the isthmus rather than to do a clean dissection down to the fascial covering (Figs. 7 and 8). Many glands are firmly adherent to the trachea and are separated from it with great difficulty. It is an easier dissection to leave a small amount of gland on the trachea in the average case, although in the hyperplastic gland the bleeding may be hard to control. Tracheal trauma is a common cause of temporary loss of voice. It adds much to the patient's discomfort, and in the severe case it may be a factor in producing postoperative pneumonia. Free exposure is important, and it is often necessary to turn a double trap door of the sternohyoid muscles or even to cut some of the fibers of the sternomastoid to obtain it (Figs. 2 and 3).

It is wise to have a laryngoscopic examination made of all patients before and after operation. Unilateral abductor paralysis or lagging of one cord may be

found in patients with goiters of long standing that have caused pressure on the nerve. The surgeon in justice to himself should tell these patients not to expect any improvement in their voices after operation. New believes a bilateral abductor paralysis to be of syphilitic origin and that a bilateral adductor paralysis is due to hysteria. This has been borne out several times in my work. To cite a case:

A woman, aged 45, with a small goiter, complained of tracheal pressure, interference with speech, and difficulty in breathing. I knew her to be syphilitic and operated on her against my better judgment. She talked well after operation, but had a complete loss of voice one week later, because of a bilateral abductor paralysis. Six months after operation her breathing became so seriously interfered with that a tracheotomy had to be performed. Later I sent her away for consultation, and a well known man wanted to eviscerate her larynx, believing the paralysis to be due to the cutting of both laryngeal nerves. I knew this was not the case, for she had talked well after operation. Under a thorough and prolonged antisiphilitic treatment her voice has been fully restored.

Simonton⁴ believes that many enlarged thyroids are of syphilitic origin and suggests that the improvement many of these patients show after taking potassium iodid may be explained in this way. Certainly it would be well to have a Wassermann test taken of all patients who have insignificant goiters but who complain of interference with speech.

I believe there is a strong hysterical element in many patients who lose their voice for a time following operation. We are well aware of cases of hysterical aphonia. Only a few weeks ago, the papers were full of the case of a well known singer who lost her speech completely after a severe nervous shock. Many patients come for operation with the fear that their voices will be lost after it. A surgeon working in a small com-

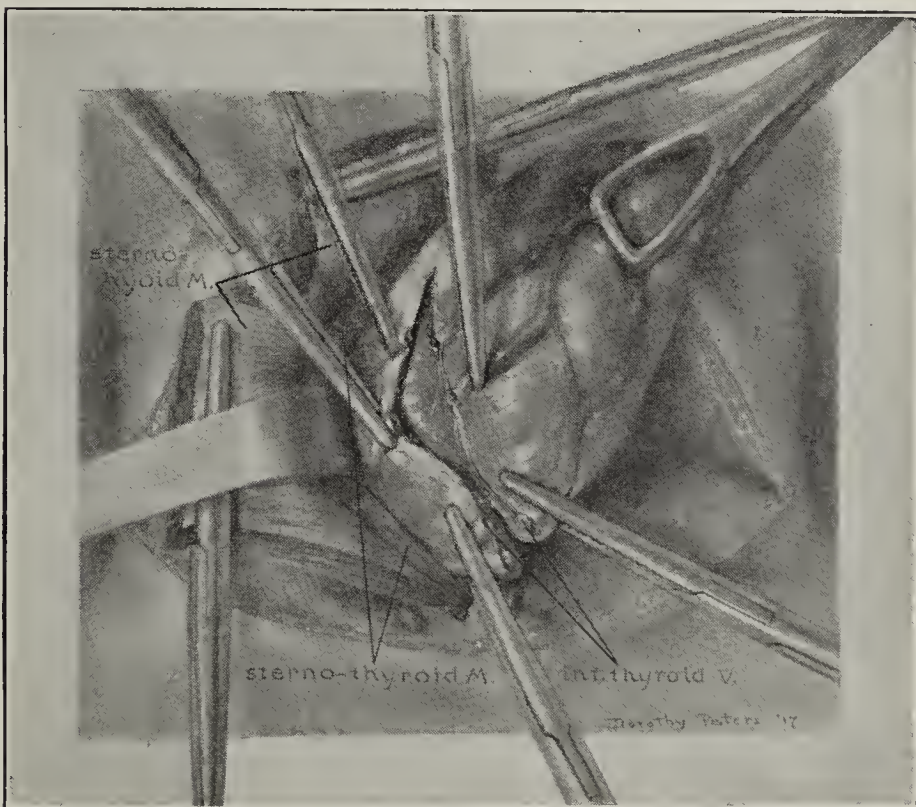


Fig. 5.—Treatment of vessels at the lower pole. A small amount of thyroid is included in the bite of the forceps.

munity may have the wrong kind of suggestion to contend with. The thoughtless or unfriendly remarks of a laryngologist who examines a patient during the stage of temporary loss of voice may do much to intimidate a whole community about thyroid surgery.

4. Simonton, T. G.: Syphilis as a Factor in Diseases of the Thyroid Gland, *Pennsylvania Med. Jour.*, 1918, **21**, 293.

I maintain that many of our patients, who are fearful before operation, awakened after it to find speech painful and difficult, and they send strong impressions to their subconscious minds which make speech impossible for a given time. Much of this preoperative fear can be allayed by the proper kind of suggestion from

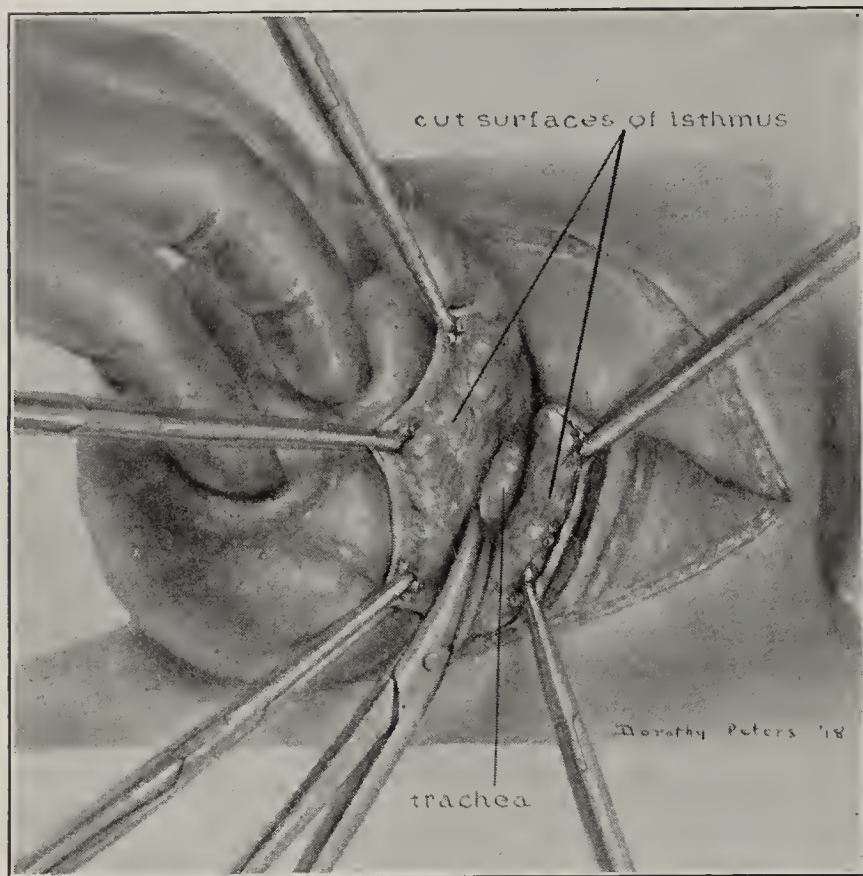


Fig. 6.—Dissection of gland, beginning at isthmus to safeguard trachea

the surgeon and his associates. This psychologic team work applies more especially to the management of bad types of hyperthyroidism, but it may be applied in all goiter cases with advantage. The anesthetist can give valuable suggestion to the subconscious mind during the early stage of anesthesia. Our nurses are trained to make all of our thyroid patients talk in their drunken ether state. They must be made to articulate some word. This is carefully noted on the chart, and should the patient lose her voice it is of no source of anxiety to any of us. Occasionally it is impossible to get a patient to talk immediately after operation, and these are the patients who do worry us—but I know of no patient of mine who has had any permanent disturbance with speech.

The postoperative laryngoscopic examination is of importance, for if bilateral adductor paralysis alone is present it is surely due to hysteria. Most of the patients recover within from a few weeks to a few months with the proper kind of suggestion, but the rebellious case may worry the surgeon and startle a community for the time being. All forms of suggestion have been employed from the mildest to the hypnotic. It is often necessary to treat the patient's family as well as the patient. We use repeated laryngoscopic examinations with assurance, the battery, the therapeutic lamp, and gentle massage to the muscles of the neck. In the purely hysterical type there is complete restoration of voice as soon as the patient can be convinced that she can talk. Judd tells of a patient who feared she would lose her voice after operation, which she did for months. She believed that if an adhesion was loosened in her neck her voice would return. She was anesthetized, the muscles of her neck were massaged. Her voice returned at once.

Sistrunk had a patient who was given mild anesthesia and was merely assured while going to sleep that her voice would return. She talked as soon as she awakened. One of my rebellious patients had to be hypnotized twice. Another, whose family could not be convinced that permanent damage had not been done, was made to relax the muscles of her throat, and take a deep inspiration with her mouth open. She made a loud crowing sound. Her mother who was present cried out, "Her voice has returned." She was able to talk at once.

Communications from different men doing thyroid surgery show an average of from 3 to 5 per cent. of cases of temporary loss of voice, and from 20 to 50 per cent. of huskiness following their operations. I have had 20 per cent. of huskiness and 3 per cent. of temporary loss of voice since employing the methods herein described. This is a much smaller number than I formerly had when I did not carry out measures to safeguard the nerves and the trachea from trauma and did not consider hysteria as an element in producing the complication. These conclusions are based on a clinical study of 1,102 goiter patients, 619 of whom were operated on.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MAYO, JONES AND GUTHRIE

DR. CHARLES N. DOWD, New York: The development of the various phases in the treatment of goiter has been very interesting. Many of us remember when patients with distinct symptoms of exophthalmic goiter were not considered suitable for surgical treatment. In the intervening years, however, we have learned much of the natural history of the disease, hence can better select the treatment which is best suited to each case. Surgical technic has also improved, hence operation is now successful in numerous instances in which formerly the patients would have succumbed. Patients who suffer merely from pressure symptoms will be cured by removing the adenomas which cause the pressure.

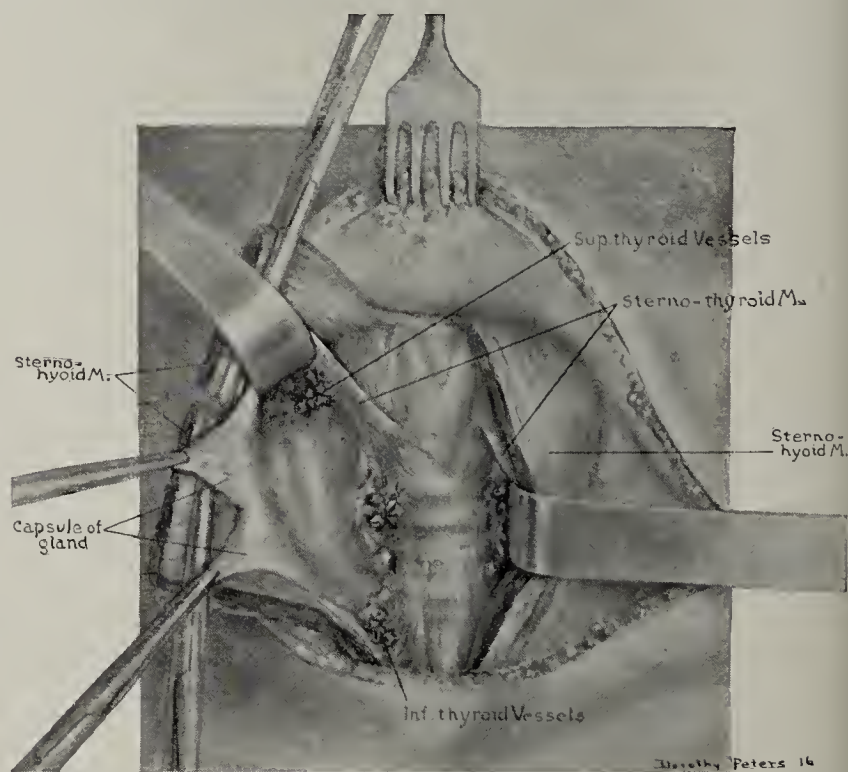


Fig. 7.—Former method of removing gland from trachea. Note that the trachea is bared to the fascial covering.

Dr. Jones called attention to the problems found in different parts of the country. One's attitude will depend largely on the type of cases seen. In New York we see a large number of the intermediate type of goiters which present moderate toxic symptoms in the course of chronic thyroid enlargement, even though these toxic symptoms have been lacking during the greater portion of the patient's history. These patients

form a very satisfactory group from the standpoint of surgical treatment for they make wonderful recoveries after moderate-sized operations. The real problem is to sort out those patients who have enough toxic symptoms to warrant surgical interference. The recent work which has been done in this line is most interesting. Kendall has done much to

instance, the suprarenal produces Addison's disease. The bravest surgeon has not started to remove the suprarenal. The spleen produces pernicious anemia. Only yesterday I had the pleasure to be present at operation by Ochsner. He had a case of pernicious anemia. His principle was that he ought to remove the spleen, infected gallbladder and infected appendix. He claimed that he cured these patients and saved them from death. He starts at the wrong end. The cause of that infection is the large intestine. Like most surgery, this is the surgery of end results. The connection between the thyroid and the sex organs is intimate. It is well known that the men in India can tell in a moment whether their women have been tampered with by the condition of their thyroid. I have not removed the thyroid for a very long time. I have cleaned up the contaminated food supply; I have removed the large intestine, and then these enormous thyroids gradually grow smaller and disappear. Many of the American surgeons saw my patients in England, people who had had enormous thyroids. We removed the intestine, and the enlarged thyroid gradually became smaller. The cases not completely successful are the exophthalmic goiter cases. Enormous improvement takes place, but the disease is not obliterated completely. The food supply is the secret of disease. I am certain the more we go into the subject the more we will realize the contamination of our food supply and the immense amount of filth we are taking into our circulation every day through the small intestine. I do not think that you can have failed to notice that in Raynaud's disease, where the fingers and toes are gone, within twenty-four hours after operation the patient's reaction is normal. It shows that we are absorbing a large amount of poison from the small intestine; it



Fig. 8.—Method now used whenever possible, leaving small amount of thyroid on the trachea.

make our knowledge definite. The epinephrin test, as advocated by Goetsch, is of great value in determining the toxicity of these patients. We have a guide to determine before operation, while the patient is under observation, which symptoms are due to the thyroid and which are due to other influences.

I was interested in hearing Dr. Jones say that he had not seen any cases of myxedema following the removal of a large portion of the thyroid. I have not so much fear of hyperthyroidism as I used to have. Patients who have lost a very large portion of their thyroid still do not show hyperthyroidism.

As to the technic in covering the raw surfaces, we have the choice of running the chance of nerve injury or of expecting a moderate delay in the final healing. If we sew the capsule edges too tightly, we increase the danger of nerve injury; if we leave the posterior capsule in its position and the cut surfaces of the thyroid uncovered by capsule, we will lengthen the period of convalescence.

DR. ARBUTHNOT LANE, London, England: I feel rather in an awkward position. I feel ashamed to differ with my friend, Dr. Charles Mayo, who, with those at Rochester, has made this work notable and famous all over the world. I am sorry to say that I am in direct opposition to him. I would like to go into the cause of things: First, we have to consider three big organs—the thyroid, the spleen and suprarenal. These three organs, under the influence of strain produced by the fact that they are flooded by poisons, behave badly. For

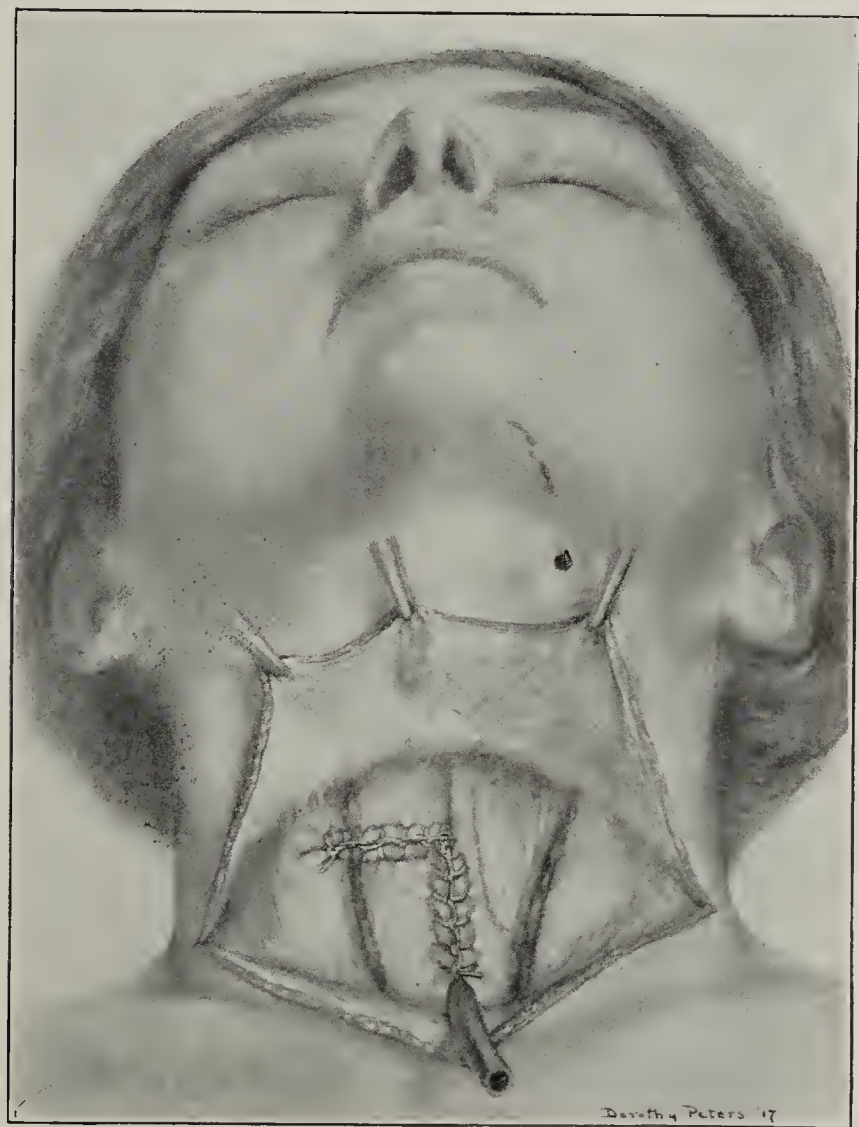


Fig. 9.—Closure of wound.

passes by the filtering organs and gets into the circulation. Mr. Garrison of India showed that he could produce goiter in various forms by feeding certain filth. He could produce a congenital condition affecting pregnant mothers and cure them by cleaning up the intestinal tract. Surgery has gone mad in that it is treating end results and not dealing with the primary cause. As we specialize we lose our common sense

by developing our special sense. I am not criticizing the beautiful work of Dr. Charles Mayo, but I think it is useless to remove the spleen, infected gallbladder and appendix to cure infection. It is based on a false principle. I am sorry to appear in the light of a heretic.

DR. MILES PORTER, Fort Wayne, Ind.: There is as much reason for removing a permanent goiter for fear it will

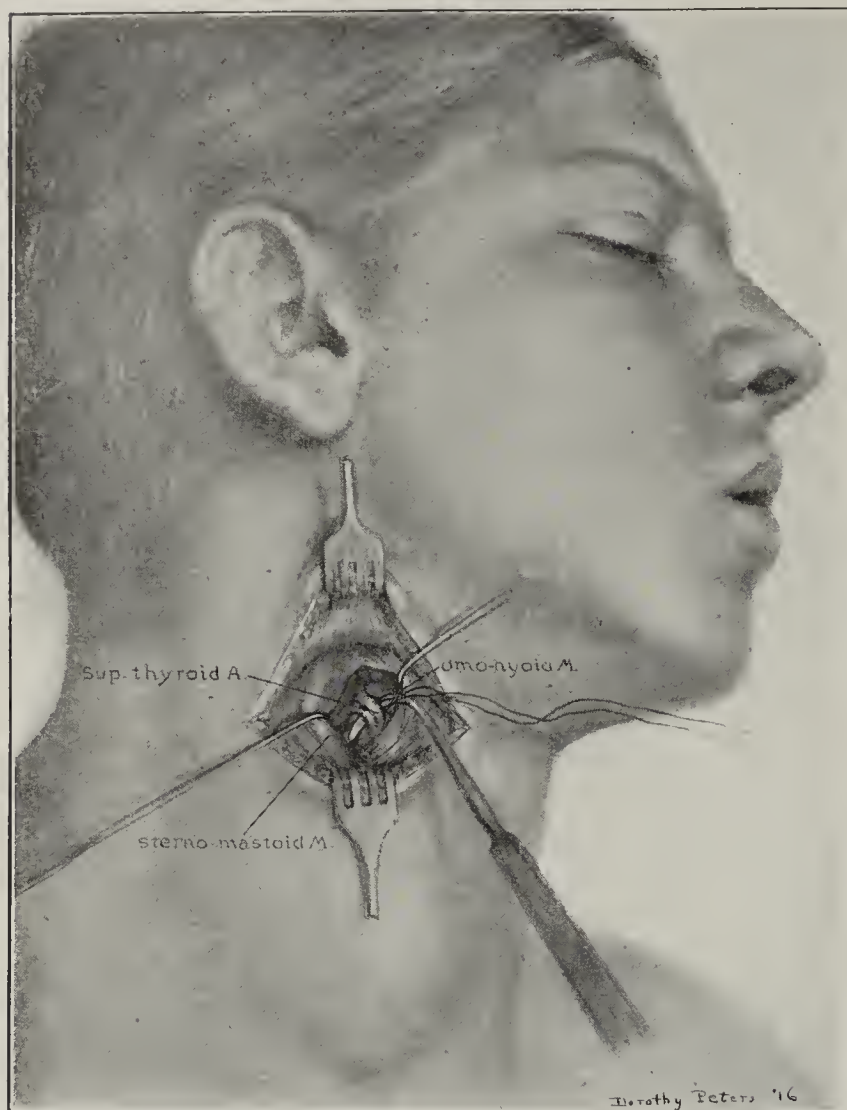


Fig. 10.—Single ligation of superior thyroid artery.

become toxic as there is for removing a mole or similar lesion for fear that it will become cancerous. I would like to emphasize the point that has been made, namely, that there need be little or no fear over the relatively total removal of the thyroid. I have seen a large number of cases in which I or my friends have had reason to regret the fact that they removed too little of the gland. I have yet to see one illustration of a too nearly total removal of the gland.

DR. ROLLO C. DUGAN, Ottawa, Kan.: There are cases in which we have to deal with the end results, cases which are so very bad that we can do but little, as in exophthalmic goiter, and I wish to call attention to two particular methods of technic in these very bad cases: One is the method of hot-water injection, which I think was originated by Dr. Porter. In the old and very feeble, there is no question but what they can be improved immensely with very little shock by the hot-water injection. The other method consists of breaking up of the areolar tissue around the thyroid destroying the lymphatic and nerve supply. It will produce miraculous results in some of these very bad cases. I had one patient who went on the table with the pulse almost uncountable; she had been vomiting continuously for over a month. I had her in the hospital for a week before operation trying to improve her condition. She acted so badly on the table that after I made the collar incision with the intention of removing part of the gland I became alarmed and simply broke up the areolar tissue around the gland. She improved immediately. I saw her again recently. Her pulse was 60, and she was driving her own car and doing the major part of the farm work, her boys having gone to the war. She had absolutely nothing done but the collar incision and the areolar tissue broken up around the gland.

DR. H. J. STEWART, Oak Park, Ill.: I understood Dr. Jones to say that epinephrin would transform a serious case of hyperthyroidism into a comparatively mild one. I would like to know more about that.

DR. C. H. MAGEE, Burlington, Iowa: I wish to say a few words on the anatomy of the gland. Dr. Guthrie showed a few cuts of the ligation of these arteries, and Dr. Mayo referred to the abundant supply of blood to the gland. In my work on the anatomy of the thyroid, I discovered one subject who had a rudimentary superior right thyroid artery and an absent inferior left thyroid. A subject like that might cause a little embarrassment to an operator. In regard to the inferior thyroid in its relation to the recurrent laryngeal: frequently the inferior thyroid runs posterior to the recurrent laryngeal. I have seen a number of subjects in which the inferior thyroid divided and embraced the recurrent laryngeal. I have also seen two subjects in which not only the inferior thyroid divided, but the nerves themselves divided and were interwoven like the canes of a chair. That would offer embarrassment to an operator. The late Professor Cunningham of Edinburgh lays down the dictum that the left recurrent laryngeal lies deeper than the right. I never yet could see the truth of that observation. Most anatomists in this country claim the same. I was pleased with Dr. Guthrie's discussion of the causes of the loss of voice. I believe in a great many cases it is hysteria more than anything else.

DR. EDWIN P. SLOAN, Bloomington, Ill.: I think we must admit that operation on the thyroid is relatively safe. Even those patients operated on by the beginners in thyroid surgery do well. You never see an unsatisfied patient. You see some who are not entirely well, not from the operation, but from the condition that the goiter brought about. I do not think that we ought to try so hard to sort out the different types of goiters. Every goiter is a menace to the patient, and every goiter means disaster some day, so the only question is whether the patient has goiter, and if so, how can we get the goiter out without killing the patient. A great deal too much importance is placed on the diagnosis of the different types, and how to prevent injury to the recurrent laryngeal nerve and a lot of other possible disasters that might occur

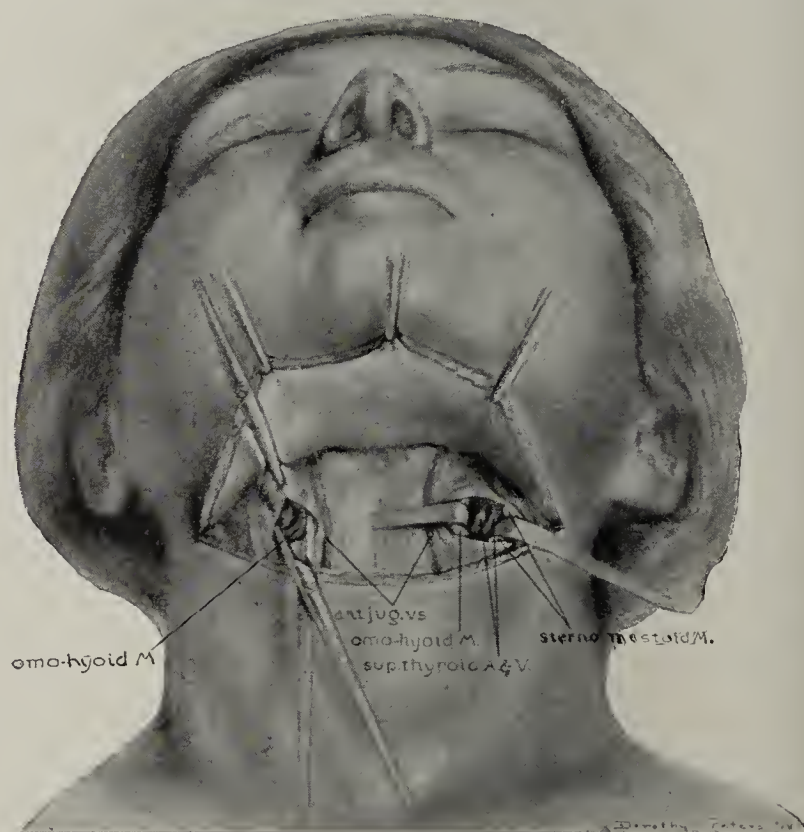


Fig. 11.—Double ligation of superior thyroid artery. High collar incision.

at the time of operation. A goiter operation is safe in the early stages of the disease. It is the most satisfactory surgical operation done today from the standpoint of the patient, consequently of the surgeon.

DR. CHARLES H. MAYO, Rochester, Minn.: Nature endowed us with an oversupply of nearly all of the important glands of the body, the hypophysis, suprarenals, the thyroid, and a reduction of 50 per cent. or more in the adult cuts very little

figure. The loss of the thyroid in the child makes an enormous difference. The vegetative existence of life is from 100 per cent. below normal, which is death, up to 40 per cent. below normal. Through this range of energy output the vegetative existence is carried on by the creatin body that we have just begun to learn something about. From 40 per cent. up to normal the energy output is carried on by the action of the thyroid. We have supply enough on hand from the thyroid to last from eighteen to twenty-one days. We eat food, take in protein, reduce it to sixteen varieties of amino-acids. These amino acids heavily loaded with nitrogen are then broken down liberating the nitrogen which is carried through various chemical forms, and through the action of the parathyroids it is eliminated as urea, in urine. If you break that chain at any point you interrupt one of the most important things in the body in the shape of metabolism. We eat certain foods which produce energy. We can tell exactly how much fuel is burned by the amount of oxygen taken into the blood. We know exactly the amount of carbonic acid and of urea thrown out. Through these studies one can test to an absolute degree the energy output of the body, the burn up of the food. Iodin is important. Give these young people who have large thyroids, iodine and down goes the thyroid. Iodin alone will not make a cretin normal or restore the myxedematous. Iodin passing through the thyroid will.

Sir Arbuthnot Lane may be right in his theory. He works on the lower end and we work on the upper end. Any break in the line of ductless glands means trouble. Admitting for the sake of argument that that break is produced by an infection in the intestine, which, in turn, produces a biologic change which acts on the thyroid. Having then started up the thyroid action, which is like a secondary fire, that fire must be put out. If Sir Arbuthnot Lane is correct, we can work on the thing stirred up by the action of the microbe in the intestine that has produced the secondary effect on the thyroid because otherwise your fire goes on. In the exophthalmic the burning is excessive, not only the protein, but the patients are eating twice as much as other people, and getting poor by burning up their store of protein and fat. That is what happens through the thyroid, and I believe today, from what knowledge we have and our ability to deal with it, it is best dealt with by acting on the gland itself, even though it is considered as a secondary agent.

DR. DONALD GUTHRIE, Sayre, Pa.: I am glad to hear Dr. Sloan say that in former days we attached too much importance to injury to the recurrent laryngeal nerve. However, the anatomic relations of the nerve to the capsule and lower pole of the gland should be emphasized. In the dissections we have made we have found the nerve winding in and out between the branches of the inferior thyroid artery. Trauma in the region of the nerve and trauma to the trachea itself should be avoided. The recurrent laryngeal nerve sends fibers to the trachea itself and loss of voice following trauma to the trachea may be explained in this way. I am convinced the less we traumatize the trachea the less disturbance of speech we will find after operation. It should also be remembered that occasionally a syphilitic patient will lose the voice following operation, but that the voice will be restored with proper antisyphilitic treatment.

DR. EDWARD G. JONES, Atlanta, Ga.: I merely reply to the inquiry respecting the Goetsch test. If a person has over-activity of the thyroid, and 0.5 c.c. of the standard 1:1,000 solution of epinephrin be injected, she will exhibit a much more marked reaction than will a normal person. Blood pressure, respiration, etc., having been noted when the patient is tranquil before the injection is made, it will be discovered that as compared with these preliminary readings there will be an elevation of blood pressure or pulse, or both, of ten points or more after the injection. The objective and subjective findings, such as increased tremor, coldness of hands and feet, throbbing, some apprehension, etc., are brought out quite perceptibly. The degree to which these phenomena attain will be governed by the degree of hyperthyroidism. Taken altogether, the injection of epinephrin will induce an exacerbation of a typical real hyperthyroid syndrome, the attack thus precipitated lasting perhaps an hour and a half.

HYPOPHYSIAL TUMORS THROUGH THE INTRADURAL APPROACH*

A. W. ADSON, M.D.

ROCHESTER, MINN.

My attention was first called to the intradural approach for the removal of hypophysial tumors by Dr. G. H. Heuer of Johns Hopkins Hospital. Dr. Heuer showed me two patients on whom he had operated by this method. I shall not discuss the surgical indications of hypophysial disorders; but in the group of cases in which there were visual disturbances, the improvement following operation has been so marked that we feel that special attention should be called to the surgical treatment. Six patients have been operated on, and drawings are presented which show the tumors in place before their removal. The physiologic and surgical indications of hypophysial

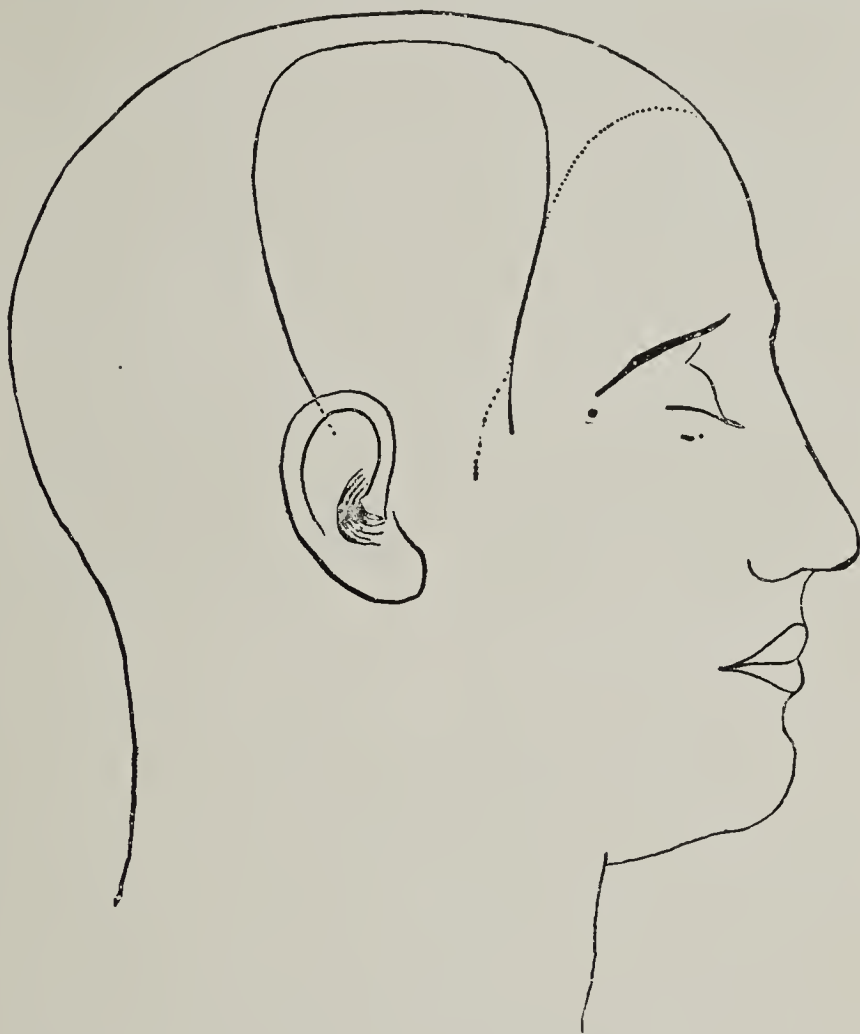


Fig. 1.—Osteoplastic flap previous to exposure of frontal lobe and pituitary gland.

tumors have been described by Cushing.¹ Frazier² has called attention to three surgical indications: (1) subtemporal decompression for the relief of pain; (2) decompression of the sella turcica or removal of the tumor for visual disturbances, and (3) operation on the pituitary body for amelioration of hyperpituitarism.

The first successful hypophysial operation was performed by Schloffer³ in 1907 through the extracranial transsphenoidal approach. Several modifications of this technic have been made by Hirsch,³ von Eiselsberg,⁴ Cushing,¹ Kanavel⁵ and others. In 1893, the

* From the Mayo Clinic.

1. Cushing, Harvey: *The Pituitary Body and Its Disorders*, Philadelphia, J. B. Lippincott Company, 1910.

2. Frazier, C. H.: *Lesions of the Hypophysis from the Viewpoint of the Surgeon*, Surg., Gynec. and Obst., 1913, **17**, 724-736.

3. Quoted by Frazier, C. H.: *Ann. Surg.*, 1913, **57**, 145-150.

4. Quoted by Frazier (Footnote 2).

5. Kanavel, A. B.: *Cysts of the Hypophysis*, Surg., Gynec. and Obst., 1918, **26**, 61-70.

subtemporal operation by the intracranial method was done by Thus,⁶ Caton and Paul.³ Krause,³ in 1905, and Hartley and Kiliani³ in 1904, attempted to expose the hypophysis by bilateral osteoplastic frontal resec-



Fig. 2 (Case 4).—Operative scar, eight days after operation, showing its relation to the hair line. No paralysis of the occipitofrontalis muscle.

tion and ligation of the longitudinal sinus. Kiliani suggested opening the dura as soon as the osteoplastic flap was removed. Frazier,⁷ in 1913, described the trans-frontal approach, which differed from the technic of McArthur⁸ in that the osteoplastic flap was turned in conjunction with the resection of the roof of the orbit. In both the McArthur and the Frazier operations the dura was raised with the frontal lobe and not opened until the anterior clinoid process was approached.

TECHNIC

The technic herein described is of an intradural approach after an osteoplastic flap has been turned from the right frontoparietal region. The dura is opened widely to permit the exposure of the frontal lobe, which is protected with cotton and rubber tissue. The lobe is then elevated gently until the optic commissure and the hypophysis are exposed.

The patient is anesthetized by the inha-

lation drop method and placed on the operating table at an angle of 80 degrees with the horizontal plane. The head is held back in a position to permit the natural gravitation of the frontal lobe from the anterior cranial fossa. The anterior limb of the osteoplastic flap corresponds to the margin of the hair line, and this affords three-fourths inch of space posterior to the external angular process of the orbit, thus preventing injury to the motor branch supplying the frontal division of the occipitofrontalis and guarding against any paralysis of the muscle. The incision is carried upward to the median line three-fourths inch from the longitudinal sinus; it is then extended backward for a distance of $3\frac{1}{2}$ inches and downward over the parietal eminence to a position above the middle portion of the ear (Figs. 1 and 2).

The bleeding in the flap is controlled by the application of a pedicle clamp⁹ at the base of the flap (Fig. 3). The bleeding in the scalp, aside from that in the flap, is controlled by the application of forceps to the aponeurosis (galea) one-half inch apart and turned outward to compress gently the margin of the skin. The forceps are tied in groups and left in position during the operation (Fig. 3). The bone flap is turned by the use of the Hudson drill (the de vilbiss) on the sides and the gigli saw on the upper margin. This produces the beveled effect which assists in holding the flap in place as a lid.

After the dura has been exposed, a flap is made to permit the exposure of the frontal lobe, but it is made at right angles to the osteoplastic flap, which has been broken in the region of the temporal bone and turned downward. The dural flap is permitted to remain in position and to cover the cortex of the brain, and the frontal margin is raised by tension sutures of silk.

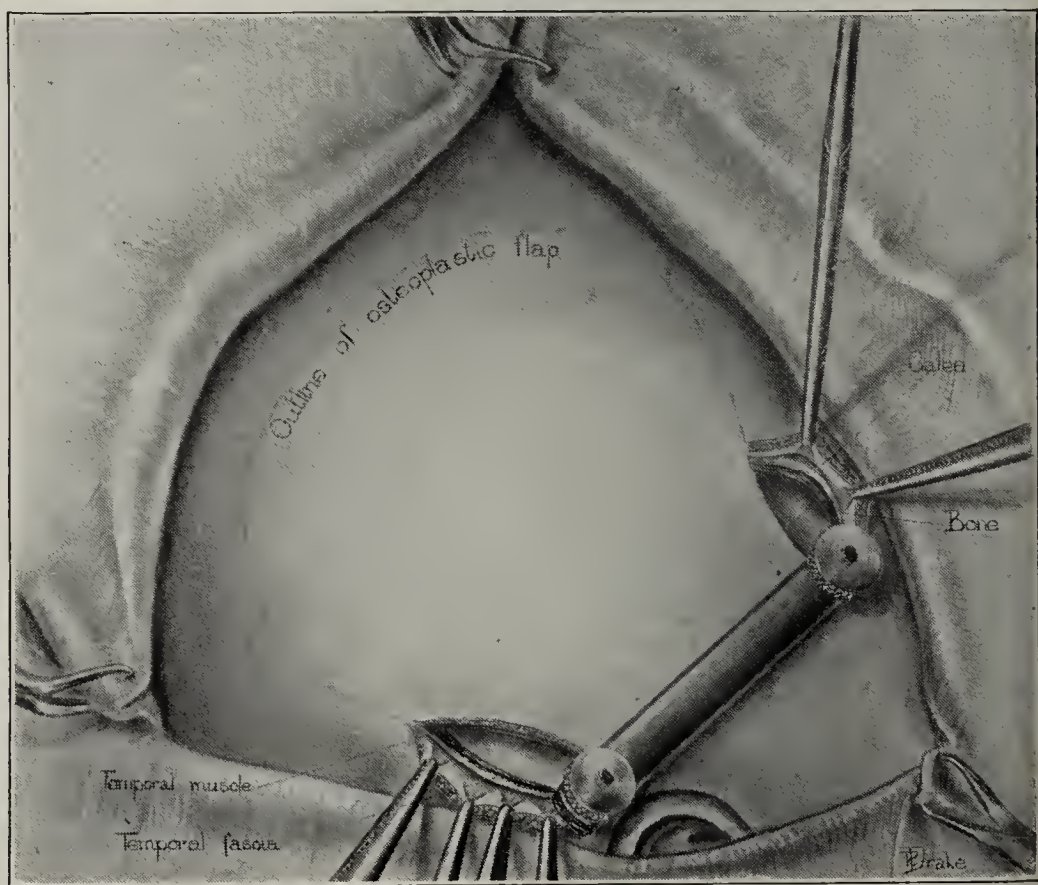


Fig. 3.—Pedicle clamp to control bleeding in the osteoplastic flap. Forceps on the aponeurosis to control bleeding along outer margin of incision.

The brain substance, as well as the exposed dural surface, is covered with warm, moist cotton, which, in turn, is covered by rubber tissue (Fig. 5).

9. I am indebted to Dr. Heuer for the method of applying the pedicle clamp.

6. Quoted by Cushing, Harvey: *The Pituitary Body and Its Disorders*, p 295.

7. Frazier, C. H.: *An Approach to the Hypophysis Through the Anterior Cranial Fossae*, *Ann. Surg.*, 1913, **57**, 145-150.

8. McArthur, L. L.: *An Aseptic Surgical Access to the Pituitary Body and Its Neighborhood*, *THE JOURNAL A. M. A.*, June 29, 1912, pp. 2009-2011.

In the elevation of the frontal lobe, rubber tissue strips are placed gently over the convolutions in a shingle effect in order to give a uniform pressure over the cortex as it is elevated by the retractor¹⁰ (Figs. 5 and 6). There is very little difficulty with bleeding during this process; occasionally there is a small venous communication between the cortex and the dura. With gentle manipulation the optic commissure and the hypophyseal body are readily exposed. Important landmarks during the elevation of the frontal lobe are the anterior cranial fossa, the margin of the lesser wing of the sphenoid to the anterior clinoid process, the right optic nerve, and the internal carotid artery. The procedure is then carried on mesially until the commissure as well as the left optic nerve and the hypophyseal body are brought into view (Fig. 7). A gentle dissection of the tumor is then begun with blunt hooks to free it from the commis-

dyspnea. The general examination was negative except for hypertension. The systolic blood pressure was 210, the diastolic 114. The urine, blood and Wassermann tests were

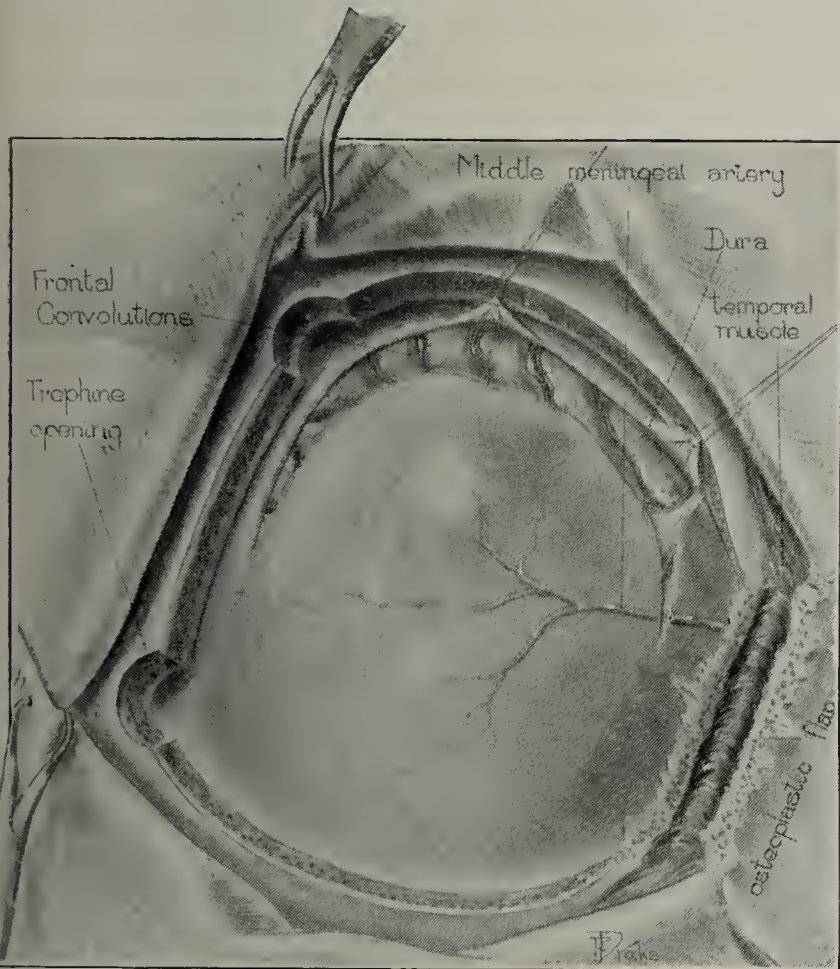


Fig. 4.—Exposure of the dura, which is divided along its anterior margin to permit the exposure of the frontal lobe.

sure, nerves and surrounding tissue. Usually the tumor is definitely encapsulated, and if freed from the constricting bands, it is readily elevated. In case there is slight bleeding, it is controlled by very small pledgets of cotton guarded by long strings of silk to prevent their loss. As the tumor is freed from the surrounding structures (Fig. 8), a septile snare is applied to its pedicle, which is gradually constricted to control the bleeding and to remove the tumor mass (Fig. 9). The further removal of the pituitary body from the sella turcica may then be continued.

REPORT OF CASES

CASE 1. (201188).—Mrs. J. J. L., a housewife, aged 50, examined, July 18, 1917, for the past fifteen months had noticed a gradual failing in vision, particularly a narrowing of the temporal fields. She was unable to see approaching objects from the side. She also complained of marked

10. This retractor is arranged with a small laryngoscopic light which illuminates the region of the optic commissure much better than a reflector or head light. The retractor is similar to the one used by Frazier. We have also made a curet forceps to scoop out the cellular tissue from the sella.

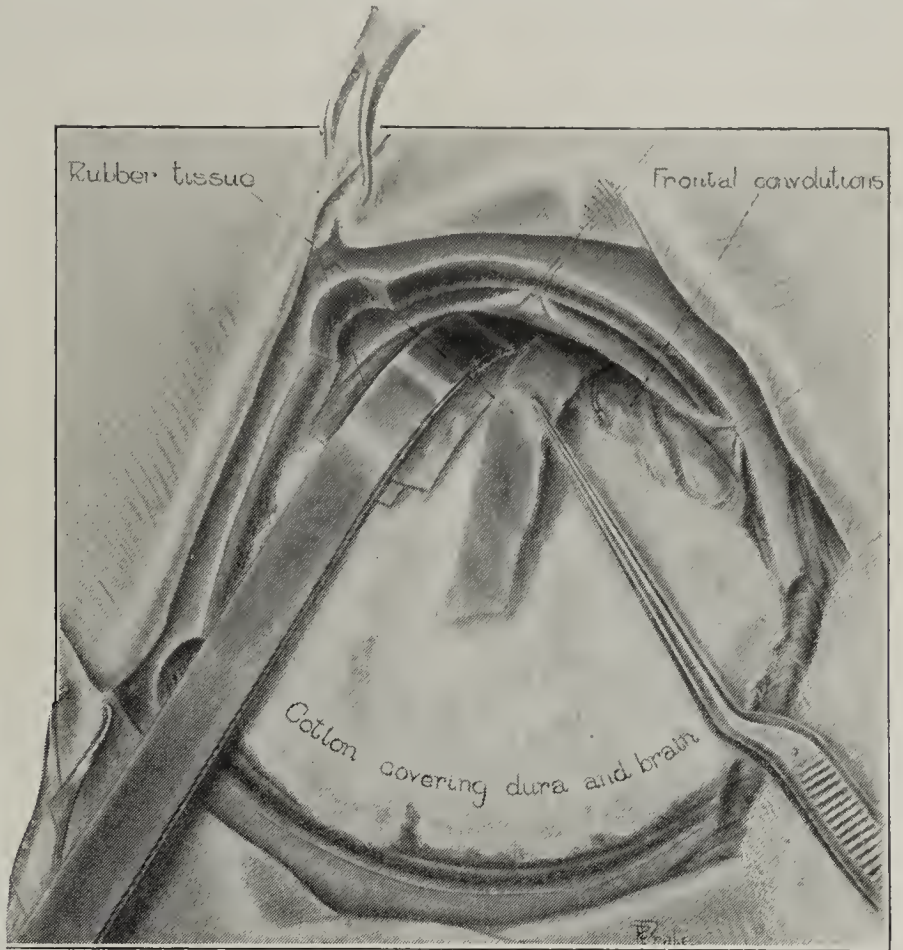


Fig. 5.—Elevation of the frontal lobe with the insertion of rubber tissue strips, which are applied as a protection to the brain cortex.

negative. The combined functional phenolsulphonephthalein test was 60 per cent. in two hours. The roentgen examination of the head revealed the sella to be moderately enlarged. The nerve heads of the eyes were slightly pale, the physiologic cup deep and broad, and the arteries small. The tension by the Schiötz tonometer was 18 in both eyes. The left

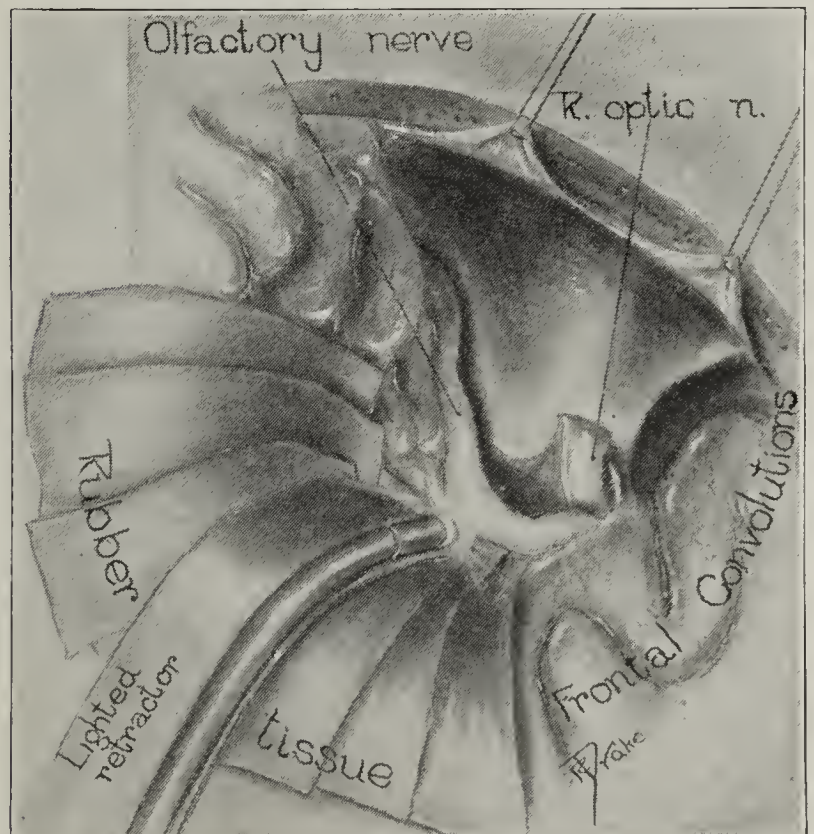


Fig. 6.—Elevation of frontal lobe, exposing right olfactory nerve and right optic nerve prior to exposure of pituitary tumor.

temporal field presented an absolute hemianopsia with constriction on the nasal side. In the right temporal field there was hemianopsia except for a slight vision on the lower temporal margin. The nasal field was quite normal. Operation was performed, Aug. 22, 1917. On exposure of the hypo-

physial region, a pituitary tumor about an inch in diameter, soft but well encapsulated and bluish gray in appearance, was found. The tumor was situated in the sella and seemed to rise under the left optic nerve. On removal of the mass some erosion was noted in the right margin of the sella. About one fourth of the normal gland was left in the sella. The patient's postoperative convalescence was uneventful. Eight fields were made from the time of operation until September 29, when there was a complete return of normal object as well as color fields. In a letter from the patient three months after the operation, it was stated that vision was still perfectly normal (Figs. 7 and 8).

CASE 2 (207683).—Mrs. A. E. S., a housewife, aged 28, examined, Oct. 11, 1917, complained chiefly of blindness, most noticeable in the left eye, and with a gradual diminution of vision on the sides. This began twelve months previous to examination. Three and one-half months previously there had been rapid loss of vision in the left eye. Four months previous to her examination, the menstrual flow ceased and did not return. There was no pregnancy. She complained

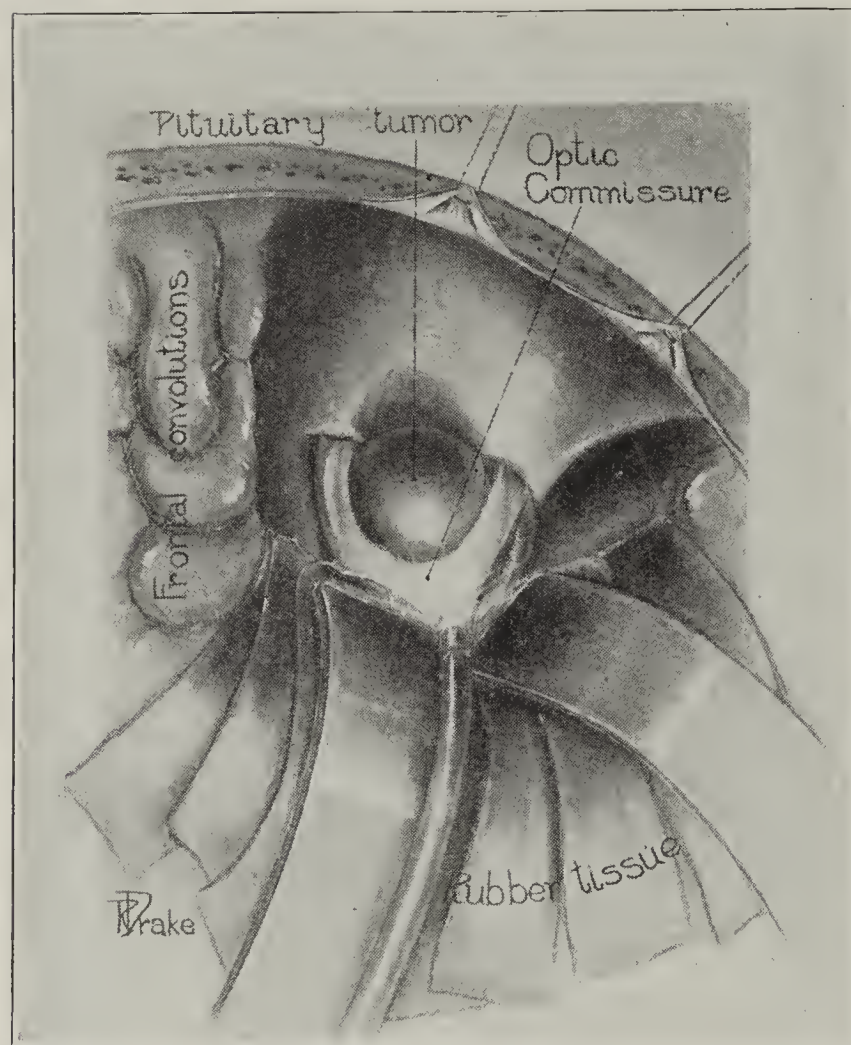


Fig. 7 (Case 1).—Exposure of pituitary tumor, with relation to optic nerves and commissure with a bitemporal hemianopsia, which is more marked in the left eye.

more or less of marked drowsiness, and slept much of the time. She had gained in weight in the last four months, and her hands and feet had become slightly enlarged so that she was obliged to increase the size of gloves and shoes. The systolic blood pressure was 100, the diastolic 64. The urine, blood and Wassermann tests, and the roentgenogram of the sella were negative. The vision in the right eye was $\frac{2}{200}$; there was no vision in the left eye. The right nerve head was pale on the nasal side; the margin was well defined. The fields were absent on the left, and there was absolute temporal hemianopsia on the right. Operation was performed, Oct. 1, 1917. On exposure of the hypophyseal body, a dark red nodule, about three-fourths inch in diameter and completely encapsulated, was found situated anterior to the optic commissure, but beneath it and elevating the left optic nerve as well as the commissure. The right optic nerve was one and one-half times the normal size, and edematous. The tumor was very adherent to the sella on the anterior side. A small amount of the gland, about one-fourth the normal,

was left in the sella. Immediately following the operation, the patient developed a very high temperature (106) which continued until death, at the end of thirty hours. At necropsy, when the osteoplastic flap was reflected, a considerable amount of soft, dark, clotted blood adherent to its under surface was found. The leptomeninges were clear. There was no accumulation of blood inside the dura except a slightly blood-tinged serum down in the region of the sella. There was a marked general edema of the brain with a free flow of cerebral fluid from the right ventricle, which had been tapped during the operation to relieve the pressure and to permit a better exposure (Fig. 10 c).

CASE 3 (207279).—J. L. W., a cashier, aged 42, examined, Sept. 7, 1917, first noticed ten years previously that he had lost vision in the right eye. One year previously, vision began to fail in the left eye, incapacitating him for work for the last eight months. The systolic blood pressure was 159, the diastolic 101. The blood, urine and Wassermann tests and the roentgen examination of the sella were negative. The right nerve head was perfectly white, and there was an absence of visual field but no other fundus change. The nerve head of the left eye was markedly pale along the nasal side. The vision was $\frac{3}{200}$. There was blindness of the right eye and a constricted left temporal field, about one third of the normal. No field whatever could be obtained with a candle on the right side. On operation, Oct. 10, 1917, a large, grayish red tumor about an inch in diameter was exposed under the right optic nerve and optic commissure, making it necessary to dissect the fibers of the nerve out of the pituitary mass. A very small portion of the pituitary body, about one fourth of a normal gland, was left in the sella. There was very rapid progress and a return of the left temporal field with light and perception of moving objects in the right eye at the end of three weeks. When the patient reported for examination three months later, there was marked improvement in the left eye, and he was able to see objects and to read large letters with the right eye, showing a decided improvement in the upper four fifths of the nasal field as well as the outer, upper quadrant of the temporal field. The blue and red color fields had also partially returned (Fig. 10 a).

CASE 4 (210605).—Mrs. T. E. B., a housewife, aged 38, examined, Oct. 12, 1917, complained chiefly of eye trouble and abnormal enlargement of the feet, hands and face. The patient had had amenorrhea since the birth of her last child, eight years previously. The visual disturbances dated back five years, the time of onset of the present acromegalic syndrome. The trouble had been progressive with visual disturbances in the left eye, for the year preceding examination. She had been unable to see sufficiently to sew or to do fine work for several weeks. The general examination presented a typical picture of acromegalia. The systolic blood pressure was 110, the diastolic 80. The urine, blood and Wassermann tests were negative. The roentgen examination of the head

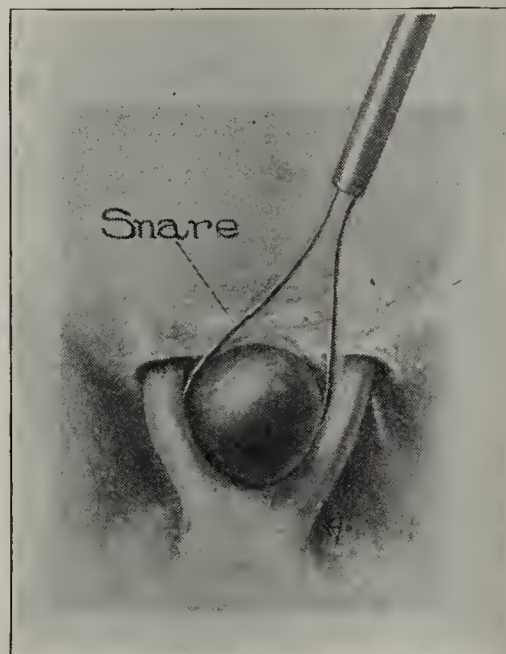


Fig. 8.—Placing the snare about the pedicle of the pituitary tumor.



Fig. 9.—Appearance of sella after tumor has been removed.

revealed a markedly enlarged sella. The field in the right eye was quite normal as to object and color; the left temporal field, as well as the margin of the left nasal field, were markedly constricted as to moving objects, and there was a complete absence of color fields. The fundus of each eye was negative. At operation, Oct. 25, 1917, a very soft, grayish pituitary tumor about one-half inch in diameter was found underneath the commissure and pushing upward slightly toward the left optic nerve. The tumor was completely removed and the sella curetted, leaving no possible trace of pituitary substance. The patient was immediately put on a pituitary extract, continued in alternating periods of ten days. Her recovery was rapid. There was a return of the color fields in the left eye, and considerable change in the tissue of the face, hands and feet at the end of three weeks. The mentality, which was very slow previous to operation, had greatly improved. The patient reported by letter about two months after operation, and stated that vision remained clear, that she was feeling better than she had for years, and that the swelling of the hands and feet was gradually diminishing (Fig. 10 *b*).

CASE 5 (45560).—Miss M. L., aged 36, examined Oct. 23, 1917, two and one-half years before had had severe pain in the right side of the head, associated with a failing vision in the right eye which progressed until it was complete one year previously. Within the last year, vision in the left eye had almost completely failed. At about the time the visual disturbances appeared, the menstrual flow stopped abruptly. There had been occasional vomiting, with perversion of taste and smell. The systolic blood pressure was 104, the diastolic 78. Urine, blood and Wassermann tests were negative. Roentgen examination revealed the sella apparently greatly enlarged, and erosion of the posterior clinoid process. There was pallor of the right optic disk with complete blindness, an absolute temporal hemianopsia of the left eye, pallor of the nasal side of the optic disk, and a low grade of optic neuritis of the whole left nerve head. There was no swelling of either nerve head. A diagnosis was made of a basal tumor either coming from, or encroaching on, the pituitary gland. An exploratory operation through this pituitary route was advised and performed Nov. 1, 1917. The hypophysial mass, which was situated under the right frontal lobe and very adherent to it, was exposed, but it was impossible to get below the tumor. The optic nerves could be seen, but only a partial removal of the tumor was accomplished because of the hemorrhagic condition. The postoperative convalescence was uneventful, but no benefit was derived from the operation except the relief from pain, which was obtained from the large decompression made at the base of the osteoplastic flap (Fig. 10 *e*).

CASE 6 (219123).—D. A., a girl, aged 9 years, examined, Jan. 1, 1918, for the past four years had had diabetes insipidus without glycosuria. Visual disturbance began three months previously with marked and progressive disturbance in the left eye. At the time of examination there was almost complete loss of vision in the left eye, and shortly afterward a marked loss of vision on the temporal side in the right eye. There had been nausea, vomiting, and mild headaches over the left eye. The child appeared exceptionally bright, and was well nourished. A twenty-four hour specimen of urine, 1,800 c.c., showed alkaline reaction, specific gravity 1.005, and a slight trace of albumin. The blood and Wassermann tests were negative. Roentgenoscopy revealed enlargement of the sella, and a thinness of the posterior clinoid process and base. The left temporal field showed very slight light perception. The nasal field presented a marked constriction with distortion. The left nerve head was swollen to the extent of 2 diopters; the veins were tortuous. An absolute temporal

hemianopsia was present in the right eye, and in the fundus were a small disk, hazy, tortuous veins, and hyperemia of the nerve head. There were no hemorrhages in either eye. Operation was performed, Jan. 24, 1918, and a pituitary tumor about an inch in diameter was found underneath and bulging up over the optic commissure. It had originated from the pituitary gland and was extremely adherent to all the surrounding structures, with, however, a definite line of demarcation. In two places the growth had broken through the capsule and had become adherent to the brain substance. The tumor was removed with considerable difficulty, since it was impossible to get all of it from underneath the commissure. Because of the increased pressure on the brain, it became necessary to drain the lateral ventricle. There was marked progress in the return of the visual fields; the patient could

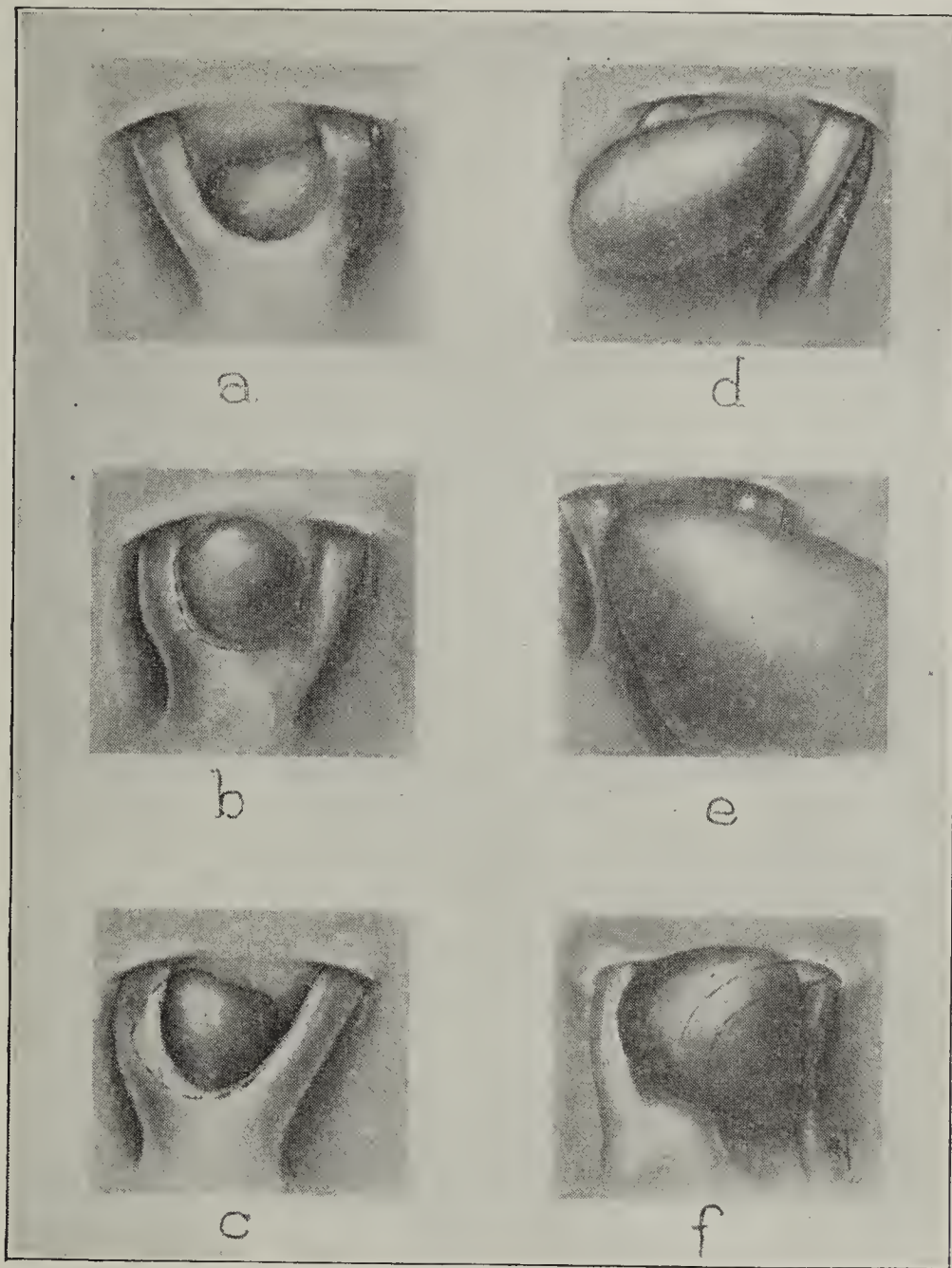


Fig. 10.—Exposure of pituitary tumor, with its relation to the optic nerves and commissure producing: *a* (Case 3), total blindness of the right eye with a left temporal hemianopsia; *b* (Case 4), contracted left temporal field associated with typical symptoms of acromegalia; *c* (Case 2), total blindness of left eye and hemianopsia of right eye; *d* (Case 6), total blindness in left eye with temporal hemianopsia of right eye; *e* (Case 5), total blindness in right eye with a temporal hemianopsia in left eye, and *f* (Case 7), exposure of an intracranial projection of nasopharyngeal sarcoma producing total blindness in right eye and temporal hemianopsia in left eye.

read with the left eye at the end of two weeks. Improvement of the right temporal field was slower than in the usual case. Eight weeks after the operation the patient was doing well, but the visual improvement was still slow (Fig. 10 *d*).

A case of nasopharyngeal tumor with intracranial projection (Fig. 10 *f*) producing visual disturbance is presented as a means of comparison.

CASE 7 (216363).—F. A. A., a man, aged 33, examined, Dec. 1, 1917, three years previously had noticed partial blindness in the right eye, and two and one-half years later vision

completely failed. There had been no other disturbance since that time until three weeks previous to examination, when the patient complained of vertigo and headache. The systolic blood pressure was 112, the diastolic 100. The urine and Wassermann tests were negative. A roentgen examination of the sella revealed complete erosion with destruction of the sphenoid body and cells. There was complete blindness in the right eye, absolute temporal hemianopsia in the left, a marked right optic atrophy and hyperemia of the left nerve head, but no swelling and no other fundus changes.

SUMMARY

In two of the group of six cases, the patients presented very definite bitemporal hemianopsia, with more or less complete loss of vision in the left eye. One patient had a complete loss of vision in the right eye for a period of ten years, and a left temporal hemianopsia; one presented a typical acromegalic syndrome with a temporal color hemianopsia and constricted object field; one had bitemporal hemianopsia with more or less distorted fields in the left eye, and one had blindness in the right eye with definite neighborhood symptoms producing a frontal lobe syndrome of pressure and localization, involving the uncinate gyrus. Postoperative convalescence was uneventful

SPOROTRICHOSIS RESEMBLING TUBERCULOSIS CUTIS

REPORT OF A CASE *

J. S. EISENSTAEDT, M.D.

Instructor in the Department of Dermatology, Northwestern University Medical School

CHICAGO

A case of sporotrichosis occurring in a robust young man who appeared before the Medical Advisory Board at Wesley Memorial Hospital was referred to me for diagnosis.

REPORT OF CASE

History.—The patient stated that before the appearance of any cutaneous lesions he was operated on for supposed tuberculous glands of the neck. He stated that a small nodule appeared on the flexor surface of his right wrist about twenty-seven months previously. The nodule was about the size of a pea when first noticed and was painless. It gradually enlarged and became harder in consistency. It finally reached a maximum size of that of a hazelnut, then gradually became softer and eventually suppurated, discharging a viscid bloody pus, leaving a shallow ulceration of the skin which



Fig. 1.—Inner aspect of right arm showing lesions of sporotrichosis in various stages of development.

and rapid in all but one case, in which the patient died on the second day. In two cases there was complete restoration of vision, in two marked improvement in vision, and in one a relief from headache. In the case of blindness in the right eye which was complete for ten years, the patient has begun to have a return of vision. The patient with acromegaly is having metabolic changes. In five cases there has been definite improvement. In one, no visual improvement, but relief from pain was obtained.

The particular advantages of the operation are: 1. Its approach presents a dry field, free from infection and in which it is comparatively easy to expose the optic commissure and the tumor. 2. The exposure permits the dissection of the tumor from the optic nerves and the commissure, and the removal of all or any portion of the tumor and pituitary body that is desired. 3. Trauma of the commissure and nerves is prevented, as the sponging is done against the floor of the sella instead of working upward against the commissure and nerve peduncles. So far as the operative risk is concerned, it is no greater than in craniotomies on the frontal lobe, depending a great deal, no doubt, on the experience of the operator.

later apparently healed and then broke down and at the present time is still active. Coincident with the development of this primary lesion other lesions developed higher up on the right arm to the shoulder without any definite systematic arrangement or occurrence. Lesions of the same character and running a similar course developed on the left arm and now again on the right and left leg. Some of the latter have healed. There has been no deterioration in the patient's general health. There was no febrile reaction and no other symptoms except some pain on pressure over the lesions.

Examination.—The patient, aged 21, was a healthy, robust youth. On the right arm there were several lesions varying in size from a quarter dollar to larger than a 50-cent piece. The lesions were in various stages and the most recent had been present about ten weeks. For the most part the lesions were covered with a dark yellow to blackish crust, which when removed left a superficial ulcer somewhat smaller than the crust removed. The ulcers were sharply defined, irregular in outline, with slightly undermined livid red walls. The bases presented several pale, elevated granulations and an occasional yellow miliary abscess was noted. On the inner surface of the right arm at the level of the juncture of the middle and upper thirds of the humerus was a thin, pigmented, movable scar representing the site of a former lesion.

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

The lesions were surrounded by a pigmented zone and were slightly, if at all, infiltrated. They did not follow anatomically nor with any definite sequence the course of the lymphatics, nor were the lymph glands markedly enlarged.



Fig. 2.—Posterior aspect of left arm showing heavily crusted lesions grouped about elbow joint.

Lesions of the same character were present on the left arm and were especially grouped about the elbow joint.

At the time of our second examination several of the lesions were in process of softening, the skin above was blue-red and the consistency of the nodule itself was elastic. On the right leg above the ankle joint was a scar similar to that described on the right arm. Another was present on the external surface of the thigh. These scars were thin, movable and pigmented. The general physical examination of the patient was negative. The temperature was 98.6 F., pulse 72, leukocytes 8,600, and hemoglobin 90 per cent.

Bacteriologic Examination.—Direct smear from the lesion, a miliary abscess having been opened, revealed leukocytes but no fungi or bacteria. Neither mycelia nor spores were present. A plain bouillon tube was inoculated as well as an agar slant, there being no maltous medium at hand at the moment. Growth on these mediums began on the sixth to seventh day and showed small, grayish-white colonies with smooth, moist surfaces. The colonies were surrounded by a narrow grayish zone of ray-like hairy projections. As the colonies grew in size the center became sunken and from it emanated many furrows toward the periphery. The areola became wider and the area of the colony much greater. Later the whole gradually assumed a convoluted appearance not unlike that of the brain. In bouillon, colonies appeared as minute puffballs. Subcultures on Sabouraud's maltose agar very promptly developed a marked pigmentation. Also subsequent subcultures were pigmented from the time of inoculation. As is characteristic, the subcultures all grew very rapidly and especially so on a favorable medium, like maltose agar. The original culture on plain agar was still unpigmented. A hanging-drop made on the eighth day from the bouillon culture showed beautifully branching septate mycelia with pear-shaped spores attached. The appearance of the cultures in every respect was identical with sporotrichon, as described by Schenck, Hektoen, and Hyde and Davis. The mycelia were from 20 to 40 microns long. The protoplasm was granular and stained by the Gram method. The pear-shaped spores present between the interlacings of the mycelial filaments were from 5 to 6 microns long and from 3 to 4 microns in width and were numerous. A white rat was inoculated intraperitoneally.

Biopsy.—A microscopic section made from one of the lesions revealed nothing distinctly characteristic. The histology was that of an infectious granuloma and showed many plasma cells. Giant, epitheloid and round cells were present in the usual arrangement found in other infectious granulomas. Microscopic abscesses were the only lesion which would suggest a diagnosis of sporotrichosis from the microscopic section alone. No necrotic areas were found. The blood vessels were very numerous in the lesion. Serum from the patient reacted positively with antigen from this and the last case seen here in Chicago. For the report on the complement fixation, I am indebted to Dr. J. J. Moore.

Treatment.—The patient was promptly put on increasing doses of sodium iodid, which unfortunately caused him greater annoyance than the disease. Following the use of compound solution of cresol locally, as recommended by Ravogli, as well as copious moist dressings of mercuric chlorid, 1:5,000, solution, some improvement was noted.

DIAGNOSTIC CONSIDERATIONS

The case in question, I believe, would fall under the heading of disseminated ulcerative sporotrichosis, which is undoubtedly of hematogenous character and which frequently, as in this case, is not associated with any trauma which the patient recalls. In this type of disease there is no characteristic *chancre sporotrichosique* present and the lesions do not follow



Fig. 3.—Massive culture of sporotrichosis grown on Sabouraud's medium.

the lymphatic channels with regularity. The lesions in the case under consideration resembled most those of tuberculosis of the hypoderm as recently described, and also looked very much like ecthyma. The tonsils or elsewhere in the pharynx seems to have been, in

this instance, the possible site of entrance for the infection.

The important diagnostic features to be borne in mind are that sporotrichosis when affecting the cutaneous surface may appear in a variety of forms and that the so-called localized type in which the lesions appear along the course of the lymphatics on the extremity which carries the initial chancre is only one of the forms. Sporotrichosis, besides causing the variety described in this brief paper and the localized type, may cause a disseminated nonulcerative form and likewise combinations of the three. Some cases begin as the localized form and progress, by way of the lymphatics, for a considerable period of time and then develop lesions at remote regions when the organism finds its way into the blood stream.

One should consider seriously sporotrichosis in the differential diagnosis of lesions of gummatous-like or nodular character which are indolent, painless, and which persist over a considerable period of time in spite of the ordinary treatment directed against the usual types of bacterial infections. Especially so, when the general condition of the patient does not seem to be reduced.

The disease occurs particularly in people living in rural districts and among farmers. It has been noted equally as frequently in association with trauma as when no such association was noticed. It has been observed at all ages and more especially in men. The bacteriologic diagnosis is so simple and usually so definite that excuses for faulty diagnoses can hardly be accepted, because even when laboratory facilities are lacking, the fungus grows readily on potato. I firmly believe that many cases have gone undiagnosed on account of the neglect of this simple bacteriologic technic.

25 East Washington Street.

ABSTRACT OF DISCUSSION

DR. FREDERICK G. HARRIS, Chicago: I saw this patient, but I did not think it was a case of sporotrichosis. Tuberculous glands had been removed previously and the skin lesions looked like tuberculosis of the hypoderm, as described by Wende, hence I made that diagnosis.

DR. K. A. ZURAWSKI, Chicago: I have seen quite a few cases of this type, both the ulcerative cases and the cases of chancre type. Many of the cases have occurred among workers in the gardens around Chicago; one occurred in a baker. The cases were very easily treated, but I used cyanid of mercury instead of chlorid locally. The iodids internally usually clean up the lesion. One should never forget that sporotrichosis is a systemic disease in many cases. In one of my cases sporotrichosis of the lung has developed. It is a good plan to inquire into the history, and if there is any cough, examine the sputum. As far as the organism itself is concerned, about seven varieties of definite sporothrix are recognized at present. I have met but one that I am sure of, that of the de Beurman type. I have seen one of the type of Doro, of which the slide was brought to me. I did not see the patient.

DR. RICHARD L. SUTTON, Kansas City: Our French brethren have an unfortunate habit of dividing and subdividing these pathologic conditions and then winding up by attaching some scientist's name to each particular one of the supposed forty-seven different varieties. Meyer and Aird believe that the *Sporothrix schenckii* is identical with the *Sporothrix beurmanni* and suggest for the American strains of sporotrichia the designation of "*Sporothrix schenckii-beurmanni*." With regard to the treatment, some of the cases have a tendency to become pulmonary, or even systemic, and it is very unwise to expose the patient to so grave a generalized infection. Con-

sequently, I should advise large doses of iodine, given intramuscularly or subcutaneously, in this case reported by Dr. Eisenstaedt.

DR. AUGUSTUS RAVOGLI, Cincinnati: I had a case of sporotrichosis which I published some time ago under the title of "Sporotrichosis of Tuberculoid Type." The patient was a young woman who was working in a grocery store, labeling boxes. She was treated for ulcerated gumma. When she came to me the lesion was a gangrenous patch on the flexor surface of the elbow joint. After continuous bathing with mercuric chlorid it improved. I found the characteristic mycelium and the ovoid spores. I made a culture and obtained the *Sporothrix schenckii*. The appearance was entirely different from the ordinary cases of chancre sporotrichosis with the little black abscesses. This was in a mass, and for this reason I made the diagnosis of a sporotrichosis of tuberculoid type. The girl inoculated her forehead from the lesion on her forearm, but fortunately this healed in a short time. I used large doses of potassium iodid internally, together with an iron tonic, and locally applications of liquor cresolis compositus in full strength. Every day the area was bathed with mercuric chlorid, 1:2,000, and dressed with an ichthyol ointment. I secured a perfect recovery.

DR. J. S. EISENSTAEDT, Chicago: Since the paper was written the patient has received intramuscular injections of a 25 per cent. iodine solution.

Clinical Notes, Suggestions, and New Instruments

RUPTURE OF CESAREAN SCAR DURING PREGNANCY: REPORT OF A CASE

CARL R. HOWSON, M.D., REDLANDS, CALIF.

The patient was a Mexican woman, aged 24, and had been pregnant seven months. Nine months previously she had been delivered by cesarean section, and made an uneventful recovery, with the exception of a slight superficial infection in the abdominal wound.

I was called to see her on a Saturday evening. About 2 p. m. the previous day, while at stool, she had been seized with pain in the abdomen of such severity that she was unable to move. Her physician was called, and finding her apparently in good condition she was put to bed and a mild anodyne administered. About midnight the pain recurred in paroxysms of great severity, and her physician was again sent for. He advised immediate removal to a hospital for laparotomy, but the advice was declined. She was catheterized at this time. The next forenoon he called, and again urged her removal to the hospital, but to no avail.

On my arrival at 9 p. m. that evening I found the patient in a semirecumbent position, bright, and feeling little pain or weakness; her temperature was 98.6; the pulse was 130 and of good quality. She had passed no urine since midnight, and had felt no fetal movement during the day. On the abdomen was a large, broad and slightly irregular cesarean scar. Distention and tenderness were such that no information could be obtained as to internal conditions beyond the absence of the fetal heart sounds. Immediate removal to the hospital for laparotomy was advised, and finally agreed to, and the case then passed out of my hands.

On arrival at the hospital shortly after midnight her temperature was 98.6 and her pulse 110. She was catheterized, and 300 c.c. of urine with a trace of albumin were withdrawn. The house physician disagreed with the diagnosis that had been made, considering the case one of toxemia in which conservative treatment was indicated, and accordingly instituted. Her condition remained unchanged that day, and the following day, Monday, a diagnosis of dead fetus was made. She was anesthetized to permit of the introduction of a colpeurynter, but became so cyanotic that the anesthetic had to be discontinued and the bag introduced without it. As no pains set in during the ensuing twenty-four hours, an attempt was made to dilate manually under anesthesia, but

the patient succumbed as soon as she was fully anesthetized. During these two and one-half days her pulse ranged between 110 and 120.

Necropsy revealed the fetus lying in the abdominal cavity with the membranes and placenta intact. The uterus was contracted and in the pelvis, the fundal portion of the scar having ruptured. The amount of blood present indicated that the hemorrhage had been relatively slight.

It is noteworthy that this woman sustained a partial rupture of the uterus ten hours before the complete rupture and extrusion of the uterine contents, and that she lived more than eighty hours after the latter occurrence.

STREPTOCOCCIC MENINGITIS IN THE MOTHER AND CHILD IN UTERO: REPORT OF A CASE *

G. B. KRAMER, M.D., AND WILLIAM B. WRIGHT, JR., M.D., ST. PAUL
Pathologist and Assistant to the Superintendent, Respectively,
City and County Hospital

That the pregnant mother transmits infectious diseases to the child in utero is known. The transmission of measles, scarlet fever, variola, typhoid fever, malaria, recurrent fever, erysipelas, cholera, bubonic plague, anthrax, tuberculosis, syphilis and pus infection from the mother to the child in utero have been reported, but this case is an exceedingly interesting one, especially for those who are interested in the elective localization of streptococci.

REPORT OF CASE

History.—A. C., a white woman, aged 24, admitted to the City and County Hospital, St. Paul, April 12, 1918, had been complaining of backache since Jan. 1, 1918, and since that time had been treated by her local physician. The nature of the treatments were unknown to the patient's sister, from whom the history was obtained. About ten days before admission to the hospital, the patient complained of a cold, backache, sore throat and pains in the chest. She was unable to leave her bed and became delirious. Physical examination in the hospital revealed that the patient was pregnant, possibly of eight months' duration. The cervical and inguinal glands were palpable. The pupils were dilated and reacted sluggishly to light. The breath sounds were rather harsh, and some râles were heard over both lungs which were thought to be due to congestion. The temperature was 105, the pulse 140, and leukocytes 17,000. The patient died on the day of admission before a definite diagnosis had been made. The necropsy was performed by Dr. G. B. Kramer, April 13.

Abstract from Necropsy Findings.—The body was well developed and was well nourished. The pupils were dilated and were equal in size. The heart muscle was soft, and pale red. The lungs were congested and edematous. There was congestion of the stomach and intestine. The kidneys contained pinpoint hemorrhages, and on section the parenchyma was found to be cloudy and swollen. The uterus was bluish red, large and soft, and from it a well developed fetus was removed. The cervix was congested and contained mucus. The fetal membranes were intact and the placenta appeared normal. The meninges were congested. The brain was edematous and congested, and the entire cerebral hemispheres, extending from the sylvian fissures to the occipital region, were covered with greenish-yellow pus. The accumulation of pus was more marked on the right side. Smears from the pus made on the spot contained streptococci which by culture proved to be the *Streptococcus pyogenes-hemolyticus*.

The fetus, a male, was well formed, well nourished and was 40 cm. (about 16 inches) long. Nothing pathologic was noted in the thoracic and abdominal viscera. The cranial sutures were well separated. The fontanels were bulging. The meninges were congested and slightly edematous. The base of the brain, including the cerebellum, was covered with a light greenish-yellow pus. The ventricles of the brain were

not dilated. Smears made from the pus contained streptococci of the same type described above.

COMMENT

Rosenow and others have proved that in a large percentage of cases streptococci isolated from lesions of certain parts of the human body will, when injected into an animal, localize in similar parts and produce like lesions in the animal. This case of meningitis in the mother and child in utero, as it appears to us, demonstrates a genuine case of elective localization of streptococci in the human body.

REPORT OF A CASE OF ANAPHYLACTIC SHOCK, WITH FAILURE TO DESENSITIZE BY INTRASPINAL ADMINISTRATION OF SERUM

LEWIS FOX FRISSELL, M.D., NEW YORK

This case of anaphylactic shock in cerebrospinal meningitis is reported in order to record the failure of serum administered intraspinally to desensitize the patient to its intravenous administration.

The patient, a woman, aged 40, first seen by me one week after the onset of her illness, had had severe headache, with moderate temperature, at first declining and then rising, on the day when first seen, April 13. No focal meningeal symptoms had been observed. On the date of admission, April 13, her temperature was 104, pulse 90, and respiration 20. Physical examination revealed only a moderately rigid neck, absent patellar reflexes, and positive Babinski and Oppenheim reflexes on the right side. Kernig's sign was present. Lumbar puncture at 5 p. m. on the same day revealed a spinal fluid under pressure, moderately turbid, containing 810 cells per cubic millimeter, a +++ butyric acid test, and the intracellular and extracellular presence of the meningococcus. The blood culture was negative. Twenty c.c. of antimeningococcus serum (New York Board of Health) were given intraspinally, on the 14th 40 c.c., and again on the 15th 20 c.c., or 80 c.c. in all.

As the patient had been seen late, though her symptoms were somewhat ameliorated, in consultation with Dr. Amoss of the Rockefeller Institute it was decided to begin intravenous treatment as well, with the idea of possibly influencing the organisms which might be walled off by a pocketing process in such inaccessible positions as the lateral ventricles. At 2:30 p. m. on the 15th, 100 c.c. were given intravenously, warmed and diluted with equal parts of warm saline. The duration of the period of administration was twenty-five minutes. At the end of the administration the patient complained of extreme dyspnea, and became unconscious and pulseless. She was breathing rapidly, in complete coma, with contracted pupils (morphin had been given one-half hour previously) and throughout the chest were heard many sibilant and sonorous râles, and a few moist crepitations. The muscles of the jaw were clenched, and the tongue, which had become edematous, dropped back into the throat and prevented her breathing. Epinephrin, 10 minims, caffein sodiobenzoate and atropin were administered during the attack, and within ten minutes the patient again became conscious. In the effort to open her mouth to pull forward her tongue, two teeth had to be removed, and the hemorrhages from this condition continued several hours, all ordinary styptics and packing failing to control it.

It had been assumed that in the forty-eight hour period between the first administration of serum intraspinally and the first intravenous administration, there would be sufficient passage through the choroid plexus to cause antibody production and thus desensitize the patient to the intravenous administration of horse serum. This assumption was obviously in error.

Thereafter, between the 16th and the 19th, 120 c.c. more of serum were given intraspinally. The cell count, which had risen, fell from 1,700 to 200, and no organisms were demonstrable after the 15th. The patient made a subsequent uninterrupted recovery, except for a severe urticarial eruption lasting from April 26 to May 2.

* From the Pathological Laboratory, City and County Hospital.

It is our belief that we were in error in assuming that the intraspinal administration of the serum would necessarily desensitize the patient, and in the future we would always administer the serum intravenously, by fractional doses.

113 East Fifty-Sixth Street.

A CASE OF SYPHILITIC REINFECTION

JOSEPH SPANGENTHAL, M.D., BUFFALO

Syphilitic reinfections are of such interest and of so infrequent occurrence that I consider this case worthy of being recorded. Fortunately for the authenticity of the diagnosis, it was my privilege to observe and treat the patient throughout both infections.

M. H., a man, aged 28, consulted me in September, 1913, on account of a genital initial lesion the size of a dime. October 1, he presented a general secondary eruption, accompanied by angina, mucous patches, and involvement of the lymphatic glands. The physical signs were so typical and the diagnosis so unmistakable that it was not considered necessary to make a Wassermann test. In corroboration of the diagnosis, it will be of interest to give the history of his wife, whom he had infected.

Several weeks after the patient's infection, the wife presented a secondary papular syphilid, angina, and mucous patches. The chancre involved the whole cervix uteri. About a month later she developed an optic neuritis, with complete blindness of one eye. This cleared promptly after an intravenous injection of neo-arsphenamin (neosalvarsan).

Oct. 2, 1913, the man was given 0.9 gm. of neo-arsphenamin (neosalvarsan) intravenously. October 18 this treatment was repeated.

October 26, intramuscular injection of mercuric salicylate 1 grain in oil, was administered, and repeated weekly until four injections had been given. This constituted the entire treatment.

Every six months the patient reported for a Wassermann test, which in every instance gave a negative reaction.

In March, 1918, the patient was in Boston, and while there a Wassermann test was made, and reported negative. During March, he gives a history of frequent and prolonged kissing. The girl in question was at that time suffering from syphilis, and had later received four injections of arsphenamin (arsenobenzol).

About April 1, 1918, the patient developed a chancre of the upper lip. May 14, he again consulted me. The chancre was still present, but undergoing resolution. There was a secondary maculopapular eruption covering the entire body, accompanied by angina and glandular involvement. There was no mistaking the clinical picture of syphilitic infection.

In order to satisfy the patient as to the diagnosis, a Wassermann test was made independently by two serologists, and both reports were +++, showing complete inhibition of hemolysis.

If the theory is correct that syphilitic reinfection cannot occur unless the previous infection has been eradicated, this case should offer proof of its curability.

595 Lafayette Avenue.

Simple Method of Making Permanent Platinum Loops for Laboratory Workers.—A loop of the size desired is made of platinum wire. The loop should be a closed one, the free end being in contact with the main portion of the wire, thus: ρ . The loop is heated to white heat in a Bunsen or alcohol flame and then dipped into a container of silver nitrate crystals while hot. It is reheated in the flame until the silver nitrate is burned off. On examination it will be found that the loop has become permanently fused. The advantages of these fixed loops are believed to be, first, they are time saving, on account of the elimination of the necessity of constantly remaking loops, and second, uniformity of size can be maintained.—A. J. CANNING, M.D., Major, Medical Corps, U. S. Army, Department Hospital, Manila, P. I.

Military Medicine and Surgery

NEUROCIRCULATORY MYASTHENIA

A PROBLEM OF THE SUBSTANDARD SOLDIER

ANDREW MacFARLANE, M.D. (ALBANY, N. Y.)

Major, M. R. C., U. S. Army; Examiner in Cardiovascular Diseases
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The efficiency of an army depends on the ability and capability of the individual unit. It is, therefore, no small and no unimportant part of the duty of the medical corps of an army to determine at the earliest possible moment those who will make reliable soldiers and to separate them from those who are constitutionally or otherwise inefficient.

The fact that the present field of battle is more than 3,000 miles distant strongly emphasizes the importance of a service that will permit no useless recruit, if possible, to encumber transportation or to add to the burden of an already overcrowded hospital system. Then, too, though our country has a manifest right to take our life and property, if absolutely necessary, it would be unwise to deprive the state of a partly self-supporting civilian only to make a soldier who would break down at the first intense physical strain or shock of battle.

One of the first steps, then, in the development of a new army is to sort out those who are manifestly unfit. This group¹ includes patients with pulmonary tuberculosis, organic diseases of the heart and blood vessels, exophthalmic goiter, marked hypertrophy of the heart and persistent tachycardia. This sorting, made with considerable rapidity on account of the need of speedy action, suffices to weed out a considerable number whose inefficiency is detected by this superficial examination. The remainder return to their commands for the rapid and intensive training necessary to create real soldiers.

As this training becomes more and more intense, soldiers are reported by their regimental surgeons as not being able to keep up with their work and as complaining that the hard drilling causes breathlessness, precordial pain, headache, giddiness, and early and prolonged exhaustion. The regimental surgeons, on account of their multifarious duties, do not seem to have the time needed to observe closely and record the actual condition of these men after their various exercises and drills—the true test of their efficiency as soldiers.

The difficulty of determining with accuracy and with justice the exact condition of these soldiers was such as to render routine examinations practically worthless. Permission was therefore kindly given by the division surgeon at Camp Sevier, S. C., Lieutenant-Colonel Whaley, M. C., to assemble these doubtful cardiac patients in a separate detachment on the grounds of the base hospital to which they were assigned for rations and quarters, though they were not carried as patients on the hospital roster.

A cardiovascular detachment of ten tents was opened and forty-one soldiers were received with their complete equipment, except arms, to remain under observation. Of the forty-one patients, seven were found to have organic disease of the heart and were

1. No mention need be made here of other causes of disability—neurologic, surgical, orthopedic, etc.

sent to the surgeon's certificate of disability board for discharge. Five were adjudged free from any cardiovascular disability and were returned to their commands with the request that they be kept under observation for a time.

CONDITION OF SUBSTANDARD SOLDIERS

The remaining twenty-nine soldiers all had this in common: They were reported as inefficient soldiers, though no determinable organic cardiovascular lesion was found. They presented practically the same syndrome: marked cyanosis of the hands extending up above the wrists; coldness and sweating of the hands and feet; sweating under the armpits even when in a cold tent; tremor; flushing; marked lability of the pulse and blood pressure on standing, lying down, and after exercise; marked thrill, often felt over the precordium; no increase of cardiac dulness; booming first sound or indefinite murmur at the apex; frequent accentuation of the second pulmonic sound, and mental instability. After exercise these patients became more or less breathless and cyanotic, and complained of precordial pain, palpitation, giddiness and abnormal exhaustion.

PIGNET'S FORMULA FOR ESTIMATING PHYSICAL EFFICIENCY*

Index Number	Efficiency
Under 10.....	Very strong
From 10 to 15.....	Strong
From 15 to 20.....	Good
From 20 to 25.....	Fair
From 25 to 30.....	Weak
From 30 to 35.....	Very weak
Above 35	Useless

* Vedder's Medical War Manual No. 1, p. 70. The weight in kilograms and the chest measure at expiration in centimeters are added and subtracted from the height in centimeters.

The type of their physique was first studied and determined according to Pignet's formula.² They were thus grouped: useless, 9; very weak, 6; weak, 6; fair, 5; good, 2, and strong, 1. Only one of these men could be graded as "strong." Half of them were "very weak" or "useless."

Examinations by the nose and throat specialists and the dentist revealed apparent foci of infection in every case. Many had double infections, both in diseased tonsils and in pus pockets about the teeth.

The examination of the blood in three cases before, directly after, and one hour after a two hours' hike gave the following findings: practically no difference in the number of leukocytes before and directly after exercise, and an increase of from 50 to 90 per cent. in leukocytes in all three cases one hour after exercise. No material change was determined in the types of leukocytes. Roentgen-ray examinations of the gastro-intestinal tract in four of these patients revealed normal motility of stomach and small intestine. One of the four had a gastropnoxis, the border of the stomach reaching the pubis (erect posture). Examinations of the urine were not made, and temperature, pulse and respiration morning and night were not taken on account of incomplete organization. A

2. Pignet's formula is given apparently as of accepted value but without comment. Investigation reveals that it was evolved by Major Pignet, a contemporary French army surgeon. Dr. J. A. Blake, a British army surgeon, translated this formula into British measurements. Major Butza of the Roumanian army records the use of this test on 816 men in different regiments and considers it of incalculable value. It was in use in the garrison at Bucharest as a method of determining the physical constitution of the recruits and consequently their fitness for military service. He states that this formula is an excellent one for use in the interest of the men themselves, for the army and for the nation.

summary of the findings in each case is given in the accompanying table.

At first the diagnosis of these cases and disposition of the men caused the greatest uncertainty. It was quickly realized that they were manifestly not fit³ for military service, but how to classify them without arousing suspicion about one's own diagnostic acumen, without endangering the efficiency of the army and without doing injustice to the soldier himself was the question. Mitral stenosis, tachycardia and goiter heart kept constantly recurring, but these diagnoses were made with a feeling of question and doubt.

Finally the realization suddenly became manifest that all these soldiers were a *group of substandard men who have been subjected for many years to a low grade infection and were suddenly thrown into a new environment with conditions of life entirely different from those of all their previous experiences.*

The diagnosis was then no longer in doubt. The listless, dull expression, the relaxed, careless posture and carriage, the tremor, the marked cyanosis of the hands reaching half way to the elbows, the coldness and moisture of the palms of the hands, and the profuse perspiration of the armpits even in a cold tent made a picture which, when appreciated, is recognized often at the first glance.

The British, in their vital haste to send immediate reinforcements to the French army, accepted, practically without examination, every volunteer who could walk. The result of such an unfortunate though necessary policy became quickly apparent. The British hospitals were soon hopelessly submerged by soldiers with irritable hearts who seemed to be made worse under the usual hospital treatment and thus were likely to become chronic invalids and occupy beds urgently needed for the patients with serious diseases.

TREATMENT

Thomas Lewis and his associates, among whom are several members of the Medical Reserve Corps of the United States Army, promptly established order out of this chaos and placed the treatment of these patients on a basis which not only rendered the diagnosis certain but also definitely determined the prognosis and absolutely established the correct method of treatment, that is, progressively graduated, efficient exercise.

The British problem had to do with soldiers returned disabled from the front, half of whom were regarded as constitutionally unfit, while the disabled condition of the other half was the result of extreme exhaustion, shock or infection. The British cases are divided etiologically into three groups: A, constitutional, 50 per cent; B, exhaustive, and C, toxic, the two latter forming the other 50 per cent.

Our present problem is somewhat different from that of the British, as we have the time, the men and the opportunity, without interfering with the rapid training of the fit. Briefly, our task is to prevent the sending to the fighting line of the 50 per cent. who, because they are constitutionally defective, will promptly break down under the intense strain of modern warfare and thus become an incalculable burden to the Army, rather than be of any military value. The determination of this constitutionally substandard 50 per cent. should not, in the great majority of cases,

3. Many of these soldiers were refused discharge by the surgeons' certificate of disability board, as no determinable lesion was found.

be a matter of difficulty. It does not require complicated apparatus or intricate methods. It resolves itself simply into determining by close observation which men cannot efficiently do the work of a soldier.

This type of case plays no part in civil practice because these patients seek the line of least resistance and undertake only the work they are physically able to do. They are often classed among the shiftless, the ne'er-do-wells and the constantly complaining, and are without "pep," energy or ambition.

With the keenness of the great internist, DaCosta recognized the same condition in the Civil War, described it accurately under the term "irritable heart of soldiers," and prescribed a system of graduated military work which in essentials is similar to that now advised by the British. In order to avoid the psychic effect of the fear of heart disease on these men, Lewis gave the name "effort syndrome," which tells nothing except that it is the result of effort, and then only in a very small percentage of the soldiers subjected to excessive effort. The American physicians working with Lewis, recognizing its nervous and circulatory manifestations and its kinship to neurasthenia, have called it "neurocirculatory asthenia."

This term, which is very expressive, lacks, however, a reference to one of the most striking characteristics of this disorder, namely, the marked weakness of the muscular system, both the myocardium and the voluntary muscles. This omission is corrected by the use of the term myasthenia instead of asthenia, thus placing this disability on the triad weakness of the nervous, circulatory and muscular systems.

In the cases under our observation, the object was not only to recognize this condition but also to initiate measures which might result in gradually building up a condition of first-line efficiency in some of those who had been found unfit, to render others valuable for special military service, and to return the remainder to their former occupations in civil life.

These soldiers were therefore sent to the clinics at the base hospital for the treatment of their teeth and tonsils, and graduated exercises were given twice a day with graded hikes in the afternoon. An effort was made in the exercises to follow out the advice of Lewis based on the British experiences. They were taken from the manual and arranged by Capt. J. D. Thomas, M. R. C., and were carried out with soldierly precision under the direction of an intelligent

RESULTS OF EXAMINATIONS IN TWENTY-NINE CASES *

Name and Case Number	Neurovascular Condition	Efficiency by Pignet's Formula	Nose and Throat Condition	Dental Condition	Other Conditions
1. C. B.	Precordial pain; breathlessness; exhaustion; giddiness; palpitation; cold hands and feet; cyanosis; sweating; mental instability	28 Weak	Diverted septum, left; hypertrophied middle turbinate; tonsils enlarged and pus in pocket	Severe gingivitis; numerous pus pockets	No hookworm
2. M. J. G.	Breathlessness; anginal pain; hyperalgesia; exhaustion; palpitation; giddiness; headache; lassitude; coldness and sweating of hands and feet; irritability	46.50 Very weak	Tonsils submerged and enlarged; crypts with cheesy material; possible foci	No foci of infection	No hookworm
3. L. G.	Breathlessness; exhaustion; giddiness; fainting; palpitation; headache; lassitude; cyanosis; cold hands and feet; sweating; flushing; mental instability; tremors	27.50 Weak	Negative	Two foci of infection; slight gingivitis	No hookworm
4. W. R.	Breathlessness; hyperalgesia; giddiness; palpitation; headache; sweating	35 Useless	Right ethmoid suspicious; middle turbinate unhealthy and discharging	Gingivitis with pus pockets around several teeth	No hookworm
5. B. G. O.	Breathlessness; precordial pain; exhaustion; giddiness; fainting; palpitation; headache; coldness and sweating of hands and feet; cyanosis; flushing; mental instability	37.15 Useless	Left tonsil diseased and possible focus; adenoids present	Negative	No hookworm
6. W. B. L.	Breathlessness; precordial pain; hyperalgesia; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; mental instability	31.76 Very weak	Bad tonsils, should be removed; adenoids	Focal infection suspected; sent for roentgen ray examination	No hookworm
7. J. O. P.	Cough; breathlessness; precordial pain; giddiness; palpitation; fainting; lassitude; coldness of hands and feet; sweating of hands; cyanosis; mental instability	27.90 Weak	Crypts of tonsils show cheesy material; possible foci	Slight gingivitis; no other foci of infection	No hookworm
8. C. F. G.	Breathlessness; precordial distress; exhaustion; giddiness; fainting; palpitation; slight coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention; slight tremor	24.4 Fair	Nose and sinuses clear; tonsils small; small amount of cheesy material from a few follicles	One tooth is a focus of infection	No hookworm
9. A. M. B.	Breathlessness; precordial distress; exhaustion; giddiness; fainting; headache; sleeplessness	26.50 Weak	Questionable anterior bilateral ethmoid infection; fair sized adenoids; tonsils much enlarged	Mouth in bad condition; gingival pus pockets; several suspected blind abscesses	No hookworm
10. G. F. E.	Breathlessness; exhaustion; giddiness; headache; palpitation; coldness and sweating of hands and feet; marked cyanosis; marked tremor and flushing	38.50 Useless	Nose and throat clear; cheesy material in both tonsils; possible foci of infection	Negative; not caring for teeth	No hookworm
11. H. H.	Marked breathlessness; precordial distress; exhaustion; occasional fainting; headache; coldness and sweating of hands and feet; cyanosis; sleeplessness; slight tremor; hyperalgesia	21.50 Fair	Nose and sinuses clear; crypts of tonsils cheesy; possible foci of infection	Two teeth need attention; no focal or blind abscesses	No hookworm
12. A. L.	Breathlessness; precordial distress; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; irritability; restless at times; flushing	21.50 Fair	Sinuses clear; adenoids large; tonsils very large and badly infected	Negative	No hookworm; roentgen ray suggests healed tuberculosis; also some present activity
13. O. K.	Marked breathlessness; giddiness; palpitation; coldness and cyanosis of hands and feet; irritability	31.38 Very weak	Sinuses clear; cheesy material expressed from tonsils; possible foci of infection	Negative	No hookworm
14. O. C.	Breathlessness; precordial pain; hyperalgesia; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of feet and hands; cyanosis; sleeplessness; tremor; slight flushing	12 Strong	Nose and sinuses clear; tonsils definitely diseased; probable foci	Gingivitis with a few pus pockets, two teeth suspected as having blind abscesses at roots	Hookworm
15. J. S. G.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; coldness and sweating of hands and feet; cyanosis; irritability	34.74 Very weak	Deviated nasal septum blocking ventilation and drainage of sinuses; tonsils small; cheesy material in crypts	Suspected blind abscesses; gingival pockets about all teeth possible foci	No hookworm

* Although the number of cases described is comparatively small, they are characteristic and apparently represent a large group of potential inefficients.

RESULTS OF EXAMINATIONS IN TWENTY-NINE CASES—Continued

Name and Case Number	Neurovascular Condition	Efficiency by Pignet's Formula	Nose and Throat Condition	Dental Condition	Other Conditions
16. T. S.	Marked breathlessness; precordial distress; exhaustion; giddiness; lassitude; coldness and sweating of hands and feet; cyanosis	45.60 Useless	Sinuses clear; tonsils large and badly diseased; probable foci of infection	Negative	No hookworm
17. J. C. S.	Breathlessness; precordial pain; hyperalgesia; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; sleeplessness; inability to fix attention; marked tremor	44.46 Useless	Deviated septum; right sinuses clear; cheesy material expressed from tonsils	Several suspected blind abscesses; gingivitis with marked pus pockets	No hookworm
18. C. M.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention	29.74 Weak	Small amount of cheesy material expressed from tonsils	Probably several blind abscesses	No hookworm
19. S. P. M.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands and feet; slight cyanosis; sleeplessness; inability to fix attention	36.9 Useless	Nose and sinuses clear; tonsils small and fibrous; negative	Negative; slight gingivitis with some pus	No hookworm
20. C. E.	Breathlessness; exhaustion; giddiness; midsternal pain; palpitation; headache; lassitude; coldness and sweating of hands and feet; irritability; restless; tremor; slight cyanosis	19.10 Good	Chronic ethmoiditis, bilateral; atrophic rhinitis	Severe gingivitis, some pus pockets; no blind abscesses	No hookworm
21. C. L.	Breathlessness; precordial distress; exhaustion; giddiness; lassitude; irritability; sleeplessness	30.76 Very weak	Acute rhinitis; cheesy material in tonsils; possible foci of infection	Some gingival pus pockets; blind abscesses on 2 teeth	No hookworm
22. H. L.	Breathlessness; precordial distress; exhaustion; palpitation; lassitude; coldness and sweating of hands and feet; cyanosis; slight tremor	20 Fair	Nose and sinuses clear; some cheesy material expressed from tonsils; possible foci of infection	Several pus pockets; severe gingivitis and probable pyorrhea	No hookworm
23. J. S. S.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands and feet; cyanosis; sleeplessness; inability to fix attention	17.15 Good	Nose and sinuses clear; tonsils seem badly diseased	Bad mouth; pus pockets about all teeth; blind abscesses on 2 molars	Hookworm
24. J. H.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; headache; lassitude; coldness and sweating of hands, feet and body; cyanosis; mental instability; tremor	35.12 Useless	Nose and sinuses clear; deviated septum; tonsils small but infected; probable foci	Slight gingivitis; no visible pockets; 2 teeth suspected of blind abscesses	Hookworm
25. W. E. T.	Breathlessness; precordial pain; exhaustion; giddiness; fainting; palpitation; headache; lassitude; sweating and coldness of hands, feet and body; cyanosis; mental instability; slight tremor	29.39 Weak	Posterior group sinusitis, bilateral; anterior ethmoid left; tonsils definitely diseased	Death of two teeth from old trauma; probable antrum trouble, right side	Hookworm
26. G. E. F.	Breathlessness; precordial pain; exhaustion; giddiness; palpitation; lassitude; coldness and sweating of hands, feet and body; moderate cyanosis; irritability; slight tremor	38.92 Useless	Nose and sinuses clear; tonsils enlarged and infected; probable foci	Some carious teeth; other teeth in good condition except 2 lower incisors	No hookworm
27. S. T.	Breathlessness; precordial pain; exhaustion; giddiness on exercise; fainting; palpitation; headache; lassitude; coldness and sweating of hands, feet and body; cyanosis; mental instability; slight tremor	20.78 Fair	Nose and sinuses clear; tonsils definitely diseased; probable foci of infection	Teeth in front contained old root under bridge; two pockets due to gingivitis	No hookworm
28. G. S.	Breathlessness; anginal pain; exhaustion; giddiness; faints easily; palpitation; lassitude; sweating and swelling of feet; cyanosis; mental instability; slight tremor	30.75 Very weak	Nose and sinuses clear; crypts of both tonsils filled with cheesy material; possible foci	Negative	No hookworm
29. G. R. M.	Breathlessness after severe exercise; precordial pain on exercise; slight exhaustion; very slight tremor; dislike of alcohol	32.79 Very weak	Nose and sinuses clear; several follicles in each tonsil filled with a cheesy material; possible foci	Slight gingival infection; questionable foci of infection; 2 teeth suspected	No hookworm

and enthusiastic drill sergeant. During the exercises the soldiers were closely watched by two physicians in order to detect at once evidence of abnormal exhaustion. These simple exercises, readily applicable, seemed more accurate than any complicated system, as each soldier had in them the correct measure of his own efficiency, that is, his own weight. The problem is what each soldier can do with his own physique, irrespective of height and weight. This limited and superficial try-out, so easily inaugurated, would seem to indicate that much of profit and scientific value might be secured if the examination could be extended and made more complete. These soldiers, partly well, partly ill, are not proper hospital patients, but should be kept under rigid military observation in field hospital tents or in barracks. The temperature, pulse and respiration should be taken twice a day. There should be frequent blood and urinary examinations, and the subjects should be accessible to a base hospital where treatments for foci of infection could be carried out and roentgenograms taken as seemed necessary.

A well balanced and graduated series of exercises and hikes under especially trained and enthusiastic drill sergeants, followed later by the gradual resumption of the regular work of the soldier, could be initiated and the exact results noted from day to day, in order to determine the wisdom and extent of further effort. Baseball, football, basketball, sparring

and wrestling, together with such appropriate occupations as gardening, knitting and basket weaving, should be encouraged in this type of case, as there is a marked tendency to mental depression and introspection, with a lack of initiative.

Such reconstructive work would save for the Army many soldiers who, under the stress of warfare, would quickly break down and would become a serious burden on our hospital service for long periods. Others not so strong could be held in the Army for special service, and the remainder, totally unfit for military duty, could be returned to their former occupations in civil life, all better and wiser men for their experiences in the Army.

Serving Bread and Meat in Italian Restaurants.—A decree of the commissary general for supply and consumption of food provides that in restaurants, pensions, dining cars, cafés, milk shops, hotels and other public rooms in which food is consumed, bread must be served in thin slices, untoasted, not exceeding 2 cm. in thickness, and for each repast in an amount not exceeding 80 gm. In certain indicated refreshment rooms of a popular character, the bread served must not exceed 150 gm. for each meal. . . . For these refreshment rooms the form of serving in slices, as ordered for the other establishments, is not prescribed. The serving of cold meat, or meat prepared in any way whatever, sausage included, as a preliminary course, in the establishments mentioned, is prohibited.—*Commerce Reports*, Dec., 26 1917.

THE TRANSPORT SPLINTS OF THE AMERICAN ARMY

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Statistics show that somewhat more than 50 per cent. of gunshot wounds involve the bones and joints. The efficient splinting of these injuries at the earliest possible moment is universally acknowledged by all surgeons to be of the greatest importance for the following reasons:

1. It relieves the suffering of the soldier.
2. It saves time in transport.
3. It decreases the danger of shock.
4. It maintains alinement of broken bones.
5. It limits the spread of infection.
6. It prevents the further laceration of nerve, vascular and muscular tissue.

In August, 1917, it became evident to certain American surgeons who had been serving in British hospitals that entirely satisfactory splinting for transport could be accomplished with a small number of splints of simple pattern. The matter was called to the attention of the chief surgeon, American Expeditionary Forces, and a splint board for the standardization of splints for the medical department of the U. S. Army was promptly appointed by him and confirmed by order of General Pershing.

This board met, Aug. 28, 1917, and reported that with seven types of splints all bone and joint casualties could be adequately treated at the front. The board was then directed to write a manual. This manual, approved by General Bradley, chief surgeon, A. E. F.,

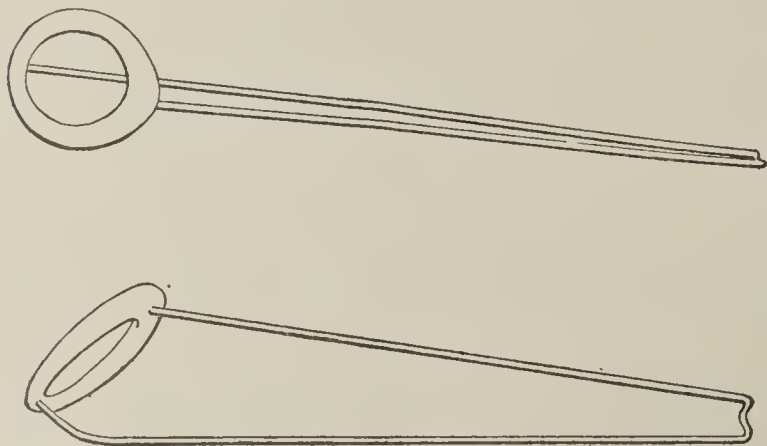


Fig. 1.—Thomas Traction leg splint.

and by General Pershing, was published in an edition of 25,000 and was available for predistribution to all the medical officers of the American overseas forces before our battle casualties began. The expense of publication was borne by the American Red Cross, by whom it was supplied to the Medical Department of the U. S. Army.

Considerations that influenced the selection of the standard splints were:

1. Efficiency as proved by experience.
2. Transportability in order that ample supplies might be carried forward.
3. Simplicity of design in order to speed up manufacture and assure adequate supply.
4. Ease of application in order that underlying principles might be readily grasped by regimental medical officers and easily taught to stretcher bearers.

The Thomas and Jones splints for the upper and lower limbs with the modifications in the Thomas traction arm splint devised by Major Murray of the

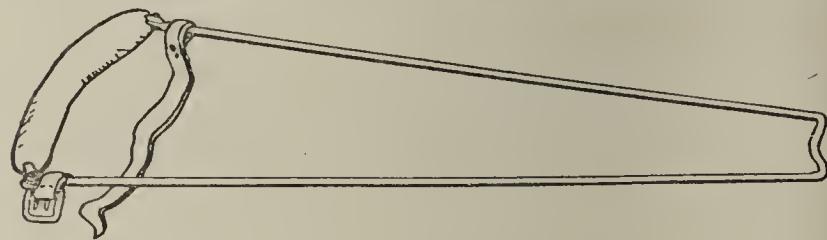


Fig. 2.—Blake-Keller hinged half ring modification of Thomas Traction leg splint.

South African Royal Army Medical Corps, and the modification of the Thomas traction leg splint devised by Lieutenant-Colonel Keller and Major Blake, represented the *pièces de résistances* of the group, embodying as they do the combined principles of integral fixation and traction. These two principles are of almost equal importance in most of the severe bone and joint injuries. There has been abundant demonstration of their value not only in the treatment of the present battle casualties but also during the fifty-odd years during which time they have been employed in civil life by Hugh Owen Thomas of Liverpool and his great successor, Col. Sir Robert Jones, R. A. M. C. They had not been as widely known up to the time of the present war as one might expect, but this lack of familiarity with them among surgical and orthopedic men has not been flattering to the profession's appreciation of true mechanical values.

Four splints were included for fixation only:

- (a) The long Liston splint, necessary occasionally in fractures of the pelvis.
- (b) The Cabot posterior wire splint, which is widely known in America.
- (c) The Jones "crab" or "cock up" wrist splints. Form splints for fixation simply were included.
- (d) A form of wire splinting material known as ladder splinting. The latter material is proving of great value on account of its extreme adaptability, lightness and cleanliness.

DESCRIPTIONS OF TRANSPORT SPLINTS

The following descriptions of these transport splints are taken from the Manual of Splints and Appliances referred to above and prepared for the Overseas Forces:

1. (a) *Thomas Traction Leg Splint* (Fig. 1).—The splint consists of a padded ring, slightly ovoid in shape, set on two iron wire rods at an angle of 55 degrees with the outer rod. The rods are three-eighths inch in diameter. At the inner end shorter of these two rods the ring is twice as heavily padded as at the outer, and the ring is symmetrically depressed at

either side of the inner rod to form a concavity which hugs the ischial ramus and fits snugly around the ischial tuberosity. The long and short diameters of this ring vary, since the splint as used by the British army comes in several sizes; but a ring of average size measures across the long diameter $9\frac{1}{2}$ inches and across the short diameter 9 inches. The outer rod descends from the ring vertically for $2\frac{1}{2}$ inches and then inclines toward the inner rod. At the starting point of the inner rod the two wires are $8\frac{1}{2}$ inches apart, and at the bottom they are continuous in an indented or notched end, $3\frac{1}{2}$ inches in width, about which the traction bands are wound and knotted. (Nail or wood twister is inserted as in the Thomas arm splint.) The outside rod is 47 inches in length and the inside rod 42 inches in length. The space between the rods may be varied by bending them outward or inward. If desired, the splint may be bent at the knee.

(b) *The Blake-Keller Hinged Half Ring Modification of the Thomas Traction Leg Splint* (Fig. 2).—The splint consists of a padded half ring set on two iron rods three-eighths inch in diameter. (The indentation at the inner rod has been omitted, having in practice been found unnecessary.) The half ring forms an angle of 55 degrees with the outer and longer rod, and the ring is fastened to both rods by a stout joint which allows it to be moved through an arc of 180 degrees. At the junction of the inner rod and half ring is fastened a strap of webbing or leather, and at the junction of the outer rod and half ring is fastened a buckle. The posterior half ring is thereby kept in close apposition to the limb. The rods are the same distance apart and the same shape and size as in the Thomas leg splint. The space between the rods may be varied by bending them outward or inward. If desired, the splint may be bent at the knee.

The advantages of the hinged half ring modification of the Thomas splint are:

1. Ease of application without passing a complete ring, as in the Thomas splint, over the injured limb.
2. Ease of access to wounds of the groin because of the absence of the rigid anterior portion of the Thomas complete ring.
3. Possibility of use as an anterior leg splint for fixation and suspension, after the manner of the Hodgen splint.
4. Ease of packing for transport.

2. (a) *Thomas Traction Arm Splint* (Fig. 3).—The splint consists of a padded circular ring $7\frac{1}{2}$ inches in diameter and two rods 34 inches in length. At the ring these rods are $7\frac{1}{2}$ inches apart and at the bottom they are continuous in an indented or notched end, $2\frac{1}{2}$ inches in width, about which the traction bands are wound and knotted. The space between the rods may be widened or narrowed by bending them outward or inward.

(b) *Murray's Modification of the Thomas Traction Arm Splint*.—The splint consists of a padded ring of the same shape and size as in the Thomas arm splint. The rods are made of the same wire and are of the same length and the same distance apart as the Thomas arm splint. The modification consists of a joint between the rods and the ring, either by means of a hinge $1\frac{1}{2}$ inches below the ring or by making loops of the rod wires close to the ring, which loops receive similar loops at the upper ends of the rods. The purpose of the splint is to provide close apposition of the ring to the shoulder and thorax and still allow the injured limb to be brought to the side of the body—an important factor in recumbent transportation.

3. *Jones Humerus Traction Splint* (Fig. 4).—A padded half ring to fit in the axilla like a crutch, $7\frac{1}{2}$ inches in diameter. The wire of the half ring is continued to form a complete circle, which is bent on itself at right angles to outline a quarter sector of a sphere. The right angle wire half circle extends out over the shoulder and upper arm and is not padded. The wire rods, one-fourth inch in diameter, descend from the center of the padded axillary crutch and from the center of the right angle unpadded shoulder portion of the ring. The inside rod next to body is 14 inches long and the outside rod is 18 inches long, curved outward slightly over the convexity of the deltoid. The rods terminate in indentations or notches

about which the humeral traction bands are wound and tied. The rods then ascend for 4 inches, and at this point are bent at a right angle in the same plane as the humeral rods; they then extend forward for 12 inches, $4\frac{1}{2}$ inches apart, to form a continuous splint for forearm, wrist and metacarpal fixation.

4. *Long Liston Splint with Bridge Interruption* (Fig. 5).—The splint consists of two pieces of flat wood of unequal lengths. The wood is one-half inch thick and 3 inches wide. The shorter of these two pieces is 14 inches long and to its upper end is fastened a wooden cross-bar, 9 inches long and 2 inches wide, penetrated at either end by an inch hole through which bandage material may be run for fastening the splint to the thorax. The longer of these two pieces of wood is 32 inches in length, and is perforated at the center through its lower 15 inches by small holes 2 inches apart; these holes receive the thumb screw set-nut of the foot piece. These two pieces of wood are joined together by a bridge of iron wire three-eighths inch in diameter; the span of this bridge is 9 inches and its elevation is 2 inches. The wooden foot piece is 12 inches in length, 4 inches in width and three-fourths inch in thickness, set at right angles to the lower leg splint and adjustable to different lengths of limbs, by means of the thumb

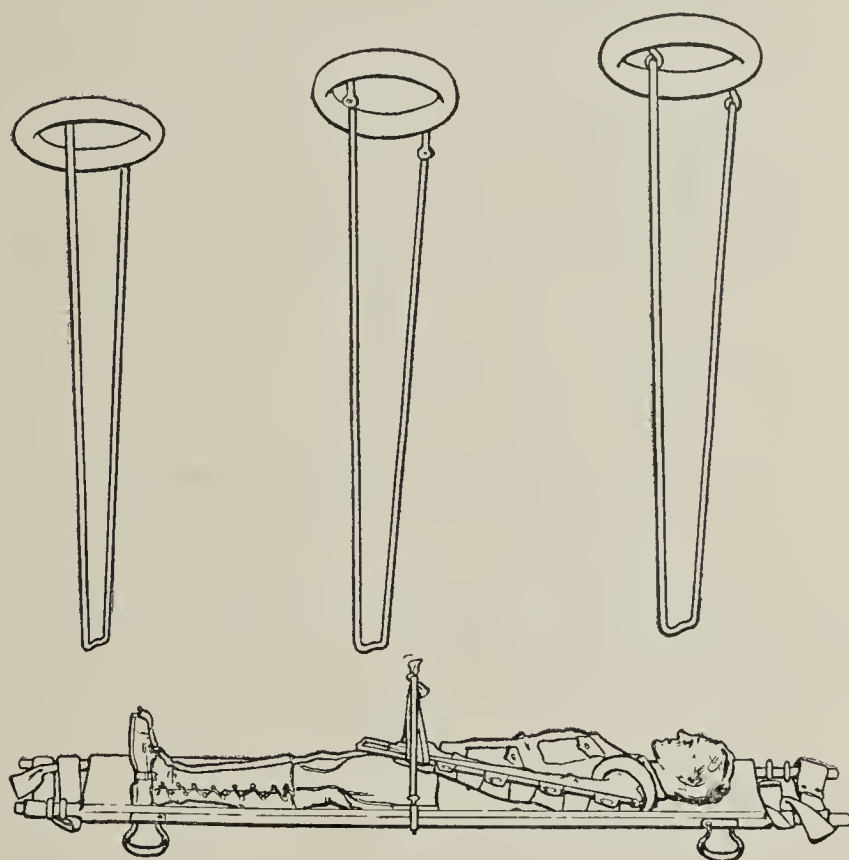


Fig. 3.—Thomas Traction arm splint and hinged modification for transport.

screw set-nut and holes. If an abducted position of the limb is desired, the iron wire bridge may be bent to accomplish this purpose.

5. *Cabot Posterior Wire Leg Splint* (Fig. 6).—The splint consists of a quadrilateral form of one-fourth inch wire 7 inches in width at the upper portion, which is bent at right angles and concave to conform to the convex surface of the upper thigh. It narrows at the heel and at this point is bent upward to form a right-angle foot piece 12 inches in height and 4 inches wide. For use, this frame of wire is bandaged and padded and usually bent at the knee. It is retained in position on the limb by adhesive plaster straps. . . .

Splints made of light splint wood or the wire ladder splint material (to be described) are applied posteriorly and on either side of the limb, and are fastened and retained by webbing straps and buckles. The ease of application and adaptability of this splint present the danger of its too general employment. The board recognizes the frequent maltreatment encountered by the customary use of the ordinary ham splint and the straight posterior wood splint with a right-angle foot piece. The application of the posterior wire splint should be scrupulously restricted to wounds of muscular tissue, slight injuries to the knee joint, fractures of the fibula and injuries

to the ankle joint and tarsus not requiring traction in addition to fixation.

The traction and counter traction principle of the Thomas splint and its modifications should be maintained in all cases in which there is solution of continuity of the bone with the

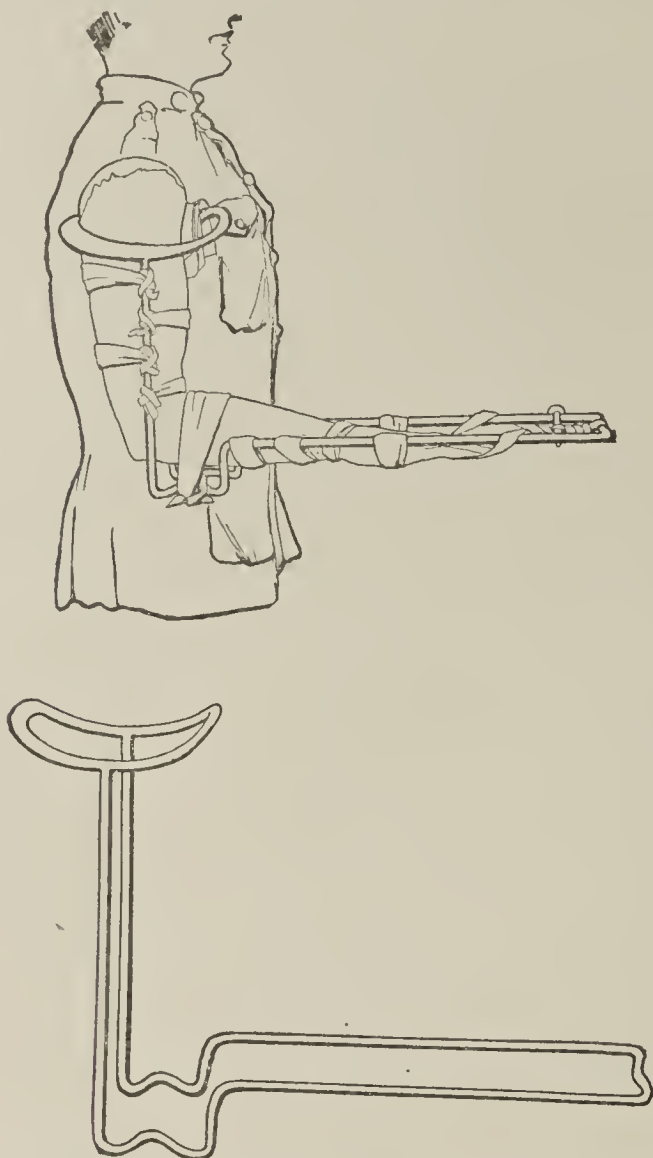


Fig. 4.—Jones humerus traction splint. The American pattern of the splint is here illustrated. By changing the pattern of the axillary crutch the splint is made adaptable to either side of the body. By slightly lengthening the forearm piece, traction on the forearm may be obtained.

possibility of displacement of fragments, or when the traumatic lesion of the joint is likely to result in serious infection and muscular contracture.

6. *Jones "Cock Up" or "Crab" Wrist Splint* (Fig. 7).—To a piece of thin sheet iron, about 8 by 4 inches, shaped like a hollow trough, a flat soft-iron rod, three-fourths inch in width and one-eighth inch in thickness, is riveted. This flat iron rod extends distally from the sheet iron trough about 10 inches, bending upward at about 6 inches distally from the edge of the trough. At the distal end of the rod is riveted by a single rivet a very light flat iron crossbar, 5 inches in length and turned up at either end. At 4 inches distally from the trough is riveted a very light flat iron crossbar, 3 inches in length.

Any degree of dorsal flexion of the hand may be obtained by varying the bend of the central iron rod. The splint is applied to the forearm and metacarpophalangeal junction of the hand and retained by bandages or adhesive plaster. It should be used in cases of partial or total "wrist drop." If it is desirable to retain a fully extended position of the fingers, a piece of splint material, to be described, may be used as a "cock-up" splint.

7. *Ladder Splint*.—This ladder splint material is made of galvanized iron wire one-eighth inch in diameter, two pieces running parallel to each other about $3\frac{1}{2}$ inches apart. At one end the wire is continuous and forms a terminal $3\frac{1}{2}$ inches in width. The lateral wires are joined by small one-sixteenth-inch wires slightly arched at a distance of three-fourths inch from each other. This material is furnished in 30-inch length, and may be cut by a file or heavy wire cutters into lengths for coaptation splints, or for the fixation of the hand, foot, forearm, elbow or knee.

8. For transport in arm or leg cases, a quadrilateral iron stretcher bar (Figs 1 and 3), snapping on the sides of the litter, is essential. This extends upward about a foot over the patient like a bridge, and to it is slung the leg or arm splints. It adds to the fixation, wards off jars and knocks, and adds greatly to the ease of the patient.

TYPES OF INJURY

In the order of their importance, the various types of injury are:

1. *Fracture of the Thigh*.—In the experience of the British and French armies, fractures of the thigh have proved to be among the most serious of gunshot wounds, both as regards mortality and as regards future function. Severe shock, nonunion, malunion with shortening and bowing, persistent infection and osteomyelitis have been all too common. There is a very general agreement among British and American surgeons of experience that the best method of preventing these untoward results is the Thomas traction leg splint.

2. *Fractures Into and Penetrating Wounds of Joints*.—Immobilization is here the first requisite, but traction is often a very close second. Here again the Thomas traction arm splint (Murray hinge modification for transport), Thomas traction leg splint or the Blake-Keller hinged modification are of greatest value for both purposes. The Cabot posterior wire splint combined with side splints of the ladder splinting material or light splint wood offers comfortable and efficient immobilization for the joint when traction is unnecessary.

The ladder splinting material capable of being bent in any angle or series of angles furnishes excellent fixation for the shoulder and the smaller joints.

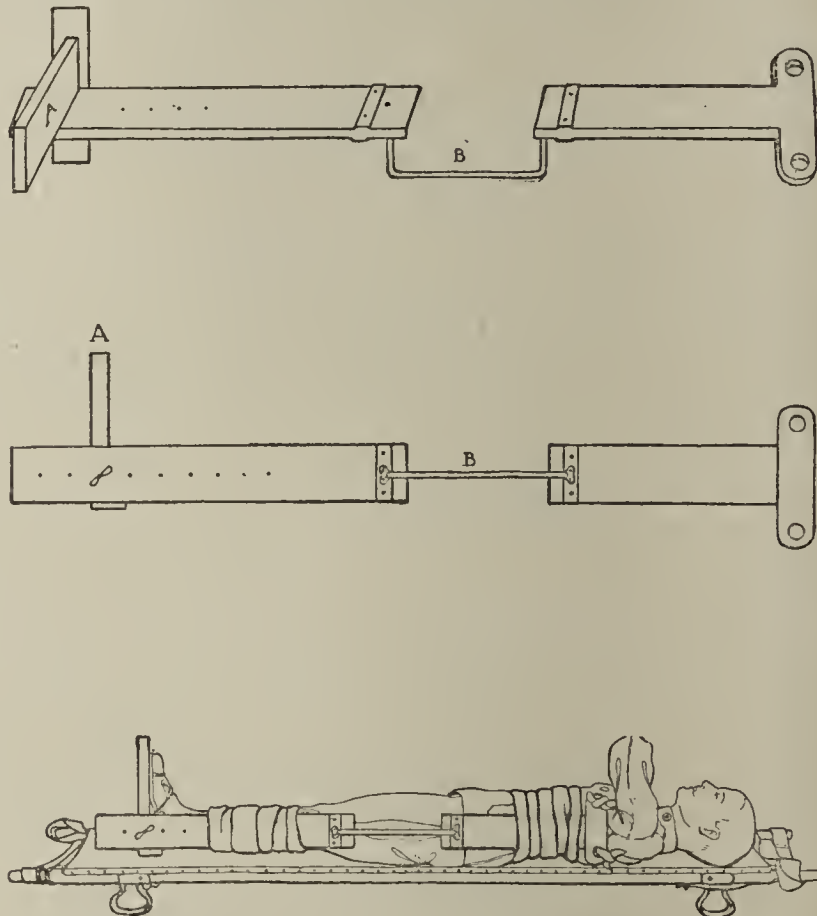


Fig. 5.—Long Liston splint with iron bridge interruption.

3. *Fractures of Both Bones of the Lower Leg*.—Traction is always advisable as well as immobilization. It is often difficult to apply to fractures near the malleoli. In the field, if the foot is uninjured this serves, traction being secured by means of an anklet laced over the foot or some form of nonconstricting bandage loop, such as a clove hitch. If the foot is

injured, a low cut lacing anklet to which traction bands are attached may be applied over generous padding.

4. *Fractures of the Pelvis.*—It is impracticable to apply plaster-of-Paris dressings at the front, and in these rather rare injuries the long Liston side splint with the iron bridge interruption and adjustable front piece offers the best immobilizing device for transport.

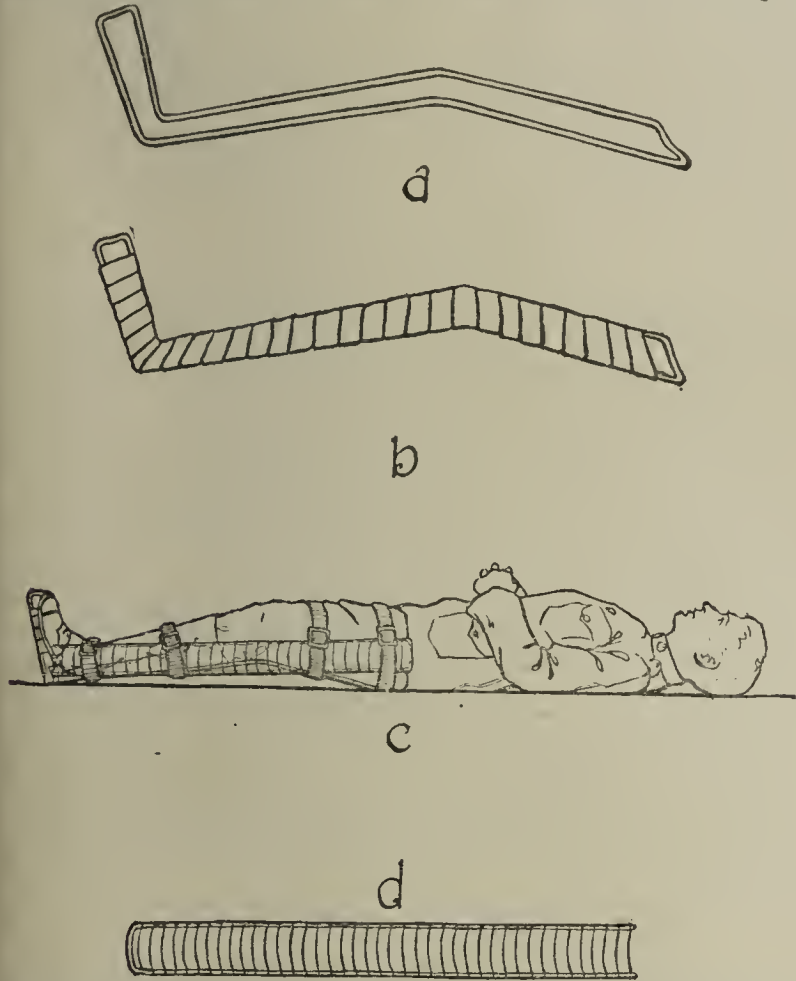


Fig. 6.—Cabot posterior wire splint (a) in skeleton, (b) bandaged, (c) applied with side splints of ladder material; (d) ladder splint material.

The purpose of the iron bridge interruption is to leave the pelvic wound free from pressure and also to make possible an abduction position of the lower limb. With a padded band passing through the opposite groin and fastened to the holes in the transverse crossbar at the upper end of the splint, traction may be obtained by fastening the traction band to the lower end of the splint or to the adjustable foot piece.

5. *Fractures of the Shaft of the Humerus.*—These fractures are of importance chiefly because of the frequent involvement of the musculospiral nerve. Complete loss of continuity is more rare than traumatization and loss of conductivity. It is often impossible to determine before a definite operation is performed how serious a nerve injury has taken place. In every case of wrist drop, whatever its cause, the hand is put up in dorsiflexion, usually in a Jones “crab” or “cock up” splint, and the fracture of the humeral shaft treated by traction and fixation in a Thomas traction arm splint (Murray’s hinged modification for transport) or a Jones traction humerus splint.

6. *Fractures of Both Bones of the Forearm.*—For these a Thomas traction arm splint (Murray’s hinged modification for transport) is most satisfactory. Only light traction is necessary, and care must be taken in applying a nonconstricting “hitch” of bandage about the wrist in order that congestion of the hand does not result from too severe and too prolonged traction. Traction by means of straps sewed to a glove is safer. The hand should be slightly supinated.

7. *Fractures of the Spine.*—These are rare but, of course, extremely serious. In some advanced battal-

ion dressing stations, Bradford gas pipe frames are available, and a long Liston splint in combination, if possible, with such a frame offers perhaps the best fixation available.

TRAINING OF REGIMENTAL SURGEONS AND STRETCHER BEARERS

The division of orthopedic surgery, under the senior consultant, Lieutenant-Colonel Goldthwait, and the assistant consultant, Lieutenant-Colonel Allison, has been given charge of the splinting at the front. Orthopedic surgeons are assigned to the combat divisions under the division surgeon. Talks are given to the regimental surgeons and to the enlisted men of the Medical Corps, especially to the stretcher bearers. Splint drills are held and methods of application demonstrated.

The Thomas traction leg splint drill, originated by the British and carried out in our armies as well, will illustrate the type of instruction given. The steps are given as Orders 1, 2, 3, etc. The British record for complete application is two minutes, and the stretcher bearers are expected to be able to apply it in less time than six minutes.

Splint Drill.—The “Thomas outfit” consists of:

A stretcher on trestles; three blankets; primus stove; Thomas splint (largest size); reversible stirrup (Sinclair’s); suspension bar; three flannel bandages (6 yards); four triangular bandages; pressings; safety pins; Gooch splinting (10 by 6 inches and 8 by 6 inches).

The personnel required consists of an operator, No. 1 assistant and No. 2 assistant (if available).

When not in use the splint is kept hung up. The five slings of flannel bandage are rolled round the inner bar of the splint, the leather is kept soft by saddle soap, and the iron bars are smeared with petrolatum.

The indications for front line application are:

1. For all fractures of the thigh bone, except where there is an extensive wound in the upper part of thigh or buttock which would interfere with the fitting of the ring.

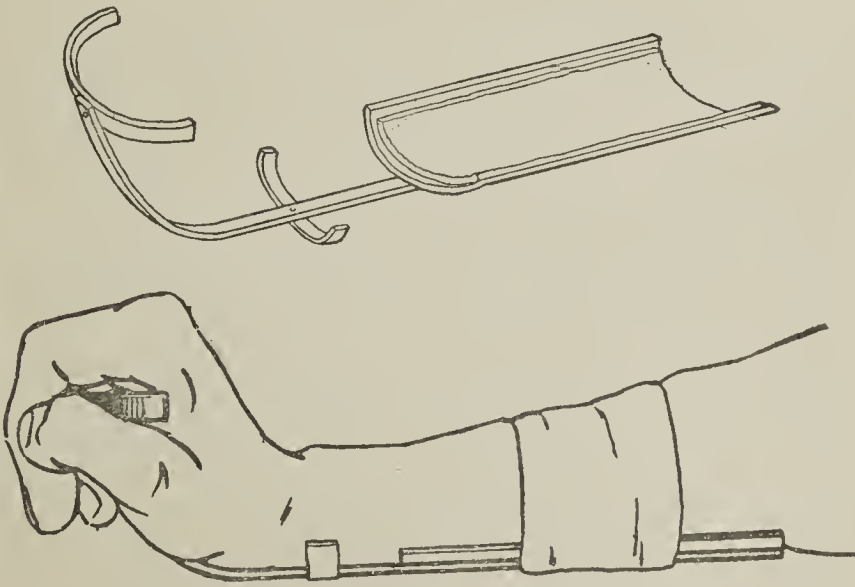


Fig. 7.—Jones “cock-up” or “crab” wrist splint.

2. In severe fractures of the knee joint or upper part of the tibia.

3. In certain cases of extensive wounds of the fleshy part of the thigh.

DETAILS OF THOMAS SPLINT DRILL

I. *Warning (Rechauffment).*—On the word “one,” the stretcher, placed on trestles with a primus stove beneath, is prepared as follows: The first blanket is folded lengthwise

into three; two folds lie on the stretcher, one hangs over the side. The second blanket is arranged in the same way, one fold hanging over the other side of the stretcher.

The patient now is placed on the prepared stretcher and lies on four folds of the blanket, the two folds hanging down form a hot-air chamber. The third blanket is placed across the patient's chest, while the splint is being applied.

II. *Extension*.—On the word "two," the No. 1 assistant stands at the foot of the stretcher facing the patient and opposite the injured limb. Grasping the heel of the boot with his right hand and the toe with his left, keeping the arms straight, he exerts a steady pull, thereby producing the necessary extension.

The No. 2 assistant stands by the injured part and supports the fracture above and below.

III. *Clove-Hitch*.—On the word "three," to form the clove-hitch, the operator takes a length of 9 feet of flannel bandage. Holding it in the left hand by its midpoint, he grasps the center of the left half with his right hand, palm to the right, and makes a loop which is carried up and passes behind the left hand, thus forming a clove-hitch with a diameter of 10 inches. This is applied over the boot, with the short end on the outer side; the long end is carried under the instep, up and through the loop round the ankle. The two extension bands thus produced are ready to be attached to the splint later on.

IV. *Splint*.—On the word "four," the operator threads on the splint, No. 1 assistant removing the reapplying upper and lower hands alternately to allow the ring to be passed over the foot. The splint should be pushed up under the buttock as far as possible, care being taken to keep the notched transverse bar horizontal.

No. 2 assistant, as before, steadies the thigh.

V. *Fixation of Leg*.—On the word "five": 1. The extension bands of the clove-hitch are tied around the notched bar at the end of the splint as follows: The outer band is passed over and under the bar, and then round the notch drawn taut, and held over to the opposite side. The inner band is passed under and over the bar, then also round the notch where it crosses the first band and prevents its slipping. The two are finally tied off by a half bow.

2. The middle flannel sling is tied behind the knee, which is held partly bent by No. 2 assistant.

3 and 4. The slings behind the ankle and the calf are tied, so that the leg now rests in a shallow trough, with its center on a level with the long bars of the splint.

5. To prevent the leg rising off the splint, the center of a narrow fold bandage is placed across the leg, just below the knee, the ends are carried down between the leg and the splint, brought up outside the bars, and then tied off in front of the leg. The lower limb is now firmly fixed in a position of extension, and it may be moved freely without causing pain to the patient or damage to the injured part.

VI. *Dressing Wound of Thigh*.—On the word "six," the wound is exposed by cutting away the overlaying portion of trousers on the front or back of the thigh, and the dressings are then applied.

VII. *Gooch Splints and Bandages*.—On the word "seven," the Gooch or coaptation splints are applied. The short piece is placed behind, and secured by tying the remaining two slings. The long piece is placed on the front of the thigh, care being taken to avoid pressure on the knee cap. The whole is now retained in position by the two narrow fold bandages, carried round the thigh outside the bars of the splint.

VIII. *Stirrup and Figure of Eight*.—On the word "eight" the stirrup is sprung into the splint above the ankle, its foot toward the stretcher. A bandage is then applied to form an additional sling and by a figure-of-8 turn to prevent lateral movement of the foot.

IX. *Spanish Windlass*.—On the word "nine," the extension bands are tightened, and a small piece of wood or a nail is introduced to increase the tension by twisting up as required.

X. *Pad in Ring*.—On the word "ten," a pad is placed inside the ring on the outer side of the thigh to act as a wedge and prevent undue movement.

XI. *Suspension Bar*.—On the word "eleven," the suspension bar is fitted to the stretcher with the "feet" away from the rackets. The splint is slung up three fingerbreadths from the horizontal part of the suspension bar. To damp down the side movements, lateral tapes are tied to the uprights. For the journey in the motor ambulance an additional band may be passed from the splint round one handle of the stretcher.

XII. *Hot-Water Bottles and Blankets*.—On the word "twelve," hot-water bottles are applied. The third blanket is folded into two lengthwise, and laid over the patient. The hanging folds of the first and second blankets are brought up over this so that the patient is evacuated with four folds of blanket in front as well as behind.

EFFICIENCY IN OUR ARMY

It will be a satisfaction to American surgeons to know that splints are being applied in our armies as soon after the injury is received as in any of the other armies, and perhaps even a little earlier. Frequent "checking up" inspection at the front seems to show that the talks and drills and preparations have been very much worth while, for the splints are being applied quickly and extremely well. The supply of splints furnished the Army by the American Red Cross in Paris has been adequate and the splints have been extremely well made. A system of exchange and repair has been worked out, and every battalion and post and dressing station has an ample supply which is constantly maintained.

There is every reason to believe this efficiency will continue and that we may expect less shock and better end-results.

A RECENT SURGICAL SERVICE AT THE AMBULANCE DES ALLIÉS

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Major, M. R. C., U. S. Army

FRANCE

What follows is a summary of the operation performed on 132 patients during an active period of the recent spring offensive. This formation suddenly found itself in a position in which front line work became imperative, and at first the staff consisted of Major George de Tarnowsky, M. R. C., and myself. Later each of us had the assistance of the following M. R. C. officers, who remained for varying periods: Capt. R. M. Keating, Capt. Philip Wilson, Capt. Charles Farmer and Lieut. T. Hardy, the two last named still being on service. In the first stages of the offensive the tour of service was necessarily continuous; later the service was divided into periods of ten hours operative service, three teams (*équipes*) acting in rotation, one of these consisting of French surgeons, the other two being American. The nursing operating room personnel is on duty each alternate twenty-four hours. One operating room was used, two tables of the removable top, easy rolling variety providing adequate facilities.

For the purposes of description, it can be said that the work automatically divided itself into periods which may be termed active period, relative calm period and calm period, each corresponding to the military conditions prevailing. The majority of the injured were French, some were English, a few were German. On an average the patients were received within a period of six hours after injury. Most of them had received a primary dressing and tetanus

antitoxin before arrival. The vast majority were of the *grand blessé* (severe) type, as this formation was designated to receive that group exclusively when conditions permitted; obviously this rule could not always be made absolute. In the early stages, lack of personnel and the rush of many injured made it impossible to avail ourselves of preliminary roentgen examination; despite this, over 80 per cent. of foreign bodies were removed. Except for the first few days, all the patients were kept long enough to approximate the end-results.

TYPE OF INJURY

The cranial injuries were notable because the frontal and parietal regions were almost exclusively affected. In all cases, shell fragments were the causative agent, the wound of entrance was relatively small, the bone fragments were deeply driven into the brain substance, and the internal table was much more extensively broken than the external. In but one case (inoperable) were focal paralytic symptoms marked; in this, necropsy demonstrated that a small shell fragment had entered the left parietal region, traversed both hemispheres and became embedded on the other side directly under the skull almost opposite the point of entry. Treatment in the operative cases resolved itself into extraction of the shell fragment if accessible, complete closure with silkworm-gut ("crin de Florence"), and drainage if complete excision of the tract could be made in cases received within twelve hours of injury. The drain was removed at the end of twenty-four hours, as a rule, and healing was unusually kindly in nearly all of the cases. This class of case should be subjected to a period of hospitalization varying from twelve to twenty days. It is worthy of note that cases showing postoperative commotion are often relieved by spinal puncture; this also is efficient for the headache so often complained of. The type of intercranial injury encountered in this group resembled very closely the cases seen in civil practice; indeed, the comparison between civil and war surgery was closer in this type of case than in any of the others:

THORACIC INJURIES

Thoracic injuries were, generally speaking, of two types, those with and those without a widely opened chest cavity. Either may be associated with hemothorax of varying grades, but in nearly all, dyspnea and evidences of shock made diagnosis apparent on mere inspection. All of these patients were much benefited by preliminary shock treatment (heat, elevation of foot of bed, and salt solution subcutaneously or intravenously). A single hypodermic of morphin acted well for most of them. Immediate operation was not performed unless an open, gaping wound made interference urgent. Great relief was obtained by a tight dressing acting as a patch over the hole in the pleura.

One patient with two wounds of the upper anterior chest wall was operated on at once because of urgent dyspnea, cyanosis and signs of large hemothorax. The lower wound was first excised down to the place of entry in the seventh interspace; it was then closed completely in three layers. The upper wound was then excised, 3 inches of the fourth rib being removed. A large collection of blood was evacuated by twice rolling the patient on his side. The upper lobe of the lung was then brought into view through the aid of wide retraction. Two small holes were iden-

tified and found not to be the source of hemorrhage. Several splinters were removed from the third rib, ether was poured into the chest cavity, and then three layers of sutures (pleura muscle, fascia and skin) gave an air-tight closure. Several of the penetrating wounds required no intrathoracic manipulation; in these, treatment consisted of exsection of the soft parts, ether cleansing, layer suture and a small drain.

Reeffusion is treated by aspiration, if dyspnea is marked; if not, it is allowed to subside spontaneously. Emphysema of the chest wall was of common occurrence, but it regularly subsides without interference and is of no importance. In cases in which the foreign body has not been removed, fluoroscopy should be employed as soon as practicable. Secondary removal of embedded fragments (preferably under the fluorescent screen method of de la Villon and others) should not be practiced until the stage of subsidence is reached, unless there are strong indications to the contrary. The ease with which the lung can be drawn through the chest wall is very striking. The line of approach should be chosen to avoid getting too close to the pectoral fold, and for that reason it is often better to enter the cavity through a special opening so placed that the necessary inspection of the inner wound of entry may be made. The pneumonia these patients subsequently develop is often associated with effusion; but, as stated, the latter needs attention only if respiration is greatly embarrassed or signs of infection appear. A number of our patients had wounds in the scapular region leading to the chest cavity in the upper or posterior portions; all of these went on to recovery without intrathoracic intervention. For the first three days after the operation all the patients had high temperature, rapid pulse and respiration; many of them also had mucosanguineous expectoration and more or less frank signs of pneumonia. A semi-seated position was found to give great comfort. Morphin or codein was used as required, respectively, for restlessness, pain or cough.

ABDOMINAL INJURIES

Abdominal injuries were of two main types, one in which the abdomen was penetrated directly through the parietes, and one in which the penetration was indirect as from the lumbar, gluteal or other regions. These patients usually entered in a state of shock; the majority of them had vomited; all had abdominal rigidity and localized tenderness more or less marked. The diagnosis in the first type was perfectly apparent; in the second, diagnosis was usually made after the wound tract had been followed far enough to show that it led to or in the direction of the abdomen. Our experience has made us very chary of ruling out the possibility of associated abdominal injury in any wound of the lower lumbar or gluteal region if the shock seemed disproportionate to the site and general appearance of the wound, and if there was complaint of abdominal pain with or without rigidity or local tenderness.

Several of our patients entered with a diagnosis of wounds of the gluteal or lumbosacral regions; at operation these wounds were found to lead intra-abdominally, requiring laparotomy. One of my patients had a wound of the sacral region with a fracture of a sacral arch leading to the abdomen; a laparotomy revealed no intra-abdominal lesion, and the foreign body was removed retroperitoneally from the region of the iliac wing. This patient had a fracture of a

spinous process and two arches of middorsal vertebrae without intraspinal injury.

When laparotomy becomes necessary, it seems wisest to enter the abdomen by the route that will most efficiently bring into view the viscera supposedly involved. For this reason the original wound of entry is not often well placed, however large it may be, or however tempting approach through it may appear to be. The classical medial incision or those through or at the side of the rectus are of great value; but the operator must be prepared to make incisions far longer than anticipated, often, indeed, nearly at right angles to the original line of approach. Patients with massive intra-abdominal hemorrhage rarely reach the operating table so that the great majority are examples of more or less slow bleeding from wounds of the liver, stomach, spleen and intestine. The wounds are often multiple, requiring long, careful, methodical search. As in civil practice, it is well to remember that the stomach may still retain all its contents, even though there is a large sized hole in its upper half.

In any case in which there is even a fair suspicion of intra-abdominal entry, it is much the safest rule to perform laparotomy at once. Contusion of the intestinal wall without definite tearing is a puzzling problem; if the wall is dark and lusterless, then it seems better to resect in view of the possibility of subsequent gangrene or infective necrosis. I am reasonably certain that my failure to resect in one case was in great part responsible for the fatal outcome in a case of this type showing a perforation of the stomach and a long contusion of the descending colon. Drainage should not be used unless the original wound is made the zone of approach; then the drain should be used only to prevent the formation of a hematoma of the soft parts, assuming, of course, that adequate exsection of damaged tissue has been possible.

JOINT INJURIES

Penetrating wounds of the knee joint were relatively frequent, and next, penetrations of the elbow, wrist, shoulder and ankle joints. The routine treatment was exsection of the tract, exposure of the joint, irrigation with ether, removal of all foreign material (including blood), adequate hemostasis, lavage with ether, closure of the joint coverings, the soft parts and the skin in three separate layers, and draining subcutaneously when reaccumulation of blood was feared, but not otherwise. In the knee, lateral approach was preferred by a single vertical incision alongside the patella, and if that did not suffice, a similar incision was made also on the opposite side. In no case was it necessary to make the so-called U-incision by which the patella tendon is divided close to its attachment to the tubercle of the tibia. Before closure, all joints exposed were examined in a position of flexion as well as extension. If fragments of bone were loose or detached, they were removed; otherwise they were curetted and allowed to remain. Postoperative splintage was used in the knee cases for three days, but passive motion was commenced within twenty-four hours and continued daily. After the splint had been removed, a pillow was placed under the knee and each day raised higher until a right-angled position had been attained, and then the height was gradually decreased until full extension was reached. After the sutures had been removed (from eight to ten as a rule), active gradually increasing motions of the joint were insisted on; if reaction

occurred therefrom, the joint was kept quiet until such evidences disappeared. In no case was it necessary to perform postoperative aspiration for reeffusion. The knee cases did better than the rest, the elbow better than the ankle or wrist. The proximity of exposed tendons, as in the ankle or wrist, seemed to introduce a complicating element of tenosynovitis.

BLOOD VESSEL AND NERVE INJURIES

Injuries to the blood vessels and nerves were not especially numerous. There was one case of injury to the popliteal vessels requiring ligation, and subsequently, amputation of the upper thigh for gangrene. A case of injury to the brachial vessels also called for ligation, and the next day amputation at the shoulder joint became necessary because of gas gangrene, and death followed. Both of these patients entered with a tourniquet, which had been in place eight and four hours, respectively. Several patients had marked bleeding from the vessels, especially the veins in the region of Scarpa's triangle. In the calf, the posterior tibial and its branches were occasionally involved. When a main vessel had been affected, experience taught us to be exceedingly careful to exsect adjacent soft damaged parts widely, and in all cases it seemed much wiser to leave the wound entirely unsutured.

The nerves most affected were the ulnar, median and peroneal. When possible, immediate suture was attempted; and in all, splintage was so arranged to prevent the anticipated contracture.

FRACTURES

Fractures were designedly assigned to another formation, and those treated by us were complications of severe injuries to soft parts with and without hemorrhage. The scapula was most often involved, next the skull (frontal and parietal), and then the ribs, the bones of the forearm and the leg. In all instances, the entirely detached bony fragments were removed, while the others were allowed to remain after thorough cleansing and curetting. Primary complete suture of overlying soft parts was attempted if the conditions permitted (see below), and suitable splintage was applied. If the involved bone was close to the surface (as in the crest of the tibia and the spinous process of the vertebrae), healing seemed to be much interfered with. Otherwise convalescence was almost as uneventful as if the bone had been undamaged. A detached bony fragment appears to be in effect a foreign body, just as potentially troublesome as a retained shell fragment; for this reason, the removal of the one is as necessary as the removal of the other.

Joint fractures were treated after the manner of joint injuries, and no permanent splintage was used unless the line of fracture was extensive or involved more than the articular surfaces. One such case affected the external epicondyle of the humerus to the extent of pulverizing it, splitting also the head of the radius (seton type of wound). The bony fragments were removed from the humerus, the joint was closed, the soft parts and skin separately sutured, and the elbow was placed in a position of hyperflexion. Primary union was obtained.

SUPERFICIAL INJURIES

Superficial injuries were found to be exceedingly deceptive in that the size, source, site and general appearance of the external wound was no accurate

gage as to the extent of the underlying damage. For purposes of classification, all such wounds in order of frequency may be said to be penetrating, seton type (wound of entry and exit), tangential (gutter shaped) or superficial (practically abrasions). All were subjected to the routine of exsection of the skin at the place of entry and exit, care being taken to remove only a slice of skin, as that is adequate. The skin incision is then enlarged so that the damaged underlying parts are brought fully into view. Frayed, bruised or discolored tissue is then removed, in a wedge shaped mass when possible, the whole tract being thus treated. Under guidance of the eye, the foreign body is thus brought best into view, and no attempt is made by finger search to reach the missile unless the tract is lost to view. The finger or an instrument readily makes a false track and greatly interferes with the essential idea of complete exposure of the tract under the guidance of vision—*ouvert à ciel* (open to heaven) as the French so aptly term it. Not a fiber of damaged tissue should be left behind, muscle and fascia being especially well removed. All loose or hanging edges should then be trimmed away, and hemostasis made as rigid as possible after the foreign body, including all important clothing or dirt, has been removed. The entire cavity is then flooded with ether or some other chosen antiseptic; ether was used by us because of its antiseptic and hemostatic qualities, and also because it left no residue after evaporation. It has been demonstrated to be very efficacious in destroying gas gangrene organisms so prone to lurk in muscle tissue.

The treatment thus accorded is fundamental, is the basis of all treatment for war wounds, and is the essential element of success. Suture of the deeper layers was not made unless muscle or fascial layers had been cut transversely; in such an event, interrupted catgut stitches were inserted freely enough to coapt without tension. The skin was brought together by interrupted stitches of silk or silkworm-gut. These successive steps are called by the French *excision* (cutting away), *débridement* (removing debris), *épluchage* (peeling or plucking away), *hémostase* (hemostasis), and *suture* (suturing).

There are two plans to carry in mind so far as final healing is concerned, these depending on (a) the time elapsing between the receipt of injury and arrival at the hospital, and (b) the type site and extent of the lesion. We may aim first for primary suture (*suture primitif*, or *suture primaire*); second, for delayed primary or primosecondary suture (*suture primitif retardée*), and third for secondary suture (*suture secondaire*).

Primary suture should be undertaken only in selected cases, namely, those received within the first twelve hours of injury, those in which complete excision, débridement and removal of the foreign body can be made, and those in which subsequent hematoma formation is unlikely. The classes of wounds denominated above as seton, tangential and superficial most readily lend themselves to this class of treatment. It is very unwise to attempt primary suture unless the patient can remain at least seven days under direct observation. Wounds of well muscled parts, like the thigh, hip and calf, are dangerous to close completely. Any wound showing much fraying or bruising of tissues should not be subjected to tight closure. Damage to main vessels is an abso-

lute contraindication to primary suture; likewise the preliminary use of a tourniquet makes tight suture altogether unsafe. In a general way it can be said that primary suture is a method to be attempted only after reasonable experience with other methods.

A modification of complete suture is adapted to that class of cases in which one angle of the wound is left open for drainage; this may be termed partial primary suture (*suture primaire partielle*). If rubber tubing drainage is used, it should be removed not later than forty-eight hours later because of the necrosis induced, especially at the edges of the skin. A few strands of "crin" makes an excellent drain; gauze should be used only when oozing is to be controlled or wound-edges are to be designedly held apart.

Delayed primary or primosecondary suture implies that all the steps of treatment are given as in primary suture except that suture has not been made, either because the patient was not received within twelve hours or there was doubt as to the propriety of immediate suture, or the rush of work prevented completion of the work. Accordingly, a sterile dressing is applied, and within the succeeding three to six days the final step of suture is accomplished, provided infection has not meanwhile developed. This is a safe method; it practically brings about cure as rapidly as if the initial steps had been complete; it is the method of choice in a great many instances. This procedure has the added merit of making transport from one hospital to another relatively free from danger. Some of these cases can be sutured by the use of local anesthesia, others by the aid of ethyl chlorid anesthesia; some even require only strapping by adhesive plaster. This procedure is to be strongly commended because it is surgically safe and adequate.

Secondary suture is adapted to those cases in which infection has developed and has been brought under control by means of antiseptics. The best time for this sort of closure is usually between the tenth and the sixteenth day if the bacterial conditions permit. The granulations should be disturbed as little as possible, but the edges of the skin should be shaved off and the skin margins undermined enough to bring about union without tension. Drainage should be used only if oozing cannot be controlled; in such an event a few twisted strands of "crin" will prove adequate.

The first and second methods rely for their efficiency on the complete mechanical removal of all sources of infection through the agency of the scalpel or scissors; the third method is effective because infection is removed by chemical means. The two great sources of infection to be feared are the streptococcus and gas gangrene (*Bacillus perfringens* of the French) invasions; a latent infection by the latter is less likely to prove harmful than the former, for this organism is known to exist in a relatively nonvirulent form in many cases. Secondary suture should not be undertaken except under strict supervision if either of these organisms (especially the streptococcus) is demonstrated to be present. The bacterial count is an accurate guide to the time for suture, but for practical purposes a clinically healthy wound will heal kindly in the vast majority of cases even in the presence of an occasional streptococcus.

Whatever method of suture is chosen, there is usually a rise of pulse or temperature for the first forty-eight hours; a rise of pulse or temperature to 100 is in fact the rule rather than the exception. The

wound edges may sometimes appear puffy and reddened in this initial interval, but a wet dressing of saline solution will usually cause a subsidence of these signs. If infection does appear in a sutured wound, the removal of one or two stitches may afford drainage enough to allow of subsequent healing, and all the stitches should not be removed unless the signs are marked or bacterial examination shows streptococci, assuming, of course, that no general signs of infection appear. If no infection appears at the end of the third day, healing is quite likely to terminate satisfactorily.

Keeping the parts at rest by the aid of a splint is an added factor of safety; splintage is all important to counteract threatened contracture when nerve or muscle injury complicates. In this connection it is important to note before operation what evidences of neural damage exist. Preoperative examination is much needed in multiple injuries to determine which injury demands most immediate attention, and the wound apparently requiring the longest attention should be first treated, so that the patient may not become too severely exhausted. Other things being equal, except in the case of hemorrhage, a wound nearest to a main cavity or joint should receive first attention. When possible, two surgeons should operate at the same time on a patient with many wounds, opposite sides of the body being chosen so that one operator may not interfere with the other. An overhead frame of metal or rope will be found a great convenience to support limbs, thus doing away with the need of an orderly for this purpose.

Our experience abundantly showed that subsequent infection was directly proportionate to the success of the initial excision of damaged tissue. In other words, infection in cases in which operation had been performed indicated that the removal of involved soft or hard parts had not been radical or early enough.

The routine after-care consisted of daily dressings of gauze soaked in saline solution or eau Mencièrè, the latter consisting of guaiacol, 500 gm.; benzoic acid, 100 gm., and alcohol, 400 gm. Ten gm. of the foregoing to 1 liter of sterile water made the solution ready for use. When the granulation stage was still further advanced, a spray of Mencièrè's solution was often used. The formula of this is: iodoform, guaiacol, balsam of Peru and eucalyptol, of each 10 gm.; alcohol, 100 gm., ether, enough to make 1,000 gm. Not only are these Mencièrè preparations antiseptic, but also they provide the necessary nonadhering qualities so desirable. Hypochlorite solutions were not used because our available supply was exhausted. The Carrel technic was used in a few cases in which intermittent instillation was needed to control spreading infection.

Two cases of gas gangrene developed, one in a case of multiple wounds of the thigh and abdominal viscera, the other in the already mentioned case of severance of the brachial vessels and subsequent amputation. Both of these patients had tourniquets applied for several hours prior to admission. In the English army the tourniquets have been wisely abandoned, and there seems to be no good reason why bleeding vessels cannot at least be clamped in the dressing stations even if the hemostats are included in the dressings and ligation omitted in the press of work. The danger of the tourniquet is not only because it robs the tissues of main blood supply, but also because the muscles are thereby extensively bruised, ischemia occurs, and

minute hematomas are induced at a long distance from the original focus, all combining to make exactly the prerequisites for gas gangrene infection. In our cases of injury to the main vessels we invariably found the involved vessels blocked by clots so that hemorrhage did not usually occur until reasonably wide exposure had been made.

We found it wise to cut out fascia at right angles, especially the fascia lata, so that it would not unduly constrict underlying muscle. The interlacing gluteal muscles require extensive excision to provide adequate approach and drainage. So much oozing is thus induced that gauze drainage was more often needed in this region than in any other; to a lesser degree the same pertains to the muscles of the upper thigh. Any wound of the femoral region must be approached with care because the vascular supply is so ample that troublesome bleeding is likely to be encountered. One of our French confrères called our attention to a simple approach to the often involved posterior tibial vessels. An incision is made exactly in the middle of the calf, the gastrocnemius is cut through, exposing the soleus, and this also is incised, bringing into view the vessels sought for.

A review of the anatomy of the arm, forearm, thigh and leg is helpful and necessary, for at any time the operator may be confronted by a wound of known entrance but of unknown direction. Missiles never seem to traverse the same route in any two cases; but one rule as to their direction seems fairly constant, namely, that occasionally a ridge or point of tenderness gives fairly reliable information as to the route traversed. The larger the foreign body, the more easily is it removed, the better the chances for adequate extraction, and the less the consequent infection unless main vessels have been damaged. If a foreign body cannot be removed, it is unwise to suture unless adequate drainage can be provided, unless it is definitely known that the missile is small, lodged in an unimportant place, and that sufficient excision has been made. Unremoved foreign bodies are best removed about the third day, at which time primo-secondary suture can be made. This removal is often possible by means of forceps introduced under the guidance of the fluorescent screen (method of de la Villon and others). In this manner I removed a tiny fragment from the lateral process of the fourth cervical vertebra after an extensive dissection had been made in vain three days before. The wound had been left lightly sutured with ample drainage, and primo-secondary suture gave a line of union quite as good as if primary suture had been done at the first sitting.

Amputations were exceedingly uncommon; those that were necessary were of the "chop" variety, in which the bone was cut just above the level of the soft parts, the entire wound being left widely open. In this type of case, and in many wounds of the soft parts, adhesive plaster strapping does much to bring about coaptation.

SHOCK AND HEMORRHAGE

Shock and hemorrhage are difficult to differentiate, indeed, often coexist. As a general rule, patients with shock begin to show rapid improvement as soon as much needed external heat has been applied. The importance of having well heated beds cannot be overestimated, and the addition of a cradle from which electric bulbs are suspended is of great value. A special hot room (*cellule chauffante*) for patients with

shock is absolutely necessary. Some special member of the staff should be ready at all times to administer necessary intravenous stimulation. Most of our fatalities from shock were due to intra-abdominal hemorrhage in those cases regarded as inoperable, and so proved to be by necropsy. There were no instances of secondary hemorrhage in our series. We found that our patients readily absorbed large quantities of fluid introduced by rectum.

TETANUS ANTITOXIN

Tetanus antitoxin had usually been administered prior to the arrival of the patient; but if not, it was immediately given. All patients had a second dose of tetanus antitoxin between the tenth and the fourteenth day. A great many of the injured developed a skin reaction about the fifth day after the first dose.

SUMMARY

During twenty operating days, 132 patients were operated on, 176 interventions being made; the latter indicates that approximately 30 per cent. of the injured had more than one operative condition. There were 8 laparotomies (4.6 per cent.), 10 craniotomies (5.8 per cent.), 3 thoracotomies (1.7 per cent.), and 4 arthrotomies of the knee (2.3 per cent.). This indicates that approximately 15 per cent. of the cases were of the preceding variety.

The remaining 107 cases (approximately 85 per cent.) can be included under the general term "injuries of the soft parts," it being borne in mind that this grouping includes wounds of the smaller joints, fractures, ligation of vessels, neural injury, spinal fracture, and all the others strictly limited to "soft parts."

Regionally considered, the parts most affected were: gluteal area, 27 cases; arm area, 17 cases; forearm area, 13 cases; shoulder area, 12 cases; chest area, 9 cases; thigh area, 9 cases; calf area, 7 cases. There were nine deaths in 132 operated cases, a mortality of 6.8 per cent.

The cause of death was: intra-abdominal with visceral lesions, 4; intrathoracic with hemorrhage, 2; intracerebral with hemorrhage, 1; amputation (arm) for gas gangrene, 1; gluteal area with hemorrhage, 1.

The patients were operated on and cared for by two teams of American surgeons composed of four members, and we found for practical purposes that it was safe to count on being able to operate on twelve patients in the allotted ten hours of operative service. However, in one period of great activity, both American teams, operating simultaneously, operated on thirty patients in seventeen hours' continuous service.

Ether was the anesthetic of choice, preferably given in the Ombredain inhaler or on a mask (open method); the former is an excellent apparatus because it can readily be operated by more or less inexperienced persons. Incidentally, the side piece can be removed, a cork with two glass tubes inserted, and then it is ready for use with ethyl chlorid as the inhalant; this is a safe and very satisfactory anesthetic for operations not requiring longer than fifteen minutes, and there is no postoperative shock or vomiting. In the first few days of our experience, Major de Tarnowsky and I were the only surgeons available, and we found it necessary to use chloroform because the electricity had been cut off, and candles and lamps were used to light the operating room, making it unsafe to use ether.

CONCLUSIONS

1. No patient should be operated on until thoroughly warmed, unless bleeding is uncontrollable.
2. Patients arriving with a tourniquet, with or without severing of main vessels, are bad risks in that gas gangrene is likely to have already developed. In no instance should the wound in such cases be closed.
3. An unusual rise of temperature or pulse, especially if associated with restlessness, demands immediate investigation, as these signs often indicate the onset of gas gangrene.
4. Persisting high temperature and pulse almost invariably mean that the wound is not doing well, unless pneumonia or some other acute systemic condition can be positively demonstrated.
5. Freedom from subsequent infection is directly proportionate to the removal of damaged tissue.
6. Persisting shock usually indicates hemorrhage.
7. Ether has demonstrated an unusual efficacy when employed to lavage wounds during and after operation, especially when much muscle tissue is involved.
8. Postoperative dressings should not be dry for the first few days at least; moist dressings are of proved value in the early stages.
9. Drainage will cause infection if used for more than forty-eight hours, especially if rubber tubing is used in parts subjected to movement, notably the region of the abdomen or chest.

OPERATION FOR EMPHYEMA

A PRELIMINARY REPORT COVERING AN OBSERVATION ON ONE HUNDRED AND FIFTY-FIVE CASES

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This report is based on an observation covering 155 cases of empyema resulting as a sequel of the 1,300 cases of pneumonia treated at the Camp Pike base hospital and reported in Major Arthur Small's¹ paper. From the date of the organization of the hospital, all medical officers were instructed to examine pneumonia patients carefully with the idea of determining the presence of pus in the pleural cavity. To this end soldiers suffering with this disease were as a routine roentgenographed at the end of fourteen days after the onset, if the stage of convalescence was not well established at that date. Whenever roentgenoscopy disclosed possible signs of fluid in the pleural cavity, aspiration, under strict aseptic technic, was carried out. If as a result of this aspiration macroscopic pus was present, or the fluid examined in the laboratory showed pus organisms, surgical intervention was immediately instituted.

On admission of these patients to the surgical service, blood cultures are taken, roentgenograms and examinations are systematically and repeatedly made, and fluids aspirated from the pleural cavity are investigated in the laboratory.

The bacteriologic findings which are based on an examination of the pleural fluids, since the blood cultures were practically all negative, show the *Streptococcus hemolyticus* in 101 cases and the pneumococcus in twenty-five. Type I was found in two cases,

1. Small, A. A.: Pneumonia at a Base Hospital, THE JOURNAL A. M. A., this issue, p. 700.

Type II in seven, and Type IV in six. Seven cases were not agglutinated.

In our early experience the operation of costectomy or thoracotomy was performed practically as a routine, though in a few cases aspiration was carried out and 2 per cent. formaldehyd solution in glycerin was injected into the pleural cavity. In the drainage cases, as a rule, Brewer's tubes were used. In some of these cases negative pressure was produced by means of Woulfe's bottles, while in others drainage was carried directly into large bottles containing a very weak mercuric chlorid solution. In many of these cases the pus was found in separate compartments of the pleural cavity. Of especial interest were the pus pockets formed in the following position: the lateral wall on the right side formed by the mesial surface of the lung from the diaphragm to the apex of the lung, the left wall below by the pericardial sac, above by the mediastinal space, and in front by the anterior flap of lung, which became adherent to the costal pleura in this position, thereby burying the pus deep in the thoracic cavity about the root of the lung. Cavities containing pus formed in a corresponding position in the left pleural cavity.

METHOD OF DRAINING SUBSTERNAL INTER-PNEUMONIC PUS CAVITIES

In order to drain these cavities, an operation was devised in which $3\frac{1}{2}$ inches of the fourth rib was resected and retraction was produced so that the gloved finger might sweep over the anterior border of the lung into this space. This anatomic location was selected because through an incision at this point pus pockets may be reached anywhere between the diaphragm and the manubrium sterni. In the last case of this type, drainage was performed by a rubber catheter introduced through a trephine opening made in the middle of the sternum between the third and fourth costal junctions. At this point the operator can enter either the right or the left pleural cavity.

Observation of this group of cases gave us a number of reasons for not opening the pleural cavity. We were led to this conclusion particularly by our experience in aspiration and the injection of solution of formaldehyd in glycerin into the pleural cavity. Because of the extent and virulence of empyema at Camp Pike, the following plan was decided on, and I here quote largely from the May report on this subject to the Surgeon-General's Office.

In the early part of March it was deemed advisable to investigate this disease very carefully and extensively, and to that end a team was formed for that work. This group at the present time is made up of the chief of the surgical service, who acts as director and is in daily consultation with members of this group, particularly in consultation in the operating room, empyema wards and laboratory, and the following members, who devote practically all their time to this subject: Lieuts. V. P. Diederich and H. D. Van Schaick of the surgical department; Lieut. H. L. Goss of the roentgenology department; Lieut. Charles G. Beall of the medical department (consultant); Lieut. S. Hoge of the laboratory department; Miss Rathjen (bacteriologic assistant), and Miss Russell, an especially trained nurse.

NEW PLAN OF OPERATIVE PROCEDURE AND RESULTS

Twenty-five patients have been operated on since April 1, with one death, and the prognosis for the

recovery of those remaining is excellent. In the fatal case the patient was operated on according to the old plan of costectomy. Mention is made of this fact, as in none of the nineteen cases reported in this group in which operation has been performed by the new plan have any patients died. In addition to the treatment outlined in the March 22 report we have made one change, to which reference is made in the previous sentence as the "new plan." To this type of operation I wish to direct especial attention; namely, the draining of the pleural cavity, irrespective of the character of the pus, by means of a No. 14 French rubber catheter, introduced by means of a trocar and cannula, just large enough to thread the catheter into the pleural cavity. The catheter is then connected with a 100 c.c. glass syringe, and aspiration is intelligently and carefully carried out. If the pus is too thick for aspiration, a small amount of neutral solution of chlorinated soda (Dakin's solution) is allowed to run in. This solution quickly liquifies the pus, so that by repetition of this procedure the entire cavity is emptied. The cannula is withdrawn, leaving the catheter in place, and one-half the number of cubic centimeters of Dakin's solution are allowed to run into and remain in the pleural cavity as correspond to the quantity of pus aspirated during the operation. The process of aspirating through this catheter and the instillation of Dakin's solution is repeated by a trained ward surgeon three times a day, and two times during the night by an especially trained nurse. When by examination, either physical, by the roentgen ray or by aspiration, separate pockets of pus exist, this same procedure is followed. The last nineteen patients in this group have been treated by this method, and I am firmly convinced that this plan of procedure is a marked improvement over any type of operation that has been performed in our experience at this camp.

OUTLINE OF WORK BY EMPYEMA TEAM

A weekly routine meeting of the group is held at which the general plan of procedure is outlined so that individual effort may not be expended in a futile manner.

From the bacteriologic standpoint the following control is being attempted: A graduated pipet of pus is taken from the pleural fluid aspirated at the original operation. This pus is plated and cultivated; subsequently colonies are counted, from these figures the number of organisms is computed, and then a comparison is made with a parallel procedure repeated every twenty-four hours. Cultures are made to determine whether either aerobic or anaerobic organisms are present. These routine bacteriologic examinations constitute a definite and accurate method of control in determining the value of this form of surgical procedure in preventing the introduction of other bacteria into the pleural cavity. If mixed infection occurs, it will be immediately noted in the colonies on the plates. At this date no mixed infections have been found in the laboratory following this new type of operation. The size of the cavity is measured by determining from day to day the amount of fluid used to fill it. By this means some information is gained respecting the rapidity with which the cavity is being obliterated.

The roentgen-ray member is experimenting on shadows being formed by various solutions that might, without deleterious effect, be injected into the pleural cavity. Such a solution would give some index of

the size, shape and location of the pus cavity. It may be said, by way of explanation, that barium or bismuth cannot, at least by the ordinary methods, be used for this purpose, on account of the inability to get it out of the pleural cavity through the small opening made by the catheter. Solutions of potassium iodid, sodium iodid, weak solutions of silver salts and other substances are being investigated by roentgenologic methods. In the event of any of these solutions being considered favorable, some experimental work will be done on dogs and other animals before the solutions are used in the empyema service.

BENEFITS OF OPERATION

1. It is distinctly a minor operation.
 2. It minimizes the possibility of contaminating the pleural cavity from without.
 3. The lung is not as completely collapsed as in the operation of costectomy or thoracotomy.
 4. Treatment can be repeated at definite intervals and an accurate account kept of the amount of pus aspirated. A comparison of the quantity and character of the pus coupled with the bacteriologic findings from day to day enables one to establish a favorable or unfavorable prognosis.
 5. The distressing sinuses are not as likely to follow, though not sufficient time has elapsed to permit a definite report on this phase of the operation.
 6. Pus from dependent portions of the pleural cavity can be completely evacuated by this method.
 7. Solidified pus cannot form under the influence of the reaction of Dakin's solution used in the irrigation.
 8. Danger of injury to the lung from the use of the aspiration needle is overcome by the rubber catheter.
 9. In suspected lung abscess, communicating with the pleural cavity, its presence is determined after the introduction of 10 c.c. of the irrigating fluid, by the patient immediately having an irritating cough and noting the taste of the fluid in his mouth.
- The work on empyema, under the foregoing plan, is placed on an intelligent and scientific basis. The results reported in this paper are largely dependent on the continuous attention given these patients, particularly a very rigid surgical technic in the surgical operations and subsequent surgical dressings.

REPORT OF A SEVERE CASE OF EPIDEMIC MENINGITIS TREATED BY THE COMBINED INTRAVENOUS AND INTRASPINAL ADMINISTRATION OF ANTI-MENINGOCOCCUS SERUM.

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Lieutenant M. was admitted April 25, 1918, and a diagnosis of epidemic meningitis was confirmed by laboratory methods. He was given 30 c.c. of antimeningococcus serum intraspinally daily for seven consecutive days with but slight improvement. On the seventh day he was given 30 c.c. of undiluted serum intravenously, and the same amount on the following day combined with the same sized dose intraspinally.

The patient showed marked improvement, but developed a severe anaphylaxis. No more serum was given for two days, nothing being done during this time except the withdrawal of from 60 to 80 c.c. of spinal fluid to relieve pressure.

On the eleventh day the patient was seized with a hard chill followed by a rise in temperature to 103 and all the former symptoms. The spinal fluid again became cloudy. He was given 15 c.c. of serum intraspinally, and one hour later 60 c.c.

were given intravenously diluted with an equal amount of sterile sodium chlorid solution. This was repeated on the twelfth day. The fluid cleared and has remained so since. There was a marked and severe reaction from the last two doses; there were three or four convulsive seizures and involuntary voiding of urine and feces, followed by a severe arthritis and erythema. This lasted for four days. The temperature reached 104 and the pulse 160. The patient was given digitalis internally, and an ice bag was applied to the precordia with good results. He is now well on the road to recovery, with a partial paralysis of the right external rectus muscle which is improving under potassium iodid, 0.65 gm., three times a day after eating. He has a soft systolic murmur with reduplication of the second pulmonic sound over the pulmonary area, which we think is purely functional.

The patient was given a total of 540 c.c. of serum and received eighteen spinal punctures.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

CHLORAMINE-T.—Sodium Paratoluenesulphochloramide. $\text{CH}_3\text{C}_6\text{H}_4\text{SO}_2\text{NaCl} + 3\text{H}_2\text{O}$, 1:4.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1918, p. 156.

Chloramine-T, Squibb.—A brand of chloramine-T.

Manufactured by E. R. Squibb and Sons, New York. No U. S. patent or trademark.

Chloramine-T Surgical Paste-Squibb.—It contains chloramine-T 1 Gm. in 100 Gm. of a base composed approximately of sodium stearate 15 per cent. and water 85 per cent.

Chloramine-T Tablets-Squibb, 4.6 grains.—Each tablet contains chloramine-T 4.6 grains.

DICHLORAMINE-T.—Paratoluenesulphonedichloramide. $\text{CH}_3\text{C}_6\text{H}_4\text{SO}_2\text{NCl}_2$.—The dichloramide of paratoluenesulphonic acid, $\text{CH}_3\text{C}_6\text{H}_4\text{SO}_2\text{OH}$.

Actions, Uses, Dosage, Physical and Chemical Properties.—See New and Nonofficial Remedies, 1918, p. 157.

Dichloramine-T, Squibb.—A brand of dichloramine-T.

Manufactured by E. R. Squibb and Sons, New York. No U. S. patent or trademark.

Patriotic Work.—The Children's Bureau, U. S. Department of Labor, states that the drive for better play and more inspiring out of school activities for children is on. Plans are rapidly developing in the states to make this recreation drive count for increasing the health and vigor of the boys and girls of the United States. One purpose of the drive is to make more plain that the vigor of young people can be gaged by their ability to perform certain game tests and that their health can be increased by wholesome play. Although play is instinctive with children many of them have never learned to play with other children, and need to be taught to take their part in group games. Such games teach the spirit of cooperation and team work, and develop the ability to make quick decisions demanded by the needs of the game. Boys and girls are beginning now to fit themselves for the tests by playing the games which develop special muscular agility. A leaflet telling how to play twelve good games, and showing just how they will help to make the children stronger can be secured on request from the Playground and Recreation Association of America, 1 Madison Avenue, New York, which is cooperating with the Children's Bureau and the Woman's Committee in the plans for the recreation drive of children's year.

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SATURDAY, AUGUST 31, 1918

UNIFORMITY IN MORTALITY STATISTICS

It is hardly necessary to point out the great advantages to the public health involved in a correct and uniform system of reporting deaths, and yet one can hardly turn to a table of official mortality statistics without being perplexed by the need of reinterpretation of the data presented. A number of current controversies, such as that on the alleged increase of cancer, hinge very largely on the correct evaluation of reported causes of death. Some of the sources of error are at present unavoidable. As is well known, there are some certified causes of death, such as "influenza" and "rickets," in which the margin of error is so great that they are considered unacceptable as statements of the cause of death unless confirmed by necropsy.¹ It is well known also that the diagnosis of some pathologic conditions is difficult at the best, that under some conditions, as in gastro-intestinal maladies in the tropics, the uncertainty is greater than under others, and that improvements in diagnostic methods are steadily making the reported causes of today less comparable with the reported causes of a few decades ago.

If a large measure of the uncertainty in mortality data is unavoidable, it is nevertheless true that death records can be simplified and made much more useful by uniformity in nomenclature and in methods of reporting. The framing of the International List of Causes of Death was a step in this direction; but, as pointed out by the committee already referred to, such a list "necessarily contains many terms that are unscientific, inaccurate and indefinite, as well as some that are obsolete." As experience in registration offices has shown, it is necessary to eliminate some of the terms from such a list and to use great caution in accepting others without necropsy or without supporting data, such as the finding of a specific microbe.

For some diseases it is possible to secure valuable data by simple uniformity in reporting. In death following measles, for instance, the report to the health

officer might fail to distinguish between the primary and the secondary cause of death. Some physicians might report the death as due to measles, others as due to bronchopneumonia. Unless the occurrence of measles is specifically mentioned in the report, the connection of a death from bronchopneumonia with a case of measles would not be known at the health office. Comparison of the death rates from measles in communities where different modes of reporting were customary might hence be very misleading, and so might the apparent degree of fatality from measles at different periods in the same community. Nearly one fourth of the deaths reported from "pneumonia" in the registration area of the United States are not differentiated as between the lobar or broncho type, and the tables do not indicate whether pneumonia was the primary cause of death or occurred in the course of or following some other disease. The difficulty here would seem largely due to methods of recording. Since correct data on the occurrence of disease and the cause of death must constitute the basis for much of our public health work, more emphasis should be laid on uniformity in death reports both by health authorities and by the teachers in medical schools. The organization of the medical work in the Army encampments with reference to pneumonia and measles will doubtless do much to bring home to physicians the importance of uniformity in records in these and other diseases. Otherwise no proper comparisons of conditions and results are possible.

THE SCIENCE OF NUTRITION AND THE ARMY

The necessity for the scientific handling of our food supply no longer needs any argument in its favor. The day of haphazard methods and *laissez faire* policies has passed. A writer recently remarked that the personnel of the Food Administration is only another of the many proofs which we are having that there is no talent so superior that it does not gladly turn all that it has to the use of the country. We have lived to witness a supposedly intractable land of liberty respond to restrictive food regulations with a spirit of readiness that must have been fortified by a confidence in their safety and wisdom. The gospel of using our food wisely in economy has become firmly established among the people. Nevertheless the organization of a division of food and nutrition in the Medical Department of the Army has been watched with uncertainty as to its success by more than one champion of universal conservation. Has not the rationing of the Army been the uninvaded province of the quartermaster for generations? Who, then, shall presume to interfere with the orderly conduct of this supply department?

Yet the unexpected has happened, as has been the case so often in this war. Since last fall a group of food specialists—physiologists, food analysts and

1. The Accuracy of Certified Causes of Death, Report of a Committee of the Vital Statistics Section of the American Public Health Association, Pub. Health Rep., 1916, 31, 2539.

other nutrition experts recruited from the staffs of our educational and research institutions under the leadership of Major Murlin—have been making surveys of food conditions in the camps. These officers have studied the food served, how it is inspected, stored and prepared, and have made many recommendations which have been adopted with advantage. The presence of experienced students of nutrition has left an impress in the form of improved knowledge of dietaries and dietetic methods. Better still, however, has been the effect of this intelligent cooperation with mess officials on the reduction of waste, a feature which early aroused the criticism of the civilian conservationist, who looked with disgust and ire on the apparent lack of mess economy in some of the camps. According to a recent statement authorized by the War Department,¹ in a typical “surveyed” organization the edible waste per man per day was reduced from 1.12 pounds before the instruction to an average of 0.43 pound thereafter.

On the basis of the average saving of 0.69 pound per man per day, the economy would amount to \$338,000 a year for a camp of approximately 15,000 men. The advantage of work of this character involving scientific advice about dietaries, inspections for adulteration, spoiling and deterioration, and cooperation with mess officers has become so apparent that sixty new officers similar to the specialists now in service are commissioned. Such are the conquests of scientific administration.

THEORIES REGARDING MEAT POISONING

The discovery by Gaertner in 1888 of a micro-organism, *Bacillus enteritidis*, in association with an outbreak of meat poisoning, gave a great impetus to the study of bacterial food poisoning. Since then many added instances of the finding of the same or closely related bacteria have pointed to the harm that may arise from most unsuspected sources in relation to edible products. In an earlier period it was widely assumed that in the decomposition of meats and other food products highly poisonous “ptomains” are formed, and that these were responsible for the observed cases of acute intoxication ascribed to food. Speaking several decades later, Jordan has summarized the trend of present opinion by stating that it is possible that cases of “ptomain poisoning” due to ingestion of ptomains or to their formation within the intestine sometimes occur in man, but that there is no doubt that such cases, if they occur at all, are very rare. Many of the epidemics of “meat poisoning” are now known to be due to infection with specific micro-organisms, rather than to the action of a formed poison. The alleged complicity of the ptomains remains to be proved.

Two kinds of bacilli are at present primarily associated with the production of meat poisoning: organisms of the type of Gaertner’s bacillus and the anaerobic *Bacillus botulinus*, discovered in 1896 by Van Ermengem. The latter and its relation to those outbreaks of poisoning which have been described under the name of botulism have previously received detailed comment in THE JOURNAL.¹ In the case of true meat poisoning, the illness is unquestionably due in many instances to that group of micro-organisms now classified as paratyphoid bacilli, which includes the *B. enteritidis*. Paratyphoid fever may therefore be due to food poisoning in the bacteriologic sense.

The county medical officer of health for Somerset, England,² has recently pointed out that in spite of our greatly extended knowledge regarding food poisoning outbreaks, there is surprisingly little information as to the precise sources of infection. It has been alleged, for example, that the bacilli are of human origin, the food being infected with pathogenic Gaertner bacilli from a human source, such as a paratyphoid fever patient or a carrier of its infective organism. Again, since organisms culturally resembling paratyphoid bacilli are widely distributed in nature, it has been believed that many outbreaks of food poisoning are due to direct contamination with these sources, and particularly with fecal infection.

A third hypothesis is urged by Savage³ as best explaining the available facts. He suggests that this type of food poisoning outbreaks is due to an infection of the food with virulent organisms of the Gaertner group, derived either from animals that are at the time suffering from disease due to such micro-organisms or from animals acting as carriers of these bacilli. Heretofore no direct connection of human paratyphoid fever with specific diseases of the lower animals has been certainly established. The probability of such a relationship hinges in part on the question as to whether or not the organisms of the meat-poisoning type actually occur frequently in the healthy human intestine and likewise in the alimentary tract of animals. Savage claims to have proved by extended direct examination that the Gaertner group bacilli are not natural intestinal inhabitants either of man or of animals used for human food or which come into contact with food. The instances, he argues, in which these bacteria have been found in such situations are rare, and they may be bacilli from some previous infection.

If these assumptions are established, it will be important to direct attention in greater measure to unrecognized disease in animals. At any rate, Savage³

1. Food Poisoning, with Special Reference to Botulism, THE JOURNAL A. M. A., Aug. 11, 1917, p. 472; Home Canned Foods and Botulism, Oct. 13, 1917, p. 1262.

2. Savage, W. G.: The Sources of Infection in Food Poisoning Outbreaks, Jour. Hyg., 1918, 17, 20.

3. Savage, W. G.: Further Investigations of the Distribution of Gaertner Group Bacilli in Domestic and Other Animals, Jour. Hyg., 1918, 17, 34.

1. Nutrition Officers Stationed in the Camps, Science, Aug. 16, 1918, p. 159.

has not succeeded in showing the presence of any organisms belonging to the Gaertner group in the organs of calves and pigs passed as healthy and fit for human consumption. Perhaps when more is learned about the pathogenic organisms in relation to animal diseases—of which swine fever, calf septi-cemia, pyemia and enteritis in cattle, infectious abortion, etc., may be cited as illustrations—a nearer approach to the true explanation of the etiology of meat poisoning will arise.

THE ELIMINATION OF ZINC AND TIN

It is only in comparatively recent times that the possible part the intestine may play as a path of excretion has come to be clearly recognized and taken into account. The appreciation of the now undoubted fact of the excretory function of the bowel for certain substances has been due in largest measure, probably, to the studies on the behavior of iron. Thus it has been demonstrated that this element may actually be absorbed and used in the body, yet finally excreted with the feces. Indeed, little iron is ordinarily found in the urine, even when considerable quantities are introduced into the organism.

This story of the elimination of iron has already been duplicated for many of the heavy metals. The gastro-intestinal tract has been shown to be the main channel of excretion for lead, silver, nickel, mercury and bismuth, for example, the kidneys playing a very subordinate part. The latest studies of Salant¹ and his co-workers at the Bureau of Chemistry in Washington bring similar evidence of the fate of zinc in the body, the distribution of this metal in the tissues and its channels of excretion being similar to that of the heavy metals just enumerated. These are usually deposited in the liver in appreciable amounts.

According to the government investigators, the behavior of tin is somewhat different. Although the elimination occurs chiefly through the bowel, not inconsiderable portions of the quantity introduced into the body may find its way out through the kidneys. Information of this character has more than a passing interest so long as any of the nonphysiologic, that is, foreign heavy metals, however small their amount may be, find a way into the human body in everyday life. It is not merely in the industries that this may occur. A recent report on food products² shows that canned beans, for example, may contain more than 600 mg. of tin per kilogram. We cite this as an illustration of the unsuspected presence of the element rather than as an indictment against canned goods. Street² is responsible for the statement that

the source of the tin is the tin container, the amount contained in the food depending in part on the age of the food and the storage temperature. In the case of beans, and similar slightly acid foods, he continues, the tin present in the canned product has been shown to be due in part in some cases to the amino bodies present. It has been erroneously assumed that the tin in canned foods was in solution. Bigelow,³ however, has shown that the tin is largely, sometimes chiefly, in some insoluble form. Moreover, we are not justified in assuming that all of the tin found in the liquor even is in a soluble form, for it is quite probable that much of this is present as finely divided "insoluble oxid, hydrated oxid, or basic salt of tin." Furthermore, it is possible that much of the tin seemingly in solution is in colloidal form.

Current Comment

THE NEW SELECTIVE SERVICE LAW AND PHYSICIANS

Few of the questions now being asked by physicians as to how the new draft law will affect them can be answered until the regulations are issued by the Provost Marshal-General. There are some 75,000 physicians in the United States under 45 years of age. Those holding commissions in the Medical Department of the Army, Navy and Public Health Service are not required to register. Members of Local and Appeal boards, although required to register, as stated elsewhere, are considered as drafted for this duty, and therefore are exempt from general military service. There should be no difficulty now in securing a sufficient number of physicians for the medical needs of the Army and Navy. While a sufficient number undoubtedly could have been secured by the voluntary system, under the new order of things there certainly will be an ample supply. The important fact is that now it will be possible to solve the problem as to securing the number of physicians required for military service without seriously inconveniencing the civilian population. The new law provides for the exemption by the Selective Service Boards of those engaged in necessary "occupations and employments." Special regulations governing the application of the law to physicians will be necessary: the demands on the supply are so many and so complex. Two weeks ago THE JOURNAL stated, "It would seem possible to formulate regulations which would receive the approval of the Surgeon-General of the Army and of the Provost Marshal-General, which would practically place all physicians of draft age under the jurisdiction of the Surgeon-General of the Army." The only satisfactory solution of the whole problem is through the cooperation of the Surgeon-General of the Army and the Provost Marshal-General. The obvious necessity of this makes it practically certain that such cooperation will be effected. Specific regulations must be

1. Salant, W.; Rieger, J. B., and Treuthardt, E. L. P.: The Distribution and Elimination of Zinc and Tin in the Body, *Jour. Biol. Chem.*, 1918, 34, 463.

2. Street, J. P.: Twenty-Second Report on Food Products and Tenth Report on Drug Products, 1917, Bull. 200, Connecticut Agric. Exper. Station, 1917.

3. Bigelow, W. D.: Bull. 2, Research Laboratories, National Cancer Assn., August, 1914.

formulated to guide the Selective Service Boards, the ultimate object being to place the disposal of drafted medical men in the hands of the Surgeon-General. The ideal way would be to draft all physicians under 45 years of age, to commission them in the Medical Corps of the Army, and to place them at the disposal of the Surgeon-General of the Army, who would place on the inactive list those required in civil life. The demands on the medical profession are: (1) military and naval—including medical examiners for Selective Service Boards; (2) institutional—including medical colleges, hospitals, state asylums, etc.; (3) industrial—including sanitation and the care of employees in munition and other large manufacturing plants; (4) public health—including national, state, county and municipal health officials; and (5) civilian practice. The Surgeon-General's Office already possesses data covering most of these needs, and has available a complete survey of the medical conditions in civilian communities.

THE CALCIUM REQUIREMENT OF MAN

Among all the inorganic elements that occur in the body, calcium is the most abundant. The store of it, particularly in the skeletal structures, is so large that considerable drains on this reserve—if we may think of the bones in this sense—may be made without obvious signs of damage. Nevertheless, as the recent studies of Osborne and Mendel¹ have emphasized anew, the supply of calcium cannot long be neglected with impunity in the case of individuals that have a special need for it, as is true in growth, during gestation and milk production. This is almost a truism; yet how little is known by the average practitioner regarding the quantity of lime that his patient needs? And how much does he know about the actual supply being furnished in the diet or how it can be supplemented? Energy and protein are not the sole desiderata for adequate nutrition, even though a shortcoming in respect to either makes itself felt very soon. Professor Sherman of the department of Food Chemistry of Columbia University, New York, to whom, in conjunction with various co-workers, we owe much of the information about the human adult need of calcium, has lately supplemented his earlier studies in this field.² These observations have an enhanced value because they represent the outcome of very carefully conducted balance experiments in which income and output were measured over the unusually long period of a month in some instances. Without giving the experimental details, we may summarize the findings by the general statement that an average of 0.45 gm. (about 7 grains) of calcium per adult man per day represents approximately the minimum maintenance requirement for normal human nutrition. Expressed in more familiar terms, a pint of milk or less will

supply this quantity of calcium; but it will require pounds of meat or common milled cereals to furnish it. And it is well for him who is accustomed to prescribe lime to remember that a pint of milk usually contains more of the element than does the same volume of saturated lime water. Incidentally, some of Sherman's recent experiments, carried out on women, negative the idea of a distinct monthly cycle in the metabolism of either nitrogen, phosphorus or calcium (except for the previously known tendency to retain nitrogen for a day or so at the beginning of the menstrual period). The output of any of these three elements in the menstrual flow was not large enough to affect materially the estimate of the daily requirement for normal metabolism as averaged for the entire month. From this standpoint, to quote Sherman, Gillett and Pope,² the menstrual flow is essentially a blood loss, and as such is important to the balance of intake and output of iron, but of minor consequence in the nitrogen, phosphorus or calcium metabolism.

A MEDICAL DIVISION IN THE PROVOST MARSHAL-GENERAL'S OFFICE

One of the important functions connected with the application of the selective service law in raising our Army is the physical examination of registrants. This work may be regarded as fundamental. If it is not satisfactorily done, some men who are physically fit will be rejected for physical causes and others who are not physically fit will be accepted. In the first case the nation loses in its fighting man power; in the second, the nation suffers a great financial loss in connection with inducting registrants who are returned to their homes, and later on through the payment of compensation for disability. The recent establishment of a medical division in the Provost Marshal-General's Office is a commendable recognition of the importance of these physical examinations. The first step in this accomplishment was the appointment last February of Doctor, now Colonel, Frank Billings, who was assigned as medical aide to the Provost Marshal-General. But since that time the medical phases have developed to such an extent that the enlargement of this position into a specific division in the Provost Marshal-General's Office inevitably followed. The personnel of the medical division consists of Col. F. R. Keefer, of the regular medical corps, chief, assisted by Major Hubert Work and Capt. D. Chester Brown. This personnel will be enlarged as required. The new selective service law will involve the registration and physical examination of some 14,000,000 men. This will have to be accomplished in a much shorter time than was allowed to the same duties connected with the less than 10,000,000 men covered by the first selective service law. It is possible that the present machinery, so far as physical examinations are concerned, is not ideal. There is no doubt that some of the criticisms of the method of conducting physical examinations of registrants in the past have been to a certain extent justified. But there is no time to create new machinery, even though such might be neces-

1. Osborne, T. B., and Mendel, L. B.: The Inorganic Elements in Nutrition, *Jour. Biol. Chem.*, 1918, **34**, 131. Inorganic Elements in Nutrition, editorial, *THE JOURNAL A. M. A.*, Aug. 24, 1918, p. 660.

2. Sherman, H. C.; Gillett, L. H., and Pope, H. M.: Monthly Metabolism of Nitrogen, Phosphorus and Calcium in Healthy Women, *Jour. Biol. Chem.*, 1918, **34**, 373. Sherman, H. C.; Wheeler, Lucile, and Yates, Anna B.: Experiments on the Nutritive Value of Maize Protein and on the Phosphorus and Calcium Requirements of Healthy Women, *Jour. Biol. Chem.*, 1918, **34**, 383.

sary to secure ideal conditions. The medical division in the Provost Marshal-General's Office is already correcting faults here and there. We may look forward to the physical examinations of the new increment to the Army with optimism and with the hope and belief that there will be less cause for criticism in the future than, perhaps, there was in the past.

THE BLOOD SUGAR IN DIABETES

Although sugar is continually present in the blood, no significant amount escapes through the kidneys into the urine during health. In diabetes, however, or the condition which S. R. Benedict has recently designated as glycuressis in contrast to glycosuria, glucose may be found in abundance in the urine. It is not clear that this is always the outcome of hyperglycemia, for frequently there are cases of the latter without accompanying abnormal glycosuria. These facts have long furnished a puzzle to the student of the chemistry of the subject. Among the hypotheses framed to explain the failure of the sugar in normal blood to escape into the urine has been the assumption that the blood sugar is normally in some rather unstable combination, perhaps with a colloid substance like protein, which cannot pass through the renal membrane. According to this the normal colloid-sugar of the blood would differ from the "free" sugar arising under pathologic conditions and readily penetrating the glomerulus of the kidney. This "combined" sugar hypothesis has usually been denied because of the demonstrations that the glucose present in the serum is readily dialyzable, indicating that it must be free. In criticizing this attitude, Kleiner¹ of the Rockefeller Institute has pointed out that evidence has always been obtained with the blood of normal animals exclusively. He further asserts that the property of being secreted by the kidney is not necessarily a criterion of diffusibility. Various colloidal substances when administered parenterally are quickly thrown out by the kidney; the higher polysaccharids² are good examples. Accordingly, Kleiner has compared the diffusibility of sugar in the blood from diabetic and normal animals, respectively, the fluid in the latter case being brought to the same initial sugar content by the addition of glucose. The diabetic blood sugar dialyzed at an irregular rate, with a delayed or completely interrupted dialysis during one or more periods. The control dialysis of normal blood with added free sugar was not interrupted in this manner. The divergent results are interpreted as possible evidence for the existence of "combined" sugar in diabetic blood. This affords no easier clue to the solution of the problem originally propounded; yet it has not prevented its author from adding the further hypothesis that a considerable part of diabetic blood sugar, being in a combined and less easily diffusible condition, is not stored or used by the cells because it cannot pass from the blood through the walls of the capillaries and into the tissues. Thus "combined" blood sugar becomes

the competitor of "decreased permeability" of vessels in the conflict of hypotheses where the known facts still fail. And the problem remains.

MEDICAL MEMBERS OF LOCAL AND DISTRICT APPEAL BOARDS

A number of the medical members of local and district appeal boards have resigned to accept commissions in the Medical Corps of the Army; more than a hundred were commissioned during the month of July. While their action in the great majority of cases has been prompted by purely patriotic reasons, some undoubtedly have acted in the belief that they would be subject to draft under the new Selective Service Law, and preferred to secure commissions before being called. These resignations have already seriously crippled many of the boards. It is for this reason that the Provost Marshal-General has taken action to prevent as far as possible such resignations in the future. It must be remembered that the Selective Service Law, in creating these boards, is specific in defining the functions of the members and the punishment for neglect of duty. The regulations state that members of these boards are as effectively "drafted for this duty as are registrants who are selected for military service." The only way in which a member of a local or district appeal board may resign is by application for relief directly to the governor of the state. The governors have now been asked not to accept such resignations, and draft boards have been cautioned not to release necessary medical members without the sanction of the Provost Marshal-General. The needs of the Provost Marshal-General's Office are regarded as paramount, and the Surgeon-General is requesting local examiners for the Medical Reserve Corps, in forwarding papers of applicants, to indicate whether or not the applicant is a member of a Selective Service board. Undoubtedly, if there is a competent examiner available to take the place of the one who desires to resign, the resignation will be accepted. These comments apply to medical members of local and district appeal boards only; not to members of medical advisory boards.

The Hospitals of Chile.—The public hospitals in France and in most of the South American countries are under one central organization in the cities, called the *Assistance publique* or the *Asistencia Publica*. All the care of the sick and poor is grouped under this heading. In Argentina a movement is under way to group the hospitals throughout the country in one national *Asistencia Publica*. In Chile, a supreme council for the country was organized last year, but the separate cities still have each their own individual *Asistencia* or *Beneficencia* system. The disadvantages of this are seen, for example, in the recent news that the authorities at the town of Freirina have had to close the hospital at that place and send the patients home, as no funds were available to keep it open. The *Asistencia Publica* of Santiago, Chile, publishes a handsome quarterly, the *Revista de Beneficencia Publica*. The editorial staff includes the administrator and subadministrator of the *Asistencia Publica*, A. del Rio and G. Greve, and they seek to record the work being done in the hospitals of the city, to publish stimulating articles in all branches of hospital work, inculcating high ideals and relating what is being accomplished in other countries. The *Revista* gives the list with full details of all the donations and legacies that are being made to hospital and sanatorium work throughout Chile, quite an extensive list.

1. Kleiner, I. S.: The Rate of Dialysis of the Blood Sugar in Experimental Diabetes, *Jour. Biol. Chem.*, 1918, **34**, 471.

2. Mendel, L. B., and Mitchell, P. H.: *Am. Jour. Physiol.*, 1905, **14**, 239.

Medical Mobilization and the War

Personnel of the Medical Department

For the week ending Aug. 23, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 933, including 1 major-general, 64 colonels, 112 lieutenant-colonels, 296 majors and 460 lieutenants.

MEDICAL RESERVE CORPS: 23,531, including 1 colonel, 8 lieutenant-colonels, 1,565 majors, 7,146 captains and 14,811 lieutenants. On active duty: 22,232, including 1 lieutenant-colonel, 1,487 majors, 6,840 captains and 13,904 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,194, including 22 lieutenant-colonels, 262 majors, 257 captains and 653 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 369, including 6 brigadier-generals, 92 colonels, 251 lieutenant-colonels, 9 majors and 1 captain.

THE DISCHARGES to date are:

Cause	Number		
	M.C.N.A.	M.R.C.	M.C.N.G.
Physical disability	0	766	56
Inaptitude	0	289	22
Other branches of service	3	645	76
Resignations	0	205	34
Domestic troubles	0	62	1
Needed by community	1	49	0
Deaths	1	103	7
Dismissals	0	17	4
Duty completed	0	3	0
No reason given	0	15	1
	5	2,154	201

NECESSITY FOR CAREFUL EXAMINATION OF REGISTRANTS

On August 6, Provost Marshal-General Crowder addressed the following message to governors of all states:

1. Rejections of registrants at camps have recently reached inexcusably high figures. It is evident that many Local Boards have forwarded unfit men whose defects were readily recognizable.

2. Order each Local Board to review, with aid of Advisory Board, Forms 1010 of all registrants grouped as qualified for general military service and now awaiting call.

3. Order reexamination of all cases found by such review to be doubtful and bring to the attention of Local Boards, their duty to reject all unfit registrants.

4. Impress on boards their responsibility for exclusion of the unfit. Assure them of your assistance, and utilize the full time of your Medical Aide for the purpose.

MEDICAL PREPARATION FOR THE IMPENDING DRAFT

The following circular letter, dated August 22, was addressed to the Medical Aides to the Governors by Col. F. R. Keefer, chief of the Medical Division of the Provost Marshal-General's Office:

1. It is anticipated that, pursuant to legislation now pending, a very large registration will be made in September.

2. As the entire work incident to this new draft must necessarily be compressed within a very few weeks, the machinery of the draft must be repaired, oiled, and otherwise put in perfect condition to function at high speed and with efficiency.

3. It must not be said afterward that the medical parts of the machine were weaker than the rest, nor that their slow or imperfect action resulted in delay.

4. To the end that the greatest efficiency may be had, therefore, and the greatest credit accrue to those concerned with the medical operations of the draft, Medical Aides are instructed immediately to establish closer relations with all medical examiners; to urge on them the enormous importance of the matter; to make them realize that the coming test will be the greatest in the history of the draft; and to impress on them the fact that the efficiency of our overseas armies depends vitally on the way in which the test is met by THEM.

5. A careful but rapid survey must be made of all medical examiners of Local Boards. Weak examiners must be replaced; slow ones must be speeded up. Assistance must be arranged for where needed. All must be made to realize the emergency.

6. Medical Advisory Boards must be instructed that examinations must be promptly made, and the papers returned at once. All examiners must be made aware that defects

which are obvious even to a layman, reflect discredit on the board as well as on the system.

7. Analysis of causes of rejection at mobilization camps will indicate weaknesses of individual boards, and suggest the proper remedy.

8. Where not already carried out, Medical Aides will arrange for meetings of medical examiners from a number of boards. These should be addressed by the Medical Aides, or by some competent examiner designated by the Aide. By selecting such men with care, they may be established as consultants, to whom examiners may refer for advice.

9. A force of inspectors has recently been organized in connection with the draft. The Provost Marshal-General contemplates that these inspectors shall, as a part of their duties, make inquiries concerning the knowledge of Medical Aides as to the efficiency and preparedness of their medical examiners throughout the state.

10. The medical profession, in its intimate relation to the draft, has met and discharged its obligations for the most part in an admirable manner. It must not fail now.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17 and 24.

ALABAMA

Birmingham—Thornton, W. L.
Wilson, O. E.
Huntsville—Caldwell, E. V.
Montgomery—Wilkerson, F. W.

ARKANSAS

Beirne—Lassiter, W. D.
Dermott—Baker, E.
DeQueen—Kitchens, C. E.
Little Rock—Horner, E. J.
Walcott—Majors, W. M.

CALIFORNIA

Long Beach—Hill, W. B.
Los Angeles—Colloran, J. E.
Dale, H. M.
Force, J. N.
Loomis, M. L.
Rogers, A. R.
Seager, H. W.
Modesto—Bissell, N. C.
Pasadena—Acker, E.
San Francisco—Hunt, T. E.
Stockton—McLeish, A. H.

COLORADO

Pueblo—Wolfe, J. G.

CONNECTICUT

New Canaan — O'Shaughnessy, E. J.

DELAWARE

Wilmington—Pawlikowski, S. B.

DISTRICT OF COLUMBIA

Washington—Saye, E. B.
Thomas, W. J. G.

FLORIDA

Oakland—Auwers, F. J.

GEORGIA

Ashburn—Harris, H. W.
Turner, W. J.
Atlanta—Mashburn, C. M.
McCord, J. R.
Augusta—Gehrken, H. S.
Brentwood—Moody, E. A.
Cartersville—Wofford, W. E.
Daisy—Elarbee, G. W.
Danielsville—Payne, D.
Fort Valley—Hickson, M. L.
Gainesville—Jones, W. A. N.
Jesup—Crummey, E. C.
Nevils—Deal, D. L.
Thomasville—Palmer, J. B.

IDAHO

Boise—Shurtz, R. E.
Pocatello—Newton, A. M.

ILLINOIS

Alsey—Bowman, C. S.
Alton—Jones, F. W.
Chicago—Dagnault, T. V.
Everhart, A. G.
Kerr, G. A.
Kratze, L. R.
Moe, C. C.
Ostroskey, G. L.
Pfeiffer, G. E.
Shannon, C. G.
Chicago Heights—Fenn, G. K.
East Moline—Ellingsworth, J. H.

Elgin—Howell, J. A. S.
Illipolis—Willcockson, H. B.
Joliet—Fahrner, A. H.
Kankakee—Cannon, W. P.
Martinton—Herdien, E. F.
Morrison—Downs, J. M.
Sullivan, E. P.
Norwood Park—Bowes, L. M.
Rockford—Fringer, W. R.
Rock Island—Lachuer, B. J.
Ostrom, L.
Strawn—Boies, H. M.
Tampico—Terry, H. A.
Urbana—Miller, H. W.
Virginia—Blackburn, W. R.
McGee, J. A.

INDIANA

Berne—Schenk, C. H.
Bridgeton—Bennett, P. R.
Danville—Armstrong, L. W.
Francesville—Kupke, E. H. W.
French Lick—Rogers, L.
Hammond—Chevigny, J. A.
Fox, F. H.
Hartford City—Buckles, H. L.
Indianapolis—Eberwein, J. H.
Ludwig, O. D.
Pebworth, A. C.
Truitt, F. L.
LaFayette—Ruschli, E. B.
Van Reed, E.
Montgomery—Hart, D.
New Salem—Metcalf, H. C.
North Judson—Englerth, P. O.
Oxford—Parker, E. E.
Rensselaer—Gwin, M. D.
Zanesville—McBride, J. L.

IOWA

Alexander—Rodemeyer, F. H.
Chariton—Baskin, C. L.
Fort Dodge—Garrett, J. M.
Garden Grove—Lyon, W. E.
Grinnell—Padgham, J. T.
Iowa City—Chenoweth, C. E.
Lacona—Cruzen, J. L.
Marshalltown—Sieg, H. L.
Mason City—Hoag, H. M.
Nevinville—Miller, C. A.
Newton—Hinshaw, S. E.
Peterson—Sproule, E. W.
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Victor—Detchon, H. S.
Webster City—McCaulliff, G. T.
Wesley—Carmody, T. J.

KANSAS

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Hartford—Nienstedt, W. F.
Hutchinson—Gage, G. R.
Larned—Ingels, A. B.
Mount Hope—Hunsberger, H. G.
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Topeka—Miller, N. D.
Sams, L. V.
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Wichita—Agnew, T. M.
Fisher, R. S. C.

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Kirksville—Combs, W. C.
Lexington—Herring, H. G.
McGinnis, J. S.

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Pirkey, E. L.
Thompson, C.

LOUISIANA

Donaldsonville—Thibodaux, P. T.
Jena—Hamilton, F.
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Minden—Martin, S. F.
Mount Pleasant—Myerdlck, A. H.

MAINE

Clinton—Newcomb, C. H.
Dover—Bundy, H. C.

MARYLAND

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Cohen, L.
Rowland, J. M. H.
Carroll Park—Myers, R. E.

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Boston—McCluer, C. W.
Webster, F. A.
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Brockton—Buckley, G. A.
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Hand, E. P.
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Willimansett—Heywood, N. J.
Falvey, H. J.
Ward, R. J.

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Deckerville—Merriman, H. H.
Detroit—Bocelaere, L. H. V.
Brownell, W. S.
Crow, S. C.
Henderson, H.
Ryan, W. D.

MINNESOTA

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Stewartville—Fawcett, C. E.
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St. Paul—Finberg, J.
Ghent, M. M.
Schoch, R. B. J.
Warner, H. H.

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Okell, O. C.

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Myers, J. L.
Rider, E. B.

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Burst, E. A.
Hertel, A. L.
Miller, G. H.
Schuck, P.

MONTANA

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Roundup—Firey, W. I.

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Kenesay—Townley, F. N.
Lincoln—Broman, M. R.
Omaha—Pinto, A. S.

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New Market—Monge, J. A.

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Long Branch—Strahan, F. G.
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Orange—Neare, C. R.
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Plainfield—Leggett, T. H., Jr.

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Hoehman, H. D.
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Little Neck—Van Nostrand, H. S.
Mount Morris—Bowen, F. J.
New York—Ackerman, H.

Babcock, J. W.
Crece, J. P.
Cronk, J. M.
Daly, D. J.
Ferry, R. M.
Fisk, J. C.
Hoppe, E. C.
Lurie, L.
Osnate, M.
Reid, J. J., Jr.
Hirsch, S.
Muller, H. R.
Sunshine, L.
West, D.
Wirklich, H. W.
Perry—Peddle, G. H.
Shaldrake Springs—Sandy, W. C.
Yonkers—Wolf, A. W.

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Batesburg—Gibson, W. T.
Chester—Abell, R. E.
Lewiston—Garriss, F. J.

OHIO

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Archbold—Murbach, E. A.
Cincinnati—Fox, A. J.
Wenning, T. H.
Cleveland, Martzloff, K. H.
Thomas, C. B.
Columbus—Shoemaker, A. J.
Dayton—Prugh, M. D.
Webster, H. H.
Eaton—Treffinger, C. M.
McArthur—James, H. S.
Oxford—Wilkie, A. B.
Port Washington—Demuth, W. F.
Prairie Depot—Whitacre, R. F.
St. Paris—Norman, J. W.
Toledo—May, E. G.
Seybold, N. J.
Walnut Creek—Bahler, C. T.

OKLAHOMA

Arcadia—Baker, R. C.
Ardmore—Gregory, D. A.
Elmer—McConnell, L. H.
Freedom—Hall, W. L.
Hugo—Askew, E. R.
Kiefer—Artz, T. L.
Muskogee—Ballantine, H. T.
Harris, A. W.
Okeene—Blender, H.
Oklahoma City—Dresbach, H. V.
Holliday, J. R.
Walker, O. J.
Sallisaw—Wood, T. F.
Temple—Holsted, A. B.

OREGON

Carlton—Morrison, A. D.
Portland—Belknap, H. P.
Vale—Brown, F. J.

PENNSYLVANIA

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Butler—Hughes, E. M.
Charleroi—Vieslet, V. P.
Clairton—Norcross, C. B.
Eldred—Humphreys, F. R.
Erie—Gannon, N. D.
McNeill, C. A.
Garrick—Harsha, J. V.
Grove City—Montgomery, B. A.
Marksville—Mayer, G. A.
McDonald—Dickson, W. R.
Dixon, C. W.

Moren—Conahan, F. J.
Oil City—Bruner, P. L.
Perkasie—Strouse, O. H.
Philadelphia—Schwartz, M. J.
Walsh, J.
Pittsburgh—Beddall, S. A.
Clark, W. A.
Crawford, J. S.
Gannon, N. D.

Quakertown—Moyer, W. G.
Sunbury—McCay, R. B.
Vanderbilt—Hazlett, J. H.
Washington—Paterson, G. E.
Williamsport—Wright, L. W.
Zelienople—Whittaker, A. E.

SOUTH CAROLINA

Brunson—Molc, J. W., Jr.
Darlington—Scott, C. M.
Georgetown—Buie, L. A.

SOUTH DAKOTA

Alexandria—Maytum, W. J.
Sioux Falls—Stevens, R. G.

TENNESSEE

Forestville—Donahue, B. F.
Memphis—Callihan, P. W.
McIntosh, J. A.
Thomas, H. E.
Nashville—Sharber, A. L.
Trenton—McRee, W. C.

TEXAS

Brownwood—Snyder, N.
Dukedom—Jones, D. L.
El Paso—Brown, C. P.
Galveston—Mills, E. D.
Lipan—Axtell, E. C.
Sequin—Neighbors, A. H.
Strawn—Cromeans, R. E.
Trenton—Stevens, J. W.

UTAH

Salt Lake City—Wheeler, T. H.

VERMONT

Cambridge—Start, S. G.
Montpelier—Parmenter, G. H.
Rutland—Grinnell, W. H.
Underhill—Fogg, A. L.
Wardsboro—Hefflon, O. V.
West Brattleboro—Hunter, G. B.

VIRGINIA

Perryville—Iden, C. H.
Columbia—Altizer, E. R.

Lynchburg—German, J. R.
Norfolk—Williams, S. D.
Richmond—Brackwell, R. H.
Fitzgerald, J. O.

WASHINGTON

Enumclaw—Ulman, F. G.
Ferndale—Hood, C. S.
Olympia—Longaker, F. A.
Spokane—Gray, G. A.
Ingersoll, E. L.

WEST VIRGINIA

Clarksburg—Haltermann, C. W.
Lubeck—Deem, H. N.
Milton—Morrison, L. C.
Ward—Flannagan, L. E.

WISCONSIN

Fau Claire—Mason, E. L.
LaCrosse—Grissom, C. B.
LaFarge—Haggerty, E. E.
Milwaukee—Bach, R. J.
Gillis, J. D.
Wenn, J. F.
New Glarus—Hefty, C. A.
Wauwatosa—McCoy, H.

WYOMING

Cheyenne—Fox, G. A.

COMMISSIONS ACCEPTED, U. S. NAVAL
RESERVE FORCE

Previous lists published in THE JOURNAL, June 29, July 13,
20 and 27, August 3 and 10.

ALABAMA

Auburn—Yarborough, C. S.
Birmingham—Smith, W. B.

CALIFORNIA

Berkeley—Bailey, S. C.
Graham, H. B.
Campbell—Merrill, W. I.
Los Angeles—Bogue, H. V.
Bowers, C. H.
Fearon, W. M.
Feldman, A.
Saphro, V. O.
Woodland—Blevins, W. J.
San Francisco—Brown, V. de P.

CONNECTICUT

New Haven—Carroll, C. H.
New London—O'Neill, J. B.

DISTRICT OF COLUMBIA

Washington—Peters, D. B.

FLORIDA

Tampa—Duke, R. R.
Higgins, A. F.

GEORGIA

Atlanta—Donaldson, H. R.
Valdosta—Thomas, J. A.

ILLINOIS

Chicago—Soloway, S. S.
Sowers, A. B.
Visher, J. W.
Paris—Myers, A. L.
Pontiac—Young, J. G.
Rock City—Butterfield, C. F. M.
Rock Island—Frey, H.

INDIANA

Indianapolis—Thurston, A. L.

IOWA

Woodbine—Flothow, M. W.

KANSAS

Elk City—Haydon, O. K.

KENTUCKY

Louisville—Bayless, B. W.

LOUISIANA

Pineville—Fougerousse, H. L.

MARYLAND

Long Green—Green, J. S.

MASSACHUSETTS

Boston—Arnold, S. F.
Bailey, F. J.
Brennan, J. T.
Brine, E. L.
Coffin, R. A.
Mulhern, J. P.
Brookline—Marshall, J. R.
Chelsea—McPhail, J. G.

Gloucester—Shields, E. E.
Whitaker, H. E.
Lowell—Collins, W. M.
Middlebury—Harris, W. C.
New Bedford—Atchison, C. M.
Newton—Leary, A. J.
Somerville—Newton, E. R.

MICHIGAN

Detroit—Brenkle, D. R.
Osborn, H. A.

MISSOURI

Kansas City—Barker, F. C.
St. Louis—Briggs, G. C.
Deppe, A. H.
Gradwohl, R. B. H.
Taylor, T. W.

NEW HAMPSHIRE

Keene—Davey, H. E.

NEW JERSEY

Hoboken—Peluso, J. D.
Newark—Carlin, E. J.

NEW YORK

Brooklyn—Archambeault, C. P.
Graham, J. C.
Elmhurst—Laul, J. E.
Endicott—Welch, M. W.
Jamaica—Cunningham, B. L.
Mineola—Sawicki, A. M.
Mount Vernon—Quinn, C. M.
New York—Cooney, J. D.
Harper, W. H.
Lore, J. M.
Wilens, I.
Niagara Falls—Walker, O. F.
Norwich—Hausheer, W. C.
Port Chester—Andronaco, G.
Wayland—Buckley, F. H.

NORTH CAROLINA

Manson—Dill, G. T.

OHIO

Saint Marys—Shuffleton, F. A.

OKLAHOMA

Erick—Yarborough, J. E.

OREGON

Eugene—Hayden, D. N.
Portland—Hendershott, H. M.
Murphy, J. M.

PENNSYLVANIA

Harrisburg—Frasier, L. W.
Philadelphia—Betts, N. S.
Greco, T. A.
Magonn, J. A. H.
Pancoast, H. K.
Shuster, B. H.
Siggins, J. C.
Pittsburgh—McEllroy, W. S.
Scranton—Mackey, R. D.
Shillington—High, I. B.

SOUTH CAROLINA

Charleston—Rhame, J. S.
Sumter—Lemmon, C. J.

TEXAS

El Paso—Thomas, G. N.
Houston—Spurlock, G. H.
Turner, B. W.

VIRGINIA

Norfolk—Hart, J. A.

WASHINGTON

Seattle—Abraham, E. D.

WEST VIRGINIA

Eccles—Grigg, A. H.
Wheeling—Caldwell, J. H.

WISCONSIN

Frederic—Arveson, R. G.
Menomonie—Nedry, G. C.
Milwaukee—Oberembt, B. H.

**ORDERS TO OFFICERS OF THE MEDICAL
CORPS, U. S. ARMY**

Alabama

To Ann Arbor, Mich., for intensive training, from Camp Gordon, Lieut. M. L. MOORER, Mount Vernon.
To Arcadia, Fla., Dorr Field, Lieut. J. G. BEDSOLE, Jackson.
To Camp Hancock, Ga., Capt. T. J. BROTHERS, Armiston.
To Camp Jackson, S. C., base hospital, Major J. E. DEDMAN, Birmingham.
To Camp Sheridan, Ala., Lieut. O. E. WILSON, Birmingham.
To Camp Zachary Taylor, Ky., Lieut. L. H. FORD, Phill Campbell.
To Fort Oglethorpe for instruction, Capt. N. F. COCKE, Birmingham; G. J. WINTHROP, Mobile; Lieut. T. E. PHILLIPS, Cuba.
To Hoboken, N. J., from Fort McHenry, Lieut. H. C. EDMUNDSON, Birmingham.
To Newport News, Va., Lieut. J. A. ELLIOTT, Moundville.
To Washington, D. C., Surgeon-General's Office, Capt. W. A. SEL-
LERS, Montgomery.
Honorably discharged on account of physical disability incurred in
line of duty, Major S. A. BILLING, Birmingham.

Alaska

To Army Medical School for instruction, from Fort William H.
Seward, Capt. H. M. CRAIG, Hawes.

Arizona

To Hot Springs, N. C., from duty as a private, Lieut. W. N.
McDUFFIE, San Carlos.

Arkansas

To Camp Pike, Ark., Lieut. E. J. HORNER, Little Rock.
To Camp Zachary Taylor, Ky., Lieut. R. L. HOPKINS, DeQueen.
To Fort Oglethorpe for instruction, Lieut. J. A. KING, Mellwood.
To Hampton, Va., Lieut. W. H. DECLARK, McGehee.

California

To Camp Beauregard, La., from Camp Zachary Taylor, Major P. G.
WHITE, Los Angeles. Base hospital, from Camp Travis, Major H.
ABRAHAM, San Francisco.
To Camp Cody, N. M., Capt. S. B. VAN DALSEM, San Jose; J. H.
O'CONNOR, St. Helena; Lieut. W. W. MULVEHILL, Los Angeles.
Base hospital, Capt. P. INGBRETSON, San Diego.
To Camp Fremont, Calif., base hospital, Capt. R. L. BYRON, M. H.
ROSS, Los Angeles; G. H. BOSKOWITZ, San Francisco; E. N. REED,
Santa Monica; Lieut. W. C. CHILSON, Tulare; from Camp Kearney,
Lieut. P. E. DOLAN, Los Angeles; O. D. CHAMLEY, San Gabriel.
To Camp Gordon, Ga., from Western Department, Major J. M.
WHEATE, Fort Miley.
To Camp Kearney, Calif., base hospital, Capt. T. C. McCLEAVE,
Berkeley; A. S. GRANGER, J. Y. OLDHAM, Los Angeles; A. M.
SMITH, San Leandro; Lieut. J. M. LACEY, Los Angeles. With the
board examining the troops for tuberculosis, from Camp Lewis, Capt.
E. VON ADELUNG, Oakland.
To Camp Meade, Md., from Fort McHenry, Lieut. J. SAYLIN, El
Monte.
To Fort Oglethorpe for instruction, Capt. H. W. EDGERTON,
Pomona.
To Fort Riley, Capt. V. J. McCOMBS, Los Angeles; from Mayo
Clinic, Lieut. F. THOMAS, Los Angeles. For instruction, Lieut.
C. D. COLLINS, Fresno; C. L. SWIFT, Loma Linda; A. FRIEDMAN,
San Francisco.
To New Haven, Conn., from Camp Dodge, Major R. L. BYRNES,
Los Angeles.
To report to the commanding general, Western Department, Capt.
F. E. TULLEY, Los Angeles; C. O. HANSON, Pasadena; E. E.
STONE, San Francisco; from Camp Fremont, Major C. CROSS, San
Francisco.
To San Francisco, Calif., from Camp Fremont, Lieut. I. H. BETTS,
Visalia. Letterman General Hospital, Capt. E. L. COTTRELL, Scotia;
Lieut. R. D. WILSON, San Jose.
To his home, from Washington, Major E. L. SWIFT, Fort McDowell.
Honorably discharged on account of physical disability existing prior
to entrance into the service, Capt. A. GIBSON, Alturos; C. E. IDE,
Los Angeles; Lieut. A. H. VANCE, Sausalito.
The following orders have been revoked: *To Camp Grant, Ill.*, from
Fort Riley, Capt. W. V. CHALMERS-FRANCIS, Los Angeles. *To*
Camp Kearney, Calif., from Fort Riley, Lieut. C. D. FANTON, River-
side. *To Camp MacArthur, Texas*, from Western Department, Lieut.
G. M. DUNNE, San Francisco.

Canal Zone

To New Haven, Conn., Yale Army Laboratory School, for instruc-
tion, Lieut. D. J. MURPHY, Corozel.
To report to the commanding general, Panama Canal Department,
Lieut. M. A. V. SMITH, Ancon.

Colorado

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from
Fort Oglethorpe, Lieut. L. G. BROWN, Colorado Springs.
To Camp Cody, N. M., Capt. J. G. ESPY, Trinidad.
To Camp Crane, Pa., from Jefferson Barracks, Lieut. A. J. CHIS-
HOLM, Antonio.
To Camp Kearney, Calif., base hospital, Capt. W. T. BRINTON,
Cripple Creek.
To Camp MacArthur, Texas, base hospital, Capt. D. E. HOAG,
Pueblo.

To Camp Sherman, Ohio, as assistant to camp surgeon, from Southern
Department, Major C. R. POLLOCK, Rocky Ford.
To Denver, Colo., from Otisville, Capt. W. P. HARLOW, Boulder.
To Fort Riley for instruction, Capt. N. D. WELLS, Fort Morgan;
Lieut. H. S. COOPER, Denver.
To New Haven, Conn., Capt. M. J. KEENEY, Pueblo.
The following order has been revoked: *To Camp Pike, Ark.*, from
Fort Riley, Lieut. O. A. DUNCAN, Crawford.

Connecticut

To Camp A. A. Humphreys, Va., as camp psychiatrist, from Camp
Wheeler, Capt. W. R. MILLER, Southington.
To Camp Beauregard, La., base hospital, from Camp Bowic, Capt.
O. F. ROGERS, New Haven.
To Camp Crane, Pa., from Fort Oglethorpe, Lieut. G. O. WELLMAN,
Clinton.
To Camp Gordon, Ga., base hospital, from Camp Shelby, Lieut.
W. T. DRISCOLL, Norwich.
To Camp Hancock, Ga., from Camp Upton, Capt. J. F. HACKETT,
Mansfield Depot.
To Camp Jackson, S. C., to examine the command for nervous and
mental diseases, Lieut. C. F. VERNLAND, Hartford.
To Camp Shelby, Miss., from Camp Devens, Lieut. H. O. DIXON,
Bridgeport.
To Fort Oglethorpe for instruction, Lieut. E. T. FALSEY, New
Haven; from duty as a private, Lieut. A. B. GROSS, Hartford.
To Fort Sam Houston, base hospital, from Camp Hancock, Lieut.
G. M. MELVIN, Middletown.
To Hoboken, N. J., from Camp Greene, Capt. H. G. ANDERSON,
Waterbury, from Camp Lee, Lieut. R. H. RYDER, Waterbury.
To Pittsburgh, Pa., Carnegie Institute of Technology, from Camp
Greene, Capt. W. T. OWENS, Hartford.

Delaware

To Lakewood, N. J., from Fort Oglethorpe, Lieut. A. K. LOTZ,
Wilmington.

District of Columbia

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Major
C. M. DOLLMAN, Washington.
To Camp Lee, Va., base hospital, Lieut. E. SNOWDEN, Washington.
To Camp Lewis, Wash., base hospital, from Camp Hancock, Capt. O.
C. COX, Washington.
To Camp Newton D. Baker, Texas, base hospital from Camp Gordon,
Ga., Lieut. M. B. FISCHER, Washington.
To Fort Oglethorpe, for instruction, Lieut. O. J. COOK, Wash-
ington.
To Fort Riley, Lieut. W. B. CARR, Washington.
To Hoboken, N. J., from Camp Meade, Lieut. P. S. PUTZKI,
Washington, from Fort McHenry, Capt. C. D. HAAS, Washington;
from Surgeon General's Office, Lieut.-Col. F. W. WOOD.
To report to the commanding general Eastern Department, Capt.
A. J. READ, Washington.
To Rockefeller Institute for instruction in the treatment of infected
wounds, and on completion *to Camp Meade, Md.*, base hospital, Capt.
H. F. WARDEN, Washington.
The following order has been revoked: *To Camp A. A. Humphreys*,
Va., from Fort Myer, Capt. W. A. FRANKLAND, Washington.

Florida

To Camp Meade, Md., from Fort McHenry, Capt. A. H. FREEMAN,
Starke.
To Camp Pike, Ark., base hospital, Capt. F. A. NORRIS, Jacksonville.
To Camp Sheridan, Ala., Lieut. S. A. SCRUGGS, Jacksonville.
To Fort Oglethorpe for instruction, Lieut. W. F. ROSBOROUGH,
Gainesville; W. S. MICKLER, Lee.
To Hoboken, N. J., from Fort McHenry, Lieut. W. D. CAWTHON,
Panama City.

Georgia

To Arcadia, Fla., Dorr Field, Capt. J. T. McCALL, Rome.
To Camp Hancock, Ga., base hospital, Lieut. J. E. DIEHL, Macon.
To Camp Jackson, S. C., base hospital, Capt. T. H. HALL, Macon;
Lieut. J. H. STEWART, Athens.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. W.
A. DEAN, Rome.
To Camp Logan, Texas, as orthopedic surgeon, from Fort Oglethorpe,
Lieut. C. M. WEST, Atlanta.
To Camp MacArthur, Texas, Lieut. S. B. BRAY, Savannah.
To Camp Sheridan, Ala., Lieut. C. B. MEADOWS, Morven; T. J.
HOLTON, Thomasville; from Camp Dodge, Lieut. C. A. ALMAND,
Lithonia.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut.
R. B. IAMB, Demorest.
To Camp Wadsworth, S. C., from Camp Jackson, Lieut. J. F. BURK-
HALTER, Morven.
To Fort Myer, Va., from Fort Oglethorpe, Lieut. W. E. WOFFORD,
Cartersville.
To Fort Oglethorpe, from duty as private, Lieut. B. W. YAWN,
Alamo. For instruction, Capt. J. D. MANGET, Atlanta; J. D.
MAULDIN, New Holland; G. H. JOHNSON, Savannah; Lieut. J. C.
HOLLIDAY, Athens; C. B. GREER, Brunswick; R. C. MONTGOM-
ERY, Butler; C. L. EDGE, Columbus; J. S. SAPPINGTON, Columbus;
C. C. BRANNEN, Moultrie; E. L. BISHOP, Savannah; E. W. GRIF-
FIN, Springfield; W. T. SMITH, Tifton; J. A. OLIVER, Waycross.
To Hoboken, N. J., from Camp Upton, Lieut. T. B. KING, Sanders-
ville; from Fort McHenry, Lieut. V. L. BROWN, Fort Valley; from
Fort Oglethorpe, Capt. J. A. SELDON, Macon; from Williamsbridge,
Lieut. C. E. WAITS, Atlanta.
To New Haven, Conn., Yale Army Laboratory School, for instruc-
tion, Lieut. W. H. MALONE, Villa Rieu.
To Rockefeller Institute for instruction in the treatment of infected
wounds, and on completion *to Fort Oglethorpe* for instruction, Capt.
L. W. CHILDS, Atlanta.
To Walter Reed General Hospital, D. C., Capt. C. BARROW,
Savannah.
Honorably discharged on account of physical disability incurred in
line of duty, Lieut. B. F. BOND, Canon.

Idaho

To Camp Cody, N. M., Capt. J. M. FAIRLY, Orofino; Lieut. S.
T. PATTERSON, Mackay.
To Fort Oglethorpe for instruction, Lieut. E. N. ROBERTS,
Pocatello.

To Fort Riley, Capt. J. C. DWYER, Coeur D'Alene. For instruction, Lieuts. H. L. WILLSON, Idaho Falls; J. M. LYLE, Peck. Honorably discharged, Lieut. F. W. MITCHELL, Blackfoot.

Illinois

To Camp Beauregard, La., from Camp Bowie, Capt. G. W. SCUPHAM, Chicago, Camp Zachary Taylor, Capt. W. R. LARKIN, Lieuts. M. S. PEDOTT, Chicago; F. G. OSTROWSKI, Cicero. Base hospital, Lieut. C. R. KERR, Anchor.

To Camp Bowie, Texas, base hospital, Lieut. C. H. WIENEKE, Chicago.

To Camp Cody, N. M., base hospital, Lieut. P. D. LYONS, Chicago; from Camp Grant, Capt. A. F. BYFIELD, Chicago.

To Camp Crane, Pa., from Camp Custer, Lieut. J. C. KACZKOWSKI, Chicago.

To Camp Custer, Mich., base hospital, from Camp Pike, Capt. R. B. NYBERG, Harrisburg.

To Camp Dodge, Iowa, Capt. J. L. MANNING, R. A. SMITH, Chicago. Base hospital, Lieut. K. A. MEYER, Chicago.

To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. E. W. SEABURG, Chicago.

To Camp Gordon, Ga., base hospital, from Camp Shelby, Lieut. E. V. DEL BECCARO, Chicago.

To Camp Greene, N. C., base hospital, from Camp Sevier, Major J. C. FRIEDMAN, Chicago; from Williamsbridge, Lieut. H. A. ROSENBAUM, Chicago. With the board examining troops for tuberculosis, from Camp Hancock, Lieut. A. S. CAMPBELL, Oak Forest.

To Camp Hancock, Ga., Lieut. H. D. FAST, Mackinaw.

To Camp John Wise, Texas, from Camp Kelly, Lieut. G. S. MIKELSON, Chestnut.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. J. MOLES, Chicago.

To Camp Lee, Va., with the board examining the troops for cardiovascular diseases, Lieut. C. R. WILEY, Chicago.

To Camp McClellan, Ala., from Camp A. A. Humphreys, Lieut. H. REINSCH, Chicago.

To Camp Meade, Md., from Fort McHenry, Lieut. P. G. KITTERMAN, Chicago.

To Camp Newton D. Baker, Texas, base hospital, from Camp Devens, Capt. T. W. MORGAN, Virden.

To Camp Sheridan, Ala., Lieuts. J. J. BARTH, F. A. SMITH, Chicago, from Camp Dodge, Lieut. A. J. WEIGEN, Chicago.

To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Lieut. J. F. HENDERSON, Charleston.

To Camp Wadsworth, S. C., from Camp Dodge, Lieut. F. W. GAARDE, Chicago.

To Camp Wheeler, Ga., base hospital, Capt. A. E. GAMMAGE, Chicago.

To Camp Zachary Taylor, Ky., Capt. H. C. MUNSON, Rushville. Base hospital, Lieut. L. C. DUNLAP, Bath; from Camp Gordon, Lieut. J. MEYER, Chicago.

To Fort Benjamin Harrison, Ind., base hospital, from Fort Oglethorpe, Lieut. G. B. THOMAS, Hazel Dell.

To Fort Oglethorpe, base hospital, Lieut. A. H. WEIRICH, Jacksonville. For instruction, Capt. W. YEATES, Bonfield; D. C. ROACH, Burlington; C. E. CREER, Charleston; D. M. OLKON, W. A. PLICE, T. J. WILLIAMS, Chicago; H. H. WEST, Elgin; R. N. LANE, Gibson City; R. E. STEVENS, Rochelle; Lieuts. G. D. BRAND, P. H. BRONDE, C. G. HAIDOUPOULOS, L. H. HILLS, E. HURWITZ, Chicago; C. E. DONAHOE, East Moline; C. W. RUTHERFORD, Newman; W. I. GREEN, Sumner; C. E. KELSO, Thomasboro.

To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Lieut. M. C. SCHENK, Rushville.

To Hoboken, N. J., from Camp Crane, Lieut. J. E. MIECZYNSKI, North Chicago; from Camp Dix, Capt. C. A. ROBBINS, Dixon; from Camp Jackson, Lieuts. M. M. KULVINSKY, Chicago; R. E. LOGAN, Galena; from Camp Meade, Lieut. G. F. FARMAN, Chicago; from Camp Sherman, Lieut. R. F. HERNDON, Springfield; from Camp Upton, Lieut. H. E. VAN EPPS, Sterling; from Camp Wheeler, Capt. W. C. WILLIAMS, Chicago; from duty as a contract surgeon, Capt. J. P. COMEGYS, Rock Island; from Fort Oglethorpe, Major C. D. WILKINS, Chicago.

To Lakewood, N. J., Lieut. C. J. McMULLEN, Chicago.

To New Haven, Conn., Capt. E. H. BUTTERFIELD, Ottawa; Lieut. VAN B. MAURICAN, Rockton; Yale Army Laboratory School, for instruction, Capt. H. JACKSON, Lieut. R. S. AUSTIN, Chicago.

To report to the commanding general Central Department, Capt. J. F. SCHRADER, Bridgeport. Lieuts. C. E. BEAVERS, Barry; F. M. McNAIR, Sugar Grove. Southern Department, from Camp Cody, Lieut. W. P. DAVIDSON, Sullivan.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Lee, Va., base hospital, Capt. S. R. CATLIN, Rockford.

To Syracuse, N. Y., Capt. A. E. MOWRY, E. A. OLIVER, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. L. H. GREEN, Johnston City.

Resignations of Lieuts. G. J. RIVARD, JR., Assumption, and W. L. NOBLE, Chicago, accepted.

The following orders have been revoked: To Camp Upton, N. Y., with the board examining the troops for cardiovascular diseases, Lieut. S. B. LEISER, Chicago. To Fort Oglethorpe for instruction, Lieut. Y. JORANSON, Chicago.

Indiana

To Camp Abraham Eustis, Va., camp hospital, from Camp Sherman, Capt. W. W. ROSE, La Porte.

To Camp Beauregard, La., base hospital, Capt. E. M. VAN BUSKIRK, Fort Wayne; Lieut. E. E. MACE, New Palestine.

To Camp Bowie, Texas, base hospital, Lieut. F. KLEINMAN, Hebron.

To Camp Devens, Mass., Lieut. J. C. THAYER, Arcadia.

To Camp Dodge, Iowa, Lieut. H. C. METCALF, Andersonville. Base hospital, from Fort Oglethorpe, Lieut. S. G. SMELSER, Richmond.

To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Capt. A. L. KNAPP, South Bend.

To Camp Greene, N. C., base hospital, from Camp Sevier, Lieut. M. S. TETERS, Indianapolis.

To Camp Joseph E. Johnston, Fla., base hospital, from Camp Cody, Capt. B. VAN SWERINGEN, Fort Wayne; from Fort Oglethorpe, Lieut. L. H. RATLIFF, Lawrence.

To Camp Meade, Md., from Fort McHenry, Lieuts. G. C. PRICE, Judson; J. E. FREED, Terre Haute.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. P. HOFFMAN, Decatur.

To Camp Sheridan, Ala., Lieut. R. V. HANNELL, LaFayette.

To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. J. KENTLING, Bloomington.

To Fort Benjamin Harrison, Ind., base hospital, from Fort Oglethorpe, Lieuts. M. B. GWIN, Rensselaer; G. E. SMAIL, Veedersburg.

To Fort Oglethorpe for instruction, Capt. C. A. ROGERS, Freeport; A. W. LLOYD, Hammond; H. M. SCHULTZ, Logansport; Lieuts. E. E. BROCK, Anderson; A. R. KERR, Attica; C. E. QUINN, Burlington; H. H. BOTTS, Colfax; E. H. UNDERWOOD, Fort Wayne; F. W. DIXON, Franklin; W. H. MIKESCH, Hammond. On completion to his proper station, from Fort Sill, Lieut. M. B. GUTHRIE, Bedford.

To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. J. C. BOHN, Terre Haute.

To Hoboken, N. J., from Camp Greene, Capt. H. J. WHITE, Hammond; from Camp Meade, Capt. J. M. FOUTS, Richmond; from Fort Oglethorpe, Lieut. T. P. GOVAN, Richmond.

To Lakewood, N. J., Capt. C. R. STRICKLAND, Indianapolis.

To report to the commanding general, Central Department, Capt. D. B. McCLARY, Gale.

To Walter Reed General Hospital, D. C., Lieut. L. C. SAMMONS, Shelbyville.

Iowa

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. H. H. DILLEY, Des Moines; from Camp Travis, Lieut. R. M. CULLISON, Montezuma.

To Camp Bowie, Texas, base hospital, Lieut. B. S. BARNES, Shenandoah.

To Camp Cody, N. M., base hospital, Lieut. M. OCHS, Eldredge.

To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. F. A. PRIESSMAN, Mechanicsville.

To Camp Dix, N. J., from Fort Riley, Lieut. W. DIVEN, Iowa City.

To Camp Dodge, Iowa, Lieuts. L. K. MEREDITH, Des Moines; O. F. PARISH, Grinnell; L. W. PENCE, State Center. Base hospital, Capt. G. T. McCAULIFF, Webster City.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. M. GARRETT, Fort Dodge.

To Camp Pike, Ark., base hospital, Capt. J. H. WHITELEY, Bonaparte; Lieuts. C. H. HERRMANN, Amana; J. R. WINNETT, Ebor.

To Camp Sherman, Ohio, base hospital, Capt. F. C. SAGE, Waterloo.

To Fort Des Moines, Iowa, Capt. H. B. GRATIOT, Dubuque.

To Fort Oglethorpe for instruction, Capt. C. B. BURKE, Algona; T. S. LACEY, Glenwood; Lieuts. L. K. MEREDITH, Des Moines; J. J. BEATTY, Farragut.

To Fort Riley, Capt. J. D. GEISSINGER, Spirit Lake; J. E. HOYT, Corning; Lieuts. G. R. GOULD, Conrad.

To Minneapolis, Minn., Dunwoody Institute, from Camp Zachary Taylor, Lieut. J. S. COOPER, Burlington.

To Washington, D. C., Surgeon-General's Office, from Camp Jackson, Lieut. G. H. STEELE, Belmond.

To Wichita Falls, Texas, as instructor, Lieut. C. KAIL, Stratford.

Kansas

To Camp Beauregard, La., base hospital, Capt. F. C. CAVE, Winfield; Lieut. F. A. TRUMP, Ottawa. From Fort Oglethorpe, Lieut. L. D. MILLS, Greeley.

To Camp Cody, N. M., Lieut. W. H. ILIFF, Crestline. Base hospital, Capt. F. H. SLAYTON, Wichita.

To Camp Crane, Pa., from Fort Riley, Capt. J. N. SHERMAN, Thayer.

To Camp Pike, Ark., base hospital, Lieut. H. P. KNOWLES, Sterling.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Capt. H. G. SNYDER, Seneca.

To Fort Oglethorpe for instruction, Capt. V. H. BENTLEON, Kansas City; J. W. CHENEY, Wichita.

To Fort Riley, Lieuts. B. B. MASON, Grenola; R. O. PRESTON, Meriden. For instruction, Capt. L. VAN SAMS, Topeka; Lieuts. W. S. PROUT, Concordia; R. A. TAYLOR, Meriden; O. R. BRITTAIN, Salina; J. H. O'CONNELL, Topeka; A. H. NOSSAMAN, Whitewater.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. E. F. CLARK, Mayfield.

To New York, Neurological Institute, for intensive training, from Washington, Lieut. E. H. SCHLEGEL, Wichita.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Walter Reed General Hospital, Capt. H. WILKINSON, Kansas City.

Kentucky

To Camp Hancock, Ga., Capt. W. O. HOPPER, Perryville.

To Camp Pike, Ark., base hospital, Major W. A. JENKINS, Louisville.

To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Capt. E. T. GALLAGHER, Somerset.

To Camp Zachary Taylor, Ky., Lieut. J. L. VALLANDINGHAM, Lexington.

To Fort Oglethorpe for instruction, Capt. I. T. FUGATE, Louisville; Lieuts. E. C. MORGAN, Adairville; G. M. STURGELL, Ashland; R. W. MEADOR, Irvington; J. E. EDWARDS, Lancaster; E. L. PIRKEY, Louisville; H. R. SKAGGS, Terryville.

To Fort Ontario, N. Y., from Fort Oglethorpe, Lieut. H. G. HERRING, Lexington.

To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Lieut. R. C. SIEVERS, Pine Knot.

To Hampton, Va., Capt. S. D. WETHERBY, Middletown.

To Hoboken, N. J., from Walter Reed General Hospital, Lieut. W. G. ECKMAN, Covington. Base hospital, Lieut. C. E. VIDT, Russell.

To Hot Springs, N. C., Capt. B. K. MENEFEY, Covington.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. T. LIGGETT, Louisville.

To report to the commanding general, Central Department, Lieut. J. B. STROUD, Louisville.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. C. THOMPSON, Louisville.

Louisiana

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Sam Houston, Capt. T. W. EVANS, Jackson.

To Camp Crane, Pa., from Camp Sherman, Lieut. W. B. HUNTER, Shreveport.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. G. A. MAYER, New Orleans.

To Camp Upton, N. Y., base hospital, Capt. F. J. FRATER, Shreveport.

To Camp Wadsworth, S. C., Capt. T. R. RUDOLF, New Orleans.
To Fort Banks, Mass., from Camp Greene, Lieut. A. C. KAPPEL, Franklin.
To Fort Oglethorpe for instruction, Capt. A. B. BUGG, Belcher; R. C. TOMPKINS, Minden; Lieuts. T. B. WILSON, Baton Rouge; S. F. MARTIN, Minden; J. E. SLICOR, Shreveport; J. M. EHLERT, Springfield.
The following order has been revoked: To Camp Lee, base hospital, Lieut. T. LATIOLAIS, New Orleans.

Maine

To Camp Meade, Md., base hospital, Capt. J. P. TUNIS, Northeast Harbor.
To Fort Oglethorpe for instruction, Lieuts. R. W. CLARKE, Deer Isle; W. J. LEWIS, Freeport.
To Fort Slocum, N. Y., from Fort Oglethorpe, Lieut. W. H. KENNISON, Madison.
To Hoboken, N. J., base hospital, from Williamsbridge, Lieut. L. B. BRADFORD, Rockland.
To Washington, D. C., from Camp Wheeler, Lieut. H. L. WILKINS, Auburn.
The following order has been revoked: To Camp Grant, Ill., from Fort Riley, Lieut. J. L. PEPPER, Madison.

Maryland

To Army Medical School, Lieut. J. P. SHEARER, Baltimore.
To Camp Crane, Pa., from Camp Wadsworth, Capt. F. A. G. MURRAY, Mount Savage.
To Camp Custer, Mich., base hospital, from Camp Meade, Capt. M. SIMMONS, Indian Head.
To Camp Dodge, Iowa, base hospital, Lieut. J. K. ORMOND, Baltimore, from Fort Oglethorpe, Lieut. F. P. SNODGRASS, Darlington.
To Camp McClellan, Ala., base hospital, from Camp Shelby, Major I. GROSS, Baltimore.
To Camp Meade, Md., base hospital, from Fort McHenry, Capt. J. BURNS, Baltimore. To examine the command for nervous and mental diseases, Capt. G. F. SARGENT, Townson.
To Fort Oglethorpe for instruction, Lieut. W. M. HOLLIDAY, Baltimore.
To Hoboken, N. J., from Camp Greene, Lieut. H. R. MANN, Maryland Springs; from Camp Meade, Lieut. E. F. GOTT, Baltimore.
Resignation of Capt. J. M. H. ROWLAND, Baltimore, accepted.

Massachusetts

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieuts. H. C. PERKINS, Boston; E. E. SMITH, Webster.
To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. F. H. USSELL, Wayside.
To Camp Dix, N. J., Lieuts. H. L. QUIMBY, Gloucester; W. F. RADY, Holyoke; H. A. CALLAHAN, Jamaica Plain; J. B. A. OHNSON, Lowell; W. T. HOLLAND, West Roxbury. Base hospital, Lieut. C. E. ALLARD, Dorchester.
To Camp Fremont, Calif., base hospital, Major E. A. COATES, JR., Chelsea.
To Camp Greene, N. C., from Camp Sevier, Lieut. J. N. DOYLE, Fall River. Base hospital, Capt. E. S. BAGNALL, Groveland; from Camp Sevier, Lieut. A. A. SHAPIRA, Boston. With the board examining troops for tuberculosis, from Camp Hancock, Lieut. J. J. COSROVE, Westfield.
To Camp Hancock, Ga., base hospital, Lieuts. N. N. LEVINS, Boston; J. J. CURTIN, Waltham; from Camp Shelby, Lieut. A. N. ALL, Northampton.
To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. B. SCALES, Boston.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. E. CONNELLY, Brookline.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. P. KEARNEY, Lowell.
To Camp Shelby, Miss., from Camp Devens, Lieut. F. G. BRIGHAM, Boston.
To Camp Sheridan, Ala., from Camp Dodge, Lieut. J. J. McCAFREY, Attleboro.
To Camp Sherman, Ohio, from Camp Wheeler, Lieuts. A. F. UDRESKI, Brockton; I. W. FRAIM, Waltham.
To Fort Banks, Mass., from Northwestern Department, Major W. OGSWELL, Haverhill.
To Fort Oglethorpe for instruction, Capt. R. J. WARD, Worcester; Lieuts. R. M. LORD, S. N. VOSE, Boston; W. W. COOK, Brookline; B. BIGELOW, H. E. LYNCH, Holyoke; J. P. A. BACON, Lawrence; A. B. MILLS, Somerville; C. R. VINAL, Turner's Falls; E. F. ULL, West Stockbridge; E. R. LEIB, Worcester.
To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. W. JEWETT, Lowell; Lieut. T. A. SHAUGHNESSY, Leominster.
To Governor's Island, N. Y., Major E. A. CODMAN, Boston.
To Hoboken, N. J., from Camp Custer, Major C. B. HOLLINGS, Boston, from Camp Lee, Lieut. A. J. CHOATE, Gloucester.
To Lakewood, N. J., for instruction in cardiovascular diseases, and completion to his proper station, from Camp A. A. Humphreys, Lieut. H. A. WALKER, Somerville.
To New York, Hospital for Ruptured and Crippled, for instruction, from Hoboken, Lieut. L. S. KEMP, Canton.
To Plattsburg Barracks, N. Y., from Camp Lee, Lieut. M. W. PECK, Applehead.
Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. W. J. DWYER, Boston.

Michigan

To Army Medical School for instruction, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Major N. S. MACDONALD, Houghton.
To Camp Dix, N. J., base hospital, Capt. J. P. PRATT, Detroit.
To Camp Dodge, Iowa, Capt. J. C. CLIPPERT, Detroit.
To Camp Gordon, Ga., to examine the command for nervous and mental diseases, from Fort Oglethorpe, Capt. J. F. BERRY, Kalamazoo.
To Camp Jackson, S. C., base hospital, Capt. J. S. BROTHERHOOD, and Rapids.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. BLAND, Adrian.
To Camp Pike, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. W. GORDON, Detroit.
To Camp Sheridan, Ala., from Camp Dodge, Major B. R. CORBUS, and Rapids.

To Camp Upton, N. Y., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. H. W. LONG, Escanaba.
To Camp Wheeler, Ga., base hospital, from Pittsburgh, Capt. F. P. BENDER, Caro.
To Camp Zachary Taylor, Ky., base hospital, Lieut. D. M. GRISWOLD, Crosse Points.
To Fort Oglethorpe for instruction, Capt. C. J. LARSON, Mogau-nee; Lieuts. R. F. MILLER, Adrian; J. WALTZ, Brown City; R. D. HENSEL, Detroit; W. A. SINGLETON, Hickory Corners; J. H. RAPP, Lansing; L. H. DUGUID, Ludington; D. W. PATTERSON, Port Huron.
To Fort Omaha, Neb., from Fairfield, Lieut. R. D. SCOTT, Rudyard, from Fort Wayne, Lieut. C. S. STRAIN, Rochester.
To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. V. J. HOOPER, Detroit.
To Otisville, N. Y., from New Haven, Capt. R. B. HARKNESS, Houghton.
To New York, Neurological Institute, for intensive training, Capt. H. A. LUCE, Detroit.
To West Point Military Academy, Capt. G. E. WINTER, Jackson.
The following order has been revoked: To Camp Forrest, Pa., for duty, from Camp A. A. Humphreys, Lieut. H. L. HURLEY, Jackson.

Minnesota

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Washington, D. C., Lieut. W. B. MARTIN, Fergus Falls.
To Camp Cody, N. M., Capt. O. H. WILCOX, Minneapolis.
To Camp Crane, Pa., from Camp Devens, Capt. F. P. MOERSCH, Minneapolis; from Camp Dodge, Capt. C. E. CONNOR, Minneapolis; from Jefferson Barracks, Lieut. L. M. KEENE, Alexandria; from Memphis, Capt. A. J. WENTWORTH, Mankato.
To Camp Custer, Mich., base hospital, from Camp Pike, Lieut. P. R. HANKEE, Cannon Falls.
To Camp Dodge, Iowa, base hospital, Capt. F. W. SPICER, Duluth; A. W. HILGER, St. Paul.
To Camp Forrest, Ga., from Fort Oglethorpe, Lieut. D. TOWNSEND, Belgrade.
To Camp Fremont, Calif., base hospital, from Camp Devens, Lieut. O. A. GROEBNER, New Ulm.
To Camp Sherman, Ohio, base hospital, from Camp Zachary Taylor, Lieut. H. C. McINTOSH, St. Paul.
To Camp Wadsworth, S. C., from Camp Dodge, Lieuts. C. J. McGUIRE, Altura; A. GULLIXSON, Briceyn; M. SEHAM, Minneapolis.
To Camp Zachary Taylor, Ky., base hospital, Lieut. F. E. KUNCE, St. Paul.
To Fort Banks, Mass., from Camp Greene, Lieut. B. S. BOHLING, Sandstone.
To Fort Oglethorpe for instruction, Capt. J. R. KUTH, Duluth.
To Fort Riley, Capt. K. H. SCHMIDT, Minneapolis.
To Fort Snelling, Minn., base hospital, from Fort Oglethorpe, Capt. J. F. LYNN, Waseca.
To Hoboken, N. J., from Camp Greene, Capt. W. C. CHAMBERS, Blue Earth, from Fort Oglethorpe, Lieut. U. R. WILSON, Brainerd.
To Washington, D. C., Surgeon-General's Office, from Rochester, Col. W. J. MAYO, Rochester.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. R. E. MORRIS, Minneapolis.
The following order has been revoked: To Camp Grant, Ill., from Madison, Lieut. J. D. WALLER, Willmont.

Mississippi

To Camp Beauregard, La., base hospital, from Camp Bowie, Lieut. H. C. DENSON, Vicksburg.
To Camp Gordon, Ga., base hospital, from Camp Shelby, Capt. H. P. BOSWELL, New Albany.
To Camp Greene, N. C., from Camp Wadsworth, Lieut. J. G. BACKSTROM, Tutwiler.
To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. J. S. EWING, Vicksburg.
To Camp Wadsworth, S. C., base hospital, Lieut. W. A. TOOMER, Tupelo.
To Fort Oglethorpe for instruction, Lieut. W. R. GRAVES, Jackson.
To Fort Omaha, Neb., from Fairfield, Lieut. J. M. REYNOLDS, Shubuta.
Honorably discharged, Capt. O. R. FORE, Flora.

Missouri

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieuts. M. F. SEWELL, Kansas City; E. A. SCOTT, St. Louis.
To Camp Bowie, Texas, base hospital, Capt. F. J. SULLIVAN, St. Louis.
To Camp Cody, N. M., Lieut. C. A. GIBBS, Greensburg.
To Camp Crane, Pa., from Camp Bowie, Lieut. J. M. BLAKEMORE, St. Louis.
To Camp Dix, N. J., from Fort Riley, Lieuts. W. L. ABNEY, Blackwater; C. M. COUNSEL, Kansas City. Base hospital, Capt. Y. D. CRAVEN, Excelsior Springs; Lieut. D. A. THOMSON, St. Louis.
To Camp Dodge, Iowa, Capt. E. POWERS, Carthage; Lieuts. D. J. ROYER, Joplin; A. H. RINGEN, Sweet Springs.
To Camp Greene, N. C., from Fort Oglethorpe, Lieut. A. W. EBE-LING, Warrenton.
To Camp Meade, Md., from Fort McHenry, Major R. BURNS, JR., St. Louis.
To Camp Pike, Ark., from duty as a private, Lieut. H. L. BAEPLOR, St. Louis. Base hospital, Capt. J. H. GROSS, Webster Groves; Lieut. J. D. VAM CLEVE, Malden. To examine the command for nervous and mental diseases, Capt. H. S. MAJOR, Fulton.
To Camp Shelby, Miss., from Camp Devens, Lieut. W. K. BROWN, St. Louis.
To Camp Sheridan, Ala., Lieuts. S. A. STADLER, Kansas City; G. W. HAWKINS, Salisbury.
To Camp Sherman, Ohio, base hospital, Capt. I. J. HARRIS, St. Louis; from Camp Zachary Taylor, Lieut. H. S. MAXWELL, Hopkins.
To Fort Oglethorpe for instruction, Capt. O. C. HORST, Springfield; O. A. AMBROSE, R. C. HARRIS, St. Louis; Lieuts. D. J. ROYER, Joplin; F. A. JOHNSON, Kokoka; F. W. HAYNES, J. T. MALONE, St. Louis.
To Fort Ontario, N. Y., Lieut. L. B. BROWN, North Berwick.
To Fort Riley, Capt. R. D. MOORE, Clayton; S. C. VAUGHN, Hurricane; J. W. BOYD, Sarcoxie; C. B. TRADER, Sedalia; Lieut.

S. E. PEDON, St. Louis; from Camp Cody, Major E. L. OPIE, St. Louis. For instruction, Capt. E. L. MATHIAS, Kansas City; J. F. HARRISON, Mexico; A. SCHUCK, St. Louis; T. A. BLACKMORE, Windsor; Lieut. L. M. DALEY, Hamilton; E. A. ALBERS, C. WEHR, Kansas City; R. R. KELLEY, Savannah; J. S. HOMAN, O. T. UPSHAW, St. Louis.

To Hoboken, N. J., from Camp Jackson, Lieut. D. P. FERRIS, St. Louis; from Fort Sheridan, Capt. E. L. COOLEY, St. Louis.

To Mincola, L. I., N. Y., Hazelhurst Field, from Camp Dick, Capt. A. L. LUDWICK, Kansas City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. S. E. VAUGHN, Hurricane.

To report to the commanding general, Central Department, Capt. T. A. McCLENNAN, Marshall; Lieut. C. P. MEGEE, Hartsburg.

To Waynesville, N. C., from New Haven, Lieut. E. J. BUTZKE, Bowling Green.

To Whipple Barracks, Ariz., from Camp MacArthur, Capt. W. E. CARY, Kansas City.

To Wichita Falls, Texas, from Camp Dick, Lieut. C. C. COATS, Winston.

Honorably discharged, Capt. A. M. GANAWAY, Albany. The following orders have been revoked: To Camp Devens, Mass., from Orono, Me., Capt. E. X. LINK, St. Louis. To Camp Sherman, Ohio, from Indianapolis, Lieut. H. L. HESS, Kansas City.

Montana

To Camp Fremont, Calif., base hospital, Lieut. W. G. PALM, Joplin.

To Fort Riley, Lieut. W. R. SMITH, Stockett. For instruction, Lieut. R. R. FRIZZELL, Great Falls.

To report to the commanding general, Western Department, Capt. L. BERNHEIM, Butte.

The following order has been revoked: To Fort Oglethorpe for instruction, from Fort Riley, Lieut. C. A. GARDNER, Columbus.

Nebraska

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, and on completion to his proper station, from Camp Dodge, Capt. H. R. MINER, Falls City.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Capt. I. L. BOGEN, Lincoln.

To Camp Crane, Pa., from Camp Lee, Lieut. T. E. ATKINSON, Mullen.

To Camp Dodge, Iowa, Capt. G. H. GILMORE, Murray.

To Camp Logan, Texas, base hospital, Capt. C. A. ALLENBURGER, Columbus.

To Camp Zachary Taylor, Ky., base hospital, Lieut. S. G. ZEMER, Lincoln.

To Fort Oglethorpe for instruction, Lieut. R. L. SMITH, Lincoln.

To Fort Riley, Lieut. L. L. CRAMER, Harrison. For instruction, Capt. O. H. MARGARET, Papillion; Lieut. H. G. THOMPSON, David City; W. T. WILDHABER, Plymouth.

To New Haven, Conn., Yale Army Laboratory School, from Fort Riley, Lieut. W. C. BECKER, Papillion.

To San Francisco, Calif., for instruction, and on completion to Letterman General Hospital, from Arcadia, Capt. F. E. BRAUCHT, Coleridge.

Resignation of Lieut. H. B. FROSH, Lincoln, accepted. The following order has been revoked: To Camp Grant, Ill., from Fort Riley, Capt. F. D. BURGESS, Cedar Rapids.

Nevada

To Fort Riley for instruction, Lieut. R. ST. CLAIR, Reno.

New Hampshire

To Camp John Wise, Texas, from Camp Kelly, Capt. D. R. CHASE, Lebanon.

To Fort Oglethorpe for instruction, Capt. H. B. CARPENTER, Lancaster; P. J. McLAUGHLIN, Nashua; Lieut. J. J. BUCKLEY, Milton; A. DAUDELIN, Nashua; A. C. LISTON, North Walpole.

New Jersey

To Baltimore, Md., Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. W. A. NEWELL, Trenton.

To Camp A. A. Humphreys, Va., Lieut. B. A. TREIBER, Trenton. To Camp Dix, N. J., Capt. C. B. GRIFFITHS, Newark; Lieut. H. S. GARRETT, Park Ridge.

To Camp Meade, Md., from Fort McHenry, Capt. L. E. POOLE, West Hoboken; Lieut. G. P. MEYER, Camden; L. M. KALAHAR, Jersey City. As orthopedic surgeon, from Fort Oglethorpe, Lieut. F. H. VON HOFER, Orange.

To Camp Shelby, Miss., base hospital, from Camp Sevier, Capt. S. T. QUINN, Elizabeth.

To Colonia, N. J., Lieut. D. M. P. MAGEE, Red Bank.

To Fort Oglethorpe for instruction, Capt. C. L. BOSSERT, Atlantic City; J. W. FARROW, Dover; F. B. MITCHELL, East Orange; W. A. McMURTRIE, Morristown; Lieut. R. D'A. DENIG, Hackensack; B. M. HANCE, Hackensack; H. J. PERLBERG, Jersey City; F. G. STRAHAN, Long Branch; JOHN D. TIDABACK, Newark; F. D. CRAWFORD, Ridgefield Park; H. D. WILLIAMS, Trenton; from Rockefeller Institute, Capt. C. R. NEARD, East Orange.

To Fort Sheridan, Ill., base hospital, from Camp Dix, Major J. N. TEETER, Englewood.

To Mincola, N. Y., Lieut. J. W. HURFF, Newark.

To New Haven, Conn., Lieut. G. P. CURTIS, Union.

To report to the governor of New Jersey as Medical Aide, Capt. H. B. COSTILL, Trenton.

To Williamsbridge, N. Y., from Camp Upton, Major W. A. SHERWOOD, Jersey City.

The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. J. B. BOYD, Farmingdale.

New Mexico

To Fort Riley for instruction, Capt. B. E. HEDDING, Santa Fe; Lieut. H. W. GIBBS, Wagon Mound.

New York

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Oglethorpe, Lieut. J. V. SWIERAT, Kings Park; J. J. LEARY, Utica.

To Baltimore, Md., to instruct enlisted men, Capt. W. G. PHILLIPS, Jr., Brooklyn.

To Camp A. A. Humphreys, Va., base hospital, Capt. H. L. RAYMOND, Collins.

To Camp Beauregard, La., base hospital, from Fort McHenry, Lieut. S. C. WOLFF, New York.

To Camp Cody, N. M., base hospital, from Fort Oglethorpe, Capt. B. C. DOUST, Syracuse.

To Camp Crane, Pa., from Fort Sam Houston, Capt. J. C. DAVIS, Rochester; from Newport News, Lieut. A. C. SILVERMAN, Syracuse; from New York, Lieut. H. W. WHEATON, Gloversville.

To Camp Custer, Mich., base hospital, from Camp Pike, Capt. N. W. JANNEY, L. H. TAFT, M. WARREN, New York.

To Camp Dix, N. J., Lieut. G. C. HACKETT, Portville. Base hospital, Capt. F. L. NELSON, Brooklyn; F. W. SPLINT, New York; from Camp Wheeler, Capt. D. T. McPHAIL, New York.

To Camp Forrest, Ga., from Camp Jackson, Lieut. W. C. MacDONALD, New York.

To Camp Gordon, Ga., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. T. L. McNAMARA, Corning. To examine the command for nervous and mental diseases, Lieut. T. W. NEUMANN, Poughkeepsie.

To Camp Greene, N. C., base hospital, from Camp Devens, Lieut. H. C. HAVILAND, Albany; from Camp Sevier, Capt. J. L. BRYSON, New York. To examine the command for mental and nervous diseases, Capt. I. HOLLEY, Brooklyn.

To Camp Hancock, Ga., base hospital, Capt. C. O. SAYRES, Rochester.

To Camp Jackson, S. C., base hospital, Major O. M. SCHWERDT-FEGER, Capt. H. V. GULE, New York.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Major W. C. MILLER, New York; Lieut. F. L. BARNUM, Kingston.

To Camp Lewis, Wash., base hospital, from Camp Upton, Lieut.-Col. J. D. WHITHAM.

To Camp Logan, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. W. SMITH, Brooklyn.

To Camp McClellan, Ala., from Walter Reed General Hospital, Lieut. W. RAIM, Brooklyn.

To Camp Meade, Md., from Fort McHenry, Capt. H. W. JACKSON, New York; R. L. CROCKETT, Oneida; Lieut. W. E. DIEFENBACH, Nunda. Base hospital, Lieut. G. K. RHODES, Schenectady.

To Camp Pike, Ark., with the hoard examining the troops for tuberculosis, from Camp Sherman, Capt. E. P. EGLES, New York.

To Camp Raritan, Ky., as camp psychiatrist, from Camp Zachary Taylor, Capt. W. A. CONLON, Central Islip.

To Camp Sevier, S. C., base hospital, Lieut. S. McLEAN, New York.

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Lieut. H. C. JOHNSTON, New York.

To Camp Upton, N. Y., to examine the command for nervous and mental diseases, from New York, Lieut. S. L. REISER, New York.

To Camp Wadsworth, S. C., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, from Fort Oglethorpe, Lieut. F. H. CARBER, Forest Hills. To examine the command for nervous and mental diseases, Lieut. H. W. KEMP, Brooklyn.

To Colonia, N. J., Capt. L. R. McCOLLOM, New York.

To Fort McHenry, Md., from Camp Custer, Major J. B. BISSELL, New York.

To Fort Oglethorpe, from Camp Wheeler, Lieut. G. N. ACKER, 2d, Fort H. G. Wright; W. C. FARGO, New York. For instruction, Capt. M. L. SECCOMB, Milo; E. ADAMS, B. J. BECK, W. C. BOW-ERMAN, New York; F. OVERTON, Patchogue; L. R. MELLOR, Syracuse; Lieut. J. GOULD, Allegheny; E. LEVY, W. MOEHLE, Brooklyn; R. L. COOLEY, E. J. LUDWIG, J. F. TRUDNOWSKI, Buffalo; I. W. KAHN, New York; from Camp Colt, J. J. CLARK, Olean; from duty as an enlisted man, Lieut. W. E. GALLAGHER, Niagara Falls.

To Fort Omaha, Neb., from Fort Wayne, Capt. M. B. WALTER, Lieut. J. J. LANCER, New York.

To Fort Ontario, N. Y., Capt. J. C. SMITH, Oneonta.

To Fort Snelling, Minn., base hospital, from Camp Lee, Major J. M. W. SCOTT, Schenectady.

To Hoboken, N. J., Major G. G. RAMBAUD, New York; from Camp Devens, Major C. H. YOUNG, New York; Capt. S. R. LEAHY, Brooklyn; from Camp Dix, Lieut. A. G. LANGMANN, W. F. McTAGUE, New York; from Camp Greene, Lieut. J. R. BOYD, New York; L. J. ATKINS, Olean; from Camp Meade, Capt. R. G. HOLT, Schenectady; from Fort Oglethorpe, Capt. T. H. ORSER, Cold Brook. Base hospital, from Camp Gordon, Capt. A. L. WARNER, Schenectady; from Camp Grant, Major G. W. JEAN, New York.

To Jefferson Barracks, Mo., base hospital, from Fort Oglethorpe, Lieut. J. BRANOWER, New York.

To Lakewood, N. J., from Fort Oglethorpe, Lieut. W. W. LASHER, A. M. MORGENLANDER, New York.

To New Haven, Conn., Capt. D. B. JEWETT, Rochester; Lieut. S. A. BINDERMAN, New York; from Camp Zachary Taylor, Lieut. S. C. DARDEN, Poughkeepsie.

To New York, Bellevue Hospital, for instruction and on completion to Camp Meade, Md., base hospital, Capt. F. COONLEY, West New Brighton. Neurological Institute, for instruction, Lieut. F. S. PIERSON, Blackwell's Island.

To Otisville, N. Y., from New Haven, Capt. F. A. JOHNSON, New York.

To report to the commanding general, Eastern Department, Capt. G. W. SIMRELL, Brooklyn; L. R. ATKINS, New York.

To Rockefeller Institute, from New Haven, Lieut. S. T. FORTUNE, New York.

To Syracuse, N. Y., Capt. C. S. LITTLE, Thiells. To examine the command for nervous and mental diseases, from Camp Shelby, Lieut. H. W. DAVIS, Poughkeepsie.

To Tobyhanna, Pa., as camp surgeon, from Eastern Department, Major J. R. HICKS, Rosebank.

To Washington, D. C., Surgeon-General's Office, from Philadelphia, Capt. C. E. E. PANNACI, Gloversville.

Resignation of Lieut. W. F. WATTON, Brooklyn, accepted. The following orders have been revoked: To Camp Wadsworth, S. C., from Camp Meade, Lieut. P. J. HIRST, Middle Grove; from Camp Upton, Lieut. M. A. RAMIREZ, New York.

North Carolina

To Camp Custer, Mich., as tuberculosis examiner, from Camp Meade, Capt. T. FRAZER, Asheville.

To Camp Jackson, S. C., from duty as a contract surgeon, Capt. J. R. WILLIAMS, Asheville.

To *Camp Sheridan, Ala.*, Lieut. P. B. HALL, Belmont.
To *Fort Oglethorpe* for instruction, Lieuts. W. S. CRAWFORD, Bridgewater; J. N. HEGE, Clemons; J. F. FOSTER, Kenly; W. P. SMITH, Midland; from West Point, Miss., Lieut. J. J. BAREFOOT, Graham.

To *Hot Springs, N. C.*, Lieut. W. N. McDUFFIE, Sisco.
To *Lakewood, N. J.*, Capt. T. E. DAVIS, Winston-Salem.
To *New Haven, Conn.*, from Camp A. A. Humphreys, Capt. G. S. MacPHERSON, Highlands.

North Dakota

To *Camp Beauregard, La.*, base hospital, from Camp Pike, Lieut. F. I. DARROW, Fargo.
To *Camp Custer, Mich.*, base hospital, Lieut. R. A. SCOTT, Crystal.
To *Camp Dodge, Iowa*, Capt. J. A. CARTER, Warwick.
To *Fort Riley* for instruction, Lieut. O. T. BENSON, Glen Ullin.
To *Hoboken, N. J.*, from Camp Wadsworth, Capt. J. P. AYLEN, Fargo; from Fort Oglethorpe, Lieut. W. L. COWPER, Michigan.
Honorably discharged on account of physical disability incurred in line of duty, Capt. G. A. CARPENTER, Fargo.

Ohio

To *Camp Beauregard, La.*, base hospital, Capt. H. S. MAXWELL, Lisbon; from Camp Sherman, Capt. G. F. GLASS, Cleveland.
To *Camp Cody, N. M.*, base hospital, Capt. W. F. LAUTERBACH, Dayton; Lieut. M. H. SHIPLEY, Cleveland.
To *Camp Greenc, N. C.*, with the board examining the troops for tuberculosis, from Camp Hancock, Lieut. C. R. DEEDS, Dalton.
To *Camp Hancock, Ga.*, Capt. R. H. SMITH, Lancaster; J. C. McGINNIS, Martin Ferry; J. D. KNOX, Niles; Lieut. J. F. DECOURSEY, Cincinnati; from Camp Upton, Lieut. E. C. GOLDCAMP, Youngstown; from Williamsbridge, Lieut. F. L. RHODES, Toledo.
Base hospital, from Camp Grant, Capt. L. C. GROSH, Toledo.
To *Camp Joseph E. Johnston, Fla.*, from Fort Oglethorpe, Capt. L. B. GOODYEAR, Toledo; Lieut. J. H. POULTON, Springfield.
To *Camp McClellan, Ala.*, from Walter Reed General Hospital, Major D. M. ROBERTS, New Richmond.
To *Camp Sheridan, Ala.*, Lieuts. E. T. ROBINSON, Cleveland; C. R. KITS MILLER, Fresno.
To *Camp Upton, N. Y.*, as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. L. W. KRAUSS, Cleveland.
To *Camp Wheeler, Ga.*, from Camp Cody, Lieut. V. J. FRUTH, Astoria; from Camp Devens, Lieut. R. J. GIESELER, Cincinnati.
To *Camp Zachary Taylor, Ky.*, Capt. E. C. COWLES, Cleveland; Lieut. L. F. PERFUS, Salem.
To *Cincinnati, Ohio*, to examine enlisted men, Capt. A. E. OSMOND, Cincinnati.
To *Fort Oglethorpe* for instruction, Capt. S. B. McMASTER, Akron; J. MacLACHLAN, Cleveland; E. W. SHANK, Dayton; G. H. IRVIN, Orville; C. L. JONES, Springfield; R. C. CHAMBERLAIN, W. K. CHAMBERLIN, Tiffin; H. J. MORGAN, Toledo; Lieuts. J. O. STOUT, Ashville; J. L. SADDLER, Bay Village; E. I. FOGEL, S. WOLF, Cincinnati; G. S. WILCOX, Columbus, Grove; H. H. WEBSTER, Dayton; C. E. HOLZER, Gallipolis; H. H. LOWE, Leesburg; J. W. JOLLEY, Morral; E. A. POWELL, North Baltimore; J. W. NORMAN, St. Paris; J. F. BEERMAN, E. M. COLLIER, J. F. WRIGHT, Toledo; D. H. MOORE, Urbana; R. K. FINLEY, Xenia; T. H. LAUTENSCHLAGER, Youngstown.
To *Fort Omaha, Neb.*, from Fort Wayne, Lieut. M. L. SMITH, Urbana.
To *Fort Riley*, Capt. J. FAUSTER, Paulding; Lieuts. J. H. RALSTON, Bedford; E. C. NOHLS, South Charleston.
To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. C. W. THOMPSON, Cleveland.
To *New York*, from Columbus, Ohio, Capt. F. E. CUTLER, Cleveland.
To *Otisville, N. Y.*, from New Haven, Lieut. W. F. BAY, Columbus.
To report to the commanding general, Central Department, Capt. F. C. LEE, Cleveland.
To *Walter Reed General Hospital*, from Fort Oglethorpe, Lieut. B. JOHNS, Cincinnati.
Honorably discharged on account of physical disability existing prior to entrance in the service, Lieuts. R. R. SATTler, Cincinnati; T. F. HIGGINS, Toledo.
The following orders have been revoked: To *Camp Dix, N. J.*, base hospital, Capt. D. C. HOUSER, Urbana. To *Cleveland, Ohio*, Lieut. R. G. PEARCE, Cleveland.

Oklahoma

To *Camp Cody, N. M.*, Capt. J. R. PHELAN, Oklahoma City.
To *Camp Crane, Pa.*, from Camp Pike, Lieut. J. J. GABLE, Norman.
To *Camp Custer, Mich.*, base hospital, from Camp Pike, Lieut. R. G. SHERWOOD, Ochelata.
To *Camp Dodge, Iowa*, Capt. J. S. LITTLE, Minco. Base hospital, from Fort Oglethorpe, Lieut. J. B. SHANNON, Pauls Valley.
To *Camp Jackson, S. C.*, base hospital, from Fort Oglethorpe, Lieut. S. B. JONES, Sallisaw.
To *Camp Pike, Ark.*, base hospital, Lieut. H. D. BOSWELL, Henryetta.
To *Camp Shelby, Miss.*, base hospital, Capt. R. E. RUNKLE, El Reno.
To *Camp Sheridan, Ala.*, from Fort Logan H. Roots, Major F. H. CLARK, El Reno.
To *Fort Howard, Md.*, from New York, Major R. L. KURTZ, Nowata.
To *Fort Riley*, Capt. J. E. HUGHES, Shawnee; Lieuts. W. A. MORELAND, Idabel; S. A. McKEEL, Sallisaw; J. R. SWANK, St. Enid. Base hospital, Lieut. W. W. WELLS, Oklahoma City. For instruction, Lieut. W. A. HOWARD, Chelsea.
To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Capt. J. E. HUGHES, Shawnee.
To report to the commanding general, Southern Department, Lieut. J. T. MILLS, Allen.
To *Waco, Texas*, Rich Field, from Mineola, Lieut. W. B. NEWELL, Hunter.
Honorably discharged, Lieut. G. M. COMBEST, Lamar. On account of physical disability existing prior to entrance into the service, Lieut. S. N. STONE, Edmond.

Oregon

To *Army Medical School* for instruction, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for further instruction, from Fort Oglethorpe, Capt. C. J. McCUSKER, Portland.
To *Fort Oglethorpe* for instruction, Capt. H. G. PARKER, Portland.

To *Vancouver Barracks, Wash.*, as post surgeon, from San Francisco, Major E. C. DALTON, Portland.

The following order has been revoked: To *Camp Grant*, from Fort Riley, Capt. B. F. SCAIEFE, Eugene.

Pennsylvania

To *Ann Arbor, Mich.*, State Psychopathic Hospital, for intensive training, from Camp A. A. Humphreys, Lieut. J. M. MIRMAN, Philadelphia; from Washington, Lieuts. J. P. BOYLE, Philadelphia; W. L. HAIR, Roaring Springs.
To *Baltimore, Md.*, Johns Hopkins Hospital, Lieut. E. P. DICKINSON, St. Michael.
To *Camp A. A. Humphreys, Va.*, base hospital, Lieuts. C. A. GUNDY, Lewisburg; E. T. JONES, St. Clair.
To *Camp Beauregard, La.*, base hospital, from Fort Oglethorpe, Lieut. W. V. COYLE, Philadelphia.
To *Camp Crane, Pa.*, from Camp Devens, Lieut. H. F. MOFFITT, Pittsburgh; from Camp Meade, Capt. S. R. SKILLERN, Lieut. E. S. DILLON, Philadelphia.
To *Camp Custer, Mich.*, Capt. T. BAKER, Pittsburgh.
To *Camp Dix, N. J.*, Lieuts. J. E. WILSON, Canonsburg; L. J. LANX, Sayre.
To *Camp Dodge, Iowa*, base hospital, from Fort Sill, Major C. A. E. CODMAN, Philadelphia.
To *Camp Forrest, Ga.*, from Fort Oglethorpe, Lieuts. H. P. SMITH, L. L. STEPP, Pittsburgh.
To *Camp Gordon, Ga.*, base hospital, from Fort Oglethorpe, Lieuts. R. E. PILGRIM, Chester; J. H. READING, JR., Philadelphia.
To *Camp Greene, N. C.*, Capt. G. W. FARQUHAR, Belleville; G. D. MERVINE, Bitumen; Lieuts. C. H. METZGER, Altocha; T. L. SISNEY, Boyers; J. L. RICHARDS, Philadelphia; T. A. MONAHAN, Shenandoah; from Camp Wadsworth, Major H. T. PRICE, Pittsburgh. Base hospital, from Walter Reed General Hospital, Lieut. H. A. WICK, New Bethlehem.
To *Camp Hancock, Ga.*, from Williamsbridge, Lieut. B. H. GUIST-WHITE, Philadelphia. Base hospital, Lieuts. W. H. KELSEA, McDonald; M. B. MAGOFFIN, Mercer; R. W. JOHNSTONE, Selinsgrove; R. B. McCAY, Sunbury.
To *Camp Holabird, Md.*, from Camp MacArthur, Lieut. J. H. MOSS, Archibald.
To *Camp Jackson, S. C.*, base hospital, from Fort Oglethorpe, Capt. W. R. SHOEMAKER, Wilmerding.
To *Camp Joseph E. Johnston, Fla.*, Capt. J. V. HARSHA, Carrick.
To *Camp Lee, Va.*, from Willoughby, Ohio, Lieut. M. M. WOLFE, New Kensington.
To *Camp McClellan, Ala.*, from Camp Joseph E. Johnston, Lieut. W. E. ANDREW, Pen Argyle; from Walter Reed General Hospital, Capt. C. H. INGRAM, Pittsburgh.
To *Camp Meade, Md.*, from Fort McHenry, Capt. E. PAINE, Clifton Heights; Lieuts. W. L. SNYDER, Brookville; A. D. FERGUSON, Eddystone; L. J. DEAMY, Philadelphia.
To *Camp Sheridan, Ala.*, base hospital, from Camp Dix, Lieut. L. S. DUNN, Chester.
To *Camp Sherman, Ohio*, from Camp Wheeler, Capt. H. B. PATTERSON, Pittsburgh; Lieut. G. H. BLOOM, Philadelphia. Base hospital, Capt. I. OHLMAN, Pittsburgh.
To *Camp Upton, N. Y.*, as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. R. P. SMITH, Port Loudon. With the board examining the command for cardiovascular diseases, from Lakewood, N. J., Lieut. W. D. STROUD, Philadelphia.
To *Camp Zachary Taylor, Ky.*, Lieuts. J. J. QUINN, Lansford; J. J. PRICE, Olyphant; J. L. FLANIGAN, Silver Creek. Base hospital, from Camp Hancock, Capt. C. M. ISEMAN, Ellwood City; from Camp Meade, Lieuts. A. I. BARON, Philadelphia; C. F. BIGONEY, Pittsburgh.
To *Fort Benjamin Harrison*, base hospital, from Fort Oglethorpe, Lieut. J. R. SWARTZLANDER, Doylestown.
To *Fort Oglethorpe* for instruction, Capt. G. W. FARQUHAR, Belleville; G. D. MERVINE, Bitumen; W. F. COPE, Easton; E. L. ERHARD, Glassport; R. L. ERTSMAN, Pittsburgh; Lieuts. C. H. METZGER, Altocha; T. L. SISNEY, Royers; T. H. HARTER, East Brady; J. J. SWEENEY, Heckschersville; J. D. KEIPER, Johnstown; B. S. KOFFORD, Oil City; S. BARON, J. C. HARTMAN, F. R. McDONALD, J. L. RICHARDS, Philadelphia; T. A. MONAHAN, Shenandoah; G. C. GLENN, State College; C. W. BEALS, St. Petersburg; J. G. LOGUE, Williamsport; from Camp Wheeler, Capt. V. J. FENERTY, Philadelphia.
To *Fort Ontario, N. Y.*, Lieut. D. R. EVANS, Pittsburgh.
To *Hoboken, N. J.*, from Camp Greene, Capt. W. P. EVANS, Middletown; from Camp Jackson, Lieut. A. W. FISHER, Fountain Springs; from Camp Sherman, Capt. J. H. BARACH, Lieut. R. M. COCHRANE, Pittsburgh.
To *New Haven, Conn.*, Capt. S. A. LOWENBERG, Philadelphia.
To *Yale Army Laboratory School*, for instruction, Lieut. H. A. KIPP, Pittsburgh.
To *New York City*, Neurological Institute, for instruction, Capt. R. J. BEHAM, Pittsburgh. For intensive training, Lieut. C. D. FOX, Cynwyd.
To *Philadelphia*, from duty as a contract surgeon, Capt. W. G. RAMSEY, Philadelphia.
To report to the commanding general, Eastern Department, Capt. A. H. ELLIOTT, Avalon; G. J. VAN VECHTON, Scranton.
To *Washington, D. C.*, from Fort Oglethorpe, Lieut. C. S. MILLER, Philadelphia.
The following orders have been revoked: To *Fort Myer, Va.*, from Pittsburgh, Capt. G. B. MORELAND, Edgewood. To *Fort Oglethorpe*, from West Lafayette, Capt. H. BRADY, Grays Landing.

Porto Rico

To *Camp Las Casas, P. R.*, Lieuts. A. J. CASANOVA, Penuelas; F. J. CAPO, JR., Santurce; from Fort Oglethorpe, Lieut. M. B. CABALLERO, Humacao.

Rhode Island

To *Camp Meade*, from Fort McHenry, Capt. J. B. FERGUSON, Providence. Base hospital, Lieut. F. A. COUGHLIN, Providence.
To *Fort Oglethorpe* for instruction, Lieut. W. W. STREET, Providence.

South Carolina

To *Camp Crane, Pa.*, from Camp Zachary Taylor, Capt. J. WALLACE, Easley.

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. C. J. MILLER, Cottageville.
To Camp Newton D. Baker, Texas., base hospital, from Camp Gordon, Lieut. A. S. BLANCHARD, Williston.
To Camp Zachary Taylor, Ky., Lieut. R. B. DAY, Pendleton. Base hospital, Lieut. H. C. RAYSOR, St. Matthews.
To Fort Banks, Mass., from Camp Greene, Lieut. W. B. BAKER, Hemingway.
To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. W. T. GIBSON, Batesburg.
To Fort Oglethorpe for instruction, Lieuts. F. H. BOLD, H. DEAS, Charleston; J. B. CASH, Chesnee; B. T. SHARPTON, Clarks Hill; C. H. BLAKE, F. M. ROUTH, W. P. TURNER, Greenwood; F. L. MARTIN, Mullins.
To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. J. L. BOLT, Easley.
To San Francisco, Calif., from Camp Sevier, Lieut.-Col. THOMAS E. SCOTT.

South Dakota

To Camp Dodge, Iowa, Lieut. A. S. JACKSON, Lead.
To Fort Oglethorpe for instruction, Lieut. B. C. MURDY, Aberdeen.

Tennessee

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Washington, Lieut. P. J. TRENTZSCH, Rives.
To Baltimore, Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. J. C. BLANKENSHIP, Halls.
To Camp Hancock, Ga., Capt. J. E. JETER, Gleason.
To Camp Sheridan, Ala., Lieut. E. M. CULP, Clifton. On completion to Camp Shelby, Miss., Capt. A. J. READ, Chattanooga.
To Camp Zachary Taylor, Ky., Capt. S. M. GLASGOW, Nashville; Lieut. J. S. BEASLEY, Centerville.
To Fort Benjamin Harrison, base hospital, from Camp Pike, Capt. W. E. HOWELL, Morristown.
To Fort Oglethorpe for instruction, Major J. L. ANDREWS, Lieuts. C. M. CHILTON, H. P. CONLEY, Memphis; M. D. DAVIS, St. Elmo.
To Fort Omaha, Neb., from Fairfield, Capt. G. E. CAMPBELL, Elizabethton.
To Hoboken, N. J., from Camp Lee, Lieut. C. COLLIER, Memphis; from Camp McClellan, Lieut. R. L. MOTLEY, Jr., Dyersburg; from Camp Sherman, Lieut. J. H. HITE, Nashville.
To Whipple Barracks, Ariz., from New Haven, Capt. L. SHUMACKER, Chattanooga.
The following order has been revoked: To Fort Ontario, base hospital, Lieut. O. M. LATEN, Memphis.

Texas

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, from Fort Riley, Lieut. R. A. THARP, Austin.
To Baltimore, Johns Hopkins Hospital, for instruction, from Fort Oglethorpe, Lieut. M. H. GLOVER, Wichita Falls.
To Camp Bowie, Texas, base hospital, Capt. C. D. DIXON, San Antonio.
To Camp Crane, Pa., from Fort Oglethorpe, Lieut. H. U. WOOLSEY, Terrell.
To Camp Devens, Mass., as orthopedic surgeon and on completion to Boston, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. CLAY, Dallas.
To Camp Forrest, Ga., from Camp Jackson, Lieut. J. C. MAY, Fort Worth.
To Camp Gordon, Ga., as orthopedic surgeon, and on completion to Boston, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. K. MORRISON, Houston.
To Camp Hancock, Ga., Capt. O. C. BOWMER, Corsicana.
To Camp John Wise, Texas, from Camp Kelly, Capt. T. F. BRYAN, Dublin.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. J. B. SWENGER, Beaumont.
To Camp MacArthur, Texas, Lieut. J. E. HAMMOND, Munday. As assistant to camp surgeon, from Marfa, Major G. S. MURPHY, Amarillo.
To Camp Pike, Ark., base hospital, Lieut. H. DONALD, Dallas. To examine the command for nervous and mental diseases, Lieut. F. O. CALAWAY, Austin.
To Camp Sheridan, Ala., Lieuts. A. G. BLANTON, Bronte; E. J. IRVINE, Dallas.
To Camp Sherman, Ohio, base hospital, from Fort Oglethorpe, Lieut. F. L. ROBBINS, Houston.
To Camp Travis, Texas, base hospital, Capt. H. H. STARK, El Paso.
To Camp Wheeler, Ga., from Camp Cody, Lieut. J. V. DOZIER, Menard.
To Camp Zachary Taylor, Ky., Capt. H. O. BRANNON, Fort Worth.
To Fort Benjamin Harrison, from Fort Bliss, Capt. W. C. BROWNE, Midlothian.
To Fort Oglethorpe for instruction, Capt. G. W. DAWSON, F. A. PIERCE, Dallas; C. P. COOK, Ennis; E. GRAVES, Gatesville; S. B. HUDSON, Abilene; H. F. BLALOCK, W. P. CONNELLY, McGregor; A. M. McELHANNON, Sherman; J. E. MANNEY, Waco; Lieuts. C. C. NEVILL, Bonham; N. SNYDER, Brownwood; E. L. HAILEY, Colina; O. H. TALLEY, El Paso; W. S. LORIMER, Hanley; T. D. HOLDER, Holder; W. M. MOORE, Jonesboro; J. A. MOORE, Jourdanton; F. B. SEWALL, Marlin; A. C. ROGERS, Odell; T. S. BARKLEY, Rockdale; W. R. MOORE, Spur; E. W. WRIGHT, Sunset; J. E. KING, Throckmorton; T. A. KING, Vernon; F. J. STANISLAV, Waco; C. G. PRICE, Winden.
To Fort Omaha, Neb., from Fairfield, Lieut. C. B. JONES, Quanah.
To Fort Riley, Lieuts. C. T. STEEN, Danison; J. D. SPEAR, Dayton.
To Governors Island, N. Y., from Camp MacArthur, Major S. NORMAN, Texas City.
To Hoboken, N. J., from Camp Jackson, Lieut. E. B. JONES, Jacksonville; from Millington, Lieut. E. L. SHARP, Willis.
To Marfa, Texas, Capt. M. H. BOWMAN, Fort Bliss.
To New Haven, Conn., from Camp Grant, Capt. J. T. BERNARD, Dallas; from Camp MacArthur, Major I. S. KAHN, San Antonio. Yale Army Laboratory School, for instruction, Capt. H. B. KINGSBURY, Fort Worth.
To Otisville, N. Y., from New Haven, Lieut. J. A. BRADBROOK, Asherton.

To report to the commanding general, Southern Department, Capt. A. A. CALDWELL, Amarillo.
To Rockefeller Institute for instruction and on completion to his proper station, from Camp Logan, Capt. W. F. McMANUS, San Antonio.
To Whipple Barracks, Ariz., from Camp MacArthur, Capt. M. F. BLEDSOE, Fort Arthur.
To Wichita Falls, Texas, Capt. H. J. ROGAR, Vernon.
Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. W. E. BROWN, Abilene.
The following order has been revoked: To Camp A. A. Humphreys, from Eastern Department, Lieut. R. ATKINSON, Pleasanton.

Utah

To Fort McHenry, Md., from Fort Oglethorpe, Lieut. F. A. GOELTZ, Salt Lake City.
To Fort Riley, Capt. A. L. CURTIS, Payson; T. H. WHEELER, Salt Lake City; Lieut. R. M. BRUCKHEIMER, Salt Lake City. Base hospital, F. F. HATCH, Salt Lake City. For instruction, Lieut. J. W. NIXON, Brigham City.

Vermont

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, Capt. E. O. CROSSMAN, Burlington.
To Camp Crane, Pa., from Camp Hancock, Lieut. H. H. LAWRENCE, Springfield.
To Camp Jackson, S. C., base hospital, from Camp Joseph E. Johnston, Capt. A. D. FINLAYSON, Burlington.
To Hoboken, N. J., from Camp Devens, Capt. B. D. ADAMS, Burlington.

Virginia

To Camp Greene, N. C., from Camp Sevier, Capt. I. HURST, Parksley.
To Camp Meade, Md., from Fort McHenry, Lieut. J. O. MUNDY, Jr., Raccoon Ford.
To Camp Pike, Ark., as assistant to camp surgeon, Capt. E. C. LEVY, Richmond.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. J. W. JORDAN, Ashland.
To Fort Oglethorpe for instruction, Lieuts. J. B. LACY, Nathalie; L. N. SMERNOFF, Newport News.
To New Haven, Conn., Lieut. W. E. BROWN, Catawba Sanitarium.
To Otisville, N. Y., from New Haven, Capt. A. G. FRANKLIN, Jr., Richmond.
To Washington, D. C., from Walter Reed General Hospital, Lieut. O. A. RYDER, Cambria.

Washington

To Camp Lewis, Wash., Lieut. R. L. BEADLES, Seattle. Base hospital, Capt. O. TAYLOR, Kent; H. G. LAZELLE, Lieut. S. ROGERS, Seattle; from Camp Meade, Capt. W. D. READ, Tacoma.
To Fort Riley for instruction, Capt. J. W. HEWETSON, Taylor; Lieut. J. F. STEBLE, Olympia.
The following order has been revoked: To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, Capt. J. M. HENDERSON, Seattle.

West Virginia

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. J. B. PAYNE, Clarksburg.
To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Capt. M. V. GODBEY, Charleston.
To Camp Meade, Md., base hospital, Capt. G. YOST, Huntington.
To Camp Shelby, Miss., base hospital, from Camp Upton, Capt. C. W. HALTERMAN, Weston.
To Fort Myer, Va., Capt. J. B. KIRK, Bluefield.
To Fort Oglethorpe, from Camp Wheeler, Lieut. J. C. FORD, Hansford. For instruction, Lieuts. B. H. SWINT, Charleston; R. W. FISHER, Morgantown; H. M. BANKS, Shepardstown; H. L. CASTO, Spencer.
To Fort Sheridan, Ill., base hospital, from Fort Oglethorpe, Capt. E. E. SHAFER, Huntington.
To Hampton, Va., Lieut. W. B. RICHARDSON, Parkersburg.
To Hoboken, N. J., from Camp Sherman, Lieut. W. E. MASTERS, Wheeling.
To Kingsport, Tenn., from Camp Leach, Lieut. S. W. BULL, Spencer.

Wisconsin

To Camp Crane, Pa., from Camp Custer, Capt. H. S. ROBY, Milwaukee.
To Camp Dodge, Iowa, Capt. W. L. STEPHENSON, Ladysmith.
To Camp MacArthur, Texas, Lieut. W. T. McNAUGHTON, Milwaukee.
To Camp Meade, Md., from Fort McHenry, Lieut. E. R. F. MURPHY, Antigo.
To Camp Wheeler, Ga., from Camp Cody, Capt. J. S. FOAT, Ripon.
To Fort Benjamin Harrison, base hospital, from Fort Oglethorpe, Lieut. J. ANDERSON, Racine.
To Fort Oglethorpe for instruction, Capt. N. ANDREWS, Oshkosh; A. O. SANDERS, Superior.
To Fort Riley for instruction, Capt. W. O. SEEMAN, Eau Claire; D. G. HARRISON, Mason; E. F. BICKEL, Oshkosh; N. A. PETERSON, Soldier's Grove; Lieuts. J. J. MALCOLM, Chetek; W. A. MUNN, Janesville; W. W. COON, Milton Junction; O. T. GUNTHER, Sheboygan; R. F. FITCH, Tomah.
To New Haven, Conn., Lieut. L. F. RUSCHHAUPT, Milwaukee.
To Newport News, Va., from Camp Meade, Lieut. C. C. ROWLEY, Winnebago.
To report to the commanding general, Central Department, Capt. J. C. ELSOM, Madison; L. L. TAYLOR, Waupun.

Wyoming

To Camp Cody, N. M., Lieut. A. P. THOMPSON, Evanston.
To Camp Custer, Mich., base hospital, Capt. C. E. HARRIS, Basin.
To Camp Fremont, Calif., base hospital, Capt. A. H. COOPER, Lander.
To Fort Oglethorpe for instruction, Capt. A. B. TONKIN, Riverton.
To Fort Riley for instruction, Lieut. D. H. DALE, Lusk.
To Wichita Falls, Texas, Call Field, from Camp Dick, Lieut. J. T. McBRIDE, Dayton.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

COLORADO

Personal.—Dr. John F. McConnell, Colorado Springs, was elected president and Dr. George B. Gilbert, vice president, and Dr. Harry C. Goodson, secretary, of the Solly Tuberculosis Society, Colorado Springs, August 19.—Dr. Benjamin B. Frankle has been appointed police surgeon of Denver, succeeding Dr. Samuel S. Goldhammer, resigned to enter military service.—Dr. Haskell M. A. Cohn, Denver, sustained fractures of the shoulder and two ribs in a collision between his automobile and another car, 8 miles north of Colorado Springs.—Dr. A. J. Monahan, Pueblo, has been appointed a member of the state board of health.

CONNECTICUT

Laboratory Building for Medical School.—Plans have been prepared for a laboratory building for the Yale Medical School, New Haven. The building is to be of brick and steel construction.

Physician's Bail Forfeited.—Dr. Francisco D'Agostina, New Haven, arrested, August 15, on the charge of improper treatment of his 15-year-old ward, and released on bonds of \$5,000, is said to have failed to appear in court and his bonds were forfeited.

Tuberculosis Propaganda.—The state department of health is distributing throughout the state a new pamphlet entitled, "Tuberculosis: Prevention and Treatment," the object of which is to convey concisely the more important facts concerning tuberculosis of the lungs.

Personal.—Dr. David R. Lyman, Wallingford, has resigned as state tuberculosis commissioner and Arthur R. Kimball, president of the Waterbury Anti-Tuberculosis League, has been appointed to succeed him.—Dr. Nathaniel C. Rubinsky, New Haven, was ship surgeon on the U. S. Transport *Covington*, which was sunk at sea, August 5.—Dr. Robert C. White, Willimantic, was operated on for appendicitis at St. Joseph Hospital, Willimantic, recently, and is said to be doing well.

ILLINOIS

Service Flag Dedicated.—St. Joseph's Hospital, Chicago, dedicated a service flag bearing thirty stars, August 13, indicating that thirty nurses of that hospital were now engaged in war work.

Offenders Against Law.—Mrs. W. M. Rybicki, charged by the state board of health with the violation of the medical practice act, pleaded guilty and was fined \$50 and costs in each of two counts.—Dr. K. S. Ramashauski, Chicago, charged with practicing medicine without a license, is said to have been found guilty, and fined \$50 and costs, August 12.

Contagious Diseases.—The Illinois health record for the week ended August 12 shows ninety cases of diphtheria, twenty-seven of scarlet fever, nineteen of smallpox, three of meningitis and eighteen of infantile paralysis. All cases of infantile paralysis were reported from the northern part of the state, and Chicago has the majority of cases of diphtheria, smallpox and scarlet fever.

Personal.—Major William Fuller, M. C., U. S. Army, who is chief of the surgical service at U. S. Hospital No. 1, Williamsbridge, N. Y., was operated on in St. Luke's Hospital, August 20, and is reported to be convalescing.—Drs. Mary M. S. Johnstone and Loretta K. Maher, Chicago, have been made contract surgeons of the United States Army, and have been appointed on the staff of the emergency dispensary in Washington.—Dr. G. Willard of Chicago was struck by a street car, August 7, and suffered a fracture of the skull.

MARYLAND

Personal.—Dr. Richard T. Hardy, Baltimore, has been made medical superintendent of the Sydenham Hospital, Baltimore, to succeed Dr. Harry G. Johnson, who has resigned to enter the military service.—Dr. and Mrs. Philip S. Evans, Baltimore, have returned to China after a year in the home country.—Dr. William Dew has been appointed supervisor of pasteurization in the health department of Baltimore.

MICHIGAN

Physicians Exchange Dissolves.—Petition has been made to the circuit court by the Physicians and Surgeons Exchange, Detroit, for the dissolution of the organization, as the listed liabilities are said considerably to exceed the assets.

Business Men Help Sanatorium.—On account of the number of physicians of Mount Clemens who have left to enter the military service, Dr. Joseph M. Croman is contemplating closing the institution and remodeling it as an apartment house. As this would leave the city without a hospital, the business men have raised a bonus of \$1,000 to keep the institution open for two years.

Personal.—The governor is said to have demanded the resignation of William D. Farley, Battle Creek, as a member of the state board of health. It is charged that Farley, who is engaged in the underaking and furniture business, sold supplies to the state board of health. He denies that he had any intention of violating the law.—Dr. Benjamin T. Phillips, Menominee, is reported to be seriously ill at his home.

MINNESOTA

Personal.—Dr. Lloyd G. Dack has been appointed local surgeon for the Minneapolis, St. Paul and Sault Sainte Marie Railway at Brooten.

Infantile Paralysis.—Several cases of infantile paralysis were reported from Spring Grove with three deaths, and a specialist from Minneapolis has been sent to investigate the situation.

Trachoma Institutions.—Free dispensaries for the treatment of Indians and others suffering from trachoma are expected to be established throughout the state. The investigation of the institution is in the hands of Surg. John McMullen, U. S. Public Health Service.

NEW JERSEY

Personal.—Watson Martindale, a member of the Johns Hopkins University Hospital Unit and son of Dr. J. Watson Martindale of Camden, is under treatment in a Paris Hospital, having had his right hand shattered by a German shell at the beginning of the great Allied offensive.—Mr. Charles H. Wells, Montclair, began his work as state commissioner of health, August 15.

Medical Board Changes.—Dr. James W. Hughes, Atlantic City, has been appointed a member of the state board of medical examiners to succeed Dr. Edward H. Baldwin, Newark. Dr. John J. Mooney, Jersey City, has been reappointed a member of the board and Dr. Philip Marvel, Atlantic City, has been appointed a member of the board to succeed Dr. Alexander Marcy, Jr., Riverton.

NEW YORK

Use of Saccharin.—Several years ago, the federal government ruled that saccharin was a deleterious product, and could not be used in foods except when intended for medicinal purposes—that is, diabetic foods—in which instance its use should not exceed 0.03 gm. per day. During the recent weeks, the sugar shortage has become more and more acute and the temptation to use saccharin as a sweetening agent has consequently become greater at this time. In a ruling on the adulteration of a beverage which contained 0.01 per cent. saccharin, the Appellate Division of the Supreme Court of New York held that the use of saccharin, if fully disclosed on the label, did not constitute adulteration within the meaning of the Sanitary Code of New York. This judge, however, went further and stated that "since saccharin is not injurious to health, its use may be restricted, but cannot be prohibited in the exercise of police power."

New York City

Nurses' Psychiatric Unit Ready to Sail.—The Nurses' Bureau of the New York County Chapter of the American Red Cross is making a vigorous effort to enlist for war service every graduate nurse in New York City who can be spared from civilian service, and in connection with this campaign the bureau announces that a special psychiatric unit of forty nurses has been assembled and outfitted, and will soon sail for overseas for the purpose of ministering to shell shocked soldiers.

Personal.—Dr. Frank J. Monaghan, Brooklyn, secretary of the department of health, has been appointed deputy health commissioner in charge of the Brooklyn office, succeeding

Dr. B. Frank Knause, who has resigned to enter the military service.—Lucius Brown, director of the Bureau of Food and Drugs of the New York Department of Health, who was suspended, May 28, was unanimously reinstated by the board of health, August 10.—Dr. Justinian A. Hofheimer, while performing an operation at Hill's Sanitarium in this city, August 19, was stricken with heart disease and had to be removed to his home, where, it was stated, he was in a serious condition.

Not Spanish Influenza.—A statement has been given out by Commissioner Copeland in which he says that researches made by experts in the health department show that of the cases of illness taken from steamships arriving in this port supposed to be Spanish influenza, very few showed symptoms of that affection. Eleven patients taken from one vessel were found to be suffering from pneumonia and bronchial trouble. It is believed that owing to the exigencies of submarine warfare, passengers contract heavy colds and later pneumonia as the result of passing through the semiarctic waters of the north, and later are affected with heat prostration and stomach disorders when they come through the gulf stream farther south. Health officers of the port, however, are keeping a strict lookout on incoming steamships whose passengers or crews might develop Spanish influenza.

NORTH CAROLINA

Prosecution for Violation of the State Quarantine Law.—During the month of July the state board of health prosecuted twenty physicians for violating the state quarantine law. Two charges were brought against one physician. One defendant was found not guilty, and convictions were obtained and fines were imposed ranging from \$1 to \$15. In each case the charge against the physician was failure to comply with the state quarantine law that requires the prompt reporting to the county quarantine officers of infectious or contagious diseases.

Hospitals in Western North Carolina.—Western North Carolina is being recognized by the federal government liberally in the location of the various hospitals recently established. An Army hospital has been established for reconstruction purposes at the Hotel Kenilworth, which was completed last year by private persons. The new U. S. Hospital at Azelea, 4 miles south of Asheville, will soon be able to care for 200 tuberculous soldiers; the U. S. Hospital at Waynesville, N. C., 28 miles away, cares for about 800 soldiers, while the internment camp for Germans at Hot Springs, N. C., 30 miles from Asheville, will shortly be converted into a hospital with accommodations for 2,000 soldiers.

Postgraduate Courses for Health Officers.—The North Carolina State Sanatorium, with the cooperation of the International Health Board, has arranged a special postgraduate course in physical diagnosis for health officers and other physicians. While special stress has been laid on tuberculosis, the course will be of such a general nature as to make it of value to the practitioner. The course will include: history taking; complete physical examination; tuberculin, the von Pirquet test and subcutaneous test and treatment; blood pressure; throat; a unit of tuberculosis for a county health department; assistance to be obtained from the sanatorium and the bureau of tuberculosis; laboratory; radiography and electric therapeutics; county sanatoriums; pneumothorax; dairying. Instruction will be given by Drs. Lewis B. McBrayer, Paul P. McCain, Wade H. Sherrill and Miss Mann, all of Sanatorium.

Inspection and Grading of Jails.—The state board of health has recently completed the inspection and grading of one half of the county jails of the state, as provided for in a recent legislative enactment. A tabulation shows that very few of the 100 county jails are maintained regularly according to the standards fixed by the board. Out of a possible 100 points, only two jails scored above 90; nine between 80 and 90; eleven between 80 and 70, while the other twenty-six range rapidly down to the lowest, which is graded at 47. The sanitary requirements of the board are minimal in their exactions, consisting in brief of a physical record of each inmate on entry; separation of races and sexes; segregation of infections, notably tuberculosis and venereal infections; precautions against vermin; ample floor and air space; pure water and bathing facilities; proper clothing and bedding; sanitary disposal of sewage; measures against flies and mosquitoes; and general cleanliness of person and premises. The inspection work will be continued until all counties have been examined and graded.

OREGON

New State Officers.—At the annual meeting of the Oregon State Medical Association held in Seattle, Wash., last month, the following officers were elected: president, Dr. Charles M. Barbee, Portland; vice presidents, Dr. Frank E. Boyden, Pendleton; Louis Buck, Portland, and Benjamin A. Cathey, Condon; secretary, Dr. Andrew J. Browning, Portland; treasurer, Dr. Jesse M. McGavin, Portland; and councilors, Drs. Charles H. Carey, Portland; Joseph A. Pettit, Portland; Francis G. Swedenburg, Ashland; George S. Whiteside, Portland; Robert J. Pilkington, Astoria; Alvin W. Baird, Portland; Mae H. W. Cardwell, Portland; Charles J. Smith, Portland; Paul Rockey, Portland; Roy S. Stearns, Portland, and Roy C. McDaniel, Portland.

PENNSYLVANIA

Philadelphia

To Raise Funds for a Hospital.—With the aid of the woman's auxiliary of the Roosevelt Hospital, to be organized within the next few days, the campaign to raise a fund of \$20,000 with which to enlarge the Roosevelt Hospital will be carried into every section of the city and suburbs. Campaign headquarters have been opened at 1341 Chestnut Street and the active work of the campaign will be conducted there. Dr. Franklin Brady, chief of staff, has asked architects to submit plans involving a cost of \$200,000 for the new hospital.

RHODE ISLAND

Typhoid in the Pawtuxet Valley.—The state board of health is making a thorough investigation into the reported prevalence of typhoid fever in Pawtuxet Valley. It is believed that the infection was due to a carrier rather than to water pollution.

District Society Meeting.—The Woonsocket District Medical Society, at its annual meeting, reelected Dr. Edward L. Myers, Woonsocket, president, and elected the following new officers: vice presidents, Drs. James A. King and Robert Gates Reed, Woonsocket; secretary, Dr. Edgar F. Hamlin, Slatersville, and treasurer, Dr. Aurelien Constantineau, Woonsocket.

Personal.—Dr. Harry S. Bernton, pathologist to the state board of health, has resigned to become the chief of the bureau of preventable diseases and director of the biologic laboratories of the health department of the District of Columbia. —Dr. Augustine A. Mann, Central Falls, was reelected president of the First Regiment Rhode Island Cavalry Veteran Association at its annual reunion, August 17.

TEXAS

Personal.—Dr. Herbert F. Gammons, Carlsbad, formerly assistant superintendent of the Texas State Tuberculosis Sanatorium, has been appointed superintendent of the Deerpark Sanatorium, Wadena, Minn., and will also attend to the tuberculosis clinics in Crow Wing and Aitkin counties. —Dr. H. Powell Luckett, Bastrop, was stricken with cerebral hemorrhage recently, and has been obliged to resign as a member of the county registration board. —Dr. Azariah W. Parsons, Devine, has been elected president of the Medina County Medical Society.

CANADA

Personal.—Lieut.-Col. John N. Gunn, D.S.O., Toronto, formerly officer commanding the 8th Field Ambulance in France, has been appointed deputy assistant director of medical services at Calgary, Alberta. —Capt. D. E. Staunton Wishart, Toronto, who has completed three years with the R. A. M. C. in the east, has been gazetted to the staff of No. 4 Hospital at Basingstoke, England. —Dr. Francis J. Shepherd, Montreal, late dean of the medical faculty of McGill University, has just completed an investigation into the prevalence of goiter in Alberta, undertaken at the instance of the Canadian Conservation Commission to which body representations had been made that the disease was unduly prevalent in that province. —Dr. H. A. Stewart, Saskatoon, Sask., has been elected a member of the Senate of the University of Saskatchewan, and will represent the College of Physicians and Surgeons of the province. —Lieut.-Col. Andrew Croil, formerly of Saskatoon, Sask., has been appointed to take charge of the surgery in Camp Hill Military Hospital, Halifax, N. S. —Capt. Charles E. Preston, C. A. M. C., was among those wounded during a German bombing raid on No. 1 Canadian Base Hospital. —Lieut. B.

E. Hawke, formerly of Toronto, has been working in a hospital in Epsom, England. He has recently been appointed examiner of a traveling board with headquarters at Tunbridge Wells.—Major A. S. Gorrell, A.D.M.S., Military District No. 12, Canada, is advanced to the rank of lieutenant-colonel and will be special consultant in diseases of the eye, ear, nose and throat.—Lieut.-Col. Joseph Hayes, who went overseas as medical officer of the 85th Nova Scotia Battalion, has been mentioned in dispatches a second time for distinguished and gallant services.—Capt. Frank Hassard, a graduate of the University of Toronto, won the Military Cross in July and is now attached to the field ambulance of the Indian cavalry.

GENERAL

Personal.—Surg. James A. Nydegger, U. S. P. H. S., was placed in supervisory charge of the quarantine functions of the port of Baltimore, August 1. The Baltimore Quarantine Station was recently transferred from municipal to federal control.

Eye and Ear Meeting.—At the annual meeting of the Pacific Coast Oto-Ophthalmological Society held in Salt Lake City, August 12 and 13, under the presidency of Dr. Alexander R. Irvine, Salt Lake City, Dr. Cullen F. Welty, San Francisco, was elected president, and Dr. Aaron S. Green, San Francisco, secretary. San Francisco was selected as the place of meeting for 1919.

Tri-State Officers.—At the annual meeting of the Tri-State District Medical Association, held in Madison, Wis., August 20 to 22, Rockford, Ill., was selected as the place of meeting for next year. The following officers were elected: honorary president, Dr. James W. Guthrie, Dubuque, Iowa; president, Dr. Lawrence H. Prince, Sparta, Wis., and secretary and treasurer, Dr. Domer G. Smith, Freeport, Ill.

Bequests and Donations.—The following bequests and donations have recently been announced:

The City of Milwaukee, \$350,000 for the erection of three free medical dispensaries, by the will of Miss Antoinette E. Keenan.

For a hospital for the white race at Winston-Salem, N. C., \$12,000, and an additional \$12,000 for provision for negroes of the community by the will of R. K. Reynolds, Winston-Salem.

Polyclinic, American Oncologic, Samaritan, Garretson, American, and Babies' hospitals, Philadelphia, each \$1,000, and the ambulance fund \$3,000, from the receipts of the Philadelphia Indoor Horse Show.

New Physiologic Journal.—Announcement is made of the forthcoming appearance of the *Journal of General Physiology*, which is intended to serve as an organ for publication for papers devoted to the investigation of life processes from the physicochemical point of view. The journal will be issued bimonthly. The first number will appear September 20. The editors are Dr. Jacques Loeb of the Rockefeller Institute for Medical Research, and Prof. W. J. V. Osterhout of Harvard University. The subscription price is \$5 a volume and subscriptions should be sent to the *Journal of General Physiology*, Publication Department, the Rockefeller Institute for Medical Research, Sixty-Sixth Street and Avenue A, New York.

National Safety Council.—The seventh annual safety congress of the National Safety Council will convene at the Hotel Statler, St. Louis, September 16, under the presidency of David Van Schaack, and will remain in session four days. The principal addresses will be delivered by Secretary of the Interior Franklin K. Lane, on "Safety as an Asset in Winning the War," and by Charles M. Schwab, director of the emergency fleet corporation on "The Democratization of Industry." The preliminary program of the meeting shows a very wide range of subjects for discussion, dealing with the fundamental principles of the methods of securing success in safety work and in coordinating the resources of the country for the winning of the world war.

Prohibition of Child Labor.—Congressman Edward Keating of Colorado stands sponsor for a new war measure which will directly prohibit the labor of children of less than 14 years of age at any time, and children between the ages 14 and 16 years for more than eight hours a day, and of children of less than 16 years of age in mines and quarries. The bill seeks to maintain standards during the war by direct prohibition under the war power of Congress. The bill was drawn by Thomas I. Parkinson of the Legislative Drafting Research Fund of Columbia University, and has been approved by a joint committee of the National Child Labor Committee and the American Federation of Labor.

Convention of Sanitarians.—A convention of sanitarians of the United States and Canada will be held in Chicago, October 14 to 17, under the auspices of the American Public

Health Association. The convention will consider such questions as "Which Public Health Officer Should Stay at Home and Which Should Go to War?" "How Is the Nation Bearing Up Under the War Strain?" "What Are the Special War-Time Health Menaces of the Civil Population and What Are We Going to Do About Them?" and "What Headway Are We Making Against Venereal Diseases?" Papers will also be presented on laboratory, internal hygiene, vital statistics, food and drug, sanitary engineering, sociologic and general health administration subjects. Among those who are expected to be present and speak at the conference are: Surg.-Gen. William C. Gorgas, U. S. Army; Col. Victor C. Vaughan and Major William H. Welch, M. C., U. S. Army; President George H. Vincent of the Rockefeller Foundation; Dr. Charles J. Hastings, president of the American Public Health Association; Asst.-Surg. Allan J. McLaughlin, U. S. Public Health Service; Drs. Ernest S. Bishop, Lee K. Frankel, Frederick L. Hoffman and others. Governors of states and mayors of cities have been requested to send their health officers to this conference. Further information will be furnished by A. W. Hedrich, secretary of the American Public Health Association, 1041 Boylston Street, Boston.

FOREIGN

Deaths in the Profession Abroad.—E. G. Gereda, a prominent laryngologist of Madrid, founder and director of the new model mountain sanatorium for pulmonary tuberculosis at Guadarrama, the first climatic sanatorium in Spain, injured in a motorcycle accident, aged about 35.—T. von Speyr of Chaux-de-Fonds, Switzerland, a well known ophthalmologist, president of the Swiss Ophthalmologic Society and leader in public health matters in his district. He succumbed to perforation of an unsuspected gastric ulcer, aged about 61.

Death of the President of Italian Red Cross.—The death is reported of the Count della Somaglia, senator and president of the Italian Red Cross since early in 1913, aged 50. His father had been president of the Red Cross from 1886 to his death in 1896, and was also senator of the realm. The son took up the task then, serving on the council and later as vice president and president until his recent death. The extensive work of the Italian Red Cross through the Messina earthquake and other catastrophes and during the war has been finely organized and admirably effectual.

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Lying-In Hospital at Havana.—The *Revista de Medicina y Cirugia* of Havana describes the opening of the new Mutualidad Materna del Vedado, founded and managed by Dr. L. Huguet as a modern maternity. It is the first institution of the kind in Cuba exclusively devoted to parturients.

Index of Cuban Medical Literature.—The Medical Press Association of Cuba voted at its regular meeting in July to publish an index of the medical literature of Cuba. The committee appointed for the purpose consists of Drs. Weber, Ruiz Casabo and Arteaga. The latter is editor in chief of the *Revista de Medicina y Cirugia* of Havana. The financial aid of the scientific societies and periodicals of Cuba is to be solicited to cover the expense of this local "Index Medicus."

CORRECTIONS

Conference of Local Board Examiners.—We are informed by Dr. J. W. Elder that Major W. C. Lyle of Georgia held a conference with the chairmen of advisory boards at Fort Oglethorpe, and that this conference was held earlier than the one held by examiners at Camp Cody as described in THE JOURNAL last week.

Studies in Water Drinking.—In the issue of August 24, page 685, appeared an abstract of Dr. A. C. Ivy's article on "Studies in Water Drinking." The last sentence of this item reads: "It was impossible to demonstrate a fatigue of the gastric glands when stimulated by water or by gastrin for a period of ten to twenty-six minutes." This statement should be "for a period of ten to twenty-six hours."

National Dental Association.—In the issue of August 17, in a "General News" item, under the heading "National Dental Association," it was stated that the exhibit of the United States Army Dental School Section was in charge of Lieut. William E. Henshaw, Lieut. C. R. Hollister and Lieut.-Col. J. H. Snapp. This statement was erroneous, as this exhibit was in charge of Lieut.-Col. J. H. Snapp, Major J. D. Eby, Capt. Benjamin B. Todd and Major A. J. T. Beatty.

LONDON LETTER

LONDON, July 30, 1918.

Mr. Hoover on the Food Position

Mr. Herbert Hoover, the food administrator of the United States, who is at present in this country for the Inter-Allied Food Conference, made an important statement on the food position at a luncheon given in his honor by the lord mayor. He said that within four months of the outbreak of war they were startled in America by the fact that 10,000,000 people in Belgium and northern France were in danger of immediate starvation. From that moment his sole occupation had been the study of problems and the actual administration involved in the feeding of masses of human beings. In those early days they regarded the Belgian problem as the greatest problem in food that the world had seen. But they little realized that sooner or later the food supplies of 500,000,000 people would be endangered and that the economic disturbances arising would penetrate into every quarter of the globe. The development of this titanic struggle to a point at which practically one third of the man power of the white races would be called out for warfare could have but one result on food production. Furthermore, the naval struggle to cut off or reduce the food supply of ourselves or the enemy had become one of the primary strategies in the war. The enemy had rendered our food problem complex and difficult by the destruction of shipping and the partial isolation of many of the great sources of supply in the southern hemisphere, but he had failed in his objective. America was solving the problem of supplying the Allies by relying on three avenues of exertion: 1. The people and the lands were capable of increasing production. 2. With a higher standard of living, and therefore a larger individual food consumption than any other population in the world, the Americans had a larger possible margin for reduction of consumption without damage to public health. 3. By the enforcement of restriction on export they could direct the total stream of food from the United States directly into Allied hands, to the exclusion of all others, unless those others were prepared to give service to shipping or materials to the Allied cause to repay them for their sacrifice. During the past twelve months they had exported about 10,000,000 tons of food, and, aside from their diminished production during that year, it is to be remembered that the United States, except under the pressure of this war, is not normally a food-exporting country of consequence. The saving of foodstuffs in the United States has been wholly on a voluntary basis. It had been the ambition of the American people during the past year that the restriction in quantity of breadstuffs in Europe should be relieved and the quality of the loaf improved. He believed that a less moderate mixture of other cereals than wheat in the loaf would be possible and thus better bread provided for the entire 220,000,000 people opposed to Germany. This year a reserve must be built up in breadstuff supplies against the ever-present climatic dangers to harvest. The great problem of agricultural substitution was dominated by two critical relative factors, first the time factor and second the expenditure in fodder and therefore land productivity. To increase the beef production would require from three to five years. On the other hand, they could bring an enormous increase in meat and fat production through swine within from nine to twelve months. They could also produce the same food value from swine with one fourth the consumption of fodder crops that they could obtain from cattle. They had therefore urged, and given assurances to their agricultural population, which had led to a wonderful increase in their swine production. He had in his possession the needs of the European Allies for meats. The United States could furnish this whole volume in pork alone. In the next twelve months with less pressure of saving on the people, it could export 18,000,000 tons if it should prove necessary, and to this Canada would add about 3,000,000 tons.

Turning to the position of the enemy, he said that a body of about 100,000 persons, comprising the dominating spirit in Germany, through years of machiavellian industry, had been able to put against the rest of the world the forces of 160,000,000 people, but they had not been able to produce their needed food. They had overrun their borders, they had crushed whole races of people, and they were daily supplementing their own food supplies by extraction of the already short supplies of these helpless people. A periphery of starvation rang about so-called German victory. These conquered people, already hungry, were being slowly and surely starved, and their loss of lives through malnutrition and

starvation during the next harvest year would be far larger than all the casualties on the western front. There was no greater illumination of the ill that has been done to civilization through the ambitions of this group of men than the appalling outlook that confronts this helpless mass now under the beneficence of Kultur. America was able to relieve these people only at one point, and that was in Belgium and northern France.

New Rationing Orders for Invalids

The food controller has issued new regulations with regard to rations for invalids. He understands the difficult position in which physicians are sometimes placed when asked to sign certificates for extra rations, but he relies on the profession to help him in safeguarding the national food supplies by giving certificates only when essential. Importunate patients should be told that a physician has no power to grant extra rations, but only to recommend a case for such a grant when he is convinced of its necessity; and that the final responsibility for giving or withholding a grant rests with the Ministry of Food, which has to take into account not only the requirements of the individual, but also the state of the national supplies. Physicians are asked to recommend milk (which is not rationed) rather than extra allowances of meat and butter, whenever this will meet the needs of the patient, as extra rations can be granted only when it is clear that the patient cannot obtain sufficient nourishment from unrationed foods. Extra meat is allowed in certain cases for obtaining raw beef juice, but not for making beef tea. For the latter purpose a commercial meat extract should be used. It has been found that the terms "pancreatic insufficiency" and "celiac disease" are used so loosely that medical certificates bearing these diagnoses alone can no longer be recognized. A brief statement of the patient's symptoms should be supplied as well. Extra rations may be granted for the diseases shown in the accompanying table.

RATIONS THAT MAY BE GRANTED IN CERTAIN DISEASES

Diseases	Maximal Weekly Rations, Including Ordinary Rations		
	Butcher's Meat	Bacon	Butter and Margarin
Active tuberculosis, pulmonary or otherwise	2½ lb.	1 lb	Number of times the ordinary ration (which may vary from time to time) Three times
Diabetes and glycosuria	2½ lb.	1 lb	Four times
Exophthalmic goiter	Either 2 lb. and Or ordinary ration and.....	Ordinary ration and.....	Once
Pernicious anemia	2 lb.	Ordinary ration and.....	Twice Once
Cancer	Either 2 lb. and Or ordinary ration and.....	Ordinary ration and.....	Twice
Senile dyspepsia	2 lb.	Ordinary ration and.....	Three times Once
Convalescence after severe illness or severe operation	2 lb.	Ordinary ration	Twice
Infantile diarrhea and wasting	In the case of children under 2 years suffering from this complaint, extra meat may be granted not exceeding 2 lb. per week, for a maximum of 4 weeks for the purpose of making raw beef juice.		

When a patient is medically certified as being unable, for some reason specified, to take one or other of butcher's meat, bacon or butter, his rations may be interchanged at the discretion of the committee in the following proportions: One coupon for butcher's meat a week equals one coupon for bacon a week equals one butter-margarin coupon a month. A return to the meat diet will be allowed at any time on surrender of the unused extra fats coupons. Instead of the regulation war flour, a permit to use white flour may be granted in active gastric ulcer, active duodenal ulcer, malignant disease of the stomach (gastric carcinoma), senile dyspepsia, chronic diarrhea and intestinal ulceration. By "active"

gastric or duodenal ulcer is meant either that stage of the disease in which the patient is undergoing treatment in bed or the convalescent period immediately following it. The term "senile dyspepsia" is used for that form of flatulent indigestion so often encountered in aged persons in association with chronic bronchitis or cardiac weakness.

Medical Women in the Army

Owing to the shortage of male labor in every occupation, the women have been employed in enormous numbers and have worked exceedingly well both in the auxiliary services of the army and in civil life. Women physicians have also proved exceedingly useful, but some dissatisfaction exists with regard to the position of medical women serving in the army. The government has refused to grant them commissions. Dr. Jane Walker, president of the Medical Women's Federation, has written a letter to the *Times* voicing the growing indignation of medical women from whom, she says, the War Office continues to ask more and more while treating them as inferior to the men who are doing the same work. Women serving abroad receive the same pay as men and the same gratuity, but they receive neither ration nor billeting allowance, and those two allowances come to over \$7.50 a week. Women serving at home receive neither the ration allowance nor the \$300 gratuity that is paid to the men. They are also refused the privilege, given not only to officers, but also to army sisters and nurses, of traveling on leave with half-fare vouchers, and they pay the income tax as civilians. The ground for refusing the gratuity and the reduced rate of income tax is that the woman is engaged on a monthly contract, while the man joins for a year or until the end of the war. But the woman is given no option. She is not allowed to join for more than a month. Yet, whether she joins for a month or a year she is giving up her home and her private practice. Medical women have now been serving for more than two years in the army without rank, and they are suffering not only financially but also in their professional position. Working without rank among a body of men where the whole discipline depends on badges and rank, they have not the authority necessary for carrying out their duties, such as they have in civil hospitals. Although many of the medical women serving in the army not only have a high professional standing in civil practice, but now have a large experience in military hospitals, they rank below the latest joined subaltern, and are obliged to take their orders from him. When they travel, they travel not as officers, but as "soldiers' wives." In numerous ways, in dealing with their patients, with the orderlies, with German prisoners, and with colored troops, they find that they have not the respect and the prompt obedience to which they are entitled and which rank would give them. It is only fair to add that recently the War Office gave medical women serving abroad the right to wear uniforms, but that right does not touch the grievances. Many medical women say that a uniform without rank means nothing, and that it will only serve to emphasize the position of inferiority in which they are placed.

PARIS LETTER

PARIS, July 25, 1918.

Donation from the American Red Cross

In view of the remarkable results obtained by la section de rééducation professionnelle des blessés de la guerre (rehabilitation of the maimed soldiers) of the Ecole nationale d'horlogerie at Cluses (département de la Haute-Savoie), the minister of commerce recently gave permission to build a new annex to that institution. The American Red Cross, showing again the interest it takes in our wounded, has agreed to contribute half of the expense of building and equipment of this addition, representing the sum of 200,000 francs. M. Clémentel, minister of commerce and industry, has extended the thanks of the government to the American Red Cross for this most generous gift.

American Sanitary Trains

In less than six months the medical department of the United States Army has established sixteen model sanitary trains which are now running on the French railroads, and are destined for the American army. The sixteenth train was "inaugurated" at Pantin. Seven of these trains are side-tracked in the suburbs of Paris, constituting a reserve for emergencies. More than 640 wounded can be taken care of on one train, which has 360 beds. Each coach for the wounded is provided with a bath room. The train is lighted by electricity and has telephone connection between all the coaches.

Monument for Dr. Magnan

A group of former students and friends and confrères of the late Dr. Magnan (*THE JOURNAL*, Nov. 4, 1916, p. 1382), honorary physician-in-chief of the Asile de Sainte-Anne, have decided to erect a monument to his memory. By reason of present conditions, the executive committee has decided not to take definite action until after the war (*après la victoire*). Subscriptions to this fund will be received by Dr. Marcel Briand, physician-in-chief at Sainte-Anne, president of the executive committee, 67, boulevard des Invalides, Paris, and by M. P. Masson, the publisher, 120, boulevard Saint-Germain, Paris, treasurer.

Honoring the American Red Cross

At a meeting held July 4, the Académie Française bestowed a large gold medal on the American Red Cross in appreciation of its admirable work. The Union des Syndicats médicaux de France also sent the following letter to the American Red Cross: "The Conseil d'Administration de l'Union des Syndicats médicaux de France, after having, in the name of the ten thousand physicians which it represents, written to the president of the American Red Cross in France, in order to express to him its appreciation of all the good which that organization has done, its great generosity and its admirable devotion to our country, sends to the American people and their noble representative the assurance of its profound admiration and of its lively appreciation. It is firmly convinced that the confraternity of the armies of the two Republics, and their indissoluble union, will, in the future, safeguard peace, right, justice and progress." (The original French was given recently in *THE JOURNAL*, page 482.)

American University Union

The American University Union, whose membership consists of numerous French and Americans, recently gave a banquet in honor of M. André Tardieu, high commissioner of the *affaires de guerre franco-américaines*. M. Tardieu delivered a most interesting address. He called attention especially to all that the American universities represent in intellectual vigor and moral force, the important rôle they have played in the development and elevation of the soul of the American people, and all the principles of honor, of solidarity and of disinterestedness which direct their activities.

Sending Children to the Country

On the suggestion of M. Ambroise Rendu, the city council of Paris has decided to create a thousand purses of 400 francs each for the purpose of placing children in the sanatoriums or among the farmers under the conditions established by the Oeuvre Grancher, described in *THE JOURNAL*, July 6, 1918, pp. 1-6.

Distribution of Milk to Children Under Three Years of Age

The city council of Paris, at the request of M. Ambroise Rendu, has decided to establish a credit of 2,400,000 francs to assure the continuance of the gratuitous distribution of milk to children who are less than 3 years of age.

The French Society for Aiding Wounded Soldiers

The Société française de secours aux blessés militaires has held a general meeting. Reports made showed that the society has disbursed 158,692,000 francs between Aug. 2, 1914, and Jan. 1, 1918. The number of hospital days was 35,001,699. The society maintained 162 infirmaries or depot canteens and 164 soldier's clubs—*cercles de soldat*. Thirteen tuberculosis dispensaries or special hospitals were established, four of the hospitals to be permanent after the war. The society has a personnel of 18,846 brevet nurses and about 12,000 auxiliaries. Of this number more than 3,500 are in service in the military hospitals at the front, in Paris or in the provinces, 40 are at Saloniki, 12 at Morocco, 154 have been assigned to accompany evacuation trains and have made 77 trips. Since the declaration of war, 11 nurses have been killed and 20 wounded during bombardments; 30 have succumbed to contagious diseases contracted at the bedside of sick soldiers; 3 have been awarded the Legion of Honor, 212 the Croix de guerre, 892 the médaille des épidémies.

The meeting was closed with a vote of thanks to the American Red Cross, to England, the South American countries, and to French overseas possessions which have come to the assistance of the society in its work.

Reception of American Medical Mission

At the request of M. André Tardieu, high commissioner of the *affaires de guerre franco-américaines*, the Comité

d'études sionistes de Paris, over which Baron Rothschild presides, received the medical mission which was sent by the American Zionists and was then passing through Paris on its way to Palestine. This mission is to join another American medical mission organized by the American Red Cross, under the direction of Dr. Finley, which has already reached Jerusalem. In the course of this reception of the Zionist mission, addresses were made by M. Tardieu, Dr. Louis Mourier, under-secretary of State of the Service de Santé militaire, and by M. Sylvain Lévi, professor in the Collège de France, who has returned from Palestine, where he had been in charge of a mission.

In Memory of Drs. Pozzi and Bonnaire

The superior council of the Assistance publique has decided to name a ward in the Broca hospital in honor of Professor Pozzi, and a ward in the Maternité in honor of Dr. Bonnaire.

Meatless Days Abolished

The régime of three meatless days a week which was instituted last April has been abolished. In a report made to the president of the Republic by M. Victor Boret, minister of agriculture and food commissioner, it is shown that the shortage of cattle no longer exists. The restrictions previously imposed resulted in a saving in meat consumption of about 25 per cent. The animals have begun to come in from the pastures, where the continued drouth has made it impossible to keep them as long as it was hoped would be possible. The supply of frozen meat has been replenished, thanks to large imports, and the military commissary department has been able to cut down the number of cattle demanded of the producers. Lastly, the high prices have been combated successfully by a series of measures which are beginning to show their full effect. It should be stated that the shortage of fruits and legumes, due to atmospheric conditions, makes it impossible to put these replacement foods or substitutes for meat at the disposal of the consumer in sufficient quantity to maintain the restrictions in the consumption of butcher's meat for this time of the year.

The saving of meat during the two months that the meatless regulation was in force amounted to 28,500,000 kg., this result being obtained only by the increase in imports of frozen meats and conserved meats.

Course in English for Soldiers

A circular issued by the minister of war to the commanding generals orders the institution of a free and optional course in English in every army post or garrison.

M. Mesureur and the Hospital Physicians

As stated in a previous letter, M. Mesureur, director of the general administration of the Assistance publique of Paris, addressed a circular to the directors of the hospitals (Paris Letter, June 27, 1918). This circular has provoked a lively protest from the medical corps, hence M. Mesureur sent a letter to the Société des médecins des hôpitaux in which he expressed his regrets at having unintentionally provoked these protests by a badly worded phrase. He rendered justice to the devotion of which the hospital physicians have given and are still giving so many proofs.

Franco-American Scientific Society

There has been organized at Dijon a scientific society or *cercle* for the purpose of amalgamating Franco-American interests in this special territory. The presidents are Major Carmon of the United States Army, and Professor Bataillon, dean of the Faculty of Science. Among those present at the first meeting were American military medical officers, the médecin chef de la Place, the members of the Corps de santé français, the professors of the faculty of science and of the Ecole de médecine et de pharmacie de Dijon.

Marriages

LIEUT. JOHN JACOB FOSSLER, M. R. C., U. S. Army, Millard, Neb., on duty at Fort Riley, Kan., to Mrs. Eva Brewington of Omaha, at Lincoln, Neb., July 20.

THOMAS MADISON TAYLOR, New York City, to Mrs. Wallace Moore Bartlett of Lawrenceburg, Ky., August 14.

RACHEL WATKINS, Chicago, to Mr. Charles A. Long of Holdrege, Neb., August 8.

Deaths

Walter Kempster, Milwaukee; Long Island College Hospital, Brooklyn, 1864; aged 77; a veteran of the Civil War, in which he served first in the line and for the last year as Acting Assistant Surgeon, U. S. Army; assistant superintendent of the New York State Asylum for Idiots, in 1866-1867; assistant physician to the New York Hospital for the Insane, Utica, from 1867-1873; superintendent of the Northern Hospital for the Insane, Oshkosh, Wis., from 1873-1884; assistant editor of the *American Journal of Insanity* for ten years; health commissioner of Milwaukee from 1894-1898; professor of mental diseases in the Wisconsin College of Physicians and Surgeons; author of many monographs; nationally prominent as a specialist in the treatment of insanity; died at his home, August 22.

John Howard Landis, Cincinnati; Medical College of Ohio, Cincinnati, 1889; aged 57; a Fellow of the American Medical Association; professor of pathology in the Laura Memorial Medical College, Cincinnati, from 1892-1895; a member of the staff of St. Mary's Hospital since 1907; professor of hygiene and public health in the University of Cincinnati, since 1908; a member of the Cincinnati Board of Health, since 1909, and health officer of Cincinnati since 1910; an authority on public and municipal health problems of more than national repute; died at his home in Cincinnati, August 23.

Major David Everett Wheeler, M. R. C., U. S. Army, Buffalo; College of Physicians and Surgeons in the city of New York, 1898; aged 46; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of New York, who went to Europe during the first year of the war as a Red Cross worker, enlisted in the Foreign Legion in February, 1915, and had served as regimental surgeon in Lorraine, Cantigny, and Chateau Thierry and been awarded the Croix de guerre for bravery; was killed, August 13, while caring for the wounded on the field.

Major William Roy Ream, M. C., U. S. Army, San Diego, Calif.; Sioux City, Iowa, College of Medicine, 1902; aged 41; formerly of Walthill, Neb.; a Fellow of the American Medical Association; flight surgeon of the British-American flying circus, which started, August 24, from Indianapolis, to St. Louis, was killed by the fall of an aeroplane near Effingham, Ill., August 24.

Lieut. Sidney Lehman Spiegleberg, M. R. C., U. S. Army, New York City; College of Physicians and Surgeons in the city of New York, 1906; aged 37; a Fellow of the American Medical Association and a Surgeon on duty with the American Expeditionary Forces in France; died at Chateau Thierry, France, July 15, from heart disease.

Andrew Jefferson Osborne, Lawrenceville, Va.; Medical College of Virginia, 1899; aged 49; at one time a Fellow of the American Medical Association; a member of the Medical Society of Virginia; died in a hospital in Lawrenceville, August 9, as the result of wounds sustained in a gun-fight with one of his tenants a few hours before.

William A. Dietrich, Chattanooga, Tenn.; University of Maryland, Baltimore, 1879; aged 60; at one time a Fellow of the American Medical Association; a member of the Tennessee State Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at the home of his sister, in St. Joseph, Mich., about August 13.

Lieut. William Joline Martin, M. R. C., U. S. Army, Wilkinsburg, Pa.; Hahnemann Medical College, Philadelphia, 1899; aged 40; on duty with the British Forces at Queen Mary's Military Hospital, Whalley, Lancashire, England, died in American Red Cross Hospital No. 4, Liverpool, England, July 28, from pneumonia.

Daniel C. Peters, Kokomo, Ind.; Kentucky School of Medicine, Louisville, 1891; aged 58; at one time a Fellow of the American Medical Association; a member of the Indiana State Medical Association; until eighteen months ago a practitioner of Greentown, Ind.; died at his home, July 4, from cerebral hemorrhage.

John Niven Darrough, Kansas City, Mo.; Kansas City Hahnemann College, 1911; aged 31; a Fellow of the American Medical Association; who was discharged from the Medical Reserve Corps recently on account of pulmonary tuberculosis; died at the home of his father in Kansas City, August 9.

Marion Madison Norton, Lake Village, Ark.; Chattanooga Medical College, 1898; aged 45; a Fellow of the American

Medical Association, and in 1913, president of Chicot County Medical Society; proprietor of a private sanatorium in Lake Village; died at his home, August 9, from cerebral hemorrhage.

Guy Jacob Kent, West Liberty, Ohio; Eclectic Medical Institute, Cincinnati, 1902; aged 40; a member of the Ohio State Medical Association and secretary of the Logan County Medical Society; died at his home, August 11, from general peritonitis, four days after a surgical operation.

Ira E. Brown, Los Angeles; University of Southern California, Los Angeles, 1904; aged 43; at one time a Fellow of the American Medical Association, also a druggist; died at his home, August 13, from the effects of poison self-administered, it is believed, with suicidal intent.

Joseph B. Colcord, Port Allegany, Pa.; College of Physicians and Surgeons, Baltimore, 1885; aged 56; a Fellow of the American Medical Association; postmaster of Port Allegany for eight years; died in a hospital in Buffalo, August 7, after a surgical operation.

Frank Harper Ross, Brooklyn; Starling Medical College, Columbus, Ohio, 1879; Bellevue Medical College, 1880; aged 62; a member of the Medical Society of the State of New York; died at his home, August 10, from tuberculosis.

Marion Eugene Martin, Attica, N. Y.; Buffalo, N. Y., University, 1892; aged 54; a Fellow of the American Medical Association; for several years coroner of Wyoming County; died at his home, August 14, from heart disease.

Charles W. Cook, New York City; Hahnemann Medical College, Chicago, 1875; aged 69; for several years general freight agent of the Santa Fe system; died suddenly in Grand Rapids, Mich., from heart disease.

William John Broome, Los Angeles; University of Toronto, 1907; aged 34; a Fellow of the American Medical Association and a specialist on tuberculosis; died at his home, July 23, from pulmonary hemorrhage.

William M. Jarvis, Kansas City, Mo.; Washington University, St. Louis, 1884; aged 69; at one time a member of the Missouri State Medical Association; died in a sanatorium in Fulton, Mo., recently.

Marsden Aubrey H. Cleaveley, Augusta, Ga.; Hahnemann Medical College, Philadelphia, 1856; aged 86; examining surgeon for the Augusta district during the Civil War; died at his home, August 4.

John D. Clardy, Hopkinsville, Ky.; University of Pennsylvania, Philadelphia, 1851; aged 90; a member of Congress in 1894; died at his home near Hopkinsville, recently.

Arthur M. Greenfield, Westfield, Pa.; Baltimore Medical College, 1892; aged 60; also a druggist, died at his home, July 27, from acute dilatation of the heart.

John Massman, Chicago, Rush Medical College, 1867; aged 79; a veteran of the Civil War; died at his home, August 12, from carcinoma of the stomach.

Patrick James Calaghan, Waterbury, Conn.; University of Alabama, Mobile, 1892; aged 58; died at the home of his sister in Bridgeport, Conn., August 8.

Edward Tufts Williams, Boston; Harvard Medical School, 1868; aged 74; a member of the Massachusetts Medical Society; died at his home, August 5.

Max Frederick Albu, Hartford, Conn. (license, Connecticut, 1893); aged 70; a practitioner for forty-five years; died in St. Francis Hospital, Hartford, July 21.

David F. Banks, Nashville, Tenn.; University of Nashville, Tenn., 1880; aged 64; died at his home in North Nashville, August 6, from heart disease.

Mary Anna Allen Howell, Camden, N. J.; Woman's Medical College of Pennsylvania, Philadelphia, 1891; aged 71; died at her home, August 9.

William M. Helm, Columbus (Ohio) Eclectic Medical Institute, Cincinnati, 1871; aged 71; died at his home, August 7, from intestinal obstruction.

Sumner Hamilton Boynton, Los Angeles; Homeopathic Medical College of Philadelphia, 1866; aged 72; died at his home, August 2.

Richard C. Perkins, Lynnhaven, Va.; Medical College of Virginia, Richmond, 1860; aged 95; died at his home, July 13.

James D. Southward, Carey, Ohio; Eclectic Medical Institute, Cincinnati, 1890; aged 57; died at his home, August 6.

Henry Day, Newark, Ohio; University of Maryland, Baltimore, 1868; aged 79; died at his home, July 30.

Claude Evans King, Mayesville, S. C.; Baltimore University, 1893; aged 46; died at his home, July 17.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

TWO MAIL-ORDER FRAUDS

Gallstone Remedy Company.—One L. E. Bowers conducted a fraudulent medical mail-order business from Chicago under the name of the "Gallstone Remedy Company" selling a preparation called "Gall-Tone." In December, 1917, Bowers was called on to show cause why a fraud order should not be issued against him and his business. A Chicago attorney first represented Bowers but afterward withdrew, whereupon one W. H. Landvoigt of Washington acted as Bowers' counsel. It was finally agreed that if Bowers would file an affidavit to the effect that his "gallstone cure" scheme had been discontinued and would not be resumed and would also file an order with the Chicago postmaster directing him to treat as "Refused" all mail matter addressed to the Gallstone Remedy Company or to "L. E. Bowers, Manager," that the solicitor for the Post-Office Department would be disposed to withhold a recommendation for the issuance of a fraud order. Bowers' counsel finally declared that Bowers would be willing to file such an affidavit and order but asked that the name "L. E. Bowers, Manager," be omitted from the order as Bowers was engaged in other enterprises and the inclusion of his individual name would work a hardship. Mr. Landvoigt assured the Post-Office Department that Bowers would absolutely discontinue the use of the mails in the conduct of the so-called gallstone business if permitted to receive mail under the name "L. E. Bowers, Manager." The Post-Office Department consented to the arrangement and an affidavit was executed and filed by Bowers to the effect demanded by the department. The whole case, however, was reopened when it was found that Bowers totally disregarded and violated his stipulation by mailing to former victims a communication reading as follows:

IMPORTANT NOTICE

TO MY DEAR FRIEND & PATRON:—As all Post Office or Mail Order sales of the wonderful remedy—GALL-TONE, have been discontinued, for the present, at least, I will have to notify you that all packages are now sent by Express. I will also have to ask you very kindly to send all future orders and remittances to me personally, either by Express Money Order or Bank Draft. Kindly use the enclosed envelope or one addressed like it.

This is the only way in which I can serve you, for the present, as the sale of GALL-TONE through the mails has been discontinued.

Will you also kindly notify your friends in order to avoid any misunderstanding or disappointing anyone, or depriving anyone of the help which this superior remedy affords.

With kindest regards and good wishes, I remain yours truly,

L. E. Bowers,
219 S. Dearborn St., Chicago, Ill.

P. S. Prices of GALL-TONE by Express f. o. b. until further notice are—One Pkg. \$5.00. 2 Pkgs. \$8.50. 4 Pkgs. \$15.00. 8 Pkgs. \$25.00. Mention your nearest express office.

It will be well for you to order a supply now to cover future needs as it may become more difficult or even impossible to serve you at all, later on. We have only the present, the future is not ours. I will do the best I can but difficulties may become entirely unsurmountable. So be safe and supply yourself liberally now while yet you may surely do so.

L. E. BOWERS.

Following this, Judge Lamar, solicitor for the Post-Office Department, submitted the facts regarding the case to the Postmaster-General and recommended the issuance of a fraud order. Judge Lamar, in his memorandum, pointed out that Bowers "is not a physician and has no medical education or training." The memorandum continues:

"In spite of his ignorance of the effect of drugs in the treatment of disease he leads persons to believe that he is qualified to treat ailments of the most serious nature and does not hesitate to determine the treatment in all cases where the sufferer communicates his troubles, and prescribes the same remedy in all cases guaranteeing that a cure will

follow its use. The alleged remedy he exploits is known as 'Gall-Tone,' a preparation he obtains in large quantities from manufacturing chemists."

Judge Lamar then quotes extensively from Bowers' advertising and shows the absurdity and fraudulence of the claims made. Then:

"Through his entire literature Bowers very indelicately seeks to impress on those who patronize him his absolute honesty, his fair dealing, and his good faith and trustworthiness; yet after having had pointed out to him the viciousness of this scheme, and after having solemnly agreed to abandon it, the ink was scarcely dry on the affidavit filed by him with this office evidencing that purpose before he betrayed his honor by breaking his pledge and continuing the operation of the scheme in his own name."

A fraud order against the company was issued July 27, 1918.

New Life Remedy Company.—Joseph H. Pilson conducted a mail-order business under such names as "New Life Remedy Company," "Mail-Order Supply Company," "Vital Fire Remedy Company" and "M. J. Moore, Secretary." These concerns were conducted from 1416 Broadway and 149 W. 35th St., New York City, and 273 Washington St., Jersey City, N. J. In November, 1917, Pilson was called on to show cause why a fraud order should not be issued against his businesses. In January, 1918, a written answer signed by Douglas D. T. Story, attorney for Pilson, was made to the charges, but neither Pilson nor his attorney appeared at the hearing. With the answer were submitted six testimonial letters, three addressed to the "New Life Remedy Company" and three to the "Vital Fire Remedy Company" together with copies of the booklets used in the conduct of the business and an affidavit giving the formula for one of the preparations sold in furtherance of the scheme, also Lilly's Catalogue, 1916-17, containing similar formulas. Judge Lamar, solicitor of the Post Office Department, in recommending the issuance of a fraud order, gave the facts in the case, in part, as follows:

"The business done by Pilson under the above names consists of the sale of a certain mixture of drugs represented to restore lost manhood, and the sale of another mixture of drugs which he represents in effect will cause abortion in pregnant women. Relying on these representations numbers of men and women make remittances to him in payment for these so-called remedies. Pilson is not a physician and is not capable of diagnosing and treating the diseases and conditions which he claims his treatment will cure. The medicine furnished by him to persons who make remittances is compounded by manufacturing chemists and sold to him in large quantities. The business has been conducted by respondent for a number of years under these various names, with slight modifications of the representations employed but without material change in substance or effect. In his alleged cure for lost manhood the same mixture of drugs has been used throughout, whether called 'Vital Fire Pills' or 'New Force Tablets.'"

It was shown that Pilson in selling his "Vital Fire" and "New Force Tablets" did not hesitate to furnish his remedies to men suffering from nervous debility or loss of sexual power regardless of the cause thereof or the condition of the patient and regardless also of the age of the person. The memorandum pointed out that the falsity of Pilson's representations were not only shown by the evidence but were clearly apparent. It emphasized further the fact that the condition known as "lost manhood" may arise from many causes any of which may require different treatment. Pilson's treatment did not vary and, no matter what might be the cause of the disease or the condition of the patient, the same stock preparation was used indiscriminately under the positive assurance that it would cure.

The preparation sold by Pilson under the virtual representation that it would cause abortion in pregnant women was known as "Compound Pills of Tansy." Pilson, in his answer to the government's charges, declared that he never represented that his preparation would cause abortion, but the government had in its possession letters following a test correspondence showing that Pilson was willing to furnish, for a consideration, pills for the purpose of causing abortion.

Judge Lamar called attention to the further fact that in March, 1915, Pilson was convicted and sentenced to a term of six months in the Blackwell's Island penitentiary on an indictment charging him with the fraudulent use of the mails. An appeal was taken and nearly three years afterward (February, 1918) the judgment of the lower courts was affirmed and the conviction sustained. Pilson's scheme was declared to be one for obtaining money through the mails by means of false and fraudulent pretenses, representations and promises. A fraud order was issued, March 29, 1918.

Correspondence

REJECTIONS OF REGISTRANTS AT CAMP FOR PHYSICAL CAUSES

To the Editor:—The rejections from camp have certainly become an exceedingly important matter.

Within the past few weeks I have read carefully the articles in *THE JOURNAL* entitled "Physical Examinations Under the Selective Service: A Meeting of the Section on Miscellaneous Topics, Held in the Studebaker Theater, Chicago, Thursday, June 13," published, in part, July 6, and concluded, July 13, 1918. Similar meetings were held in New York.

There were evidences of lack of respect on the part of one examiner for the opinions of another. Notably on page 28, first column, Dr. James B. Herrick of the District Board of Chicago is quoted as having said:

Now the Army physician's examination is final and authoritative as it should be. But the reason the taunt of the returned man cuts when he hints or plainly says to the board physician that he, the board physician, evidently did not understand his business, is that sometimes the Army examination has been made by a physician who in civilian life was known as comparatively young, inexperienced, and in every way outclassed by the board doctor who, perhaps, was his teacher or medical adviser, and whose ability to recognize tuberculosis, heart disease, hernia or flatfoot is surely equal to that of the Army man.

Since these meetings were held the situation has grown worse instead of better, and in some cantonments to which recruits have been sent from New York City, rejections have risen in some instances to approximately 25 per cent. At least one camp surgeon, who seems to have focused on obesity, rejecting an unusual number of men, has put himself on record in strong criticism of the preliminary work of the examining physicians connected with Local and Medical Advisory Boards, going so far as to express the opinion that if the draft board physicians had done their duty and selected men in accordance with instructions as per Form 75, his rejections would have been a small fraction of 1 per cent. Probably on more deliberate consideration he will realize that so close an approximation to perfection is too much to demand or expect in medical examinations, where standards are not always exact, and where, after all, something is left to individual judgment under the regulations. This has been particularly true of obesity, as will be seen later.

Helpful suggestions have been invited, and I wish to offer this small contribution to the time and thought which are being devoted to the problem:

First: One cannot help feeling that each class of examiners should be charitable and should cultivate a very kindly disposition toward the others. Our common and supreme purpose is to win the war.

Second: Something probably ought to be done to improve the board examinations. In regard to obesity, for example, probably some maximum weight for height should be tabulated as a guide similar to the minimum weight now in use. It will be recalled that the net minimum was not promulgated until after we had begun our work in August, 1917. I confess that I have always looked on the standard weights for height given in the table as the correct and desirable or normal weights, not in any sense as top weights, until I observed in the new regulations the expression "(a) Those who fall within the accepted standards (A) or minimum requirements (B)," etc. This is immediately offset by "(b) Those whose weight is greater than the standards indicated for the height."

(A) provided the overweight is not so excessive as to interfere with military training" (Form 75). And, by the way, medical advisory experts probably should not try quite so hard by means of brilliant illumination, particularly clean cards, etc., to make the registrant read the second line instead of the top letter. It costs the government a lot of money in round-trip transportation.

Third: In regard to the examinations at camp, I wish to suggest an experiment which should not be impracticable if handled with diplomacy. It would be illuminating, it seems to me, if a certain number of recruits could be independently examined at camp by three camp surgeons, or groups of surgeons, whose opinions should be separately recorded and kept secret from one another and from the recruit until each has completed his work and recorded the result, including his recommendation. Forty recruits would give easy percentages and could be examined by one surgeon easily in one day. When there is a group of examiners a hundred recruits, taken just as they come, would answer still better. They could be reexamined by the other surgeons the same day or on successive days. Rejections could be based on the results of the three examinations, passed on by a qualified board or judge. After sufficient trials such a scheme might become part of the regulations.

An occasional exchange of camp surgeons, so that the three examinations might be made by men regularly attached to two other camps in addition to the examiner connected with the local cantonment, would add interest to the plan and its results.

The present method of selection at camp by means of examining units, comprising approximately ten members, each examining in his own specialty, with a second examination by another similar unit when a question arises, is of course highly satisfactory if there is no flaw in the efficiency of the personnel. My suggestion would furnish a means of control on the latter. Three independent examinations of men as they arrive at camp would tend to keep every examiner up to his work in the knowledge that his results will be checked up in comparison with the others. The opinion of a man of strong personality, when known, is prone to influence his successor. The third examination eliminates the possibility of an even division of opinion.

I really believe that some such modification of the present procedure would work out advantageously. When Local, Medical Advisory, and District Boards have worked many hours in some cases to classify and induct a soldier, it seems to be putting too much responsibility on one man at camp, to leave the final decision practically entirely to him. And this remark applies with special force where the recruit has been detected in malingering and his medical examination papers bear a statement to this effect.

The claims of the registrant deserve due consideration. Errors on the part of boards and medical examiners are possible in the highly complex work of the draft. The foregoing suggestions are modestly offered in the hope that they may be of interest and possibly of some value for the good of the service.

J. MILTON MABBOTT, M.D., New York.

"RECONSTRUCTION AND REHABILITATION OF THE TUBERCULOUS SOLDIER"

To the Editor:—Dr. Banks' letter (THE JOURNAL, Aug. 24, 1918, p. 681) criticizing my paper entitled "The Reconstruction and Rehabilitation of the Tuberculous Soldier" requires some comment. It was not the intention of the writer to belittle in any way the valuable work being done by the Bureau of War Risk Insurance. It is true that discharged tuberculous soldiers are being looked after medically by the Bureau of War Risk Insurance, but my not calling attention to this fact was no greater an oversight than my failure to mention the American Red Cross, National Association for the Study and Prevention of Tuberculosis, the National Home for Disabled Volunteer Soldiers, and the Soldiers' Home, Washington, D. C., which are all doing equally commendable work in this line. However, from Dr. Banks' own statement it would appear that the activities of the Bureau of War Risk

Insurance must be largely confined to financial matters, for he himself says that patients are treated in hospitals belonging to the Public Health Service and civilian sanatoriums, while the training proper is in the hands of the Board of Vocational Education. What is left for the Bureau of War risks but to pay the bills for such service, and to provide the compensation to which the patients are entitled under the law? It would not appear that there are at present any adequate accommodations for the large number of tuberculous patients now cared for by the Army if they were at once discharged as Dr. Banks desires. Fort Stanton is filled already to overflowing, and the capacity of the combined sanatoriums of the country, deducting the beds needed for civilian patients (and some of the sanatoriums have waiting lists) would not be sufficient to receive the cases of tuberculosis now under treatment in Army hospitals.

The word "reconstructed," perhaps used a little too freely in my paper, probably led to misapprehension. The Surgeon-General expects to hold tuberculous soldiers only until they are cured or as nearly cured as can be expected, and then turn them over to the Bureau of War Risk Insurance and the federal Board of Vocational Education. The training while in the service is more to give employment and avoid mental depression than to teach completely some useful trade.

If Dr. Banks had been better posted concerning the policies of the Surgeon-General and what is being done and has been done for tuberculous soldiers in the Army, he would have been saved considerable anxiety, and his remarks would have been more temperate. The purpose of transferring cases diagnosed as tuberculosis to Army tuberculosis hospitals is threefold: (1) To minimize mistakes in diagnosis; (2) to save men for the service, as a certain percentage of these patients will be returned to duty, and (3) to help the patient arrest his disease, and in so doing teach him how to take care of himself and the necessary precautions to prevent spread of infection. After this is accomplished, the diagnosis established and it is apparent that the patient will never return to duty, although there may be no absolute authority for retaining him in the military service, every endeavor will be made to have him voluntarily remain under treatment as long as such treatment is necessary. This is not militarism, but a conscientious effort for the good of the patient and the public as well, which should have the hearty support of the bureau which Dr. Banks represents.

E. H. BRUNS, M.D., Washington, D. C.

Lieutenant-Colonel, Medical Corps, U. S. Army.

KNOWLEDGE OF THE COMMUNICATION OF DISEASES BY MOSQUITO BITES

To the Editor:—About forty years before Manson suspected, and Ross proved, that malaria was conveyed by a suctorial insect, the information that the mosquito was capable of doing such a thing was imparted by barbarians to a civilized man, and by him it was scornfully published, and perhaps read by others in the same spirit. Witness this footnote to the first chapter of "First Footsteps in East Africa," written by Richard F. Burton in 1856:

The mosquito bites bring on, according to the same authority, deadly fevers: the superstition probably arises from the fact that mosquitoes and fevers become formidable about the same time.

The "authority" was "the people" at Zayla, in Somaliland.

LEO NEWMARK, M.D., San Francisco.

Acute Suprarenal Insufficiency in Infectious Diseases.—At a recent meeting of the Medico-Surgical Society of Greece, A. Portocalis reported the death of four soldiers with apparently pernicious relapsing fever or malaria with symptoms of acute suprarenal insufficiency of the choleriform and algid type. In each he found the suprarenals the seat of old tuberculous lesions. Evidently under the influence of the intercurrent disease these old lesions had flared up into an acute and fatal phase. This latent Addison's disease can thus be transformed into a pernicious form by intercurrent erysipelas, typhoid or relapsing fever and malaria.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

UTILIZATION OF FAT INTRODUCED PARENTERALLY— METHOD OF ABSORPTION OF MERCURY BY INUNCTION

To the Editor:—In Queries and Minor Notes, please elucidate the following problem:

1. B claims that olive oil may be massaged into the skin and will be taken up directly and increase the body fat and the weight, and that he has often obtained such results with patients. A claims that since all fats must be broken down and resynthesized into the individual fat of the species, it is impossible to increase body fat unless it passes through the gastro-intestinal tract. Please give me your impression of this matter, and references to the literature if any.

2. Also, what is the approved explanation of the method by which mercury by inunction is absorbed? S. A. JACOBS, M.D., Milwaukee.

ANSWER.—1. Two questions are involved in the first part of our correspondent's inquiry:

(a) Can fat introduced into the body parenterally, that is, with avoidance of the alimentary digestive tract, be utilized? Although numerous earlier attempts at subcutaneous nutrition with fats have failed, the possibility of assimilating fat in this way cannot be denied. Mills (*Arch. Int. Med.*, May, 1911, p. 694) has reported on the basis of seemingly convincing evidence that fatty oils injected with antiseptic precautions into the subcutaneous tissue may under favorable conditions be absorbed therefrom and used in the body.

(b) Can fat be absorbed into the circulation directly through the sound skin? We know of no reliable evidence that more than traces, if any, of fats can be made to penetrate in this way. The presence of lipid substances in the sebaceous secretions makes it possible for small quantities of water-insoluble, fat-soluble substances to become intimately incorporated with them. In this way oils may seem to disappear and traces of fat-soluble drugs may actually permeate the lipid-impregnated cutaneous layers. At best, however, amounts of unchanged fats thus transferred would be far too small to have any real significance from a nutritive standpoint.

2. The absorption of mercury by inunction has recently been discussed by:

Wile, U. J., and Elliott, J. A.: Mode of Absorption of Mercury in the Inunction Treatment of Syphilis, *THE JOURNAL*, April 7, 1917, p. 1024.

Schamberg, J. F.; Kolmer, J. A.; Raiziss, G. W., and Gavron, J. L.: Experimental Studies of the Mode of Absorption of Mercury When Applied by Inunction, *THE JOURNAL*, Jan. 19, 1918, p. 142.

The Absorption and Excretion of Mercury, Current Comment, *THE JOURNAL*, Feb. 9, 1918, p. 392.

CALCIUM CHLORID ANTIFREEZE MIXTURE

To the Editor:—We all have heard that commercial calcium chlorid is an efficient and cheap antifreeze mixture for automobiles in winter time, and that it is apparently not injurious to the machine. If you have some table at hand, I shall be pleased to have you tell me the amount of calcium chlorid to put with each gallon of water to render it nonfreezable at 32, —20 and —50 F.

M. A. SHILLINGTON, M.D., Glendive, Mont.

ANSWER.—According to a recent publication (*Jour. Am. Chem. Soc.*, 1918, p. 1209), a 34 per cent. solution of anhydrous calcium chlorid in water will freeze at about —22 F. and a 36 per cent. solution at —24 F. It is possible to obtain a 48 per cent solution of anhydrous calcium chlorid in water which would freeze at about —58 F. A solution of this strength, however, would be very impracticable because of the liability of crystallization. The foregoing figures are given for chemically pure anhydrous calcium chlorid. As commercial calcium chlorid (also one of the calcium chlorid antifreeze preparations on the market) contains about 70 per cent. of anhydrous calcium chlorid, correspondingly larger amounts of material would have to be taken. The general rule is to put 13 pounds of commercial calcium chlorid into a radiator of 5½ gallons capacity, which gives protection to 20 below zero Fahrenheit. Some automobile experts hold that calcium chlorid is objectionable as an antifreeze preparation and that it attacks the joints and connections in pipes.

WHAT IS BEST WAY TO KEEP STATIC MACHINES DRY?

To the Editor:—I wish to ask through the readers of *THE JOURNAL* who have had experience with static machines the best and cheapest method of keeping such a machine dry and in good running order during the summer months. I use granulated calcium chlorid, but it is very expensive. Please omit my name. M. H. F.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ALASKA: Juneau, Sept. 3. Sec., Dr. L. P. Dawes, Juneau.
ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.
HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.
IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.
IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.
KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.
MASSACHUSETTS: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.
MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.
MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.
MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.
NEW MEXICO: Santa Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.
NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 24-27. Mr. H. J. Hamilton, New York Dept. of Education, Albany.
OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.
RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.
UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Medical Students in the United Kingdom in 1918

A statement issued recently by the General Medical Council of Great Britain shows the actual attendance of students on courses of instruction for medical degrees in May, 1918, in the medical schools of the United Kingdom. The figures show that there are 2,043 students in the first year, including 665 women; there are 1,868 students in the second year, including 619 women; in the third year there are 1,534 students, including 484 women; in the fourth year there are 1,034 students, including 275 women, and in the fifth year 1,151 students, including 207 women. This gives a total of 7,630 students, including 2,250 women. It is evident, as set forth in the report, that the number of women students is decidedly on the increase.

Georgia April Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports that 11 candidates were licensed at the special examination given April 11, 1918, for those who entered the U. S. Navy. Fifteen candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Atlanta Medical College	83.3, 88.4, 91, 92.4, 92.5, 92.8, 93.9, 94, 94, 94.2.	(1915)	84.2
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
University of Alabama		(1913)	Alabama
Southern Medical College		(1891)	Alabama
Louisville Medical College		(1891)	Indiana
Tulane University		(1908)	Alabama
College of Physicians and Surgeons, Baltimore		(1915)	Virginia
University of Maryland		(1914)	Maryland
Barnes Medical College		(1896)	Alabama
North Carolina Medical College		(1907)	N. Carolina
University of Oklahoma		(1914)	Oklahoma
Chattanooga Medical College		(1905)	Alabama
Tennessee Medical College		(1906)	Tennessee
University of Tennessee		(1894)	N. Carolina
Medical College of Virginia		(1896)	N. Carolina
University of Virginia		(1899)	Virginia
University of Moscow		(1906)	Virginia

Arizona January Examination

Dr. Allen H. Williams, secretary of the Arizona Board of Medical Examiners, reports the oral and written examination held at Phoenix, Jan. 1-2, 1918. The examination covered

10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 10 candidates examined, 8 passed, and 2, including 1 drugless healer, failed. The following colleges were represented:

College	PASSED	Year Grad.	No. Licensed
Arkansas Industrial University		(1884)	1
College of Physicians and Surgeons, Los Angeles....		(1908)	1
University of California		(1912)	1
University of Georgia		(1904)	1
Rush Medical College		(1916)	1
University of Louisville		(1915)	1
Baltimore Medical College		(1913)	1
University of Minnesota		(1906)	1
FAILED			
Chicago College of Medicine and Surgery		(1917)	1

Book Notices

STUDIES IN THE ANATOMY AND SURGERY OF THE NOSE AND EAR. By Adam E. Smith, M.D. Cloth. Price, \$4. Pp. 157, with 45 illustrations. New York: Paul B. Hoeber, 1918.

The understanding and successful treatment of diseases of the anatomically complex regions of the nose and ear are more than all else dependent on a close and clear understanding of the anatomy of these regions. The author of this work has made himself a careful and independent student of this necessary anatomy. His subject matter is practical regional anatomy, and his point of view is treatment, especially of local infections, with emphasis placed on surgical treatment. The anatomy of the nose is presented in a series of thirty-one full page octavo pen drawings from actual anatomic dissections, arranged largely to illustrate the practical problems of treatment. These drawings—and this is from a standpoint of general comparison well worth mentioning—are large enough, so well drawn and so clearly notated as to be really valuable. The anatomy of the ear is presented in thirteen similar clear and useful drawings. The text is in part simply descriptive of the anatomy presented in the illustrations, and in part made up of terse and direct statements of practical suggestions, facts and aids to treatment, presented from the author's point of view. These suggestions are sometimes new and valuable; others may be open to criticism; all are stimulating. The so-called "postural treatment" of otitis media is, for example, well worth careful consideration. The volume is a useful adjunct to the more complete works, whether to the experienced specialist or to the more general student of these difficult anatomic regions.

POSTGRADUATE MEDICINE. Prevention and Treatment of Disease. By Augustus Caillé, M.D., F.A.C.P., Consultant to Department of Pediatrics, New York Post-Graduate Medical School and Hospital. Cloth. Price, \$6.50 net. Pp. 1023, with 178 illustrations. New York: D. Appleton & Co., 1918.

In this book the author tries to present the treatment of almost all of the "so-called internal derangements." He includes not only the conditions that are strictly in the domain of the internist, but also diseases of women, gonorrhea and its complications in men, dermatology and dental disturbances. There are chapters on bedside and office technic, on minor ailments, and on the emergencies of general practice. The scope of the book is so wide that to do justice to the innumerable subjects mentioned would require a work much larger; but in a volume the size of this, much that is of value could be mentioned if proper balance were maintained. One of the defects is that too much stress is laid on subjects which, strictly speaking, should find little space in a work intended as a therapeutic guide. The author has succeeded in presenting a compilation of facts, in catalogue style, consisting of quotations from various authors and board of health bulletins, and numerous facts gleaned from a vast experience, but he has failed in convincing the reader as to what is the proper course to follow in the treatment of many of the conditions he describes.

The physician of the present time who aims to be scientific should refrain from recommending the use of proprietary medicines of doubtful value, or drugs, the place of which can be taken by official or well-established preparations. The

author mentions Angostura Bitters, Lactobacilline, Papoid, Iron Tropon, Iodotropon, Peptomangan and Horsford's Acid Phosphate as of value in various conditions. Surely, these recommendations were not necessary. There are innumerable shotgun prescriptions recommended throughout the book. More than a page is devoted to the Salisbury diet as of value in gout, diabetes, arteriosclerosis, "rheumatism," epilepsy and dyspepsia.

Under gastro-intestinal diseases, the author speaks of combined hydrochloric acid as an intestinal antiseptic. This is certainly not in accord with the known facts. He refers to hyperchlorhydria as the irritative stage of chronic gastritis, and speaks of chronic indigestion with excessive pains after eating as a disease entity, rather than as a syndrome. These cases are now recognized as either gastric or duodenal ulcer, or reflex disturbances from some other part of the abdomen, as the gallbladder and the appendix, and should be treated as such after the diagnosis is made, rather than relieved by morphin and cocain, as he recommends. The reference to "weak and strong stomachs," and "congestion of the liver being induced by gastric or intestinal indigestion, or constipation," harks back to the time of the backwoods physician.

The use of digitalis in auricular fibrillation, in which it is of the greatest value, is given scant mention. The reviewer does not agree with the author in advising 10 grains of calomel to patients with uncompensated heart lesions. It seems that the prostration and depression incident to the profuse diarrhea that results far outweigh the depleting value of the drug. The author fails to speak of the sedative effect of bromids in anginal states, which Sir James Mackenzie recommends so highly. Why mention blood pressure at all if diastolic pressure is omitted altogether, and the reader referred to the circular of instructions accompanying the instrument, for the method of using it? Certain inaccuracies or misconceptions, as the diagnosis of mitral regurgitation on the presence of a systolic murmur only, or the constancy of an irregular pulse late in aortic regurgitation, or the statement that diastolic murmur is sometimes heard in aortic regurgitation, have found a place in this book.

There are many commendable features, such as the large, legible print, many valuable suggestions in the sections on pediatrics, infectious diseases, tuberculosis and syphilis, and many hints for the busy practitioner in the sections on minor ailments and emergency measures. On the whole, however, it does not seem as though the book will fill a long needed want, for either the student or the practitioner.

Medicolegal

Hospital and Drunkenness of Employee Under Workmen's Compensation Act

(*Hahnemann Hospital v. Industrial Board et al. (Ill.)*, 118 N. E. R. 767)

The Supreme Court of Illinois, considering this case on an appeal on a certificate of importance, holds that the Appellate Court erred in holding, as a question of law, that the Hahnemann Hospital was not bound by the provisions of the workmen's compensation act. The case was begun with an application by the widow of a former chief engineer of the hospital to recover compensation for his death from a fall down a stairway into the basement. The record evidence disclosed that the hospital was a corporation organized under the general incorporation act of Illinois, not as a corporation for pecuniary profit, but as a charitable institution, for the purpose of conducting and operating a hospital and for treating the sick and injured. It owned and maintained a seven-story building in the city of Chicago, equipped with one freight and one passenger elevator, power driven, in which building the hospital was conducted. The building was also equipped with engines and high-pressure boilers, and a system of electric wiring and apparatus for lighting and signals throughout the building. The Supreme Court says that only two questions were presented for its consideration: (1) Was the hospital, at the time of the accident in question, engaged in an extra hazardous occupation, and thereby conclusively pre-

sumed to have elected to provide and pay compensation under the workmen's compensation act of 1913, in force at the time of the accident? And (2) Did the injury and resultant death arise out of and in the course of the employment?

The Appellate Court erred in finding that the hospital was not engaged, at the time of the accident in question, in an enterprise declared by the statute to be extrahazardous. Paragraph (b) of Section 3 of the workmen's compensation act of 1913 enumerates eight classes of occupations, enterprises or businesses as extrahazardous. Clause 8 of that paragraph enumerates one of the enterprises in the following language:

In any enterprise in which statutory or municipal ordinance regulations are now or shall hereafter be imposed for the regulating, guarding, use or the placing of machinery or appliances, or for the protection and safeguarding of the employees or the public therein.

The second paragraph of Section 4 of the act specifically provides that hospitals and charitable corporations or associations shall be construed to be included in the term "employer."

Under the evidence in this case, the Supreme Court thinks it clearly appeared that the hospital, that is, the business or enterprise of conducting a hospital in the building, with the machinery, appliances and equipment therein used, was, in fact, extrahazardous within the meaning of the statute. Many of its employees were engaged in handling, repairing and operating the dangerous machinery, equipment and appliances, and were exposed to the dangerous agency or power which drove or made serviceable such equipment and appliances. Not only were those employees exposed to such dangers, but all other employees therein were more or less exposed to them. Extraordinary care and skill were required in the handling and management of such equipment and appliances to prevent serious accidents.

It was contended that the engineer was in an intoxicated condition and received his injury by reason thereof; but, under the evidence, he was not so intoxicated as to take him out of the course of his employment, though if he had been in such a state of intoxication as totally to incapacitate him from the performance of his work, the injury and death might properly be said to have arisen out of his condition rather than his employment. Before drunkenness can be said to bar a recovery under the workmen's compensation act, the employee must be so intoxicated, as shown by the evidence, that the court can say, as a matter of law, that the injury arose out of his drunken condition, and not out of his employment. Intoxication which does not incapacitate the employee from following his occupation is not sufficient to defeat the recovery of compensation, although the intoxication may be a contributing cause of his injury.

Privileged Communications

(*Brayman v. Russell & Pugh Lumber Co. (Idaho)*, 169 Pac. R. 932)

The Supreme Court of Idaho holds, in this personal injury case, that the contention was without merit that, because the physician who attended the plaintiff was, in reality, hired by the defendant, the provision of the statute did not apply, which provides that a physician or surgeon cannot, without the consent of his patient, be examined in a civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient. Nor did the plaintiff waive the privilege by testifying that he followed the physician's advice. The defendant offered to prove that during the time the physician was attending the plaintiff he stated one morning that during the night before he dreamed he was falling out of bed, and in trying to catch himself he hurt his arm, and he thought he had thrown it out of place; that the physician said it would be necessary to operate on the arm, but the plaintiff refused to submit to an operation and stated that, if the physician would take the arm off so he could recover more from the defendant, he would consent, and when the physician insisted on an operation he refused, saying that he intended to get a life pension out of the defendant. The offer of proof was rejected on the ground that the physician was precluded from so testifying by reason of the statute quoted, and it is clear to the court that the testimony sought to be elicited was within the spirit and purpose of the prohibition of the statute.

Society Proceedings

COMING MEETINGS

- Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
- Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
- American Association of Railway Surgeons, Chicago, Oct. 16-18.
- American Public Health Association, Chicago, Oct. 14-17.
- Am. Roentgen Ray Society, Ft. Oglethorpe, Ga., Sept. 4-6.
- Colorado State Medical Society, Estes Park, Sept. 9-11.
- Delaware State Medical Society, Wilmington, Oct. 8.
- Indiana State Medical Association, Indianapolis, Sept. 25-27.
- Kentucky State Medical Association, Louisville, Sept. 3-6.
- Missouri Valley Medical Society, Omaha, Sept. 19-20.
- New Mexico Medical Society, Albuquerque, Oct. 7-8.
- Ohio State Medical Association, Columbus, Oct. 1-3.
- Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
- Utah State Medical Association, Salt Lake City, Sept. 10-11.
- Vermont State Medical Society, Burlington, Oct. 10-11.
- Virginia State Medical Society, Richmond, Oct. 22-25.
- West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
- Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

July, 1918, 24, No. 2

- 1 Equivalence of Different Hematopoietic Anlages. Grafts of Adult Spleen on Allantois and Response of Allantoic Tissues. V. Danchakoff, New York.—p. 127.
- 2 Thymus So-Called: IV and Ultimobranchial Body of Cat (*Felis Domestica*). F. W. Stewart Ithaca, N. Y.—p. 191.
- 3 *Giant Cells of Hemopoietic and Osteolytic Foci. H. E. Jordan, Charlottesville, Va.—p. 225.

3. **Giant Cells of Bone Marrow.**—Jordan's studies showed that the giant cells of the marrow of young bones include two physiologically distinct types, hemogenic and osteolytic. These agree in being multinucleated and in possessing originally a basophilic cytoplasm, which gradually becomes oxyphilic. The hemogenic giant cells or polykaryocytes originate from hypertrophied hemoblasts (megakaryocytes) by a process of direct division of the polymorphous nucleus (basket nucleus) of transitional polymorphokaryocytes. They are essentially multiple hemoblasts, comparable to the blood islands of the yolk sac, and may differentiate erythrocytes intracellularly under certain conditions, apparently such as call for increased hemopoietic activity. The giant cells of this type have the same origin, structure and fate (varying with functional demands) in the yolk sac and the red bone marrow. There accrues no unequivocal evidence that polymorphokaryocytes (megakaryocytes) and the hemogenic polykaryocytes are phagocytic. The hypothesis is advanced that these cells represent an incidental phase of intense hemopoiesis. The polymorphokaryocyte (cell with basket nucleus; the megakaryocyte of the usual descriptions) is the precursor of the multinucleated polykaryocyte; but this does not necessarily mean that certain megakaryocytes may not become specialized to serve as sources of origin of blood platelets, according to the conclusion of Wright.

The osteolytic giant cells (osteoclasts of Kölliker) originate from the marrow reticulum by a process involving the aggregation of nuclei within larger cytoplasmic masses, and secondary fusion with other portions of the reticulum and with osteoblasts. The nuclei may increase in number to a slight extent by mitotic division. During later stages osteoclasts arise also by fusion of young, only slightly differentiated, osteoblasts. Osteoclasts may incorporate besides reticular cells, also hemoblasts, osteoblasts and encapsulated bone cells, possibly in part as a phase of their phagocytic (osteolytic) function. There is no direct genetic relationship between the potentially hemogenic giant cells (polykaryocytes) and the osteolytic giant cells or osteoclasts. The latter may, however, during their early stages of differentiation, produce also blood granulocytes and possibly hemoblasts. The osteoclasts eventually disintegrate and are not retrans-

formed into marrow reticulum. The polykaryocytes of the yolk sac and the red bone marrow are homologous elements, and are related to the hemopoietic function. The yolk sac contains no homologue of the osteoclast of developing bone.

American Journal of Syphilis, St. Louis

July, 1918, 2, No. 3

- 4 *New Pathology of Syphilis. A. S. Warthin, Ann Arbor, Mich.—p. 425.
- 5 *Degenerative Chorea (Huntington's Type) with Serology of General Paresis. L. G. Lowrey and C. E. Smith, Boston.—p. 453.
- 6 Case of Extensive Osteoporosis of Skull in Negro. R. W. Shufeldt, Washington, D. C.—p. 462.
- 7 Syphilis of Epididymis without Involvement of Testicle; Report of Cases. H. Lisser and F. Hinman, San Francisco.—p. 465.
- 8 Syphilis of Stomach; Roentgenograms of Case. S. Toussay, New York.—p. 472.
- 9 Mental Disturbances and Syphilis. L. M. Gaines, Atlanta, Ga.—p. 474.
- 10 Vitiligo Syphilitica. M. L. Ravitch and S. A. Steinberg, Louisville, Ky.—p. 479.
- 11 *Antenatal Syphilis. A. J. Routh, London.—p. 484.
- 12 *Coagulo Reaction in Syphilis. J. A. Kolmer and I. Toyama, Philadelphia.—p. 505.
- 13 Syphilis in Detroit as Economic and Social Factor. R. C. Jamieson, Detroit.—p. 519.
- 14 Arsphenamin Icterus. K. I. Sanes, Pittsburgh, and M. Kahn, New York.—p. 529.
- 15 *Toxicity of Various Preparations of Arsphenamin. J. C. Sargent, Milwaukee, Wis.—p. 537.
- 16 Use of American-Made Arsphenamin. H. S. Baketel, Brooklyn.—p. 544.
- 17 *Intravenous Injections of Sodium Iodid in Massive Doses in Obstinate Syphilis. R. C. Howard, New York.—p. 550.

4. **New Pathology of Syphilis.**—The gumma is not the essential typical lesion of old or latent syphilis. It is a relatively rare formation; and the great majority of cases of syphilis run their course without the formation of gummatous granulomas. Warthin says that the new pathology of syphilis is based on the demonstration that the essential tissue lesion of either late or latent syphilis is an irritative or inflammatory process, usually mild in degree, characterized by lymphocytic and plasma cell infiltrations in the stroma particularly about the blood vessels and lymphatics, slight tissue proliferations, eventually fibrosis, and atrophy or degeneration of the parenchyma. These mild inflammatory reactions are due to the localizations in the tissues of relatively avirulent spirochetes. Syphilitic inflammations of this type occur in all tissues and organs; but are most easily recognized in the nervous system, heart, aorta, pancreas, suprarenals and testes. The syphilitic is a spirochete carrier. Syphilis tends to become a mild process; but at any time the partnership between the body and the spirochete may become disturbed, and tissue susceptibility or virulence of the spirochete become increased so that the disease again appears above the clinical horizon. Immunity in syphilis depends on the carrying of the spirochete. The disastrous effects of syphilitic infection usually require a period of years for their development. The pathologic diagnosis of syphilis is essentially microscopic.

5. **Degenerative Chorea with Serology of General Paresis.**—Two cases are presented in detail. One, originally diagnosed acute mania, showed choreatic movements and dementia for eighteen years before death, the serology of paresis being discovered two years before death. The necropsy shows characteristic lesions of paresis plus endarteritic changes; general cell devastation and gliosis, perhaps more marked in the basal ganglia; and certain changes of an uncertain character (in part postmortem?). The second case seems to represent a case of conjugal paresis; with chorea and dementia for about four years, with marked conduct disorder and certain depressive ideas. With the exception of the negative blood Wassermann, the serology is typical for paresis. The authors believe that such cases prove the importance of performing spinal fluid tests in all psychopathic patients—certainly in all with any organic disease. Choreatic paresis is apparently rare, judging by the small number of cases reported, and these are apparently the only cases in the literature in which serologic tests have established the diagnosis. Apparently, the prognosis for duration of life is good; intensive therapy should accordingly yield good results.

11. **Antenatal Syphilis.**—This paper consists of a series of suggestions which appear to Routh to explain logically some of the difficulties which now prevent a clear understanding of antenatal syphilis. Routh believes that the granules are the result of the spirillolysis or breaking-up of the *Spirochaeta pallida*. The granules are infecting agents, being, in fact, spirochetes in the granule stage. They are able to develop into the mature spirochete in a suitable environment, or may become biologically inactive and remain latent for short or long periods. Chorionic (syncytial) ferments are present at the point of interdigitation of the fetal and maternal portions of the placenta. Their action is primarily trophoblastic to enable the delicate chorionic villi to penetrate the uterine mucosa and to open up maternal blood vessels, so that the ovum may find for itself a resting place with nutritive blood spaces around it. As a result of the destructive action of the ferments on the maternal tissues so-called syncytiotoxins are formed, but appear to be at once neutralized by so-called syncytiolysins. If not thus neutralized, maternal and fetal toxemia may become present. The chorionic ferments (or their derivatives) are suggested as being capable of exercising their destructive properties on the *Spirochaeta pallida*, which may either be in the maternal intervillous or fetal intravillous tissues, both of which are in intimate relations with the syncytial cells of the villi whence the ferments arise. This destructive action of the chorionic ferments on the spirochete breaks it up into granules.

Routh further suggests that during pregnancy it is the continued action of the chorionic ferments on the granules which may render them latent and biologically inactive, and perhaps in a few cases may destroy them. After the pregnancy, when the chorionic ferments cease to be present in the tissues of the mother and child, the granules, wherever they may be, may develop into mature spirochetes. The success or failure of the chorionic ferments to protect the mother and child from spirochetal infection would depend on (a) the virulence of the infection, which tends to diminish, owing to the presence of more maternal antibodies, with each successive pregnancy, and (b) on the source of the infection. Infection is probably most difficult to arrest in a "mixed transmission" or in a true maternal infection, where attempts at infection of the embryo would be constantly proceeding throughout the pregnancy. It is probably least severe and most easily countered by the ferments when the primary infection is paternal, for it may then be a single infection only, and probably not capable of repetition if the primary infection be arrested. The Wassermann reaction of mother and child appears to be negative if infection has been by the spirochetes in their granule stage so long as the granules remain biologically inactive and the mature organism is absent.

12. **Coagulo Reaction in Syphilis.**—The coagulo reaction is based on the observations of Hirschfeld and Klinger that syphilitic serum inhibits or delays the formation of thrombin and consequently of coagulation, by an inactivating influence on cytozyme, one of the essential elements in thrombin formation. The reaction has been found a highly delicate and constant characteristic of syphilis, although in Kolmer's experience slightly less sensitive than the Wassermann reaction conducted with acceptable alcoholic extracts of heart muscle reenforced with cholesterin. The coagulo reaction is regarded as specific for syphilis, but the authors suggest that further investigations with the serums of persons suffering with various other diseases are required before a definite statement is warranted.

15. **Toxicity of Preparations of Arsphenamin.**—In compiling the comparative results obtained by the administration of the different preparations of arsphenamin, Sargent excluded all cases in which more than 0.6 gm. or less than 0.3 gm. of the drug was used because patients receiving more than 0.6 gm. of any of the preparations seldom escaped reaction, whereas no reaction was noted in those receiving less than 0.3 gm. of any of the preparations. The French preparation "arsenobenzol billon" was used in but a limited number of cases because of the expense and difficulty with which it was procured. The use of the new arsphenamin ceased after the first batch of five doses because of its apparent extreme toxicity.

Of seventy-seven doses of diarsenol there resulted 35 per cent. gastro-intestinal reactions and 1.05 per cent. vasoparetic reactions. Of ninety-seven of "arsenobenzol" there resulted 5 per cent. gastro-intestinal reactions and no vasoparetic reactions. Of nineteen doses of "arsenobenzol billon" there resulted 25 per cent. gastro-intestinal reactions and no vasoparetic reactions. Of five doses of the new arsphenamin there resulted 60 per cent. vasoparetic reactions.

Sargent concludes that gastro-intestinal reactions resulting from the administration of arsphenamin are largely the result of impurities in the drug. Vasoparetic reactions resulting from the administration of arsphenamin are entirely the result of impurities in the drug. Of the four preparations of arsphenamin commonly used in this country, the Philadelphia preparation "arsenobenzol" has the preference by being distinctly the least toxic.

17. Intravenous Injections of Sodium Iodid in Syphilis.—Howard's report is based essentially on original work on a private patient with laryngeal syphilis, who in spite of intensive antisyphilitic treatment extending over a number of years suddenly developed progressive features, which, unless relieved, would infallibly have required tracheotomy. The gumma in this case did not respond readily to anti-syphilitic therapy, in fact proved highly resistant, for during two years and seven months the patient received thirty doses of arsphenamin, 0.6 gm. each, intravenously, besides several hundred injections of mercury salicylate, in $\frac{1}{2}$ to 1 grain doses suspended in oil, at intervals of three to five days; the obligatory mercury inunctions; mixed treatment by the mouth; many courses of potassium iodid by the mouth, reaching at times several hundred drops daily; one series of about twenty intramuscular injections of sodium cacodylate in full doses. In spite of this intensive treatment, given according to the customary plan and pushed to the limit of tolerance, with intervals of freedom from all medication, the sign and symptoms of progressive malignant syphilis finally supervened in May, 1916. Without material benefit the patient received frequent intravenous doses of arsphenamin and intramuscular injections of mercuric chlorid solutions, in doses of $\frac{1}{4}$ to $\frac{1}{2}$ grain.

June 24, 1916, initial dose of 30 grains increasing each dose by 5 grains, up to a minimum of 335 grains. Suitable veins were very hard to find after a large number of these injections had been applied, and the treatment often had to be interrupted for a few days, until thrombotic veins had again become permeable, or perivascular swelling had subsided. After an interruption a smaller dose was usually given, about 200 grains as a rule, rapidly increasing the size of the dose until the treatment had to be stopped for lack of available veins. Iodism was only exceptionally responsible for a temporary suspension of the treatment; its symptoms were those of gastric irritation and essentially mild, in form of regurgitation of small quantities from the stomach. A cutaneous eruption of petechial spots was occasionally noted. In a general way the treatment was remarkably well borne in spite of the enormous daily dosage. It is also noteworthy that the patient preferred the intravenous method of administration, as the iodids given this way did not upset the stomach. During the entire course of iodid treatment mercury and arsphenamin were likewise administered to the limit. However, within a few weeks after starting the intravenous iodid medication, improvement was so obvious that the patient could eat, sleep and work in comparative comfort. Furthermore his voice considerably improved and this amelioration continued right up to the time when all intravenous iodid injections were stopped for want of veins.

This patient received 125 injections; amount of sodium iodid, 26,013 grains or about $3\frac{3}{4}$ avoirdupois pounds, or 1,685.7 gm.; average dose for 125 doses, 208 grains, or 13.5 gm.; average dose per day for entire period of 224 days, 116 grains, or 7.5 gm. Solutions of from 5 to 10 per cent. strength were correct, below 5 per cent. too bulky; above 10 per cent. too irritating. The optimum strength for universal use is 8 per cent. A stock solution of sodium iodid in distilled water should be made so that 1 minim of the solution contains 1 grain of the salt and this carefully filtered. Of this solution the dose is measured and water (preferably freshly dis-

tilled) is added to make the desired strength and a moderate excess to allow for evaporation. The solution is then sterilized by boiling in a beaker or flask for ten minutes, and cooled to 105 F. when it is ready for injection.

American Review of Tuberculosis, Baltimore

July, 1918, 2, No. 5

- 18 *Treatment of Tuberculosis. G. E. Bushnell.—p. 259.
- 19 Methuselah and Life in Open. V. Y. Bowditch, Boston.—p. 276.
- 20 *Tuberculosis; Its Treatment and Mistreatment. J. V. Wright, Dallas, Texas.—p. 285.
- 21 *Comparison of Wassermann Reaction and Serochemical Reaction of Bruck in Tuberculosis Sanatorium. H. J. Corper and L. Fiala, Chicago.—p. 290.
- 22 *Results of Wassermann Reaction in Tuberculosis Sanatorium. H. J. Corper, Chicago.—p. 294.

18. Treatment of Tuberculosis.—Bushnell says that too often he has seen very serious harm from tuberculin, as employed by others, to be enthusiastic concerning its use. Tuberculin is most helpful to those who need help least. Advanced cases of tuberculosis are very seriously injured by it. But the rather numerous class of sanatorium patients who have little or no active tuberculosis, their disease being of a chronic though often diagnosticated as acute, type are able to tolerate it sometimes apparently to their advantage. Those physicians whose practice is mostly confined to cases of well marked manifest pulmonary tuberculosis are rarely enthusiastic advocates of its use. An accurate diagnosis is indispensable. Tuberculin in the hands of the ignorant is a terribly deadly weapon. Bushnell believes that cases of genuinely active tuberculosis are more often harmed than benefited by it and is of the opinion that better results in the long run for the average patient are attained by the physical treatment. He is therefore opposed to its use in army hospitals.

20. Treatment and Mistreatment of Tuberculosis.—When we make a diagnosis and tell the patient to go West and rough it, or to go home and go to bed, or to go to some institution without looking into the problems which confront us in sending a patient to an institution and without selecting the institution fitted to this particular case; as for instance, to send a patient with a definite uncompensated heart lesion to an altitude of 4,000 or 5,000 feet; or tell the patient that he will be well in two or three months, or we will cure him for a certain amount of money, or we can give him medicine or use any other one measure that will cure him, Wright says we are mistreating tuberculosis.

21. Wassermann and Bruck Reaction in Tuberculosis.—The Bruck serochemical reaction for syphilis according to Corper and Fiala is unreliable as a test to supplant the Wassermann reaction in the tuberculosis sanatorium. As far as could be noted by the authors in their observations it gives no data of value. Of a total of fifteen definitely positive (plus, plus or stronger) Wassermann reacting serums, six gave a negative serochemical reaction; of a total of 213 negative Wassermann reacting serums, 113 (53 per cent.) have a positive Bruck test. The percentage of positives was greater among the moderately advanced (63 per cent.) and far advanced (70 per cent.) cases than among the nontuberculous (33 per cent.), questionably tuberculous (46 per cent.) and incipient (36 per cent.) cases. There was no predisposition for patients with temperature (persistently over 100 F.) to give a positive Bruck reaction (of forty-five cases) with temperature, eighteen gave negative tests). Patients dying of pulmonary tuberculosis within three months of the time of making the test were found to give indiscriminately positive and negative reactions. The activity of the case was likewise of no significance.

22. Tuberculosis and Wassermann Reaction.—As a result of the routine serologic blood examination of 1,395 men and 1,399 women residents of the City of Chicago Municipal Tuberculosis Sanitarium, a definite positive Wassermann reaction was obtained in 7.2 per cent. of the men and 5.8 per cent. of the women. The incidence of a definite positive Wassermann reaction, so far as this could be determined, did not reveal any striking differences from the above figures resulting from a classification of the cases according to different ages or different nationality or race.

Annals of Surgery, Philadelphia

July, 1918, 68, No. 1

- 23 *Use of Fascial Transplants in War Surgery. L. C. Balleuil and W. D. Jack, France.—p. 1.
- 24 *Ventriculography Following Injection of Air into Cerebral Ventricles. W. E. Dandy, Baltimore.—p. 5.
- 25 Laminectomy and Regional Anesthesia. C. H. Frazier, Philadelphia.—p. 12.
- 26 *Advisability of Totally Excising Both Pectoral Muscles in Radial Operation for Cancer of Breast. W. Meyer, New York.—p. 17.
- 27 Interrelation of Stasis, Ptosis and Inertia of Intestinal Tract. J. C. O'Day, Honolulu, Hawaii.—p. 27.
- 28 Case of Obliteration of Common Bile Duct Following Operation. M. Behrend, Philadelphia.—p. 32.
- 29 Clonorchis Sinensis (Liver Fluke) Infection of Gallbladder and Biliary Passages. F. C. Watson, Lexington, Tenn.—p. 34.
- 30 Case of Fused Kidneys. B. Lipshutz and C. Hoffman, Philadelphia.—p. 39.
- 31 Surgical Importance of Supernumerary Arteries to Kidney. D. N. Eisendrath, Chicago.—p. 53.
- 32 Plastic (Reconstructive) Surgery of Hand and Forearm. A. B. Gill, Philadelphia.—p. 555.
- 33 *Fibrin Paper as Hemostatic Agent. S. C. Harvey.—p. 66.

23. Use of Fascial Transplants in War Surgery.—The authors have used fascia lata grafts in cases of extensive scars of the forearm or leg involving either the flexor or extensor tendons and thus producing disability have been the most common. Muscle hernias have also been repaired in this way; aponeurotic grafts have been applied to the dura and in one case the method was utilized in repairing a hernia of the synovial membrane of the knee joint. Balleuil and Jack believe that the method is applicable to the whole field of plastic surgery and is of great value in rebuilding muscle sheaths and in repairing muscle hernias. Cases are cited.

24. Ventriculography Following Injection of Air Into Cerebral Ventricles.—The outlines of the lateral cerebral ventricles can be sharply outlined by the roentgen ray if air is substituted for cerebrospinal fluid. The injection of air into the ventricles had no deleterious effects in twenty cases in which it was employed by Dandy. Ventriculography has already proved of great practical value in the diagnosis and localization of many intracranial conditions. The author found it invaluable in internal hydrocephalus. The method has thus far been used only in children.

26. Total Excision of Both Pectoral Muscles in Breast Cancer.—The total extirpation of both pectoral muscles in every case of radical operation for cancer of the breast, Meyer holds is logical and, as a surgical procedure, clearly indicated, particularly in view of the possible lymphatic arrangement. The author urges that it should be adopted as a routine procedure.

33. Fibrin Paper as Hemostatic Agent.—Bleeding from multiple small vessels, from vessels in delicate tissue and from sinuses can be controlled by the application of fascia, muscle or fibrin. The peculiar advantage of the use of these tissues is that they can be left within the wound, thus avoiding the danger of stripping off the coagulum. A method is described for converting fibrin into a fabric easily kept, sterilized and applied. This material is found to correspond in effectiveness and amenability to absorption with the untreated fibrin, while being far more adaptable to the operating room technic.

The fibrin of beef blood is passed through a fine meat chopper and washed in running water for twenty-four hours in order to free it of the other constituents of the blood. It is then shredded by prolonged trituration in a mortar and shaken up with about twice its volume of water. This is thrown, while in suspension, into a tray with a screen bottom, over which is laid a single layer of ordinary surgical gauze. With a slight oscillatory movement of the tray, the water runs through, leaving an even layer of fibrin deposited on the gauze. This is covered with another layer of gauze and turned out on a towel, being handled gently so as not to tear the fibrin film. The whole is placed between two towels of double thickness and introduced between two pressure plates. These plates are approximated with as great pressure as possible by the tightening of the bolts inserted at their edges. The apparatus is placed in an autoclave and treated with steam pressure of 15 to 20 pounds for thirty minutes. On removing the film it is found to be "welded" into a sheet of

paper-like material from which the gauze can be stripped off readily leaving a rough surface. The thickness of this sheet depends on the amount of fibrin thrown on the screen.

This fibrin paper is quite elastic and possesses a surprising amount of tensile strength. When damp it can be handled like any fabric, but on exposure to the air it dries, becoming hard and somewhat brittle. When placed in water it rapidly softens and resumes the appearance shown on its first removal from the autoclave. On heating, water is first driven off and then the material burns much as does horn and with the peculiar odor of burning horn or hair. Boiling or further sterilizing with steam has no effect on it, thus enabling one to sterilize it repeatedly. It is not soluble in alcohol, ether, chloroform or acetone, these substances drying it and rendering it brittle. Strong acids and alkalis cause it to swell and they slowly digest it while the action of these substances in dilution is scarcely perceptible.

It is possible by using a pressure cylinder to turn out blocks of the material which can be cut directly with the microtome so as to form stamps some 15 to 18 microns in thickness. When dried these blocks can be drilled or turned on a lathe in much the same manner as can be done with hard rubber. For the purpose of hemostasis this substance was tried as cut by the microtome in quite thin sheets, and in the paper form as removed from the press with the thickness of about 0.5 mm. For use in the operating room the paper is made as thin as possible, is sterilized in the autoclave for one hour and then allowed to dry, in which condition it can be stored for months. When desired a piece is dropped in the instrument sterilizer and boiled for ten minutes, after which it is kept in sterile salt solution until used. In this way one has always at hand an absorbable, sterile material, easily handled, with which this type of bleeding can be controlled and which can safely be closed within the wound.

Archives of Pediatrics, New York

July, 1918, 35, No. 7

- 34 *Use of Thick Farina in Treatment of Pyloric Stenosis. L. W. Sauer, Chicago.—p. 385.
- 35 *Diseases that Can, with Assurance, Be Referred to Absence of, or Derangement with Function of, Ductless Glands. A. S. Root, Raleigh, N. C.—p. 401.
- 36 *Use of Carbo Animalis in Diarrheas of Childhood. O. W. Rowe, Duluth, Minn.—p. 406.
- 37 Standardized Physical Examinations. W. R. P. Emerson, Boston.—p. 411.

34. Thick Farina in Pyloric Stenosis.—Thick farina feedings have been given by Sauer in twelve cases of pyloric stenosis. In all but one case the effect of the thick feedings was striking. In eleven of the twelve patients the vomiting soon stopped, although in most of the cases the peristaltic waves and the tumor (where palpable) persisted for weeks or months after the vomiting ceased. Eleven of the twelve patients are now in excellent health, the remaining one dying of bronchopneumonia eight weeks after the vomiting had ceased. Of the twelve babies all but two were on the breast when the vomiting began. Eleven of the infants were taken care of in the home, six by the mother without any trained assistance. Most of the infants were seen at the age of from 6 weeks to 2 months. Sauer points out that at this time the feeding of a thick cereal may become quite a tedious task. Inasmuch as the consistency of the cereal seems to be the all-important factor in this treatment of pyloric stenosis, it is very necessary to use the utmost care in the preparation of the food. One part of farina to 7 parts of fluid (3 parts of milk to 4 parts of water) boiled in a covered double boiler for an hour usually makes a cereal of proper consistency. Such a food consists of about 15 per cent. cereal. Sugar and salt may be added.

A satisfactory way of giving the food is to have the required amount of the prepared food in a cup immersed in a shallow saucepan containing hot water. By taking a little of the warm, thick cereal on the end of a narrow tongue depressor it can very easily be placed far back into the open mouth and scrapped off with another tongue depressor. A great deal of patience is usually required during the first week as the young infant often keeps the thick cereal in the mouth for some time before swallowing. An hour or more is

often required to give a feeding of a few tablespoonfuls. Two to eight tablespoonfuls of such cereal may be given six or eight times a day. In cases in which breast milk is available, one or more tablespoons of the cereal may be given before the nursing or bottle breast milk feeding. If such a regime proves unsuccessful four thick cereal feedings and three breast milk feedings may be tried for a few days. If this fails to stop the vomiting and loss of weight, then all feedings should consist of the thick farina. In very severe cases such a procedure is probably the most satisfactory. Any available breast milk can be added to the cereal provided the consistency of the food is not diminished thereby. The child should then be placed on the right side. During the critical weeks of the treatment most of the infants were handled very little, and seldom taken up during or after a feeding. The child usually rested on a rather firm pillow of soft feathers. This precaution was taken to reduce to a minimum the contraction of the recti and other abdominal muscles. The child is placed on the right side for a few hours after each feeding. Stomach washings probably have some value in freeing the stomach of residual food and mucus. A 1 per cent. sodium citrate solution was used.

35. Ductless Glands and Disease.—The only diseases which, in Root's opinion can, with assurance, be attributed to an absence or derangement of function with the ductless glands are those referable to the thyroid, that is, myxedema, hyperthyroidism and exophthalmic goiter. He admits that there is some evidence, through scientific experimentation, to support the view that Fröhlich's syndrome is due to a derangement with function of the pituitary gland. The clinical evidence in favor of giving pituitary gland in cases of diabetes insipidus, Root says, is sufficient to warrant its administration, but prescribing preparation of the endocrine glands for obscure disorders, cannot be too strongly condemned. A plea is made for the early recognition of cretinism, in order that the best end-results may be obtained from early thyroid treatment.

36. Carbo Animalis in Diarrheas of Childhood.—In a series of cases of enteritis no other medicine was given by mouth than carbo animalis. Water was given frequently in large amounts, and, in cases showing marked dehydration, proctoclysis was attempted. All patients except those received in a comatose condition were fed at the end of twelve to twenty-four hours. The foods were as follows: breast milk, 16 per cent.; some modification of malt soup, 62 per cent.; protein milk, 12 per cent., and whole milk mixtures in 10 per cent. of the cases. Protein milk was not given for its absorptive powers. Cereals and toast were offered early to older children. The most obvious effect of the charcoal therapy was the checking of the frequent watery stools; 74 per cent. of the patients passed formed stools by the fifth day, and 14 per cent. more by the sixth day. In cases in which the lesion was in the lower bowel, it was not unusual to have a movement consisting of blood and mucus, immediately after the formed stool.

Rowe states that the appearance of a formed stool does not indicate that the disease process has been stopped entirely, but it does show that the diarrhea, the most serious symptom, has been controlled. The effect of the therapy on vomiting was excellent. In former years lavage has been done occasionally. With charcoal therapy this measure was found unnecessary. That all toxins are not absorbed is indicated by the hyperpyrexia and other symptoms of toxemia, in some cases persisting for many days after formed stools are obtained. Three very mild cases treated on general hygienic principles, without laxatives or medicine, recovered as promptly as cases of similar duration treated with carbo animalis, but lost more in weight, due undoubtedly to a more restricted diet.

Rowe emphasizes that the preparation of charcoal used and the dosage are of the utmost importance. The dosage should be relatively large, given regularly at least every four hours. The coal may be given in water or oatmeal gruel; it should not be given in gelatin where peristalsis is active. The only bad effect which could possibly be laid to this treatment was an increase in the number of cases complicated by stomatitis.

The chief advantages of this treatment are: 1. Vomiting is readily controlled. 2. The frequent loose, watery bowel movements are definitely checked, thus preventing dehydration. 3. An early return to a full diet is permitted. 4. Convalescence is shortened.

Journal of Laboratory and Clinical Medicine, St. Louis

July, 1918, 3, No. 10

- 38 *Tolerance and Immunity. J. L. Marchand, Prinsapolka, Nicaragua, C. A.—p. 571.
- 39 *Pneumonia and Meningitis. P. G. Woolley, Camp Greene, N. C.—p. 602.
- 40 *Relation of Peptone to Biologic Reactions. W. A. Jamieson, Indianapolis.—p. 614.
- 41 Recommendations of Committee on Standard Routine Method for Isolation and Identification of Hemolytic Streptococci from Throats, Sputums and Pathologic Exudates. W. L. Holman and others.—p. 618.
- 42 Simplified Gas Analysis. J. J. R. Macleod, Cleveland.—p. 622.
- 43 Simple Method of Measuring Antisheep Amboceptor Content of Human Serum and Correcting for It in Wassermann Tests. J. J. Seelman, Milwaukee, Wis.—p. 626.

38. Tolerance and Immunity.—Marchand believes that protein sensitization and bacterial immunity, apparently antipodal, are in reality identical. Vaccines are protein sensitizers. When proteins are subjected to the action of disrupting agents, as when introduced parenterally, there is the possibility of the chemical nucleus being set free more or less completely, and to the extent that it is detached it becomes a poison. The protein poison is not specific. The tolerance which may be secured by the protein poison is not specific. The sensitization developed by a protein is specific, but is not due to the poisonous group of the protein. The poison elaborated in all infectious diseases is the same.

39. Pneumonia and Meningitis.—Woolley's analysis of cases leads him to conclude that pneumonia and meningitis are due to invasion of bacteria which are inhabitants of the upper respiratory tract, that the conditions under which they become more or less widespread or epidemic are not understood, and that the only method for preventing their spread is to apply antiseptic methods to the mouth and nasopharynx. The application of such methods should be put into practice in advance of the season of the year during which the incidence of respiratory diseases rises.

40. Relation of Peptone to Biologic Reactions.—With the outbreak of the war and the consequent curtailment of the supply of Witte's peptone, the question of the production of potent diphtheria toxin became acute. American peptones already on the market, while satisfactory for the production of tetanus toxin and allowing a profuse growth of *B. diphtheriae*, did not give a satisfactory toxin production. Other American peptones were soon available which gave a diphtheria toxin of low potency. Of the most of the American peptones one lot might give a toxin of 400 to 600 minimum lethal dose per mil, while the next lot might give no toxin at all. To overcome this discrepancy, Jamieson says, a peptone was made up as nearly as possible of the same composition as Witte's peptone, with some variation, however, which there was reason to believe would make it a better peptone than Witte's. Toxin was produced with this peptone, using as comparison Witte's peptone and American brands. In all cases the new peptone gave the most potent toxin, and Witte the next highest. The toxin produced with the special peptone has tested as high as 1,000 minimum lethal dose per mil; it consistently tests 500 to 600 minimum lethal dose per mil. The Witte peptone has tested about 500 minimum lethal dose per mil, while the American brand has made toxin fluctuating between 100 and 300 minimum lethal dose per mil. Experiments were made to determine whether the peptone employed in the toxin production had a detrimental effect when injected into animals; or whether the peptone was such that the growth of the diphtheria organism would produce by-products which were injurious when injected into animals. The results of these experiments indicated that care should be exercised in the selection of peptone for the production of diphtheria toxin, inasmuch as the peptone used may influence the physical condition of the animal injected with the toxin. The peptone employed in the production of diphtheria toxin influences the potency of the toxin and what

is of greater importance the ratio of the constituents of the toxin as shown by the ratio of the minimum lethal dose to lethal plus dose. The peptone used in the production of antigens employed in immunologic tests will influence the results of the tests.

Medical Record, New York

August 10, 1918, **94**, No. 6

- 44 Physical Basis of War Shock. H. Wakefield, New York.—p. 223.
- 45 Treatment of Empyema by Carrel-Dakin Method at War Demonstration Hospital, Rockefeller Institute for Medical Research. G. A. Stewart, New York.—p. 236.
- 46 Federal Effort to Promote Science of Veterinary Medicine. R. W. Shufeldt, Washington, D. C.—p. 237.
- 47 Torn Cervix vs. Uterine Inertia. E. R. Corson, Savannah, Ga.—p. 239.
- 48 Importance of Rest After Meals. P. Getson, Philadelphia.—p. 241.

New York Medical Journal

August 10, 1918, **108**, No. 6

- 49 Blood and Soul. J. Wright, Pleasantville.—p. 225. To be continued.
- 50 Etiology en Echelon. (By Degrees). W. P. Cunningham, New York.—p. 227.
- 51 Acute Coryza; Intranasal Complications, Diagnosis and Therapeutics. E. Danziger, New York.—p. 234.
- 52 Food Value of Bread. R. McD. Allen, New York.—p. 236.
- 53 Immunity in Tuberculosis. M. Staller, Philadelphia.—p. 240.
- 54 Experience with Class in Malnutrition. J. L. Kantor, New York.—p. 241.
- 55 Examination of Recruits for Tuberculosis. R. C. Matson, Portland, Ore.—p. 245.

Psychiatric Bulletin, Albany, N. Y.

October, 1917, **2**, No. 4

- 56 *Study of Retention in Korsakoff Psychosis. D. Wechsler, Corona.—p. 403.
- 57 Statistical View of Mental Diseases in New York State Hospitals. H. M. Pollock.—p. 452.
- 58 *Study of Mental Content of Epilepsy. L. P. Clark, New York.—p. 483.

56. **Study of Retention in Korsakoff Psychosis.**—Wechsler is of the opinion that the prime cause of the retention defect in Korsakoff psychosis is the patient's inability to form new associations.

58. **Study of Mental Content of Epilepsy.**—A study of the mental content, both conscious and unconscious, in epileptics, Clark says, demonstrates: (1) the depth of the unconscious regression, (2) the special types of conflict which the epileptic has and the way he tries to solve them, (3) the specific type of primary defect in his endowment. Its therapeutic value in addition to the above is (4) to furnish a specific point of analytic attack by simple explanatory talks, and (5) to show more definitely the type of special education which should be adopted for each individual patient.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Tuberculosis, London

July, 1918, **12**, No. 3

- 1 Diagnosis and Treatment of Hemoptysis in Cases of Pulmonary Tuberculosis. N. Robertson.—p. 103.
- 2 Tuberculosis and Toxemia. E. G. Glover.—p. 117.
- 3 Treatment of Pulmonary Tuberculosis. J. E. Bullock.—p. 127.
- 4 Housing of Consumptive Families. J. T. Neech.—p. 129.

British Medical Journal, London

July 20, 1918, **2**, No. 3003

- 5 *Treatment of Asthma by Peptone. A. G. Auld.—p. 49.
 - 6 Epidemics. J. Burnford.—p. 50.
 - 7 Nasopharyngeal Conditions in Meningococcus Carriers. F. J. Cleminson.—p. 51.
 - 8 Two Cases of Vulvitis Caused by Accumulated Secretion of Tyson's Glands. J. D. Malcolm.—p. 55.
 - 9 Value of Artificial Pneumothorax in Arrest and Prevention of Hemoptysis in Pulmonary Tuberculosis. Z. P. Fernandez.—p. 55.
 - 10 Future of Medical Profession. B. Dawson.—p. 56.
- July 27, 1918, **2**, No. 3004
- 11 Broken Sleep. G. Rankin.—p. 77.
 - 12 Buffer-Salts of Blood. W. M. Bayliss.—p. 78.
 - 13 Part Played by Bone Graft. M. Mamourian.—p. 79.

- 14 Report on Influenza Epidemic of 1918. O. H. Gotch and H. E. Whittingham.—p. 82.
- 15 Physicians' Problem. A. L. Jones.—p. 85.

5. **Treatment of Asthma by Peptone.**—Auld has had good results in the treatment of asthma from the intravenous injection of peptone. He dissolves the peptone as far as possible in normal saline (made up to three-quarters volume) by slightly agitating and warming at 37 C. Then add 1 mil of a 2 per cent. solution of sodium carbonate for each $\frac{1}{3}$ gm. (5 grains) peptone. This ensures the requisite degree of fineness of the suspended portion. Make up to volume with normal saline, adding 0.25 per cent. phenol as a preservative. Care is to be taken in adding the alkali, as any excess may cause racemization of the peptone, rendering it inactive. Peptone No. 2 is similarly prepared, the alkali being employed in this case to neutralize its acidity.

As regards the dosage, it is only possible to make a general statement, as variations may be necessary. When the main attacks, whether occurring singly or more or less broken up, occur at fairly pronounced intervals, a limited number of measured doses is usually sufficient. Should slight attacks persist, the dose may require to be increased. A feeling of chilliness and discomfort indicates that the limits have been overstepped. On the other hand, the dosage must be reduced when the attacks present great frequency and irregularity. In such the antianaphylactic mechanism is weak, or, in other words, the immunity reserve is small and will only tolerate gentle stimulation. Experience alone can enable one to decide the dosage, according to the symptoms and progress of the case; also, patients differ very considerably in their response to peptone. Generally speaking, the initial dose in all cases may be fixed at 3 decimils (5 m.); increase by 2 decimils (roughly 3 m.) every fifth day, until six injections have been given. Three or four more injections are to be given, employing in each the same dose as that given in the sixth injection. To this rule, however, there are exceptions. No reaction appreciable by the patient occurs. At any time during the course modifications in the dosage may be called for, as already indicated. In the case of children but a very slight reduction in the dose is necessary. No injection is to be given during attacks, and, when the latter occur at long intervals, begin the treatment about three weeks before one is expected. In all cases the diet should be low, and easily digested.

Bulletin of Canada Army Medical Corps, Ottawa

July, 1918, **1**, No. 4

- 16 Transplantation of Bone in Repair of Cranial Defects. C. H. Gilmour.—p. 50.
- 17 Cerebrospinal Fever. F. B. Bowman, F. Adams and R. N. James.—p. 52.
- 18 *Report on Series of Gassed Cases. S. G. Ross and A. T. Henderson.—p. 58.
- 19 Early Diagnosis and Treatment of Primary Syphilitic Lesions. A. B. Jackson.—p. 60.

18. **Report of Gassed Cases.**—Seventy-two per cent. of the men seen by Ross and Henderson complained of soreness in the eyes at some period. Of these, 47 per cent. showed conjunctivitis on admission. Irritation of the nose and the throat was a frequent effect. A history of sneezing shortly after being gassed was given by 55 per cent. of all patients. A large proportion of these men had coryza (forty-six out of the last 153 cases examined). Most of these had a profuse watery discharge from the nose. Pharyngitis was commonly present. The larynx was commonly affected in 63 per cent. Another common symptom was that of pain in the chest; 57 per cent. of the men complained of this. Cough was present in 80 per cent. of the cases; bronchitis in 15 per cent.; dyspnea in 27 per cent.; cyanosis in 6 per cent. Beyond quickening of the pulse in some cases, there was no evidence of the heart being affected. Vomiting was present in 60 per cent. of the cases; 10 per cent. had nausea without vomiting. Abdominal pain was complained of by 19 per cent. It was nearly always referred to the epigastrium, and was stated to be of a steady burning character. Only one man had crampy pains. Diarrhea occurred in 2 per cent.

Twenty-four per cent. of the men showed definite skin lesions. One half of these had blistering. The remainder

showed first degree burns only; 78 per cent. of the men complained of headache at one time or another. Three men gave a history of collapsing or fainting. A number of men complained of weakness and pains in the muscles. One man only showed definite jaundice. Forty-three men showed a temperature of 99 or over on admission, and of these thirteen had a temperature of over 100 F. Bronchitis was present in ten of these cases, and the fever of the remainder might be accounted for by laryngitis or burns; 11 per cent. had a pulse of 90 or over, under half of these associated with fever. A few cases only showed increased respiratory rate. The vast majority of cases seemed to be due to the Yellow Cross (phosgene) gas.

Dublin Journal of Medical Science

July, 1918, 146, No. 559

- 20 Two Cases of Mediastinal Abscess of Traumatic Origin; Operation; Recovery. H. L. W. Woodroffe.—p. 1.
- 21 Hygiene from Soldier's Point of View. W. F. Wicht.—p. 7.
- 22 Ireland's National Health; Analysis of Cases Occurring in Southern Seaboard District and Its Lessons. M. F. Moloney.—p. 17.

Glasgow Medical Journal

July, 1918, 90, No. 1

- 23 Change of Type in Disease. E. Duncan.—p. 1.
- 24 *Gastro-Intestinal Toxemia as Cause of Nephritis. W. Watson.—p. 17.

24. **Gastro-Intestinal Toxemia as Cause of Nephritis.**—Watson cites three cases in which gastro-intestinal disease caused a secondary nephritis. In each of these three cases the arresting feature has been the abnormality in the gastro-intestinal canal. In the first there was pyorrhea, dilatation of the stomach, with a history of inflammation of the stomach, and the tongue bore distinct evidence, from the enlargement of the papillae, that there was an abnormal condition of the ileum. The second patient had septic ulcers in her mouth and on her tongue, and a constant discharge of purulent material from her nose, which in all probability, through being discharged into the pharynx, was the cause of the septic condition which appeared in the upper part of the alimentary canal. The discharge from this, on being swallowed would ultimately infect the intestine itself. The third patient had equally arresting gastro-intestinal symptoms, with physical signs which point, beyond doubt, to a gastro-intestinal cause. He emphasizes the importance of recognizing this etiologic relationship because of the treatment to be adopted and because of its bearing on prognosis.

Journal of Laryngology, Rhinology and Otology, London

July, 1918, 33, No. 7

- 25 Congenital Appendages or Teratoid Tumors of Nasal Septum. A. B. Kelly.—p. 193.
- 26 Unit of Sound: Stefanini's Phonometer with Ball and Sounder. D. Gradenigo.—p. 197.
- 27 Maxillary Antrum in Mastoiditis. H. Bodkin.—p. 200.
- 28 Intrinsic Cancer of Larynx and Operation of Laryngofissure. I. Moore.—p. 202. To be continued.

Lancet, London

July 20, 1918, 2, No. 4951

- 29 War Injuries of Eye. W. T. Lister.—p. 67.
- 30 *War Deafness with Special Reference to Value of Vestibular Tests. P. McBride and A. L. Turner.—p. 73.
- 31 *Gunshot Fractures of Femur. P. Turner.—p. 74.
- 32 *Treatment of Fracture of Shaft of Humerus by Splints. C. A. Morton.—p. 77.
- 33 Future of Medical Profession. B. Dawson.—p. 83.

30. **War Deafness and Vestibular Tests.**—From analysis of a large number of cases which they examined McBride and Turner conclude that concussion deafness is generally due to some organic change. The prognosis is usually bad. The results of the vestibular tests can only be utilized in conjunction with information derived from other sources. Thus, if the patient shows other hysterical symptoms, vestibular tests may perhaps under certain circumstances help diagnosis; to state that they do more than this is misleading and dangerous.

31. **Gunshot Fractures of Femur.**—In cases in which "sagging" was present to a marked degree, and in cases of fractures of the upper and lower part of shaft with typical displacements Turner has made use of a method in which the straight Thomas' splint and the ordinary methods of

obtaining extension and preventing rotation are used, and which can be employed in conjunction with any method of suspending or supporting the splint. The principle of this method, which has been called "wire suspension and traction," is that a loop of silver wire is manipulated round the free end of the displaced fragment, which is then pulled into position, and maintained so by attaching the wire to a rigid arch passing over the limb between the two bars of the splint. The splint is first put into position, supports are arranged, and strong extension is obtained by a spring. The limb is now held so that the foot shows a position of slight external rotation, and the lateral supports which control rotation are applied. Both the extension and lateral supports can be readjusted, if thought necessary, after the wire suspension has been carried out. The wire employed is ordinary silver patella wire.

Where there is an oblique fracture, or where the comminution is not severe, the end of a suitable length of wire may be twisted to form a loop. The ends of the fragments are usually already denuded of soft parts, and can be felt by a finger in the wound. The wire loop is then introduced and with the help of the finger is insinuated round the free end of the displaced fragment. In the event of the free end of the fragment not being sufficiently exposed, a periosteal elevator may be used to clear it for a short distance, but extensive baring is neither necessary nor desirable. The displaced fragment is now pulled up into position, and when the finger shows this to be accomplished, the wire is attached securely to the rigid arch, which has been sterilized and fixed in the proper position. If the pull is made obliquely and if the wire is fastened in this direction there will be no danger of the loop slipping off, that is, if a backwardly displaced lower fragment of a supracondylar fracture is being treated the pull should not be straight forward, but also slightly in a downward direction toward the knee. There is also, as a rule, some lateral displacement of the fragments, the upper being abducted and the lower adducted. This must also be taken into consideration when drawing the fragment into position and fixing the wire.

In fractures of the lower and middle thirds of the shaft of the femur, the attempt should be made to draw the lower fragment into line with the upper, and hence the single wire around the lower fragment will, as a rule, be sufficient. In some cases of sagging, however, where the upper fragment is abducted and the lower adducted or the reverse, excellent alignment may be obtained by two wire loops, one drawing the lower fragment forward and outward and the other the upper fragment forward and inward. Backward traction of the upper fragment in fractures in this region is seldom required, and in a few cases in which Turner has employed it in this region the wire has soon been found to be unnecessary and has been removed.

If there is much comminution all completely detached fragments should be removed and the wire or wires should pass round the extremity of one or both main fragments, including, if possible, any large piece of bone which is not quite loose. In some comminuted fractures it may be possible to pass a wire round all the fragments and cross the wire again in front so as to bind them together and at the same time to raise the bone to its correct position. Efficient drainage having been secured, attention is directed to the extension, and, if necessary, the spring and the lateral supports are readjusted. The supports beneath the thigh should also be tightened up so as to raise the soft parts and take some of the weight of the limb off the wire. After sagging of the fragments has been corrected there may be a sagging of soft parts due to edema and the dropping back of muscles and soft tissues which gives a very similar outline to the thigh, though a roentgen-ray examination may show a perfect alignment. The presence of the wire causes no irritation or increase of sepsis.

The shortest time the wire has been left in position is two weeks, and in this case, where there was some cutting into the muscle and a little oozing of blood, there was no recurrence of the displacement. It is better to allow three or four weeks, or even longer, to elapse before removing the wire,

as its presence causes no trouble; in one case it was left for eight weeks. The amount of bone lost and the roentgenographic evidence of union will guide as to the advisability of removal. If the ends of the loop can be seen the wire may be cut and pulled out at an ordinary dressing, but if out of view in the deeper part of the wound nitrous oxid anesthesia will be desirable.

32. Fracture of Humerus Treated by Splints.—There is only one way, says Morton, in which a fracture of shaft of humerus can be absolutely fixed, and that is against the chest wall. By using the combination of a posterior and an internal splint, fixed together and fixed by plaster to the chest, a stable support is provided for the arm when the patient is sitting up or lying down.

Medical Journal of Australia, Sydney

June 29, 1918, 1, No. 26

- 34 Spinal Bone Grafting. T. E. L. Lambert.—p. 529.
35 Case of Rat-Bite Fever in Sydney. O. R. P. Muller.—p. 531.
36 Uncommon Inguinal Hernia. J. B. Nash.—p. 532.

Archives Médicales Belges, Paris

January, 1918, 71, No. 1

- 37 *Staphylococcus Infection. P. Nolf, J. Bossaert and A. Colard.—p. 1.
38 The Pedagogic Pretensions of Psychoanalysis. P. Voivenel.—p. 19.
39 *Disability from Hemianopsia. E. Rasquin.—p. 32.
40 Present Status of Oculocardiac Reflex. H. Fredericq.—p. 46.

37. General Staphylococcus Infection.—The symptoms may range from a mild fever for a few days to grave septic pyemia. The staphylococci were sometimes found in the urine in the twenty-four cases described, but they were usually rare and scant. In some cases they were found in the urine up to weeks and months after apparent recovery, but there were no traces of kidney or bladder lesions at any time. The staphylococcus was seldom found in the blood. When a man with some cutaneous lesion containing staphylococci is taken suddenly with fever, headache and pains in the bones, especially in the legs, and nothing pathologic can be found in heart, lungs, intestine, kidneys or nervous system, the assumption of general staphylococcus infection seems justified. Most of the men recovered in a few days under bed rest and light diet. It seemed that 3 gm. of hexamethylenamin in twenty-four hours had a favorable effect. In the more rebellious cases, 5 cg. of methylene blue was given with each 50 cg. dose of the hexamethylenamin. The fever kept high in one case for weeks until a series of five intravenous injections of 8 c.c. of a 10 per cent. solution of peptone were made on alternate days. Then quinin was substituted for the peptone for nine days, and then the peptone was resumed for six days. This patient was in the hospital for nearly seven weeks. In some of the other cases the staphylococci did not disappear from the urine until after a series of injections of peptone, with or without an autogenous vaccine.

39. Disability from Hemianopsia.—Rasquin is chief of the eye department of the Belgian hospital at Havre. He comments on the large number of cases of hemianopsia encountered among the wounded. He classifies them according as the individual requires or not the aid of another person. If the disability in the latter group is accepted as 100 per cent., in the other—with retention of central vision—it should be 120 per cent. The German laws grant 125 per cent. A gap in the visual field is more disabling the closer it is to the point of fixation. He gives a colored plate showing the eight different parts of the visual field that may be lost, and the relative disability from each.

Bulletin de l'Académie de Médecine, Paris

June 25, 1918, 79, No. 25

- 41 *Ear Disturbances in Aviation. A. Castex.—p. 458.
42 *Resumption of Work by the War Cripples. J. Gourdon.—p. 459.
43 *Spirochete of Pseudotuberculosis. F. Barbary.—p. 461.

41. Ear Disturbances in Aviation.—Castex describes the various sensations experienced by aviators when they rise rapidly to 12,000 or 15,000 feet, the altitude at which the airmen usually attack enemy airplanes. The barometer registers from 47 to 41. The ear suffers particularly from the differ-

ences in pressure, but the disturbances can be warded off if the men in going up practice Valsalva's experiment, strong expiratory effort with mouth and nose closed, and in descending practice Toynbee's experiment, exhausting the air from the tympanic cavity by swallowing with the nose and mouth closed. See also Paris Letter, Aug. 24, 1918, p. 679.

42. Resumption of Self-Support by War Cripples.—Gourdon is chief of a rehabilitation center, and reports his experience with 5,014 maimed soldiers with grave and incurable lesions. Of these, 73 per cent. have resumed their former occupation with or without prostheses; 27 per cent. required vocational training. Only 30 per cent. were crippled in the arms. War cripples seem to lack will power more than others, and they tire more readily. Persons accustomed to till the soil formed 62 per cent. of the total, and they return to farm work more readily than others. Fully 85 per cent. of the farmers and 48 per cent. of the farm hands spontaneously returned to farm work after being supplied with prostheses for the purpose. The loss of an arm does not incapacitate more than 25 per cent., and disarticulation of the shoulder more than 50 per cent. Amputation at the thigh causes about 50 per cent. incapacity. The incapacity from loss of a leg is not over 10 per cent. in industrial work. With loss of a hand or arm, the amount of work turned out increases of course with practice, and hence it is advisable to place the men early in workshops. Very good office positions have been found for the maimed capable of such work, and their interest and progress in training were remarkable. They realized in nine months what the others required sixteen for. He advises a premium for rapid acquiring of skill based on the professional skill acquired compared to the extent of the lesion.

43. Pulmonary Spirochetosis.—Barbary remarks that it is only comparatively recently that the mycoses have been differentiated and successful treatment applied. Before this the cases had been labeled syphilis or tuberculosis, and all treatment on this basis had been futile. Spirochetosis are now having this same experience. Many cases of supposed pulmonary tuberculosis are probably a spirochetosis. A number of such have been encountered at the observation station in his charge. In one case the diagnosis had been "chronic bronchitis, probably tuberculous, with hemoptysis." Spirochetes were found swarming in the sputum. No examination should be considered complete unless, along with the bacteriologic examination, the sputum, urine and blood are examined for spirochetes. They show up readily with blue or phenolthionin. Isolation is imperative, as this spirochetosis is extremely contagious both by direct contact and by the dried sputum. The cuspidors should be kept half full of an antiseptic fluid, and the mouth should be rinsed with hydrogen peroxid or chloral.

Nourrisson, Paris

July, 1918, 6, No. 4

- 44 *Prophylaxis of "Children's Diseases." A. B. Marfan.—p. 193.
45 Ventilation of Contagious Ward. J. Renault.—p. 212.
46 *Meningococcus Meningitis in Infants. M. Lavergne.—p. 215.

44. Prophylaxis of Acute Contagious Diseases.—Marfan reiterates that isolation is the basis of prophylaxis for acute infectious diseases of children, including the eruptive diseases, whooping cough, mumps and cerebrospinal meningitis. He discusses the technic for prophylaxis of each of these in turn, emphasizing in particular the special measures required in measles. He adds that even if we only get measles postponed till after the age of 5 or 6, this would suppress the mortality almost completely. When there has been exposure to measles, the child can be left unmolested for ten days thereafter, during the phase of incubation. The tenth day the child should be isolated and watched for signs of measles. If no symptoms develop, the isolation can be arrested in five days, that is, the fifteenth day after the exposure to the disease. Not merely the doubtful but also the suspected cases of exposure should be managed in this way. If a child develops a "cold" and shows slight signs of malaise—when cases of measles are known in town—he should be isolated at once for five days. If no eruption appears, he can then be released. Every child with an eruption and fever should be isolated for two or three days. In case of measles, the isola-

tion need not be kept up for more than five days unless there is concomitant pneumococcus or streptococcus infection, in which case isolation for this is required in addition. Terminal disinfection is not required in measles except for a complicating pneumonia. When an epidemic of measles breaks out in a school, the children should not be given a vacation; this would help to spread the disease. All that is necessary is to isolate the sick, the suspects and the doubtful cases, and keep the others under surveillance. The regulations in France exclude a child from school for sixteen days after the beginning of the eruption. This is not necessary unless there are complications. For twenty-five years the physicians of children's hospitals have been pleading to have the services organized, both in the hospitals and in the dispensaries, to avoid propagation of acute contagious diseases.

46. Meningitis in Infants.—In the course of this discussion of the etiology, symptoms, diagnosis and treatment of meningococcus meningitis in infants, Lavergne remarks that lumbar puncture in an infant is simple and absolutely harmless. The child should be placed on its side, one hand bending the head back so far as possible; the other hand, placed behind the knees, presses the thighs against the abdomen. If no fluid drips from the needle introduced into the subarachnoid space, he slips a guide into the needle. If this fails, he repeats the puncture in the interspaces above, which can be done in infants up to the tenth and eleventh dorsal vertebrae. He advises to withdraw as much of the cerebrospinal fluid as possible; the results can be only good, as this relieves the centers from compression, gets rid of toxic fluid, and leaves room for the curative serotherapy. From 20 to 40 c.c. of fluid can generally be withdrawn in this way.

The first antiserum, he declares, should be polyvalent. The method of rapid agglutination will disclose the special type involved so that the specific antiserum can be injected the next day. There can be no inconvenience in injecting 20, 30 or even 40 c.c. of the antiserum. On the other hand, there is grave danger if an adequate amount of the antiserum is not given. The injections should be repeated as long as the cerebrospinal fluid shows meningococci and polynuclear cells. It should also be the routine practice to repeat the lumbar puncture from four to eight days after apparent recovery. This is the only means to detect an incipient recurrence. If the child's condition is very serious, Lavergne advocates injecting the antiserum directly into the ventricle, even when there is nothing to indicate walling off of the meningitis. He asserts that there is no danger, introducing the needle at the lateral angle of the fontanel and pushing it downward and inward, the tip pointing toward the external auditory meatus on the other side. The sedative influence of hot baths may be utilized. In case of complicating joint or iris trouble, the antiserum must be injected locally. Injection of the antiserum directly into the vitreous body has been followed by complete retrogression of iridochoroiditis. As early treatment here is of prime importance, ophthalmoscopic examination should be a routine measure with meningitis in infants. Serotherapy shows more failures in infants than in older children and in adults. Even in the apparently favorable cases in infants the diagnosis should be reserved. Some have reported good results from a fixation abscess or vaccine therapy. Those who fear anaphylaxis can certainly ward it off by giving a small injection of the antiserum every week.

Paris Médical

May 25, 1918, 8, No. 21

- 47 *Clinostatic Bradycardia. H. Vincent.—p. 401.
- 48 *Crippling Attitudes after War Wounds. André-Thomas.—p. 402.
- 49 *Prophylaxis of Tuberculosis in Italian Army. N. Sforza.—p. 406.
- 50 Sodium Cacodylate Cannot Take the Place of Arspheamin, etc., in Treatment of Syphilis. H. Maréchal.—p. 410.
- 51 Roentgen Localization of Projectile. Loupié.—p. 413.

47. Combination of Bradycardia, Low Blood Pressure and Cyanosis of Hands and Feet.—This combination Vincent has encountered comparatively frequently in children and young people. The bradycardia is of what he calls the clinostatic type, that is, instead of the normal drop of 8 or 9 beats when the subject reclines after standing, the drop is of 15, 25 or 30 beats, so that the pulse recumbent is only 58, 52 or 40. The

arterial pressure is also extremely low, and the hands and feet are cold and clammy and inclined to be blue. In twenty-nine such cases there was a history of rheumatism, hereditary or personal. This peculiar triad of symptoms disappeared after marriage or pregnancy or as the active genital period was reached, and this suggested that endocrine disturbances might be responsible. This assumption was sustained by finding the thyroid abnormally small; sometimes, one lobe seemed to be almost completely missing, or the whole gland felt soft and flabby. Thyroid treatment promptly restored conditions to clinically normal. He supplemented the thyroid extract with potassium iodid and, in case of girls, with ovarian treatment.

48. Abnormal Attitudes from Defective Regeneration of Nerve.—The abnormal attitude or contracture may develop at once after a war wound of the nerve or not until after several months. In the latter case there is evidently defective regeneration of the nerve, the fibers going astray. Two cases are described to show the multiple factors that may be involved, and that must be guarded against or eradicated.

49. Prophylaxis of Tuberculosis in the Italian Army.—Sforza has charge of the *centre diagnostique de la tuberculose* at Rome. He relates that the call to arms poured the entire male tuberculosis morbidity of the whole country into the army. This led to two mistaken conceptions, namely, that tuberculosis was rapidly increasing, and that this increase was due to the war. Time and experience have refuted both of these apprehensions, especially the experiences at the diagnosis centers which were organized in January, 1917, for each army corps. Here the advanced cases are sifted out and turned over to the civil authorities. The curable cases are sent to army sanatoriums for a six months' course of treatment. By means of these diagnosis centers, tuberculosis can be detected in its incipency and the proper treatment be applied immediately. "The best prophylaxis of tuberculosis is the early diagnosis of the disease . . ." The fact that the men dismissed from the army on account of advanced tuberculosis are passed over individually to the civilian authorities has placed Italy in the forefront of all nations as regards compulsory notification of tuberculosis. To have accomplished so quietly such a tremendous reform in the campaign against tuberculosis is not the least of the benefits to be credited to the military authorities in this field of action. The civil government has only to keep on with the task."

Legislation is now pending to provide a pension for every soldier discharged on account of tuberculosis, who has taken part in the fighting. The plan is to have the pension revised from time to time by competent authorities to conform to the man's condition, increasing it if necessary, reducing it if conditions improve. The diagnosis center at Rome is a regular hospital with 170 beds. The men are under observation there from ten to fifteen days, and the roentgen record of each individual is kept in the archives. There are already 450,000 radiographic records of the kind, a valuable material for specialized study, such as no other institute that he knows of possesses to date. It embraces the whole history of pulmonary tuberculosis. These diagnosis centers are to be maintained after the war, although several centers may be merged into one, and they will include civilians in their scope.

Presse Médicale, Paris¹

June 27, 1918, 26, No. 36

- 52 *Wounds of Cervical Sympathetic. André-Thomas.—p. 329.
- 53 *Provisional Prostheses after Amputation. G. Louvard.—p. 331.
- 54 Quinin Collobiase in Malaria. F. Roux.—p. 333.

July 8, 1918, 26, No. 38

- 55 *Study of Heart Disease. H. Vaquez.—p. 345.
- 56 *Tracheocele. P. Coudray and Guisez.—p. 348.
- 57 *Reflex Symptoms in Epilepsy. M. Olivier and G. Aymès.—p. 349.
- 58 *Meningococci and Parameningococci. Romme.—p. 350.

52. Wound of Inferior Cervical Ganglion.—Thomas reports the findings on vasomotor, thermic and circulatory tests in cases of injury of the sympathetic nerve in or near the inferior cervical ganglion.

53. The Provisional Prosthesis.—Louvard expatiates on the advantages of providing a peg leg or arm hook from the earliest possible moment, on account of the moral as well as the

physiologic effect. It also avoids the use of the "pernicious crutch," and provides the orthopedist with a live, healthy stump to work on.

55. The Heart.—Vaquez calls his article an introduction to the study of the heart. He traces through the ages the development of our knowledge in regard to the physiology and pathology of the heart. When digitalis has been successful for a time and then fails, although the clinical picture seems unmodified, some new factor has evidently intervened, and this, he says, is probably the loss of the tonicity of the myocardium. Physiologically speaking, we know that digitalis is not actually a tonic for the heart as is generally believed. In this case we must use some stronger tonic for the heart. This action is possessed by strophanthus to a notable degree. This carries on the task where and when digitalis fails.

56. Tracheocele.—Coudray and Guisez give an illustrated description of a case of tracheocele. Three of the rings of the trachea had ruptured during a shell explosion. The soft depressible tumor looks like a goiter, but there is no resistance to the finger at this point. The ordinary acts of life are done without trouble, but there is intolerable pain at any more intense effort. The man has become accustomed to the lesion in the seventeen months since the explosion, and declines operative intervention. The hernia might spontaneously retrogress if the trachea were to be incised below to divert the circulation of the air. The prognosis of tracheocele is grave, as a rule, aside from the tracheoceles of pregnancy which usually retrogress spontaneously. Any intercurrent bronchitis or catarrhal trouble might aggravate conditions.

57. Reflex Symptoms with Epilepsy.—Olivier and Aymès report a case in which during the epileptic seizure the Babinski toe sign was pronounced on the right side, while in the left foot there was no Babinski but in its place there was adduction of the foot, the inner margin being raised. Stimuli applied to the soles of the feet during the seizure elicited constantly these motor responses. A theory is advanced to explain the mechanism of these phenomena.

58. Serotherapy of Meningitis.—Romme emphasizes the necessity for beginning treatment with a bivalent antiserum that acts on the two most common strains. If bacteriologic differentiation is possible—which is generally the case in forty-eight hours—then an antiserum addressed to the "reigning meningococcus" should be used. Otherwise the bivalent should be continued.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 22, 1918, 48, No. 25

59 *War Psychoneuroses. F. Naville.—p. 817.

60 *Cancer Statistics. J. Aebly.—p. 829.

59. War Psychoneuroses.—Naville describes his experience with inveterate cases of psychoneuroses at an advanced neuropsychiatric center. He emphasizes the close resemblance between neuroses and psychoneuroses due to exhaustion and emotional stress and those for which organic disease or intoxication is responsible.

60. Fallacies in Cancer Statistics.—Aebly comments on the superior oversight to be obtained when the course of cancer cases, from the beginning of disturbances to death, is compared in the operative cases and in those left to a spontaneous course. Still better oversight is realized when, in addition, the figures are compared with those of the relative life expectancy for the age. Surprising findings are obtained in this way. The advantage in favor of the cases with operation does not become manifest until from the fourth year onward, so far as cancer of the uterine cervix is concerned. Up to this period the operative cases show no longer survival than the cases with a spontaneous course—all estimated from the first symptoms of the malignant disease. Aebly remarks that so long as it is impossible to demonstrate any absolute lengthening of the period of survival in consequence of the operation, we have no right to affirm the life-preserving influence of operative measures. In the most favorable circumstances it is only a question of shifting the values. If a sur-

geon believes that it is better to sacrifice a whole series of women so that a very few may live a little longer, that is his lookout. It is a matter of opinion. Dividing the years of survival after the first manifestations by the life expectancy for the age, we obtain a quotient which permits comparison between the operative and the nonoperative cases. Recent literature on statistical lore with reference to cancer is analyzed, especially Müller's report on 125 cases of cancer of the cervix. The survival from the beginning of disturbances was much longer in the nonoperative cases; 100 per cent. of the latter were living after nine months and only 67 per cent. of the operative cases; at one year the figures were 67 and 57; at fifteen months 57 and 44; at two and a half years, 24 and 21; at three years, 19 and 15; at five years, 5 and 6. None of the inoperable cases survived beyond the fourth year, but 4 of the operative cases lived to the sixth and 3 to the seventh year.

Gazzetta degli Ospedali e delle Cliniche, Milan

May 26, 1918, 39, No. 42

61 *Abdominal Wounds in War. F. Benoni.—p. 413.

May 30, 1918, 39, No. 43

62 *Mercury Protects against Malaria. G. Cremonese.—p. 427.

June 2, 1918, 39, No. 44

63 *Abdominal Wounds in War. E. Santoro.—p. 433.

61. Abdominal Wounds.—Benoni reports seven recoveries in eleven cases of abdominal wounds. The recoveries included one case in which the liver had been injured, one the large and one the small intestine, both in two, and one in which the wound involved both abdomen and thorax. One of the men came to the station on foot holding in his hands the lacerated abdominal walls and clamoring for an operation. This confidence in the surgeon's skill proved an important factor in the recovery in many cases. This was particularly evident in the case of a man with lacerations in the small intestine and the colon, from a shell wound eight hours before. Except for slight transient fever and tormenting thirst, recovery was uneventful. Benoni did not seek to remove the projectiles unless they were readily accessible, estimating that they would soon become encapsulated. In some of the cases with recovery the intestines showed that the men had eaten recently. In two other cases the aspect was that of injury of viscera but no lacerations could be found and recovery was soon complete. The chances of a favorable outcome grow rapidly less after the sixth or seventh hour from the wound. When the pulse is over 120, the outlook is grave, but it had reached 126 in some of his cases with recovery.

62. Mercury Protects Against Malaria.—Cremonese asserts that he knows of no instance of malaria being contracted by a man who has been taking thorough mercurial treatment for syphilis within a year. This has convinced him that saturation with mercury protects against malaria and cures it, once installed. By subcutaneous injection of mercuric chlorid he has succeeded invariably in curing rebelliously recurring malaria. His curative injections were with 4 c.c. of a 0.25 per cent. solution, that is, 0.01 gm. mercuric chlorid daily for ten days. Another series of ten injections is given after an interval of ten or fifteen days. This completes the immunization. In ordinary cases he gave the mercury by the mouth, 0.01 gm. for ten days for adults, and half this for children under 6. This is followed after an interval of ten days by another similar series to complete the immunization.

63. False Abdominal Wounds.—Santoro applies this term to wounds of the abdomen without laceration of viscera. In 101 of his 137 abdominal cases only the abdominal walls were injured. In the others some extraperitoneal organ was injured. He discusses the misleading clinical picture, as everything seems to indicate injury of the bowel. Shock is frequent even when merely the abdominal wall is injured, and there may be anemia from excessive hemorrhage. This clinical picture of the "*falsi addominali*" may be presented even with merely a wound of the thorax, not involving the diaphragm. Roentgen examination may prove misleading, as the path followed by the projectile may have been long and tortuous, so that an exploratory laparotomy may be the only resource.

Policlinico, RomeJune 30, 1918, **25**, No. 26

- 64 *Three-Day Fever. F. De Napoli.—p. 605.
 65 Crippling of Foot after Slight Wound of Leg. F. Purpura.—p. 608.
 July 7, 1918, **25**, No. 27
 66 *Traumatic Paralysis without Organic Injury of Spinal Cord. P. Timpano.—p. 629.
 67 *Early Suture for Factitious Abscesses. S. Menghetti and G. Aquilanti.—p. 632.
 68 *Reapers' Keratitis. L. Alajmo.—p. 633.

64. **Three-Day Fever and Trench Fever.**—De Napoli presents arguments to sustain the view that trench fever and a febrile disease now widely prevalent in Italy are the same as the *febbre estive* or *febbre da pappataci*, three-day fever, sand-fly fever, barracks fever, drouth fever, malarial influenza—all these names having been applied to a sudden fever with headache, pains in muscles, joints and spine, usually accompanied by gastro-intestinal derangement, with complete subsidence of the fever the third day, but leaving pronounced asthenia for about a month. He refers to his previous publications on this three-day fever, which early attracted attention in military circles as troops in barracks were mainly affected, the first communication on the subject in Italy dating from 1888. De Napoli suggests that lice may be the hosts as well as sand flies, the more common transmitters of the disease. (A Lisbon exchange has recently presented similar arguments in favor of the like nature of the disease which has been epidemic in Spain, the so-called Spanish influenza, which has been prevalent also recently in Portugal.)

66. **Paralysis Without Organic Injury of Spinal Cord.**—Timpano refers to a case of crossed traumatic paralysis following a small shell wound of the back of the chest at some distance from the spine.

67. **Early Suture for Factitious Abscesses.**—Menghetti and Aquilanti are in charge of the service for the "surgical auto-lesioned," and they comment on the peculiarly protracted course of the abscesses and phlegmons which follow injection of benzoin and gasoline for malingering purposes. There is great destruction of tissues but the lesion is practically sterile. They have shortened the course of healing materially by clearing it out and suturing it at once without draining. The stitches are removed the sixth or seventh day, the healing occurring by what might be called secondary primary intention. This shortens the course by months.

68. **Reapers' Keratitis.**—Alajmo warns that if soldiers are detailed to help in harvesting crops, any injury of the eyes from the work, such as reapers' keratitis, must be regarded as acquired in the service.

Riforma Medica, NaplesJune 22, 1918, **34**, No. 25

- 69 *Finer Structure of Neuroglia. E. Rossi.—p. 482.
 70 *The Small Heart of the Tuberculous. C. Guarini.—p. 485.
 June 29, 1918, **34**, No. 26
 71 *Interchange of University Professors between England and Italy. L. Bianchi.—p. 501.
 72 Aneurysm of Aorta; Six Cases. O. D'Allocco.—p. 503.
 73 Successful Removal of Sarcoma of Tonsil. A. Ajello.—p. 506.
 74 Roentgen Findings with Pulmonary Tuberculosis. L. Coleschi.—p. 510.
 75 Principles for Treatment of War Wounds of Bladder and Urethra. E. Aievoli.—p. 513.

69. **The Finer Structure of the Neuroglia.**—Rossi has found by Achúcarro's method of staining that the gliosomes and the glial fibrils seem to be always in inverse proportion to each other. This and certain other findings have convinced him that the fibrils of the neuroglia are derived from the glial plasma. His microscopic findings are to be illustrated in the detailed report of his research soon to appear in the *Revista italiana di Neuropatologia*.

70. **The Small Heart of the Tuberculous.**—Guarini has been constantly impressed in roentgen examination of tuberculosis suspects with the extreme frequency of small-sized hearts, and with their median location. The arch of the aorta was also relatively small with this hypoplasia of the heart in the 1,300 tuberculous soldiers he has examined with the roentgen rays. The heart was of the "drop" type in 13 per cent. Guarini suggests the possibility that infection with the tubercle bacillus may have been the cause of the hypoplasia of the

heart, instead of the usual assumption that the small heart is what predisposes to tuberculosis. Roentgen examination of persons with this small vertical heart has always revealed tuberculous lesions in the lungs, even when there was nothing otherwise to suggest tuberculosis. The heart was of this small, median type in 68 per cent. of the 1,300 tuberculous men he has examined. His experience showed further that an angle of slant of from 25 to 55 degrees must be regarded as further evidence of hypoplasia in persons infected with tuberculosis. The "drop" heart has a similar significance.

71. **Progress of Science in Italy.**—Bianchi relates how Italy is waking to the knowledge that German science has been for years crushing out initiative and progress in Italy. Germans were given professorships, German scientific works flooded the country, and the authorities deferred to German influence with no encouragement for Italian science. Foreigners were incumbents even of the chairs of ancient history in certain Italian universities, and in their teachings belittled the achievements of the Latin races. The war has opened the eyes of Italy to this exploitation of the country by German science. To further the throwing off of the German yoke in science, the Board of Education in Great Britain recently invited representatives of the Italian universities to visit the English universities, and Bianchi's communication is a report of the trip. He emphasizes in particular the all-around training of the British university students, the close and constant relations between professors and students. When the students graduate, their minds are comparatively mature, and they are prepared not only for the practice of their profession but for citizenship as well. An interchange of lecturers and students is planned, and the study of English has already been introduced into some of the preparatory and professional schools in Italy.

Rivista di Clinica Pediatrica, FlorenceMay, 1918, **16**, No. 5

- 76 *Suprarenal Treatment of Children. A. Galvani.—p. 225.
 77 *Tremor in Children. L. Sironi.—p. 238.
 78 Welfare Work for Children and Nursing Mothers during the War. C. Comba.—p. 266.

76. **Epinephrin in Treatment of Children.**—Galvani remarks that the soft and elastic arteries in children and the integrity of the cardiovascular and other systems render epinephrin peculiarly effectual in pediatrics. It seems to have a general tonic and an antitoxic action as well as its direct vasoconstricting effect. He reviews the indications for it, as published by various writers, with their experience in different diseases and the doses used. Except in very urgent conditions, administration by the mouth is preferable. This is harmless while it avoids abrupt changes in the circulation. Its action is more protracted by the mouth, and it seems to stimulate the centers, possibly by way of the sympathetic system. The dose is from 10 to 30 drops of the 1 per thousand solution. When especially prompt action is necessary, it can be injected subcutaneously, from 0.5 to 1 c.c. Certain features of the action of epinephrin are still undecided, as, for instance, its effect on the musculature of the intestines. Lesné reported in 1912 that, injected into the rectum of rabbits, the animals died, but not so rapidly as when the same dose was injected subcutaneously. The same dose introduced into the stomach or small intestine seemed entirely harmless.

77. **Tremor in Children.**—Tremor as an isolated or predominant symptom of nervous disease in a child is very rare. Sironi states that only three cases were encountered among the thousands of children at the Rome children's dispensary, 1889 to 1915, and fifteen cases in the Naples children's clinic. He classifies tremors as physiologic or transient, result of organic nervous disease, of neuroses, hereditary, toxic or toxic-infectious, and occupational, and describes the special features of each. He gives the details of a typical case of continuous tremor in a breast-fed female infant of 14 months, affecting the limbs, trunk and head, sparing only the muscles of the face. The father was addicted to alcohol and the child had had gastro-intestinal disturbance and measles. The lumbar puncture fluid showed signs of a slight acute meningeal reaction, probably traceable to the intestinal disturbance and the general debility from the inherited taint. Lumbar

puncture in such a case has direct therapeutic value. In Cantieri's case, malaria was evidently responsible for the tremor. In older children tremor may develop on a basis of hysteria, usually after some fright or anger. Among the toxic tremors, the alcoholic is the most common, but he reports a case in which thyroid treatment was responsible for it. In conclusion he describes a case of tremor in a girl of 14 which has persisted for two years, without much improvement, rebellious to hospital or other treatment. The tremor affected only the legs, and was more of a clonic nature than true tremor, but the rhythmic coordinated movements seemed to exclude chorea, suggesting rather paramyoclonus. This diagnosis is sustained by the headaches and dizziness at times.

Rivista Critica di Clinica Medica, Florence

June 13, 1918, **19**, No. 28

- 79 *Nocturnal Asthma. C. Frugoni and S. Pisani.—p. 325. Commenced in No. 25, p. 289.

79. **Nocturnal Asthma.**—Frugoni and Pisani report the metabolic findings and results of various functional tests in fourteen persons with asthma, essential or secondary, and in two healthy persons. They were examined in twelve-hour periods, all after a similar test meal. The findings confirm the empiric assumptions as to the difference between the metabolism during the day and during the night. In the nine cases of asthma secondary to kidney disease, the findings testified to the marked impairment of the eliminatory functions during the night hours, the urea and the viscosity of the blood increasing, as also retention of chlorids in the tissues, while the cholesterol content of the blood drops.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

November, 1917, **8**, No. 11

- 80 *Multiple Intra-Uterine Fractures. R. Puech.—p. 245.

80. **Intra-Uterine Fractures.**—In the case described the child screamed incessantly after its spontaneous birth, and palpation and radiograms confirmed the fractures of all the long bones, clavicles and ribs. On lifting the child it felt like a bag of cloth filled with pieces of glass. The fractures were easily reduced and held in place with cardboard splints. Roentgenography the tenth day showed consolidation of nearly all the fractures, with callus, and no crepitation could be felt anywhere. A few weeks later green diarrhea developed and the child died in two weeks. The parents and three other children are healthy. Whatever may be the explanation of these multiple fractures, a tendency to rachitis evidently cooperates.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

May, 1918, **1**, No. 5

- 81 *Gallstone Empyema of Gallbladder. G. del Real.—p. 195.
82 Roentgen Examination of Stomach. Julian and S. Ratera.—p. 199.
83 *Habitual Constipation. V. de Castro.—p. 212.
84 Physiotherapy of Gastric Ulcer. S. Carro.—p. 214.

81. **Empyema of Gallbladder.**—The special features of the case described in a man of 56, a teacher, were that he had always been in excellent health, free from pains and tendency to jaundice, when suddenly he developed intermittent fever for a month, with two chills. The fever then subsided but left lassitude and a feeling of oppression in the right abdomen, explained when a fistula developed and large numbers of gallstones and pus were evacuated. There had never been the slightest symptom from the cholelithiasis or reflex disturbance before. The treatment has been expectant to date, based on the fear of adhesions and the usual tendency to spontaneous healing.

83. See Abstract 112 below.

Boletin de la Asociacion Medica, Porto Rico

June, 1918, **14**, No. 119

- 85 Aerotherapy in Whooping Cough. F. del V. Atilas.—p. 218.
86 Leprosy. M. M. Rosello.—p. 220.
87 *Obstetric Lacerations. J. S. Belaval.—p. 230.
88 *Plastic Operation on Urethra. M. Janer.—p. 234.
89 *Prophylaxis of Dengue. L. Figueroa.—p. 235.

87. **Obstetric Lacerations.**—Belaval remarks that about 60 per cent. of the parturients in Porto Rico suffer from lacerations during childbirth. In many of these cases the carelessness or ignorance of the midwives is responsible. He protests parenthetically against allowing untrained midwives to deliver women. The laws are exceptionally lenient for midwives, not exacting preliminary training, as with nurses. These untrained midwives know scarcely the rudiments of asepsis and antisepsis, and they are incapable of recognizing the serious complications of childbirth, or if they recognize them, they conceal them from the family, fearing that they will be blamed.

The birth canal should be carefully investigated for lacerations, and they should be sutured at once, he declares, while waiting for the expulsion of the after-birth. He sutures the tissues at points where this can be done without interfering with the third stage of labor, and takes stitches at the other points but leaves the ends hanging loose until the third stage is completed. Then he draws up the threads and ties them after expulsion of the after-birth. Catgut chromicized for twenty days usually holds long enough for healing in the deeper sutures. Silkworm gut is better for the outer sutures. The obstetrician should always go prepared for suture of the perineum.

88. **Urethroplasty.**—In a case of gonorrheal stenosis of the urethra, with extensive loss of substance from the gangrene entailed by the three days' retention of urine above the stricture, Janer repaired the 2-inch gap in the urethra with the scrotal septum. The catheter was left in place for two weeks, and the urethral passage was restored to approximately normal, the man urinating freely and without effort for the first time in eight years.

89. **Prophylaxis of Dengue.**—Figueroa mentions that epidemics of dengue have been known to die out when mosquitoes were excluded from the homes affected. He adds that the disease is not known in the mountains.

Brazil-Medico, Rio de Janeiro

Jan. 5, 1918, **32**, No. 1

- 90 Cadaveric Fauna: Brazilian Ants. O. Freire.—p. 1.
June 15, 1918, **32**, No. 24
91 Research on Brazilian Mycoses. O. Magalhães.—p. 185.

Medicina Ibera, Madrid

May 11, 1918, **3**, No. 27

- 92 *Popliteal Aneurysm. J. Blanc.—p. 158.
93 Iodin in Therapeutics. III. A. S. Alvarez.—p. 160.
94 *Early Syphilitic Meningitis. M. F. Criado.—p. 162.
May 18, 1918, **3**, No. 28
95 *Management of Heart Insufficiency. S. A. Echevarria.—p. 187.
96 Hypnotism in Hysteria. J. C. Galicia.—p. 189.

92. **Popliteal Aneurysm.**—Blanc excised the stretch of the vein involved as the aneurysm was inflamed. Smooth recovery followed although no attempt was made to suture the stumps, Nature having already provided for the circulation by this time.

94. **Early Fatal Syphilitic Meningitis.**—The patient was a widow of 36 and—from fear of disgrace—no treatment had been taken for the syphilis contracted a year before. Then meningitis developed, speedily fatal. Intense and persisting headache, worse at night, was the first symptom. The case resembled the meningitis of inherited syphilis more than the usual acquired meningitis.

95. **Heart Weakness.**—Echevarria discusses the management of attacks of cardiac insufficiency. He reiterates that his experience has amply confirmed the advantages of chronic and intermittent administration of digitalis in small doses in cases displaying a tendency to recurring attacks of cardiac insufficiency, either from the nature of the heart disease or extraneous circumstances liable to bring on attacks.

Prensa Medica Argentina, Buenos Aires

May 20, 1916, **4**, No. 35

- 97 *Mouth Breathing as Factor in Tuberculosis. E. V. Segura.—p. 515.
J. J. Viton.—p. 517.
98 *Nystagmography. R. Argañaraz.—p. 518.
99 *Tuberculous Abscess in Thorax. N. Tagliavacche.—p. 526.
100 Ideals for Teaching Obstetrics. Liberatio.—p. 528. Conclusion.

97. Inadequate Nose Breathing as Factor in Tuberculosis.—Segura expatiates on the predisposing influence to tuberculosis of inadequate respiration through the nose. He regards this as one of the principal causes favoring the development of tuberculosis. He tabulates the findings in this respect in 500 tuberculous persons; fully 45 per cent. had more or less obstruction in the nose impeding normal nose breathing. The proportion was 98 per cent. among 19 boys under 13 and 50 per cent. in 20 girls. In the total 245 males, 38 per cent. were unable to breathe freely through the nose, and 48 per cent. of 255 female tuberculous. He gives figures also showing the improvement in the blood picture after the nose had been rendered freely permeable. Physicians in general and especially medical school inspectors should be on the alert to detect and correct inadequate nose breathing.

97. Importance of Permeability of the Nose in Treatment of Pulmonary Tuberculosis.—Viton reenforces Segura's plea for unobstructed nose breathing as an important element in warding off and curing tuberculosis. He ascribes great causal importance to the breathing into the lungs of dust and dirt in mouth breathing, in addition to the deficient oxygenation of the blood, and the lack of the humidifying action of the nose on the inspired air. The fact that the right apex is more frequently affected testifies further to the injury from the unmodified air. In 81.5 per cent. of his male tuberculous hospital patients and in 81.3 per cent. of the female, the tuberculous lesions were on the right side. He suggests the possibility that tuberculosis may be the primal cause of adenoids, and they set up a vicious circle. The adenoids may be a distant manifestation of latent or disguised tuberculosis in glands or viscera, or other infections or chronic intoxication may be responsible for the development of the adenoids.

98. Recording the Movements of Nystagmus.—Argañaraz' comprehensive study of the different forms of nystagmus is illustrated, including his description of his modification of Buys' nystagmograph; the movements of each eye are recorded separately on a moving drum. He describes other methods of recording the nystagmic movements, with experiments on rabbits, specifying the different forms of nystagmus, and citing considerable literature on the subject.

99. Tuberculous Abscesses in the Ribs and Costal Cartilages.—Tagliavacche reports two cases of a tuberculous lesion in a rib or costal cartilage or both. It was removed by Mercade's technic in each case, apparently eradicating the tuberculosis.

Repertorio de Medicina y Cirugia, Bogota

March, 1918, **9**, No. 6

- 101 *Cancer of the Jaw in Colombia. P. Martinez.—p. 289.
102 Nitrous Oxid Anesthesia. J. Lopez.—p. 323.

May, 1918, **9**, No. 8

- 103 Salvarsanized Serum in Syphilis. J. I. Uribe.—p. 407.
104 *Case of Intermittent Paraplegia. C. Torres.—p. 416.
105 Amebic Colitis and Dysentery. C. J. Lezaca.—p. 440.

101. Malignant Tumors of the Jaws.—The twenty-eight illustrations accompanying Martinez' article show a remarkable series of cancers of the jaws and cheek. Malignant disease, he states, is common in Colombia, and the cancer is too far advanced for operative measures, as a rule, when the surgeon is consulted. Even if an operation is attempted for these advanced cancers of the jaw, recurrence is frequent. With malignant disease of the jaw, possibly more than elsewhere, successful treatment depends on an early diagnosis, and physicians should be on the alert to detect tumors of this kind in their incipency. He reports apparently complete cures in some cases of sarcomatous epulis in which he resected the alveolar edge of the jaw after removal of the tumor. In a case of fibrous epulis in a woman of 40, cauterization of the site after removal of the tumor seemed to answer the purpose sufficiently. In his jaw sarcoma cases were two boys of 9 and 11 and a babe of 4 months. The lower jaw is affected more often than the upper jaw. The boy of 11 seems to be cured during the months since removal of a large sarcoma on the upper jaw. One man's chondromyxosarcoma extended from orbit to neck and was as large as his own head. The entire left half of the lower jaw was resected

with the tumor. Recurrence of a malignant tumor in the jaw generally occurs at the original site, confirming the necessity for extensive resection. One of the illustrations shows a case of actinomycosis simulating a large tumor of the upper jaw in a child. The carcinoma patients were all older than the sarcoma cases. With cancer in the antrum, pain is long the only symptom, no signs of a tumor being apparent, but when it breaks through the walls, progress is rapid. The outlook is graver with carcinoma than with sarcoma; a history of traumatism is more often encountered with the latter.

104. Intermittent Paraplegia.—Torres' patient is a boy of 10 who has sudden attacks of paraplegia lasting from a few minutes to three hours and a half. The child falls as his legs give way, but he has no headache. He has no pathologic antecedents except pneumonia several years before, followed by bilateral otitis media and symptoms of meningism that subsided after lumbar puncture. There is nothing to suggest hysteria or a spinal cord affection. The skin tuberculin test is positive, and by exclusion Torres accepts as the presumptive diagnosis a tuberculoma or other tuberculous lesion as responsible for the pressure inducing the intermittent paraplegia. The boy is intelligent and in good physical condition otherwise. The treatment advised is absolute rest for the brain with sun baths and food rich in animal proteins, and tonics.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

February, 1918, **26**, No. 2

- 106 *The Anti-Hookworm Campaign. C. Seidl.—p. 45. L. Hackett.—p. 52.
107 Mosquitoes and the Public Health. M. de Abreu.—p. 58.
April, 1918, **26**, No. 4
108 Linear Dermatitis. O. de O. Chaves.—p. 141.
109 *Venereal Disease in Brazil. C. Seidl.—p. 151.
110 Tropical Dysentery. E. Gomes.—p. 157.
111 Criminal Abortions. F. Magalhães and O. da Fonseca.—p. 161.

106. The Hookworm Campaign.—The addresses are given that were presented at the inauguration of the work of the Rockefeller Foundation in Brazil.

109. Venereal Disease in Brazil.—This article is the address made by Seidl at the International Public Health Conference held at Paris in 1914. His figures show that the direct mortality from syphilis at Rio had increased from 7.99 to 20.31 per hundred thousand inhabitants in the preceding twenty years.

Revista de Medicina y Cirugia Practicas, Madrid

June 7, 1918, **120**, No. 1509

- 112 *Habitual Constipation. S. V. De Castro.—p. 257.
113 Tonsillitis during Menstruation. A. M. Calderin.—p. 259.

June 14, 1918, **120**, No. 1510

- 114 Suppuration with Fecal Fistula Ten Years after Buried Wire Suture. Slocker.—p. 289.
115 *Typhus in Oporto. A. Barradas.—p. 298.

112. Constipation.—De Castro insists that each digestion is intended to be accompanied by defecation, so that a single passage a day indicates in itself a certain amount of paresis of the bowel and some autointoxication. "A glass of cold water sipped as the sun is rising utilizes the reflexes—including the peristaltic movements of the bowels—which the rising of the sun induces in the healthy organism." He advises setting an alarm clock to wake one in time for the sunrise, to take advantage of this moment of positive sideral influence. Habitual constipation can usually be cured in a month when the diet is restricted mainly to vegetables and fruits, with little to cause toxic action. "Paraffin and similar preparations have only a palliative action, and it is preposterous to think of taking them all the rest of one's life."

115. Typhus in Portugal.—Barradas remarks that there have been no cases of typhus among Portuguese soldiers in France or in Africa. The mortality in the recent epidemic at Oporto was low, only 6 per cent., and the fatal cases were mostly in the elderly. Only one of the children affected died. But seven contracted the disease of the twenty-five persons connected with the public health service, and one died. Two physicians were also affected. The symptoms on the part of the heart predominated in the clinical picture, and ataxia of

lips and tongue was a characteristic and early sign of the disease. Deafness was constant in all the moderately severe cases; in two there was inflammation of the eustachian tube. He advocates introducing a menthol and boric acid salve into the nostrils. Cough was rare and none of his 100 patients developed bronchitis.

In convalescence, bradycardia was the rule, and the patients were strictly warned against their natural tendency to abrupt movements as liable to bring on heart failure. He kept all the patients for two weeks of convalescence. The onset and the convalescence of typhus both suggest grippal influenza. The textbooks speak of myocarditis as a complication of typhus, but in his hospital service it was the constant and predominant feature of the disease from the first day of the onset to the last day of the convalescence. Nephritis is rare. He ascribes the low mortality—less than 10 per cent.—in the hospital to the systematic use of heart tonics, camphorated oil, spartein, alone or combined with strychnin or caffein, and, in the cases threatening heart failure, intravenous injection of strophanthin, 0.0001 gm. from one to four times a day. Saline infusion with a little epinephrin is the main reliance against the infection; camphorated oil combats the infection besides its tonic action on the heart. With intense headache or delirium, withdrawal of 20 c.c. of spinal fluid generally gave good results. In Portugal, typhus might be called "fisher's typhus," as the epidemics in Portugal always begin in fishermen's homes.

Semana Medica, Buenos Aires

April 11, 1918, 25, No. 15

- 116 *Cholelithiasis. A. Althabe and E. Nicholson.—p. 393.
- 117 *Proposed Legislation on Prostitution. A. M. Gimenez.—p. 407.
- 118 *Prophylaxis of Tuberculosis. E. R. Coni.—p. 418.
- 119 *Diabetes Insipidus in Infant. F. A. Deluca.—p. 422.
- 120 Yoghurt. E. Fynn.—p. 425.
- 121 Sulphur in Biology. J. de R. Pailhade.—p. 427.

116. **Gallstones.**—In their experience with 240 operative cases of gallstones, Althabe and Nicholson remarked the preponderance of cholelithiasis in women, and the age between 25 and 30. Fully 89 per cent. of the women had borne children, thirteen had had from thirteen to nineteen pregnancies, and in 36 per cent. the first disturbances had been noticed during a pregnancy. The phenomena observed confirm that hypercholesterolemia is a constant factor in cholelithiasis, in women, at least. This cholesterolemic diathesis seems to be enormously exaggerated during the genital life of women.

117. **Regulation of Prostitution.**—Gimenez reproduces a bill presented recently in the Chamber of Deputies, and discusses legal measures for repression of commercialized vice.

118. **Municipal Decree for Prophylaxis of Tuberculosis.**—Coni relates that the decree in question has been in force for sixteen years and he reviews its operation. As long ago as 1872 the city council ordered that in every case of contagious disease the neighbors should notify the authorities. In 1902 a decree was issued imposing, under penalty, on the owner, tenant or occupant of a building or part of building the declaration to the city health bureau of every case of pulmonary tuberculosis. The twenty-seven paragraphs of the decree provide for disinfection of rooms, vehicles, cars, etc., with prohibition of spitting on the floor, etc. Many of the provisions have not been effectually enforced, but the effect of the whole decree—which in its day was far beyond anything adopted elsewhere—has been a most valuable factor in the customs and training in hygiene not only in the home country, but in other countries. The decree was of such advanced import that it was cited in the press of the leading countries in Europe and America.

119. **Diabetes Insipidus in Infant.**—The male infant was 3 months old when the essential polyuria first attracted attention. He is now 3 years old and weighs 11 kg. He drinks about 4 liters a day and voids an equal quantity of urine.

Siglo Medico, Madrid

June 1, 1918, 65, No. 3364

- 122 Influenza or Dengue? C. M. Cortezo.—p. 422.
- 123 Criminal Responsibility in the Young. J. Canseco.—p. 426.
- 124 Erythrodermias. Sicilia.—p. 428.

June 8, 1918, 65, No. 3365

- 125 Gangrene after Injection of Tincture of Iodin in a Hydrocele. A. P. Martin.—p. 442.
- 126 Treatment of Tuberculids. Sicilia.—p. 444.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

May 18, 1918, 1, No. 20

- 127 *Morphin Tenesmus. E. C. Van Leersum.—p. 1374.
- 128 Pseudo-Crystallization Process of Fibrin. E. Hekma.—p. 1386.
- 129 *Open Puncture of the Pleura. W. Hoogslag.—p. 1393.
- 130 *Tests for Sugar. P. H. Kramer.—p. 1395.
- 131 *Congenital Heart Defect. J. Van Tilburg.—p. 1397.

May 25, 1918, 1, No. 21

- 132 *Multiple Psychogenous Erosions. K. Edel.—p. 1433.
- 133 *Comparative Mortality of the Sexes. J. P. H. Kroon.—p. 1442.
- 134 Scabies. R. A. Reddingius.—p. 1451.
- 135 Proposed State Supervision of Hospitals. D. Schermers.—p. 1453.
- 136 *Loss of Greater Omentum. T. J. Jaski.—p. 1455.

127. **The Morphin Mouse-Tail Reaction.**—Van Leersum has confirmed in rats and mice the communications of Herrmann and Straub in regard to the stiffening of the tail which follows a small dose of morphin given to these animals. He has found further that the same reaction is observed with a number of other substances which have nothing else in common with morphin. He reports research on various animals. The morphin or its equivalent acts on the medulla oblongata, and the impulse is transmitted by the pelvic nerves, inducing intense tenesmus of the anus and bladder sphincters.

129. **Open Puncture in Pleurisy.**—Hoogslag has never observed any untoward by-effects when he tapped the effusion in pleurisy and after evacuation of the fluid allowed air to enter the pleura through the open trocar. He has treated forty patients with this open puncture, and the disease was often shortened while thick adhesions seldom formed. The tendency to recurrence seems to be checked by the air in the pleura. The puncture is made at the lowest point as the patient lies on that side, and 2 liters or even 3½ liters were thus easily withdrawn in some cases. One Italian surgeon has applied this open puncture in 207 cases and lauds its advantages over other methods. Others have applied it with benefit in pericarditis with effusion. A trocar is used about 8 cm. long by 0.4 cm. in diameter. When all the fluid has escaped, the trocar is withdrawn during the deepest possible expiration, preferably during a cough, which expels some of the air. The patient lies on the side affected, close to the edge of the bed or, better yet, lies across two bedsteads just far enough apart for the surgeon to stand between them. Hoogslag regards this as the simplest and most rational method for evacuation of a pleural effusion.

130. **Acetylsalicylic Acid Modifies Reaction for Sugar.**—Kramer reports the case of a physician whose urine responded positively to tests for sugar besides showing albumin, tube casts and blood corpuscles. The physician had been in a very nervous condition for some time and had been taking acetylsalicylic acid freely. Kramer examined also the urine of thirty soldiers who had been given 2 to 4 gm. of the same drug during the day. The urine in all responded positively to the Trommer test for sugar. He has not found any reference in the textbooks to this source of possible error in testing the urine, but Pinkhof has reported the casual discovery of similar findings.

131. **Congenital Heart Defect.**—Van Tilburg has been unable to find in the literature a case like the one he describes. The previously healthy young woman with patent ductus Botalli developed pulmonary tuberculosis, fatal in two years. The puzzling auscultation findings were explained by a thrombus obstructing the open duct and hanging loose in the pulmonary artery.

132. **Multiple Psychogenous Skin Defects.**—Edel's patient is a boy of 13 well developed physically but rather backward in his studies. The family is inclined to be neuropathic and the father had syphilis, well treated. For six months the boy has been having oval spots, like erosions, develop on the skin. There is first a smarting or burning and then in a few minutes the oval patch appears. Emotions, fear, anger seem to be the provocative cause of their appearance, and Edel was able

to induce the appearance of a spot of the kind by suggestion, applying the electric current or an ethyl chlorid spray lightly to a given area, and then telling the boy that the procedure was repeated with great intensity, when in fact the current or the spray was not turned on the second time. The limb was then dressed with a plaster bandage, but the "spot" developed under the bandage. This occurred twice, but following tests did not succeed. The boy was cured by a course of tepid to cold douches. No further spots developed after this except two one day when he was startled by a cannon being fired unexpectedly near him. The success of treatment confirmed the psychogenous origin of this skin trouble which may be classed as an angioneurotic diffuse erosive dermatitis.

133. Comparative Mortality of the Sexes.—This is Kroon's second study of this subject; the other was reviewed in these columns, Aug. 4, 1917, p. 416. Among the points brought out by his statistics is that the female death rate—both of the married and the unmarried—in the cities is lower not only than that of men but is lower than the mortality of women in the rural districts and smaller towns. He cites statistics from Prussia and Moscow which show this same lesser mortality of city women, and states that further study of the questions involved is necessary before they can be answered. He rejects the assumption that women are naturally more resistant than men.

136. Loss of Greater Omentum.—The man in an attempt to commit suicide had slashed his abdomen with glass, and a piece of the greater omentum, about 15 sq. cm., escaped from the abdominal wound and was found on the floor later. He recovered, and a year afterward was still in good condition.

Ugeskrift for Læger, Copenhagen

June 13, 1918, 80, No. 24.

137 *Duodenal Feeding of Infants. P. Hertz.—p. 943.

138 *Winter Bathing. E. E. Faber.—p. 949.

139 Ulceration and Eczema from Contact with Norwegian Fertilizer. V. Erlendsson.—p. 954. C. Jensen.—p. 955.

137. Duodenal Catheterization for Infants.—Hertz reports experiences which confirm that it is almost always easy to pass a tube into the duodenum of a normal young infant. In the last eighteen months he has applied this measure in treatment of eight infants with stenosis of the pylorus. In every case he was able to pass a Nélaton catheter, No. 18 or 19, through the pylorus into the duodenum although the stenosis was causing severe symptoms. To make sure that the catheter was in the pylorus, he examined a few drops of fluid obtained through the catheter. The reaction of the fluid is instructive, but in one case the mother's milk gave an alkaline reaction which might have proved misleading. It is sometimes possible to feel the catheter through the abdominal walls. When it rolls up in the stomach it can sometimes be palpated, to the left of the median line. The fact that the child does not vomit the food poured through the catheter testifies that it is in the duodenum when the child has been vomiting incessantly before.

In his eight cases he fed the babe 75 gm. of drawn breast milk twice a day after the stomach had been rinsed clean. Five other feedings were given in the ordinary way, breast milk when possible. The children were from 1 to 6 weeks old, and the stenosis had developed suddenly from a few days to three weeks before, and it lasted from three and a half to nine weeks in all. It averaged only six weeks, while the average in the cases without the duodenal catheter was nine or ten and a half weeks. The catheterization of the pylorus for fifteen or twenty minutes a day evidently contributed in reducing the tendency to spasmodic contraction, as the period of constant loss in weight was much shorter than in the other cases. When the child ceases to lose further in weight and does not vomit more than once or twice a day, then it begins to improve at once.

No untoward by-effects from the catheterization were observed in any instance. Bleeding from the stomach does not contraindicate it, and the supply of nourishment is the best means to combat this hemorrhagic tendency. No occult blood was found in the stools, which confirmed the lack of injury from the catheter. In a recent case of congenital

stenosis of the pylorus with severe edema and glycosuria, necropsy showed the duodenum natural in every respect with nothing to indicate dilatation or irritation although the duodenal catheter had been used daily for several days. This measure is not a cure for stenosis of the pylorus, but applied with other measures it effectually combats its injurious effects. Catheterization is likewise a valuable aid in incessant vomiting from other causes, as in his two cases of pyonephrosis with stricture in both ureters, and also in cases of acute gastro-enteritis in which the stomach was so sensitive that not even water was retained. He gave these infants 150 c.c. of water through the duodenal catheter once or twice a day, in addition to subcutaneous saline infusion. This promoted diuresis and aided in the throwing off of the toxins and speedy recovery.

138. River and Lake Bathing in Winter.—Faber found albumin and casts in the urine of men after a fifty seconds swimming match in winter. But they promptly disappeared, and he regards them as the manifestation of a transient disturbance in the circulation from the cold water. He has investigated conditions also in sixty-five men and five women, from 27 to 65 years old, who are accustomed to out-of-door bathing in winter, staying in the water only from eight to forty-two seconds. All are enthusiastic on the bracing effect of the cold dip, and ascribe their freedom from colds, rheumatism, etc., to this cause. One said that eczema which had resisted specialist treatment for years subsided under these cold baths; another reported the same in regard to a seven-year fistula. One man said he had started the bathing because he always froze in winter, and it had cured him of this sensitiveness to cold. All the winter bathers examined said that vigorous exercise before and after the bathing was felt to be necessary. Faber adds that the hot baths of the Japanese, electric light baths, etc., have the same action, the inducing of a lasting hyperemia in the skin, improving its function.

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140 *Operation for Anuria from Calculi; Two Cases. E. Utterström.—p. 117.

141 *Ferment Action on Succinic Acid. E. M. P. Widmark.—p. 134.

142 *Protein Requirements. G. F. Göthlin.—p. 159.

143 *Parathyroid Glands in Rabbits. A. Bjure.—p. 175.

140. Operative Treatment of Anuria.—In one of Utterström's two cases the anuria developed suddenly about a year after one kidney had been removed on account of injury from the numerous calculi it contained. When the anuria had lasted for five days, nephrotomy and decapsulation were done and the anuria subsided although the kidney pelvis contained pus under high pressure. The man is in good health still, four years since the intervention. In the second case the anuria was evidently a reflex phenomenon from the presence of a stone as large as a cherry in the left kidney. After decapsulation and nephrotomy of this kidney, the other kidney resumed functioning. The cases of stone formation in a single kidney are rare; he summarizes all that he had found in the literature.

141. Ferment Action and Succinic Acid.—Widmark describes research on succino-dehydrogenases in connection with enzyme action.

142. Protein Requirements.—Göthlin presents arguments to show that with a known calory requirement it is possible to determine the albumin ration as biologically equivalent to an amount of milk albumin representing 8.8 per cent. of the gross calory needs. This is the proportion of albumin which his and others' research has shown in breast milk. He remarks that this is a hitherto overlooked means of estimating the protein requirement of both infants and adults, and he cites numerous authorities to show the feasibility of the method, and the correctness of the figure he accepts, namely, 8.8 per cent.

143. Parathyroid Glands in Rabbits.—Bjure's report of his study of the parathyroids from 125 rabbits fills fifty-four pages. The main object was to determine the changes induced by age in these glands. Two plates accompany the article.

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ENTEROSTOMY AND ENTERO- COLOSTOMY

IN THE TREATMENT OF ACUTE INTESTINAL
OBSTRUCTION FOLLOWING PELVIC
OPERATIONS *

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Intestinal obstruction following abdominal section is such a distressing complication, the diagnosis is at times beset with so much difficulty, the prognosis is so doubtful, and the mortality so high, that I make no apology in bringing the matter to your attention.

The measures taken to prevent intestinal obstruction, such as the peritonealization of raw surfaces to which intestine may adhere, and the closure of all adventitious openings into which intestinal coils may slip, are commonly known and generally adopted. From personal observation and experience, in addition to the foregoing measures, I should like to emphasize the great importance of aseptic technic and the avoidance of intestinal trauma during the operation, and of judicious care in the handling of drainage and the administration of cathartics after the operation.

It is quite likely that an infection causing a localized peritonitis often plays a very important part in the origin of postoperative intestinal obstruction, and that whereas infection and infiltration of the intestinal coats always takes place secondarily after an intestinal loop is obstructed, it may be primary—the cause and not the effect.

An injury to the serous surface of the intestine that denudes or breaks the endothelial covering, or a localized bruising of the serous or muscular coat, or an interference with the blood supply of an intestinal loop may be the exciting cause of adhesions between the bowel and a neighboring part. The intestine under these conditions is peculiarly susceptible to infection, and if such occurs its wall may rapidly become infiltrated with inflammatory products. A combination of localized trauma with imperfect aseptic technic is not infrequent in the etiology of postoperative intestinal obstruction.

Pelvic drains become a source of danger when unwisely selected, placed or handled. A drain after six or eight hours becomes a protective pack. The surrounding parts adhere to it with more or less tenacity, depending on its structure, and exclude the infected area. If the drain is removed before the adhesions are secure, infection is released, and if the

drain is taken out at a time when the adhesions between it and the surrounding parts are firm, traumatism is inevitable, and so we have again the combination of sepsis and trauma.

The unwise administration of cathartics following operation may precipitate an attack of intestinal obstruction. A coil of intestine lightly adherent, slightly kinked, and suffering with a moderate degree of localized infection, frequently recovers itself and the symptoms are gradually relieved if let alone; but if, instead of rest and quiet for the intestine, active catharsis is practiced, the affected loop is subjected to peristaltic movement and the repeated onrush of the intestinal contents; thus the bowel is traumatized. It becomes distended, the mechanical difficulties are increased, and obstruction may be precipitated.

These are the factors in the production of post-operative obstruction that I think it most important to avoid. The measures of prevention therewith recommended are the most careful aseptic technic, the avoidance of intestinal trauma, the very circumspect selection and handling of drains, and the avoidance of cathartics after operation until peristalsis, temperature and pulse are normal.

STAGES OF INTESTINAL OBSTRUCTION

It is quite likely that if every case of intestinal obstruction were immediately recognized and at once exposed to operation, a very large proportion of patients would recover. But the diagnosis during the early postoperative convalescence is by no means easy, for in the incipient stage obstruction may be simulated by other comparatively harmless conditions, such as tympanites, acetoneuria, exaggerated ether nausea, etc., and for this reason postoperative obstruction is frequently complicated with a spreading peritonitis and toxemia by the time the condition is unmistakable, and an operation is undertaken for its relief.

McGlannan¹ has classified intestinal obstruction into the stage of onset, the stage of compensation, and the stage of toxemia. These represent no definite period of time as all three may occur within twenty-four hours, or several days may elapse. In the first stage there is intermittent and crampy or continuous pain, continuous nausea and vomiting, with or without constipation or diarrhea. These symptoms are independent of the ingestion of food and are not relieved by an enema. McGlannan says:

Lavage of the stomach may empty that organ of food, gastric secretion or duodenal contents, but without permanently relieving pain. If, therefore, a patient is suddenly seized with abdominal pain and an effectual enema combined

*Chairman's address, read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. McGlannan, Alexius: Intestinal Obstruction, THE JOURNAL A. M. A., Aug. 21, 1915, p. 673.

with gastric lavage does not bring relief from the pain, a diagnosis of acute intestinal obstruction should be made and operation promptly performed.

If there is any hesitation about operating on such slight symptoms, a second lavage should be done after an hour. The presence of duodenal material in the washings at this time makes the diagnosis certain and operation imperative. . . .

In the second stage we have persistent pain, distention, a visible and palpable spastic coil of intestine, visible peristalsis . . . local tenderness, etc. In this stage we frequently have gangrene of the bowel and a localized peritonitis at the seat of obstruction. In the third stage the toxemia overshadows the other complications which may be present and becomes the most urgent indication for treatment.

It is probably true that if patients exhibiting the symptoms mentioned by McGlannan as constituting his first stage were uniformly operated on, all cases of obstruction, or nearly all, would be saved; it is also probably true that many operations would be performed unnecessarily, and there would be some mortality from the second operative interference. Be that as it may, the fact remains that a majority of cases of postoperative obstruction are twenty-four or more hours old before operation is undertaken, and during that time irreparable damage may be done to the intestine, and the patient may be in the last stages of toxemia.²

When we fortunately encounter an early case, all that is needed is the relief of the obstruction by the separation of adhesions, division of bands, etc., and the outcome is usually successful. In later cases there is always some constriction and infiltration of the intestine at the obstructed point, with distention and inflammatory changes in the intestinal walls for a variable distance above. In volvulus and strangulation, the morbid anatomy, whatever it may be, is definitely localized to a single loop, and resection of that part with anastomosis of the bowel above and below will restore the intestinal canal. In many instances, however, while the intestinal coats have not been devitalized, the inflammatory changes are not confined to a single loop and the amount of distended and infiltrated bowel is too great for resection in the toxic patient. Here the complication is peritonitis or toxemia.

SOURCE OF TOXEMIA

The actual source of the toxemia in intestinal obstruction has been ascribed to various factors, notably the decomposition of food and the growth of bacteria in the intestinal contents; also to the dehydration of the tissues of the body brought about by the frequent rejection of the gastric contents and the accumulation of fluid in the obstructed intestine. In recent years, surgical physiologists and pathologists³ having

observed that high obstruction of the small bowel is so much more rapidly fatal than low obstruction, death has been ascribed to a toxin resulting from the aberrant activity of the duodenal epithelium and probably also of the pancreatic cells. Draper,⁴ the champion of this theory, believes that there is a point in the small intestine, which he estimates at about the termination of the jejunum, above which the toxin is certainly of duodenal or pancreatic origin, and below which bacterial invasion may be the prominent feature.

We are inclined to believe that the conclusions of Hartwell and Hoguet,⁵ enunciated in 1912, are true in regard to the obstruction seen after pelvic operations. They declare that in dogs, at least, intestinal obstruction causes death by the presence in the blood of toxic substances that produce fatal lesions in the kidney, liver and other tissues. The essential factor that admits this substance into the blood is an injury to the lining cells of the intestine, caused by the irritating action of the stagnated contents, together possibly with the mechanical damage due to stretching. The poisons themselves may arise from the secretory

activity of the various digestive glands or from bacterial activity. They may be the same as those found in the normal tract, or they may be substances newly formed under the conditions of stagnation. Whatever their source, they are innocuous as long as the mucosa remains normal.

OPERATIVE MEASURES

We have, then, in most cases at the time of operation, this problem of the toxemia to meet in addition to the relief of the obstruction and the treatment of the affected intestine. Whatever the source of the toxemia, no one can deny that the vital element in its treatment is the drainage of the intestinal contents above the obstructed point. Evacuation of the intestinal contents has been an essential part of the operative procedure, and it will be followed with successful results when the peristaltic action of the intestine is sufficiently unimpaired to drive the residue onward past the point of

relieved obstruction and cause free evacuation of the bowels. But how often after the point of obstruction is removed and the distended bowel immediately above it is emptied, peristalsis is impaired, and before the intestine recovers itself sufficiently, there is a reaccumulation of the poisonous contents which is not driven through the affected area and the patient dies of toxemia.

It is here that continuous drainage by means of enterostomy above the obstructed point saves the day. Nevertheless, the manifest disadvantages of enterostomy, even though the patient's life be spared, have caused it to be used only in the most desperate cases when the immediate result alone dare be considered, for in a majority of instances a subsequent closure of the enterostomy wound and a restoration of the fecal current must be undertaken.

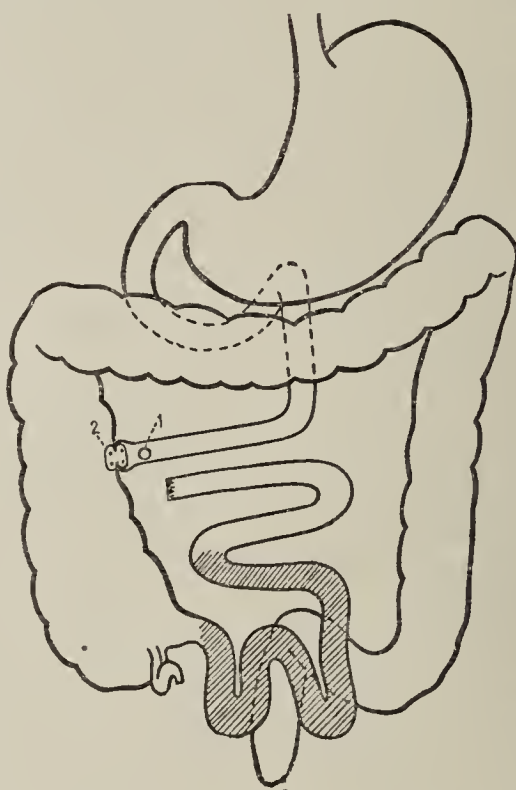


Fig. 1 (Case 1).—Murphy button anastomosis of proximal end of divided ileum (high up) with cecum. The distal end of the ileum was closed and dropped.

2. In McGlannan's series the average duration at the time of operation was two and one-eighth days in the successful cases, and three and one-third days in those that were fatal.

3. Whipple, G. H.; Stone, H. B., and Bernheim, B. M.: Intestinal Obstruction: A Study of a Toxic Substance Produced in Closed Duodenal Loops, *Jour. Exper. Med.*, 1913, **17**, 286 and 307. Sweet, J. E.; Pect, Max N., and Hendrix, B. M.: High Intestinal Stasis, *Ann. Surg.*, 1916, **68**, 720. Hartwell, J. A.: Intestinal Obstruction, *Jour. Exper. Med.*, 1913, **18**, 139. Mayo, W. J., Resection for the Relief of Intestinal Obstruction, *THE JOURNAL A. M. A.*, Sept. 14, 1907, p. 903. Maury, J. W. Draper: Death in Acute Intestinal Obstruction and Kindred Conditions is Due to Physiologic Disturbance, *THE JOURNAL A. M. A.*, Jan. 1, 1910, p. 5.

4. Draper, J. W.: Intestinal Obstruction, *THE JOURNAL A. M. A.*, Oct. 7, 1916, p. 1080.

5. Hartwell, J. A., and Hoguet, J. P.: An Experimental Study of High Intestinal Obstruction, *Am. Jour. Med. Sc.*, 1912, **143**, 357.

One might hope, therefore, for a way of effectually draining the obstructed intestine without the disadvantages of a fecal fistula and the necessity of another operation.

The following situation confronts us: We have an intestine distended with poisonous septic products above the obstructed point, an intestinal tube in the obstructed area whose walls are infiltrated with inflammatory products and surrounded with localized peritonitis—a segment of intestine in which normal peristalsis cannot be confidently expected. This atony of the intestinal coats, this addition of a localized peritonitis to the mechanical obstruction, is a factor in all but the earliest cases.

The part played by the intestinal muscle is seen in chronic pelvic inflammatory disease, in which the small intestine often is so bound down and angulated by adhesions that we wonder how the bowel can act at all, and yet in some such cases even constipation has not been a symptom. Is it not the explanation that here the muscular power of the intestinal walls is unimpaired, and the successive waves of peristalsis are able to drive the intestinal contents onward? On the contrary, when there is peritonitis and infiltration of the intestinal wall with inflammatory products, peristalsis is so weak that an apparently slight mechanical impediment may be sufficient to prevent the passage of the intestinal contents.

A case of acute obstruction, which I shall describe later, in which the patient was saved by enterostomy and subsequent intestinal exclusion, led me to ask why we should not exclude the damaged section of the intestinal tract in acute pelvic obstruction and reestablish the intestinal canal by anastomosing the part above with the part below the obstruction. It has been shown by the work of Lane and others that large portions of the intestinal tract may be permanently excluded without detriment to the patient. Since that time, in four patients, I have excluded the obstructed loop and three of them recovered. They were all in desperate condition at the time of the operation, and all of them without much question would have died without it.

Exclusion of the damaged loop and drainage of the bowel above the obstruction may be accomplished by entero-enterostomy. Intestinal relationships thereby made need not be permanent, for when the acute symptoms have subsided, it is quite possible that the bowel may entirely recover itself, the normal course of the intestinal contents may be reestablished, and the anastomotic opening gradually cease to function-

ate. Although I have not had a chance to verify this occurrence in my cases, the normal action of the intestine at a later date seems to warrant this assumption.

In order to make the drainage of the distended loop as effectual as possible, and so that the intestine into which the contents of the upper bowel are delivered might be emptied with facility, the anastomosis was made between the small intestine above the point of obstruction and the large intestine below it. Either the cecum or the sigmoid flexure was selected, depending on its proximity to the affected loop. But when the case was very urgent, the toxemia marked and the peritonitis well developed, anastomosis with the lowest available part of the colon (iliosigmoidostomy) was selected as the procedure of choice; a rectal tube was inserted into the bowel up to the anastomotic opening, and, in one case at least, the intestinal contents expelled into the rectum from the ileum were being discharged before the patient had left the operating table.

When iliosigmoidostomy was done, it was felt there was less need for enterostomy and manipulative drainage of the bowel because the intestinal contents discharged into the sigmoid can be at once evacuated by a rubber tube. In the successful case in my series it was omitted. When the anastomosis is with the cecum, enterostomy is desirable in order to prevent absorption of the intestinal contents from the cecum, and in the two successful cases of anastomosis between the ileum and the cecum, this was done as a preliminary measure. Enterostomy, which is an absolute necessity as a preliminary step in all operations for obstruction in order to get rid of the toxic contents, requires some time and may be associated, in spite of care, with soiling of the operative field; furthermore, it is not always as easily accomplished, nor can it be as effectually done as it is painted, and must be accompanied by a certain amount of traumatism to the intestinal coats. In the worst cases, therefore, anastomosis of the small bowel with the sigmoid, which makes this preliminary evacuation unnecessary, saves time and prevents traumatism.

The subsequent history of the patients in whom I have performed enterocolostomy seems to show that the exclusion of a part of their intestinal canal has done them no harm. They are in good health and have had no further trouble. As a result of this experience, I believe that enterocolostomy has a distinct place in the therapy of acute intestinal obstruction following pelvic operations, and especially when the condition is advanced and complicated with pelvic peritonitis and toxemia.



Fig. 2 (Case 2).—Suture anastomosis between ileum and cecum without section of ileum.



Fig. 3 (Case 3).—Division of ileum; closure of both ends; lateral suture anastomosis between ileum and cecum. Lower end of ileum dropped.

REPORT OF CASES

CASE 1.—L. M., aged 28, was operated on, Jan. 11, 1911, for extra-uterine pregnancy. A right salpingo-oophorectomy, left salpingectomy and appendicectomy were performed, with posterior vaginal drainage. Convalescence was complicated by a suppurating incision. Symptoms of obstruction developed about February 5, after the ingestion of raw fruit. The diagnosis was unquestionable; February 8 operation revealed free peritoneal fluid, pelvic peritonitis and extensive adhesions between the coils of the small bowel in the pelvis and between the small intestine and under surface of the abdominal incision. The patient's condition was desperate. A high enterostomy was made. The patient rapidly improved. There remained, however, an intestinal fistula which was high up, apparently in the very first part of the ileum. The substances taken by mouth would be discharged from the fistula within fifteen minutes. The skin of the abdominal wall was constantly irritated, and the emaciation of the patient became extreme. March 22, the lower end of the proximal segment was anastomosed to the cecum with a Murphy button. The upper end of the distal segment was closed and dropped. The patient passed the button on the tenth day and made a good recovery. At present, the patient is in excellent health and doing her own work.

CASE 2.—J. T., aged 28, was operated on, April 4, 1912, for myomata uteri and retroflexioversion. Myomectomy was performed; five incisions were made; a Baldy suspension was done. The recovery was uneventful. August 17, there were symptoms of obstruction. These persisted until August 20, when they became unmistakable and operation was performed, which revealed extensive adhesions between the small bowel and the pelvic viscera, pelvic peritonitis and toxemia. Enterostomy of the ileum above the involved area was performed with evacuation of the intestinal contents, division of the constricting band, and anastomosis between the ileum and cecum. The recovery was uneventful and the patient is now in excellent health.

CASE 3.—C. L., aged 35, was operated on, April 12, 1913, for chronic appendicitis, retroflexioversion of the uterus and cystic ovary. Appendicectomy, left salpingo-oophorectomy and ventrosuspension were performed. The early days of

convalescence were somewhat stormy. The patient complained constantly of pain. Symptoms of obstruction were unmistakable, and operation was performed, April 22, 1913. Adhesions were found between the ileum and the left broad ligament. Enterostomy of the ileum above the obstructed area was performed with evacuation of fluid, division of the bowel at the site of the enterostomy, closure and invagination of both ends and anastomosis of the ileum above this point with the cecum. The patient was slightly improved, but symptoms recurred about April 25. Operation revealed peritonitis involving the lower

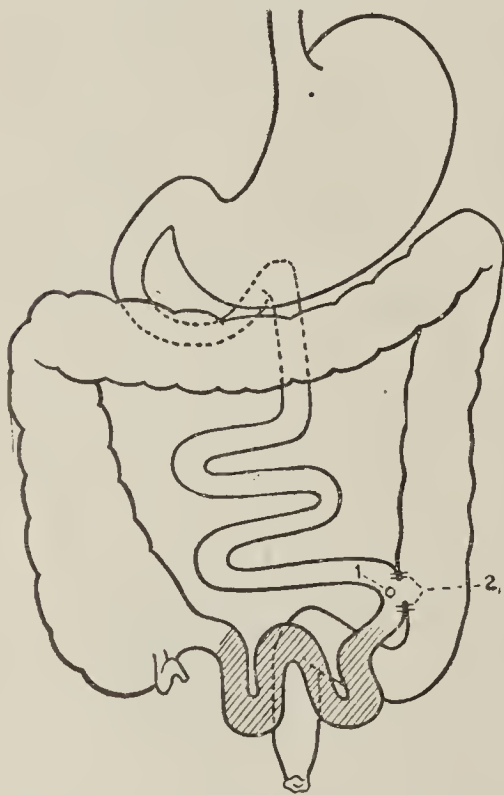


Fig. 4 (Case 4).—Ileosigmoidostomy (suture) for low obstruction and torsion of ileum due to an adventitious bend.

ileum and the area of anastomosis. Enterostomy of the small intestine above this point was done and was followed by prompt recovery with spontaneous closure of the fistula. At present, the patient is in fair health, though she suffers occasional attacks of flatulence and pain.

CASE 4.—A. F., aged 36, was operated on, June 13, 1905, for bilateral salpingitis, appendicitis and retroflexioversion of

the uterus. Right salpingo-oophorectomy, left salpingectomy and appendicectomy were performed with release of intestinal adhesions, and ventrosuspension. Symptoms of obstruction began, Aug. 15, 1915. These persisted until August 22, when a diagnosis of obstruction was made and an operation was performed. A coil of lower ileum had slipped beneath an

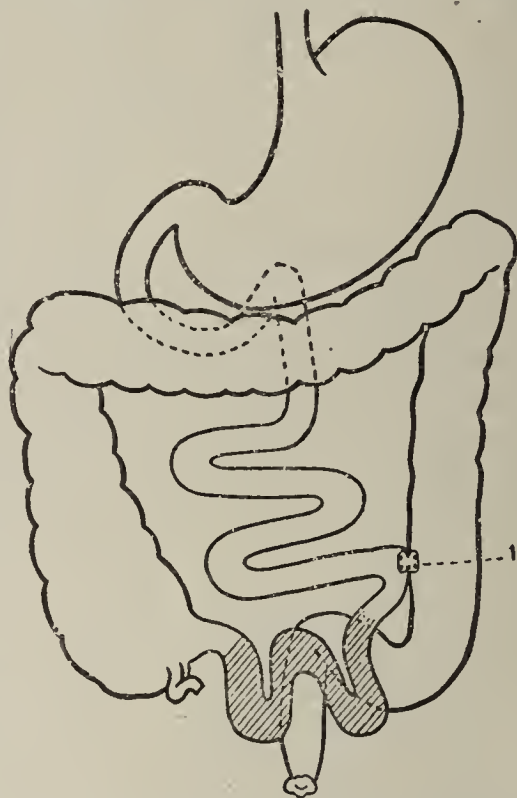


Fig. 5 (Case 5).—Ileosigmoidostomy with Murphy button for extensive adhesions forming after a uterus suspension operation. The small bowel was firmly adherent in the pelvis.

adventitious band, and had then undergone torsion. There was peritonitis and marked toxemia. Enterostomy of the ileum above the obstructed point was performed, and then ileosigmoidostomy. There was no discharge of gas or feces from the bowel, and the patient died within two days.

CASE 5.—H. P. was operated on, June 7, 1916, for chronic appendicitis and retroflexioversion of the uterus with adherent adnexa. Appendicectomy was performed with release of adhesions and Baldy suspension of the uterus. Symptoms of obstruction began about June 21. They became unmistakable by June 24, and an operation

was performed, which revealed coils of the small bowel adherent in the pelvis, pelvic peritonitis and toxemia. Anastomosis between the ileum high above and the obstructed area and the sigmoid was done with a Murphy button. The recovery was uneventful.

INTRASPINAL TREATMENT OF CEREBRO-SPINAL SYPHILIS

LATER RESULTS, BASED ON FIVE YEARS' OBSERVATION *

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AND

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It is five years since we first acted on the suggestions of Swift and Ellis¹ in regard to the intraspinal treatment of cerebrospinal syphilis. Since then we have attempted to weigh the value of their suggestions. We realized that a judgment could not be passed before some years of patient effort and observation. While we have published detailed reports of our work previously, we have been stimulated to present additional data by an article of Dr. Bernard Sachs² entitled "Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System." It would be most unfortunate if many of the statements made by him were accepted generally. Dr. Sachs has presented his personal opinion of a mode of treatment, but he has failed to state adequately the data from

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Swift, H. F., and Ellis, A. W. M.: New York Med. Jour., 1912, 96, 53.

2. Sachs, Bernard: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, THE JOURNAL A. M. A., Aug. 25, 1917, p. 681.

which he drew his conclusions. It is distasteful for us to enter a controversy, but in the interest of the real truth we cannot let certain of his assertions pass unchallenged. We shall consider the objections raised by this writer one by one.

He quotes with approbation a statement of Halliburton that "the use of salvarsan (arsphenamin) in locomotor ataxia and similar affections via the cerebrospinal fluid has been abandoned as it is fatal not only to the syphilitic organism but also to the patient." This is flatly contradicted by our personal experience. In five years we have administered a total somewhat in excess of 220 intraspinal injections to thirty-four patients. Absolutely no ill effect has been noted, nor indeed have we seen even a remote one which could be charged justly to the method. Three paretics and one tabetic eventually died of the disease and one tabetic died as the result of an intercurrent affection. Even bladder irritation was noticed in only one case, and here it was of the most transitory nature. A reaction in the way of temporary and occasionally severe exacerbation of the dorsal root pains is the rule.

It should be understood that our experience has been limited to the use of the technic devised by Swift and Ellis³ in which auto-arsphenamized serum is employed and to the modification of Ogilvie,⁴ in which the human serum is arsphenamized in vitro with a known amount of the drug, the maximum amount being 0.5 mg. We have had no experience with the other methods in which more or less diluted arsphenamin or neo-arsphenamin is added directly to the spinal fluid, notable among which is the method of Ravaut. Careful study of the literature will show that most of the disastrous results have followed the use of the latter procedure, and we feel, therefore, that it is not a method to be recommended. Accuracy demands that some distinction be made between these methods before condemning them all because of a fault that is quite evidently inherent to one of them.

Another objection is that "claims were made for the intraspinal method chiefly by men whose interest was centered on a change in the Wassermann reaction, in a reduction of the cell count of the cerebrospinal fluid and in a change in the globulin reaction rather than in the clinical condition of the patient. After all, the patient remains the chief consideration." Here the writer has questioned the deductions drawn by previous investigators from very careful work on the ground that their attention was fixed on the laboratory changes rather than on the clinical features. We fear that the critic has shown here his failure to study in detail the available case reports⁵ in which the clinical side is given the great emphasis to which it is entitled. There can be no doubt that to these workers the patient was the single consideration. The laboratory findings were published as part of the evidence, for they are objective and lend themselves well to record. Though of great importance, no one would ever attempt to interpret their significance taken alone.

We do not hesitate to assert dogmatically that clinical improvement generally goes hand in hand with favorable changes in the various reactions. This statement is based on a consideration of some 250 laboratory examinations made in the cases which are here reported and on many additional laboratory examinations made on patients treated by other methods or for purely diagnostic purposes. No one conversant with the results would claim that the correspondence between clinical and laboratory findings is invariable. It is hardly necessary to direct attention to many other instances in medicine in which similar occasional deviation from the usual is seen. To argue from rare exceptions is scarcely logical. If one would disregard the use of the laboratory reactions in following the progress of treated cases, consistency would compel him to abandon the use of the same tests in the diagnosis of obscure neurologic conditions, and we feel that no one would like being robbed of the recent fruit of the investigator's toil.

The next argument to consider is that "it takes the experience of a trained neurologist and psychiatrist to estimate at their true value changes in the clinical symptoms." As Fordyce cogently remarks, "It does not require the experience of a trained neurologist to convince these patients that their condition has been changed from hopeless invalidism to comparative good health." Any observer is competent to detect the change from the ataxic to the nonataxic or from total or relative incapacity to the power to earn a living. The patient himself is fully able to tell whether or not he is racked by excruciating pains or tortured by gastric crises. The unprejudiced can readily satisfy themselves from a perusal of many published case reports that the signs of improvement when noted are of the obvious and unquestionable kind.

Sympathy was expressed with Halliburton's view that "particularly regrettable is the divorce between those who pursue their investigations by the bedside and those who work in the laboratory." It would appear to us that the writer has erred in expression, for he has really taken exception to the conclusions reached by those who actually have pursued their investigations both at the laboratory and at the bedside. Swift⁶ replied that as he himself was naturally interested in the welfare of his patients, both the bedside and the laboratory features of each case were accurately recorded, for neglect of either one is not in accord with the modern tendency in medicine. He who honestly seeks truth must be able and willing to seek light on his problem wherever he may find it. This has been done by a number who have investigated and reported on the usefulness of the intraspinal method. Before attempting to cast sweeping reflections on this work, it would be well for the critic to give evidence that he has reviewed all of it carefully and discriminately or, failing in that, to submit to the tribunal of the thoughtful a study made with equal care of a similar series of cases, using the same methods. The cause of truth is aided little by those who deliver ex cathedra opinions unless these opinions are based on recorded facts that may be critically reviewed by others.

The assertion that "there is nothing which the intraspinal method achieves which cannot be accomplished by the intravenous" brings us to the very crux of the

3. Swift, H. F., and Ellis, A. W. M.: The Treatment of Syphilitic Affections of the Central Nervous System, with Especial Reference to the Use of Intraspinal Injection, *Arch. Int. Med.*, September, 1913, p. 331.

4. Ogilvie, H. S.: The Intraspinal Treatment of Syphilis of the Central Nervous System with Salvarsanized Serum of Standard Strength, *THE JOURNAL A. M. A.*, Nov. 28, 1914, p. 1936.

5. Swift and Ellis (Note 3). Ayer, J. B.: Boston Med. and Surg. Jour., 1914, 170, 452. Draper, George: Effect of Intravenous and Intraspinal Treatments of Cerebrospinal Syphilis, *Arch. Int. Med.*, January, 1915, p. 16. Dexter, Richard, and Cumber, C. L.: The Intraspinal Treatment of Syphilis of the Central Nervous System, According to the Method of Swift and Ellis, *Arch. Int. Med.*, January, 1916, p. 82.

6. Swift, H. F.: Intraspinal Treatment of Syphilis of the Central Nervous System, Another View, *THE JOURNAL A. M. A.*, Dec. 22, 1917, p. 2092.

matter. First let it be understood that we do not raise the question as to the comparative value of the exclusive use of the intraspinal route or the exclusive use of the intravenous route. It is freely admitted that there are many patients who make all the improvement that can be expected with the intravenous use of arsphenamin. Improvements of this sort we see often.

This is well illustrated by the case of J. W., who was seen first in October, 1917, with a marked, almost incapacitating ataxia and severe lightning pains. The history and physical findings were unquestionable. He was given six intravenous injections of the diarsenol brand of arsphenamin, totaling 2.3 gm. His ataxia has entirely disappeared. He pursues his occupation as a railway brakeman without handicap, he is able to walk with his eyes closed in a straight line 40 feet, and he runs about his work in the freightyard as well as his fellow workers. He recently reported that he had played a nine-inning game of ball. The pains are only occasional and not severe. The last laboratory examination showed the blood Wassermann reaction, negative; spinal fluid, cells, 0; globulin —; Wassermann reaction, negative, even with 1 c.c. and a moderate curve in the syphilitic zone with the colloidal gold reaction.

Instances of this kind might be multiplied. We have found, nevertheless, that there are a definite number who would receive no aid if this method alone were available. These group themselves into two classes:

1. Those who because of idiosyncrasy are unable to endure either vigorous mercurial therapy or the intravenous injections of arsphenamin.

2. Those who, though able to stand treatment given in either or both of these ways, show little or no improvement.

In regard to the first group, we have been struck with the number of tabetics who are unable to stand mercury and who, being underweight and in poor general condition, seem to regress rapidly with its use. For them mercury is toxic and must be abandoned. Similarly it is unfortunate that there are many who take repeated intravenous injections of arsphenamin very poorly. While the first one or two treatments may be well borne, the subsequent ones produce gastric symptoms of such severity, or nitroid crises so alarming in nature, that this avenue of attack likewise is closed. It has been objected that we can secure the maximum results with intravenous therapy if given frequently enough. As Fordyce⁷ states, it is rarely possible to give arsphenamin as frequently as Sachs stipulates, namely, injections of from 0.3 to 0.4 gm. every three or four days until the patient has received fifteen, twenty, or even 50 injections. Patients who can endure injections of such frequency are unusual, in our experience.

The second group, comprising those who are able to withstand intensive mercurial therapy or intravenously given arsenic but fail still to show a proper degree of improvement, is even more important. It has been our general practice to employ these methods at first, and to adhere to them when the results justified. We have found, however, that in many cases recourse has been had to the intraspinal method. Certainly it does not invariably accomplish as much as one would like to have it, but the results have been striking in a large number of the type of cases just described. This has been definitely established in numerous care-

ful studies to which reference has been made. Our own observation has convinced us of the great usefulness of the method in certain forms of central nervous system involvement. In support of this view abstracts of case histories are appended.⁸ Unfortunately, considerations of space forbid the desirable expansion of these reports, but they serve to show briefly the essential features.

It is difficult to assign to all of these cases a definite clinical designation based on a classification that has been rendered obsolete by recent acquisitions to our knowledge of pathology, but we shall divide them into these classes: *tabes dorsalis*, syphilitic meningitis, paresis, and the spastic syphilitic paralysis of adults.

Intraspinal therapy has been employed in seventeen cases of *tabes dorsalis*. The results are given in the accompanying tabulation.

RESULTS IN THE TREATMENT OF TABES DORSALIS

Results	No. of Cases
1. Maximum improvement	3
2. Decided improvement	9
3. Moderate improvement	1
4. Slight or no improvement	3
5. Eventual death	1

In the first two classes, which includes approximately 66 per cent. of the total, we have placed those who have shown a restoration to normal from a functional and economic standpoint. Anatomic cure in advanced cases is not claimed, nor can it be expected, since degenerated nerve fibers cannot be regenerated. Very rarely do we see deep reflexes restored or pupillary responses return to normal. In addition, the term "maximum improvement" implies the complete and apparently permanent disappearance of ataxia, sensory signs and symptoms and dorsal root pains, with increase in weight and recovery of normal gait, accompanied by the abolishment of all positive laboratory findings. Cases 2, 4 and 6 fill these requirements:

CASE 2.—W. B., man, aged 45, with advanced *tabes*, who had been infected at the age of 25, had lancinating pains and marked ataxia, and had to walk with a cane and be assisted by some one. There had been symptoms for two years prior to our first examination, May 8, 1913. Four previous intravenous injections of arsphenamin had resulted in only slight improvement. The first laboratory examination showed: Blood Wassermann reaction, +++; spinal fluid Wassermann reaction, +++ with 0.1 c.c.; cells, 75; globulin, +. Twenty intravenous injections of arsphenamin were given, a total of 10.7 gm. Fifteen intraspinal injections (Swift-Ellis) were given, and a little mercury. The last laboratory examination, Jan. 2, 1918, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative, even with 1 c.c.; globulin, +; colloidal gold curve, in syphilitic zone. The patient runs a ranch in the West. He works from 5 a. m. to 9 p. m. He drives a motor on roads on the edge of a canyon. There is no ataxia and no pain. The reflexes are the same. The last treatment was given March 2, 1915. He has been under observation five years. There is a maximum of improvement.

CASE 4.—C. H. Z., aged 44, had moderately advanced *tabes*. The date of infection was not known. There had been symptoms for several years before our first examination, June 5, 1914. Severe gastric crises, lasting several days, left the patient in poor condition and they were frequent enough to interfere seriously with business. There was incontinence of urine. The first laboratory examination showed: Blood Wassermann reaction, not done; spinal fluid Wassermann reaction, +++, with 0.2 c.c.; 62 cells; globulin, +++.

7. Fordyce, J. A.: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, a Reply, THE JOURNAL A. M. A., Nov. 3, 1917, p. 1482.

8. The majority of the case reports have been omitted on account of lack of space, but will appear in the Transactions of the Section and in the authors' reprints. A copy of the latter can be had on application to the authors.

Eleven intravenous injections of arsphenamin were given, a total of 5.3 gm. Ten intraspinal injections (Swift-Ellis) and one intraspinal injection (Ogilvie), but no mercury, were given. The last laboratory examination, March 10, 1916, showed: Spinal fluid Wassermann reaction, negative, 0.1 to 1 c.c.; cells, 0; globulin, negative. The patient has gained 17 pounds in weight and has had no pain for one year and no gastric crises for three years. The patient manages a business without interruption. The reflexes are unchanged. The gait is normal. The last treatment was given March 10, 1916. The patient has been under observation four years. There has been a maximum of improvement.

CASE 6.—D. W. H., man, aged 39, with moderately advanced tabes, was infected at 25, and the first symptoms, "a nervous disturbance," appeared in March, 1913. Later a "nervous breakdown," associated with dyspepsia, occurred. In October, 1914, stiffness and numbness were noticed in the extremities. Soon after there was severe pain in the back and much difficulty with locomotion. The first laboratory examination, March 13, 1915, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative, 0.1 to 0.5, +++ in 1 c.c.; cells, 2; globulin, +. Nine intravenous injections of arsphenamin, a total of 3.85 gm. Six intraspinal injections (Swift-Ellis) and four intraspinal injections (Ogilvie), but no mercury were given. The last laboratory examination, June 23, 1917, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative, 0.1 to 1 c.c.; cells, 0; globulin, negative; colloidal gold curve, negative. The patient is in active business as a bond salesman. There are no gross signs of trouble. The gait is normal. There is no ataxia and there are no pains. The last treatment was given June 22, 1917. The patient has been under observation three years. A maximum of improvement has occurred.

"Decided improvement" means that although there has been restoration to full earning capacity with all that this implies, there remain certain symptoms, such as a moderate amount of ataxia or occasional though infrequent attacks of pain, or the persistence of positive findings with one or two of the laboratory tests. In other words, the active process seems arrested, but obvious vestiges of the old trouble remain. Case 15 will be given as an example:

CASE 15.—J. W. T., man, aged 42, with advanced tabes, did not know the date of infection. There had been symptoms for ten months previous to the first examination, July 14, 1915. He had severe pains in the extremities, numbness in both feet and the left hand and girdle sensation. The gait was very ataxic. The patient was emaciated and anemic. The trouble had been diagnosed as rheumatism. The pupils were small. They reacted to light and accommodation. The knee jerks and ankle jerks were absent. The patient was practically incapacitated for work. The first laboratory examination showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, +++, with 0.5 c.c.; cells, 57; globulin, +. Eleven intravenous injections of arsphenamin, a total of 4.55 gm. Eight intraspinal injections (Swift-Ellis) and sixteen intraspinal injections (Ogilvie), and a slight amount of mercury were given, which he bore poorly. The last laboratory examination, March 6, 1918, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative from 0.1 to 1 c.c.; cells, 3; globulin, negative; colloidal gold curve, negative. The weight increased 18 pounds. Ataxia is slight now. The color is now good. There is economic restoration. The patient is successful in managing his business. There are now only occasional dull aches in old areas. The last treatment was given March 6, 1918. The patient has been under observation three years. There has been decided improvement.

The other classes are self-explanatory. It is noteworthy that only three of the eighteen patients showed no improvement, that only one case progressed to a fatal termination, and that with all of these, it was impossible to push treatment as urgently as we desired.

As syphilitic meningitis we have classed those cases in which the symptoms of an exudative meningeal involvement predominate. All occurred late in the history of the infection. The improvement has been rapid and striking. It has seemed to us that brilliant results have been secured in processes both rapidly progressing and extensive, in which older methods would have been unavailing. As examples, we shall recount the history of two cases:

CASE 1.—W. I. S., aged 29, with syphilitic meningitis, had been infected at the age of 17. The patient had "rheumatic pains" for one year prior to our first examination, Feb. 7, 1913. There was retention of the urine, sudden ptosis of one eyelid and hemiplegia. The first laboratory examination showed: Blood Wassermann reaction, +++; spinal fluid Wassermann reaction, +++, with 0.2 c.c.; cells, 153; globulin, +++. The patient was given thirteen intravenous injections of arsphenamin, a total of 5.73 gm., seven intraspinal injections (Swift-Ellis), one intraspinal injection (Ogilvie) and considerable mercury by inunction and injection. The last laboratory examination, Sept. 13, 1917, showed: Blood Wassermann reaction, +++; spinal fluid Wassermann reaction, negative, even with 1 c.c.; cells, 0; colloidal gold curve, negative. The patient gained 10 pounds in weight. Formerly bankrupt, the patient is now managing a successful business, has paid old debts and works hard. There is no paralysis. The pupils are still abnormal. The knee jerks are absent. There is only an occasional attack of pain. The last treatment was given Sept. 13, 1917. The patient has been under observation five years. There has been decided improvement.

CASE 3.—H. O. B., aged 34, with syphilitic meningitis, suffered a very acute onset and was brought to the hospital for what was supposed to be delirium tremens. Two weeks later there was paresis of the left arm and the left side of the face. There was incontinence of urine and feces. The first laboratory examination, March 21, 1914, showed: Blood Wassermann reaction, +++; spinal fluid Wassermann reaction, +++, with 0.1 c.c.; cells, 550; globulin, ++. The patient had eight intravenous injections of arsphenamin, a total of 4.5 gm., seven intraspinal injections (Swift-Ellis) and a moderate amount of mercury. Last laboratory examination, March 5, 1918, showed: Blood Wassermann reaction, negative; spinal fluid Wassermann reaction, negative from 0.1 to 1 c.c.; cells, 7; colloidal gold curve, negative. The patient works at former employment at the old salary. The memory is slightly impaired for events before the onset of the condition. There is slight facial hemiparesis. Otherwise the patient is normal. The reflexes and pupils are normal. The last treatment was given Sept. 28, 1915, with mercury occasionally since. The patient has been under observation four years. There has been decided improvement.

To employ the terminology that has been defined above, the results may be expressed as being from decided to maximal improvement in all instances.

It may be objected that results equally satisfactory would have been secured had the intravenous route alone been employed. This occurred to us, and in many instances we employed the intravenous method at first, reverting to the intraspinal method only when progress was unsatisfactory. Indeed, it was by instances of this sort that we have been convinced of the usefulness of intraspinal treatment. Fordyce has shown this in a most convincing way. We might cite as illustrative instances from our series Cases 2, 16, 17 and 24. The following abstracted case history will serve as an example:

CASE 17.—G. F. D., aged 36, with early tabes, had been infected at 26. There were numbness and tingling in the hands and a sensation of walking on cotton observed for only a few days before the patient was first seen, Feb. 3, 1916. The first laboratory examination showed: Blood Wassermann

reaction, +++; spinal fluid Wassermann reaction, +++ in 0.1 c.c.; cells, 16; globulin, ++. The patient had fifteen intravenous injections of arsphenamin, a total of 6.75 gm., and eight intraspinal injections (Ogilvie). After the first five injections intravenously *ataxia developed*, so intraspinal injections were used. Much mercury was given. The last laboratory examination, June 5, 1918, showed: Blood Wassermann reaction, ++; spinal fluid Wassermann reaction, +++ in 1 c.c. only; cells, 0; globulin, negative; colloidal gold curve, 1111000000. There is no ataxia. There are no sensory symptoms. The patient works without interruption. There are no physical findings referable to tabes. The last treatment was given June 1, 1918. The patient has been under observation two years and four months. There has been decided improvement.

Of spastic paralysis there are only two cases. One (Case 12) showed slight improvement but regressed. The other (Case 20) has passed out of observation. With definite and unmistakable paresis, when evidence of parenchymatous degeneration was unmistakable, we have had little experience. Such as we have had has been most discouraging. From this, but chiefly from a study of the literature, we should conclude that the method has not given evidence of efficacy in the treatment of well developed paresis. On this point we quite agree with Sachs. There is no doubt that false hopes have been aroused and that altogether too much was expected of intraspinal treatment in paresis. It would seem that remissions may be secured and the period of usefulness prolonged, but permanent arrests are not to be expected. Incidentally, however, it must be remembered that when the disease process has reached the point at which it has produced the typical clinical picture of paresis, irreparable damage has been done. Paresis, however, may be like other conditions, curable if sufficiently early diagnosis is made, but hopeless if allowed to proceed until all classical signs are present.

SUMMARY

It seems quite apparent that each case of syphilitic involvement of the central nervous system presents an individual problem which must be studied as such with the aid of all available methods, be they clinical or laboratory; that it is difficult to fit all cases into a classification made prior to the recent acquisitions to knowledge, when even the syphilitic causation was not unquestioned; that prognosis and occasionally final diagnosis are not possible until the effect of treatment may be noted; that treatment should be administered only in the light of careful preliminary examination; that it should be modified according to the observed changes in clinical and laboratory findings, and that, though not always necessary, intraspinal injections of arsphenaminized serum have been more efficacious in many instances than any other available therapeutic measures. We do not feel, any more than does Swift⁹ himself, that the use of arsphenaminized serum is necessarily the best method that can ever be devised, that it should be employed to the exclusion of other methods of treatment, nor that it should be employed in all cases.

CONCLUSIONS

Five years' experience with the use of arsphenaminized serum shows that:

1. Properly employed, it is not in any sense dangerous.
2. Excellent evidence of its efficacy is offered by the patients who repeatedly endure the painful though

harmless reactions which frequently follow intraspinal injections.

3. Little or nothing can be expected in fully developed paresis.

4. Much advantage is derived in many cases of tabes dorsalis and syphilitic meningitis when other methods have proved inefficient.

5. The results of the laboratory examinations of the blood and particularly of the spinal fluid must be considered as an integral part of the clinical picture, both in the diagnosis and in the direction of treatment.

6. The improvement in the satisfactory cases has been so definitely consequent on active treatment, and the ground gained over a period of years has been held so well in spite of the lack of recent treatment, that it cannot be explained as a coincident remission in the progress of the disease.¹⁰

7. The method is a distinct addition to our therapeutic armamentarium.

ABSTRACT OF DISCUSSION

DR. J. A. FORDYCE, New York: The necessity exists for a more efficient method of preventing neurosyphilis as well as for the treatment of it. A negative spinal fluid after the other criteria of cure have been established insures the patient against the development of neurosyphilis. Early syphilis properly treated and controlled by serology of blood and fluid is the best prophylactic measure. Assuming that the nervous system is infected in florid syphilis, its early recognition is imperative, as at this time a cure can be effected in a comparatively short time and the later degenerative stages of the infection prevented.

The observation of twenty groups of familial and conjugal syphilis, comprising about fifty cases, with the experimental work of Nichols, Reasoner, Noguchi and others, strongly support the theory that a strain of spirochetes has been evolved which has a highly invasive power and which may involve the nervous system in the first months of the infection and during or before the administration of arsphenamin and mercury given in the most intensive manner. Convexity or basilar meningitis or cord meningitis yields slowly or not at all to the continued use of remedies intravenously or intramuscularly.

Early syphilitic meningitis is one of the urgent indications for intraspinal therapy. Syphilis of the nervous system of short duration responds to treatment much more promptly than cases of longer duration and offers a more favorable prognosis. A pure type of arterial syphilis of the brain or cord occurs with negative serology or with an excess of globulin only. In such cases intraspinal injections are not indicated, the condition being more readily influenced by the iodids, mercury and arsphenamin intravenously. Disseminated or localized types of cerebrospinal syphilis, often of obscure symptomatology with positive fluid findings which do not yield to treatment administered by the ordinary channels, yield rapidly and permanently to intraspinal treatment.

In optic atrophy with the preservation of a certain amount of vision and with fluid findings indicating meningitis, treatment intraspinally is the best procedure and usually arrests the progress of the atrophy with preservation of vision as in the beginning of treatment.

I have records of nearly fifty cases of various types of neurosyphilis in which the serology of the blood and spinal fluid have become negative and have remained so during varying periods of observation of from two months to three years. The majority of these patients have been completely relieved of their distressing symptoms and have resumed their professional work and occupations. As an additional argument in favor of the method in question, it should be borne in mind that all other therapeutic procedures had been employed without result.

9. Swift, H. F.: Am. Jour. Syphilis, 1917, 1, 524.

10. This is well illustrated in Cases 1, 2, 3, 4, 6, 9 and 15, in which the patients have been under supervision for from three to five years.

PERFORATING ULCER OF THE HARD
PALATE RESEMBLING TERTIARY
SYPHILISBUT DUE TO A FUSOSPIRILLARY INVASION (SO-CALLED
VINCENT'S ANGINA)*

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AND

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A man, aged 47, consulted one of us because of an ulcer, which had made its appearance on the roof of his mouth. His previous history was in all respects negative. One day he noticed a little soreness on the roof of his mouth, and a small white spot, to which he paid no particular attention, until within a few days an ulcer developed, gradually becoming larger and more painful. Despite his negative history, a syphilitic condition was suggested by several physicians.

Physical examination revealed slight anisocoria, rather marked oral sepsis and gingivitis, especially around the posterior molars, an unpleasant fetid odor to the breath, and a well defined punched-out ulcer, about the size of a dime, situated on the hard palate, covered with a thick, creamy, easily removed exudate, and surrounded by a deep red, somewhat indurated areola. The base of the ulcer bled easily. The clinical picture certainly justified the suspicion of syphilis, a view concurred in by a nose and throat specialist. The patient was afebrile and not sick.

Laboratory studies revealed a normal blood picture, and the Wassermann reaction was negative with each of three different sets of reagents. Smears made from the exudate showed enormous numbers of *B. fusiformis*, and many coarse, readily stained spirochetes, presenting from five to eight wide undulations. A diagnosis of so-called Vincent's angina was made, and the lesion promptly healed in a few days under treatment with dichloramin-T and local applications of concentrated arsphenamin solutions. There has been no recurrence.

BRIEF HISTORICAL SUMMARY

Since the discovery and recognition of diphtheria in 1882 by Klebs, there has been noted with increasing frequency, the occurrence of diphtheria-like lesions on the tonsils and elsewhere in the mouth, apparently caused by a fusiform bacillus, in association with a spirochete of large size. Though the organisms were first described in 1883 by Miller, an American dentist, who further noted their occurrence in both normal and dirty mouths, the first article of real moment came from Plaut in 1894. Between the years 1896 and 1905, Vincent wrote a number of very comprehensive articles on both the organisms and the associated clinical findings, as a result of which the condition came to be called Vincent's angina. A full discussion of the question of priority is to be found in Eichmeyer's excellent monograph.¹ During the last ten years, scattered articles have appeared, but no especial interest was attached to a presumably uncommon malady, until a very high incidence of an ulcerative stomatitis was observed among British and French troops. The disease broke out sporadically, was usually preceded by a sore throat, and became so common that it constituted, according to Bouty,² 23 per cent. of all throat infections. It was soon found that the lesions were invariably associated with a mixed invasion of fusi-

form bacilli and spirochetes, and the condition was commonly referred to as "trench mouth," "trench throat" or "trench gums." Probably the condition has no association with trench life as such, but its dissemination is favored by the collection in camps of large numbers of young men. As a minor cause of temporary or often prolonged invalidism, the malady ranks high, and is therefore worthy of much more attention at the hands of both civil and military practitioners. Already, careful studies by McClintock,³ McKinstry⁴ and others, of so-called "normal mouths" have proved that there are many healthy carriers. This form of stomatitis may be very infectious in type, as was shown by the occurrence of more than 200 cases within two days among 800 prisoners in one of the German camps. The disease apparently has a universal distribution, and it is not at all selective as to sex, social conditions, occupation or season. Finally, though poor resistance, the promiscuous use of pipes, tooth brushes, etc., excessive smoking and climatic conditions have all been regarded as possible predisposing causes, it has been established beyond all doubt that one condition above all others exerts an influence favorable for the development of this type of ulcerative stomatitis, namely, oral sepsis, periodontal gingivitis or pyorrhea.

DEFINITION OF THE DISEASE

As generally employed, the term "Vincent's angina" usually refers to an ulcerative lesion of one or both tonsils and due, apparently, to a fusospirillary invasion. There is little doubt that this is the commonest type encountered clinically, one often mistaken for diphtheria or syphilis. Vincent's original classification of the lesions has usually been accepted, according to which the cases fall into one of two groups, either one of which may run its course in a few days or persist for weeks.

A. The superficial, pseudomembranous or diphtheroid form, in which a thin, grayish white film usually starts over one tonsil and gradually spreads, often over a wide area. As a rule the membrane is easily removed, though not *en masse*, leaving a red, bleeding base and a shallow ulceration. There is generally an associated diffuse pharyngitis.

B. The ulcerative, and more common form, in which there is deep tissue necrosis, covered by a thick, creamy, yellowish or gray exudate, which comes away easily and again leaves a raw, granular, bleeding base. This leads to the formation of crater-like ulcers, with irregular, somewhat indurated and undermined edges. Both forms show a tendency to be unilateral.

This description of the lesions answers well enough. We now know, however, that ulcerative lesions of this type may occur in many places, including various portions of the mouth, the bronchi, gastro-intestinal tract, and, in a few instances, the genitalia, causing there the so-called "fourth venereal disease" closely simulating chancroid. Campbell and Dyas⁵ give the following definition: "Vincent's angina is an infectious disease of the mucous membrane of the mouth, throat, bronchi and prepuce." The term "angina" (from the Latin *angere*, to choke) is quite loosely and incorrectly used in medical writings generally, and should be applied only to those diseases or conditions characterized by

* Read before the Section on Practice of Medicine at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Eichmeyer: *Ergebn. d. allg. Path. u. path. Anat.*, 1904, **10**, 106.

2. Bouty: *Brit. Med. Jour.*, 1917, **2**, 685.

3. McClintock: *Am. Jour. Med. Sc.*, 1917, **153**, 256.

4. McKinstry: *Practitioner*, London, 1917, **99**, 507.

5. Campbell, A. R., and Dyas, A. D.: Epidemic Ulceromembranous Stomatitis (Vincent's Angina) Affecting Troops, *THE JOURNAL A. M. A.*, June 2, 1917, p. 1596.

spasmodic symptoms of suffocation or choking, and hence particularly to diseases of the throat. The term "Vincent's angina," therefore, should be restricted to a peculiar type of throat or mouth affection, due to an unusual and possibly specific bacterial infection. It should be noted in passing that attacks of choking or suffocation in these cases are most uncommon. The term "ulcerative stomatitis" is not comprehensive enough, and, of course, does not convey any notion as to the etiology, since infective disorders of the buccal cavity and pharynx include a great number of conditions, due to different micro-organisms. As a result of the more recent studies, a far better conception is the recognition of numerous types of mouth infection, all due apparently to the same variety of invasion, and to limit the term "*Vincent's angina*" to such infections of the tonsils proper. One is inclined to agree with Bowman,⁶ who feels that we should speak rather of Vincent's disease, under which are included all forms of this peculiar fusospirillary ulceration, no matter where located.

CLINICAL VARIETIES

Leaving aside, at this time, the unusual bronchial and genital forms of the disease, one may easily tabulate the various types encountered in the buccal cavity. Two classifications have been advanced:

1. McKinstry groups the cases in the order of the frequency of their occurrence in his experience, as: (a) affections of the gums; (b) affections of the tonsils (Vincent's angina), and (c) affections of the mucous membranes of the buccal cavity. This classification possesses the valuable point of emphasizing one most significant fact, namely, that the commonest primary form of the disease is an ulcerative, peridental gingivitis, especially common around the lower incisors, posterior lower molars, crowned teeth, and between irregular ones. In these cases the only possible confusing condition is pyorrhea, from which it can be easily diagnosed, according to McKinstry, first, by the character and appearance of the ulceration, secondly, by the association of fetor and considerable gingival pain and bleeding, and, finally, by the absence of pus between the tooth and the gum. J. S. Marshall of Chicago thus describes the condition:

The clinical characteristics are the formation of ulcers at some point of injury, which at first appear in no wise different from the ordinary form of a localized ulcerative stomatitis, but which, after the lapse of twenty-four to forty-eight hours, begin to spread rapidly along the margins of the gingivae in all directions, involving both jaws, and sometimes extending to the hard palate and the floor of the mouth. The margins of the gums assume a general ulcerative condition, accompanied by swelling, redness and considerable congestion of the parts, which bleed easily. Later they become covered with a dirty-white or yellowish-white pellicle or membrane—somewhat resembling the thrush film—which sloughs off after a day or two, destroying the festoons and leaving a ragged surface. The denuded surface is very red and covered with coarse granulations, which bleed upon the slightest provocation. The gums are loosened from the necks of the teeth, and the borders of the alveolar processes are exposed. Pus mixed with blood exudes from the inflamed tissue about the necks of the teeth. The breath and excretions are very fetid, and salivation is profuse. In these respects the symptoms resemble mercurial ptyalism. The ulcerated surfaces are exceedingly sensitive, and motions of the tongue and lips on this account are very painful. Food is taken with difficulty.

Accompanying the local manifestations there is a general febrile condition, temperature ranging from 100 to 101 F., thirst, loss of appetite and general malaise, sleeplessness, and irritability of temper.

McKinstry is quite convinced that this form of gingivitis is always the primary lesion, from which extension to the tonsils, palate, etc., occur.

2. Campbell and Dyas, in an analysis of 129 cases arranged in the order of their incidence, divide their cases thus: Type I, tonsillar cases; Type II, ulcers on the lower jaw behind the last molar; Type III, gingival cases, and Type IV, general infection of the buccal cavity.

There is, perhaps, no essential difference between the two groupings, and variations in the occurrence of the tonsillar or gingival form probably depend in great part on the stage at which the patient is first seen. Obviously, careful observation of the gums and more consistent attempts to rule out this condition from true pyorrhea are strongly needed. The disease is seldom found in a clean mouth, that is, one in which the gingivae are normal.

SYMPTOMATOLOGY

Objectively one notes:

1. Insignificance, as a rule, of constitutional disturbances. The patient is not very ill.
2. Absence of fever, the temperature rarely rising over from 100 to 101.
3. Heavy and offensive breath.
4. Enlargement of the cervical and submaxillary glands, as a rule moderately. They are tender and never suppurate.
5. The lesions proper.
6. Swollen, spongy and bleeding gums, suggestive of scurvy.

Subjectively, the patient complains of:

1. Extremely bad taste in the mouth.
2. Tenderness of the gums, so that the use of a tooth brush is impossible, and mastication is so painful as to preclude eating.
3. Pain on swallowing.
4. Looseness of the teeth, with salivation, which is common, resembling mercurial ptyalism.
5. Anorexia.
6. Joint pains, frequently.
7. Lassitude—"lack of go."
8. "The most serious constitutional symptom and one always present when the teeth and gums are affected is severe depression."⁶

LABORATORY FINDINGS

1. Blood cultures are uniformly negative.
2. The Wassermann reaction in all cases of Vincent's disease is negative in nonsyphilitic patients. The presence of a positive reaction does not exclude Vincent's disease, and the experience has shown that patients with a syphilitic history, undergoing mercurial treatment, are especially prone to this form of mouth lesion.
3. The leukocytes are rarely increased over 10,000: anemia does not develop in the majority of the cases.
4. A transient albuminuria is common in the more severe cases.
5. Smears from the lesions show the characteristic organisms—a fusiform bacillus and a coarse spirochete, in association with numerous other organisms.
6. Dark field illumination aids greatly in eliminating the *Spirochaeta pallida*.

6. Bowman, F. B.: Proc. Roy. Soc. Med., 1915, 9, Part 2, p. 51; Lancet, London, 1917, 2, 536; Brit. Med. Jour., 1916, 1, 373.

COURSE OF THE DISEASE

Most cases run a benign course, clearing up in from a few days to one or two weeks. Recurrences are common, especially in the primary gingival cases, inadequately treated. In some instances, however, the disease may assume a much more virulent form, accompanied by high fever, bleeding from mucous membranes generally, extensive purpura and profound prostration. A number of cases are now on record occurring in civilian and military practice that have terminated fatally. "The most destructive and fatal forms of gangrenous necrosis in which these organisms are found often occur in subjects with leukemia or one of the other essential blood diseases."⁷

THE BACTERIOLOGY OF VINCENT'S DISEASE

The examination of smears made directly from an ulcer always shows a great variety of organisms, but two in particular tend to predominate. These are:

1. The *Bacillus fusiformis*, first noted by Vincent in cases of hospital gangrene. The bacillus is from 5 to 10 microns long, is slightly curved, pointed at the ends, and thickest in the middle, where there is often a single transverse, colorless band, giving the appearance of two prisms with their bases opposed. The organisms are often arranged in pairs. The bacillus is sometimes beaded, owing to the occurrence of a number of granules in the protoplasm. It is anaerobic, nonmotile, according to most observers, gram-negative, does not form spores, and stains readily with basic anilin dyes and weak solutions (25 per cent.) of carbolfuchsin. In cultures as well as in smears, the bacillus may present marked morphologic variations; small forms, comma-shaped and, if end to end, simulating a spirillum, may be seen side by side with delicate rods or threads as long as from 50 to 100 microns.

2. The spirochetes which invariably accompany these fusiform bacilli are slender, of fairly large size, pointed at the ends, gram-negative, and stain only feebly with ordinary dyes, though much more readily than does the *Spirochaeta pallida*. They show on an average from five to eight wide, irregular convolutions. The existence of an undulating membrane and absence of flagella are mooted points, which must be settled if the generic term "spirochete" is correct. Seen by dark field illumination, they are very actively motile, lashing around with a whiplike or rotary motion, and not the longitudinal corkscrew-like movement of the *Spirochaeta pallida*. They are thicker than the *Spirochaeta pallida*, appear yellowish rather than white, and there is no geometric regularity to the spirals. The organism is readily distinguished from the *S. dentium* and *S. refringens*. Like the bacillus, it is anaerobic.

Cultivation and Identity of the Organisms.—Briefly, the cultivation of these anaerobes has been found extremely difficult by most observers. It is doubtful if the spirochete has ever been isolated in pure form and kept alive over more than two or three generations. The bacillus grows best in fluid mediums in the presence of tissue, and a small percentage of sugar (0.5 per cent.). Krumwiede and Pratt⁸ assert that blood or serum is also necessary for satisfactory growth. In serum-glucose broth a flocculent growth occurs at the bottom of the tube, the upper layers remaining clear. The organisms form indol readily. Petri dish

colonies are small, but slightly elevated, gray, thin, translucent and show festooned margins.

It has been noted that the relative numbers of the organisms under discussion vary much with the type and stage of the disease. Thus, bacilli tend to predominate in the superficial layers of the ulcer, and spirochetes are relatively few. When the slough is fully formed, the spirochetes occur in greater numbers; moreover, at this stage, one frequently encounters bacilli apparently linked to spirochetes. In 1911, Ruth Tunnickliff⁹ grew the bacilli under anaerobic conditions, and on the subsequent transfer to Loeffler's blood serum, at room temperature, she noted that the bacilli tended to lose their pointed ends and become filamentous or spirillary in form. Since then, not a few have held that the two forms seen in lesions are only different stages in the life history of one organism. Many consider the two organisms quite distinct and always growing in symbiosis. Greeley¹⁰ has recently stated that the spirochetes and fusiform bacilli are one and the same organism: "This belief is wellnigh universal among authorities." The evidence for such a positive statement is by no means conclusive. Since the days of Cohn, Zopf, Lister and Billroth, the whole question of the pleomorphism of bacteria has been hotly discussed. Now it is quite generally agreed that the majority of forms are uniform, showing but one type throughout their life history. Admitted exceptions occur, but they are certainly rare. As a result of long studies, Krumwiede and Pratt state quite as positively that the two organisms are in no sense related. According to them, typical spirochetes, as seen in the original smear, are never encountered in cultures; dark field studies of cultures have never shown forms that resemble the original spirochetes; spirochetes can be kept alive in serum, while the bacilli die out. And, finally, if pure cultures of the *B. fusiformis* are repeatedly transplanted to the same medium, they show no morphologic changes.

Specificity of the Organisms.—Inoculation experiments from both the original material and pure cultures have been singularly unproductive of the characteristic lesions in the hands of most observers. It has not mattered how the inoculations are made, whether into artificial wounds, subcutaneously, or intravenously. These results may possibly be explained on the assumption that, like the tetanus bacillus, ancillary organisms or damaged tissues must be present before the *B. fusiformis* or the spirochete, or both, in symbiosis, can produce pathologic changes. As the identity, therefore, of the two organisms is undecided, and since the postulates of Koch have in no sense been fulfilled, the crucial demonstration that these organisms are the specific cause of Vincent's disease is at present lacking. This much we do know:

1. In all of the lesions under discussion the organisms are present, as a rule in enormous numbers, and often virtually in pure culture. The severer the infection, the greater the number of organisms.

2. There is positive evidence both as to the infectiousness and the contagiousness of Vincent's disease.

3. Healing of the lesions goes on parallel with the disappearance of the organism. When complete, no organisms remain.

"These facts may be taken as adequate proof that if the organisms are not the only, they are certainly an essential factor in the causation of these lesions, which

7. Barnes: Medical Clinics of North America, January, 1918, p. 997.
8. Krumwiede and Pratt: Jour. Infect. Dis., 1913, 13, 439.

9. Tunnickliff, Ruth: Jour. Infect. Dis., April, 1911.
10. Greeley: Am. Jour. Med. Sc., 1918, 155, 742.

constitute a clinical picture distinctive enough to be considered an entity and so regarded, by the consensus of present opinion."

THE DIAGNOSIS OF VINCENT'S DISEASE

Though infrequently mistaken for other conditions, the diagnosis of Vincent's disease, and particularly of Vincent's angina, is relatively easy and should present no difficulties. The essential points always to be borne in mind are:

1. The usual disproportion between the constitutional symptoms and the appearance of the lesions. "The patient should be sicker than he is."

2. The clinical history.

3. The negative laboratory findings with the one exception of smears made from the ulcerative lesion.

The other ulceromembranous lesions of the mouth and throat that require consideration may be briefly enumerated:

1. *Diphtheria*.—In this condition the constitutional reaction is usually outspoken. The throat is generally affected on both sides; dysphagia is not so pronounced, and a cervical adenitis is less common; when present, the glands are not so tender. The membrane is much tougher and harder to remove, and may come away en masse. Finally, throat smears show the characteristic Klebs-Löffler bacilli, and cultures are positive. Vincent's organisms may coexist with those of diphtheria, but should give rise to no confusion. On the other hand, diphtheria bacilli in any considerable number are invariably absent from the mouth lesions of Vincent's disease. It is claimed that morphologically the organisms of diphtheria and Vincent's disease may resemble each other. This is a remote possibility; in case of doubt, the use of Gram's stain should suffice, since the *B. fusiformis* is gram-negative, the *B. diphtheriae*, positive.

2. *Syphilis*.—Vincent's disease undoubtedly may be confused with syphilis, as was true in the present case. Moreover, it may be and probably often is superimposed on a syphilitic infection of the mouth or throat. Throughout the literature, scattered contributions are found in which it is maintained that in uncomplicated cases of "Vincent's angina" the Wassermann reaction is often found to be positive. This view is held by St. Clair Thomson, Much, Sobenheim¹¹ and others. Critical analysis of the cases thus reported shows that the statement rests on decidedly flimsy evidence. Those who have had the greatest experience agree that though a positive Wassermann reaction does not exclude Vincent's disease, and though in some isolated cases neither the clinical appearances nor the microscopic findings are sufficient to establish a definite diagnosis with certainty, none the less serologic findings are invariably negative in uncomplicated cases of Vincent's disease. Recently Taylor and McKinstry¹² have conducted studies to clinch this point. From a large number of cases of Vincent's disease, fifty-five were chosen at random; fifty-three gave absolutely negative Wassermann reactions, while two were positive. Both of these patients admitted a primary infection. The authors conclude that "the prevailing belief in the occurrence of a positive Wassermann reaction in Vincent's angina has no foundation in fact, and that the two conditions can be differentiated with absolute cer-

tainty by the application of bacteriologic and serologic methods. When the Wassermann reaction is positive in cases of Vincent's angina, then a double infection exists, either as a coincident syphilitic and Vincent's infection, or as the occurrence of Vincent's angina in a subject with latent syphilis."

3. *Tonsillitis*.—The usual variety of tonsillitis is easily ruled out by the appearance of the lesions, follicular in type, the marked constitutional symptoms, leukocytosis and tonsillar smears.

TREATMENT

The condition usually responds readily to treatment, the essential points of which are:

1. "A good dentist is one of the best therapeutic measures." The care of the mouth is essential.

2. Local applications, of many kinds, have been recommended, such as iodine, silver nitrate (10 per cent.), chromic acid (5 per cent.), zinc sulphate, and numerous others. Based on sound reasoning, Emrys-Roberts¹³ devised a lotion consisting of hydrogen peroxid, 5 fluidounces; wine of ipecac, 3 drams; glycerin, 5 drams, and water, sufficient to make 8 ounces.

To this some have made the further addition of liquor potassii arsenitis (Fowler's solution). The ulcers are swabbed with this solution two or three times a day, and all patients, whether the gums are affected or not, are instructed to put from 10 to 15 drops on a tooth brush, twice a day, and to brush the teeth and gums vigorously. Improvement and cure are rapid.

There is abundant evidence that the best drug to employ is arsphenamin, especially in the severer cases showing deep tissue necrosis. Ehrlich¹⁴ himself, in 1910, noted rapid healing in a case after one intravenous injection of arsphenamin. Many have since noted similar results. Just as striking are the prompt cures effected by the local application of arsphenamin solutions, or suspensions in glycerin, two or three times daily.

3. General measures should include strict isolation, a high caloric diet in liquid or semisolid form, sodium cacodylate injections daily, and such symptomatic therapy as the individual case requires. All authorities warn against the use of mercury for syphilis associated with Vincent's disease, before the local lesion is cured. Mercury undoubtedly tends not only to increase the incidence of Vincent's disease, but greatly to prolong its cure.¹⁵

SUMMARY AND CONCLUSIONS

Evidence has accumulated in the last few years to show that ulcerative lesions of the mouth and throat of a nonsyphilitic nature are extraordinarily common among the Allied troops. These conditions are the cause of much unnecessary and expensive invalidism; they are probably wholly preventable and hence not to be tolerated. Military and civil practitioners should constantly bear in mind the following well established points:

1. Vincent's disease is in all likelihood a primary periodontal gingivitis, occurring frequently in certain particular areas, liable to develop anywhere in ill kept mouths, associated with characteristic gum lesions, and

13. Emrys-Roberts: Brit. Med. Jour., 1917, **2**, 359.

14. Ehrlich: Münch. med. Wchnschr., 1910, **57**, 2268.

15. In addition to the references already given, the following will be found of interest:

Vincent: Deutsch. med. Wchnschr., 1894, **99**, 922.

Saverio: Arch. ital. di oto. rinol. e laringol., 1910, **21**, 177.

11. Sobenheim: Arch. f. Laryngol. u. Rhinol., 1909, **21**, 5.

12. Taylor, F. E., and McKinstry, W. H.: Brit. Med. Jour., 1917, **1**, 421; Proc. Roy. Soc. Med., 1917, **10**, No. 3; Brit. Med. Jour., 1918, **1**, 82.

capable of spreading to any part of the buccal cavity or throat. The disease is both infectious and contagious.

2. The lesions most often seen clinically are ulcerations of the tonsils, to which the name "Vincent's angina" should be restricted.

3. No matter where located, the lesions of Vincent's disease are caused by the activities of the *B. fusiformis* and an associated spirochete. Their specificity is as yet unsettled. It is quite likely that they normally are symbiotic saprophytes, capable under certain conditions of causing pathologic changes.

4. The diagnosis of Vincent's disease from diphtheria and syphilis is simple. Smears from the lesions usually suffice.

5. Cases of uncomplicated Vincent's disease invariably give a negative Wassermann reaction.

6. The local application of concentrated solutions of arsphenamin is regarded as the best form of therapy. Most cases clear up within a few days.

7. Prophylaxis is better than cure. Oral sepsis is inexcusable.

ABSTRACT OF DISCUSSION

DR. W. H. MARSHALL, Flint, Mich.: During 1916 and 1917, while with the British forces, I saw many of these cases. Dr. Bowman of Toronto found an *Ameba buccalis* that was symbiotic with the organisms described by Dr. Miller. In some forty cases he also found this ameba with the spirillum, and, based on these findings, we used wine of ipecac, half an ounce, for its action on the amebas, liquor potassii arsenitis (Fowler's solution), half an ounce, and a dram of glycerin locally in the mouth, applying it with a cotton swab two or three times a day. Our cases cleared up rapidly with that simple form of therapy.

DR. FRANK J. SLADEN, Detroit: There are three points of interest emphasizing the importance of Dr. Miller's paper. First, Vincent's angina is a more common condition than is recognized. The best dentists see it frequently, and believe it is within their domain. The majority of cases are of the membranous type, recovering under simple mouth and throat measures, a frequent reason for the lack of effort leading to recognition. The occasional experience of trying to control an advanced, serious case impresses on one the advantage of early institution of proper measures. Second, the problems of conflicting diagnoses do not always seem as easy as Dr. Miller presented them. The membranous stage has its relation to diphtheria. Such a diphtheritic membrane has been the basis of uselessly exposing a patient to the expensive and sensitizing antidiphtheric serum. The difficulty, after failure to distinguish the differences in the membrane, lies in the fact that the laboratory diagnosis of diphtheria depends on cultural efforts rather than on the smear. The organism of Vincent's angina is poorly viable and usually in this way late negative results are obtained before the telltale smears are searched. Third, in relation to syphilis: At the ulcer stage there is similarity in the location and character of the ulcer and in the residual deforming scars. The latter may be very misleading. It is interesting also that a spirillum is associated though easily distinguished from the *Spirochaeta pallida*. In the face of a negative Wassermann reaction, and no other syphilitic stigmata, there is frequently quick response to arsphenamin. Arsenical preparations are indicated. Ready recovery usually occurs, but I recently dealt with a fatal case which had already advanced beyond control of local measures, a case in which the larynx was involved, with a bronchopneumonia. Intravenous injections of arsphenamin were of no avail. Earlier recognition might have changed the outcome.

DR. HENRY A. CHRISTIAN, Boston: Two points in connection with this condition are of interest. The first is this striking similarity of some of the cases to a syphilitic lesion, and the possibility of some old cases of perforation of the palate

or the septum of the nose in which the Wassermann is negative and in which there is no history of syphilis and no sign of syphilis being of this origin. The other point of interest is whether the organisms found are the cause of the condition. I have always felt very skeptical about that. The organisms are easily found, but are they the cause of the lesions? The reason for my skepticism is this: Usually, when you get chronic throat conditions from any cause, with superficial ulceration, you find these organisms. The organisms are inhabitants of the mouth under normal conditions; at least similar organisms are found in the mouth. In a number of cases of advanced nephritis you get ulcerative conditions in the mouth, and the laboratory reports the finding of the Vincent's organism in these cases.

Sometimes, in treating syphilis, you are unfortunate enough to produce a mercurial stomatitis, and then you find these organisms in those cases. In noma in children the destructive lesions in the mouth show these organisms on the surface and underneath, and it has always been disputed whether these organisms or some streptococcus or some unknown organism is the cause of noma. It seems to me that there is considerable reason for doubting the spirillum and the fusiform organism as being the cause of the condition. They are extremely useful from the viewpoint of the diagnosis, because the finding clears up in your mind whether or not it is diphtheria and whether or not it is syphilis. I think evidence is lacking that they are the definite cause, and, as one speaker has said, he very commonly found amebas. Are amebas the cause? You nearly always find some other bacteria, as streptococci. Are they the cause? Or is there something else which is the cause? From my personal ideas and experience, I do not think that we know.

DR. SYDNEY R. MILLER, Baltimore: One or two points have been brought up in the discussion to which I would like to refer. First, I had thought and hoped that I had left the distinct impression that the situation was anything but positive with reference to the relation of the organisms in question to the condition of Vincent's angina. There is the greatest doubt in my mind, and I should like it thoroughly understood, that the specificity of these organisms is not yet a proved fact. What we do know is that they occur in these conditions almost exclusively, though it is known that they exist in other ulcerated conditions of the mouth, and may be, indeed, normal mouth inhabitants. It is possible that they become pathogenic under conditions such as are necessary for the tetanus bacilli, requiring both ancillary organisms and local injury before they can assume pathogenic activities. Second, it has been emphasized that possibly the frequency of this condition among soldiers has been brought on in part by vigorous antisyphilitic treatment. It is, apparently, true that the use of mercury, in that it favors stomatitis, predisposes to the condition, and it is certainly true that mercury should not be used when Vincent's angina exists. It would seem to me that in view of the increased frequency of these conditions of Vincent's infection, in view of the fact that Ellermann has apparently been able to reproduce the lesions in tissues previously damaged, that it is at least safe to assume for the present that these organisms are potentially quite capable of producing much harm and temporary invalidism to men, both in civil life and under military surroundings.

There are so many facts that point to the possible seat of the trouble around the teeth that it should be every one's duty to watch for the earliest signs of infection.

Milk and the Children.—It is the duty now of every individual community to see that its children have milk of good quality and in sufficient amount to assure their normal development. To do this the price of milk must be controlled or fixed, and the milk supply to infants and children carefully safeguarded. The malnutrition of our children was, even before 1914, a serious national problem and one demanding urgent attention. Poverty and ignorance of dietary essentials have been ever-present factors in the malnutrition of the young and war conditions cannot fail to increase the gravity of the situation and the difficulties of maintaining the health of the Nation.—Bulletin, Federal Children's Bureau.

EFFECT OF PROLONGED BILE DRAINAGE IN THE CURE OF SUBACUTE AND CHRONIC PANCREATITIS*

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The object of the present small investigation was to discover, so far as was possible, the effect of bile drainage on that swelling of the pancreas that we loosely call pancreatitis in such patients as recover and regain some degree of their previous health. The only criterion of judgment available in all but one or two of the patients was the recurrence or the absence of symptoms similar to those for which the operation had been done. For the purposes of the investigation, all case reports were taken in which the operator had set down the fact that the pancreas was to palpation hard, enlarged, nodular, swollen, etc., whether infection of the bile tract or gallstones was present or not. It is recognized that, in making such a palpatory diagnosis of pancreatitis, one must reckon with the personal equation to a certain extent, and, to that extent, naturally, with a margin of error. Nevertheless, when the operations have been done by men of recognized ability, known to be conservative in their attitude, as was the case in the present series, such a margin of error is certainly a small one. In the second place, it should be premised that the cases of this series were all of the subacute or chronic recurring type of mild grade, together with a few acute cases in which the patients recovered. The type is familiar to the operating surgeon. During an operation undertaken usually for gallstones, which may or may not be present, examination reveals a variable degree of thickening and hardening of the pancreas. If gallstones are present, these are removed, bile drainage is instituted, and the surgeon from experience knows that the pancreatitis may be left to get well of itself. Besides, he usually feels that the bile drainage alone is proper treatment for the pancreatitis. If, on the other hand, gallstones or other possible causes are not found, he very properly drains the bile all the same, usually by a cholecystostomy. Recently, Dr. Judd¹ has said that a cholecystectomy is more certain of curing the pancreatitis than a cholecystostomy.

In the pancreatitis cases of the Royal Victoria Hospital, whose records I have gone over in this connection, there were very few cholecystectomies done. Up to lately, at any rate, it has been felt, in general, that if pancreatitis were present, and the gallbladder was not irreparably diseased, it was safer to conserve the gallbladder as a sort of safety valve to forestall undue rises of pressure in the biliary passages, or to serve for a short-circuiting operation if subsequent lesions in the common duct or the pancreas should ever render that necessary. Consequently, in our hospital, a tube has usually been placed in the gallbladder, and the bile drained for a variable time, in cases of pancreatitis associated with gallstones.

STATISTICAL RECORD OF OPERATIONS

Out of a total of a little more than 500 case records of operations on the bile passages, I find the pancreas specifically mentioned in 105 as being enlarged, hard, nodular, etc. Follow-up letters were written to the

105 patients and forty-one replies were received, of which only thirty-three were available for proper analysis. These thirty-three cases, then, I have tried to analyze with regard to the effect of bile drainage on the recurrence of symptoms.

Such an analysis immediately meets one difficulty and is open to one objection in particular. So many of the patients suffered coincidentally from gallstones that one might reasonably inquire whether the recurrence or the persistence of symptoms might not be due to recurrence of gallstones or of cholecystitis, or to adhesions rather than to that of pancreatitis. In the absence of relaparotomies, such an objection cannot positively be set aside. Nevertheless, I have considered it justifiable to assume that a properly conducted operation for gallstones is but very rarely followed by recurrence; and, consequently, that, when a letter declares that the patient suffers from symptoms similar to those of the preoperative attacks, such symptoms are presumably due to the coincident pancreatitis.

There were twenty-four cases of cholecystostomy. I have divided these as to duration of drainage into periods. Of these fifteen had a tube in the gallbladder for two weeks or less. Of this number, only three profess themselves cured; five say they are improved, some very much so, but they still have a good deal of pain in the pit of the stomach and the upper abdomen generally; in three the pain is accompanied by nausea or vomiting, coming on irregularly, at a variable time after food; and, finally, seven say they still suffer from the same trouble as before operation, that is, attacks of epigastric pain, sometimes with vomiting, and, in two instances, with jaundice. So only three of fifteen were cured, and seven have persisting trouble, while five were improved only.

There were four cases in which bile drainage was kept up more than two weeks, but not more than three weeks. Of these, three say they are cured and one is much improved, although still subject to epigastric pain at intervals that are gradually growing longer.

Finally, there were five cases in which the bile was drained longer than twenty-one days, that is, 28, 40, 42, 44 and 59 days respectively. The patients all say they are quite cured. The most recent one was operated on a year ago, the others six, eight, eight and sixteen years ago. One of these, who was operated on for gallstones ten years ago, and in whom no stones or other lesions of the bile tract were found, while the pancreas was diffusely enlarged to twice its normal size and also hardened, had the wound closed without bile drainage or other therapeutic measure. She had numerous and somewhat severe attacks of epigastric pain, sometimes with light jaundice, during the next two years, and was finally reopened, when the pancreas was found again to be the only organ involved and slightly larger than before. This time a tube was put in the gallbladder, the bile was drained for fifty-nine days, and since then, eight years ago, she has been entirely free from her old pain.

The cholecystectomy cases number only four. Of these three write that they are cured. These drained bile through a tube in the common duct for seven, twelve and twenty-two days respectively. In the fourth case, the abdomen was closed. No drain was inserted, and this patient complains of the same trouble as before operation.

In three patients, all operated on about ten years ago, in whom operation revealed pancreatitis without

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Judd, E. S.: *Ann. Surg.*, 1918, **67**, 473.

bile tract lesions, and in whom no drainage was instituted, the symptoms continued just as before operation. One of these was cured later, as already related, by bile drainage, for fifty-nine days; another died after three years of "stomach trouble," and a third still complains of constant "indigestion" with pain in the epigastrium and the left side.

Finally in one patient, the mass in the head of the pancreas seems to have been a direct extension of a mass in the pylorus, presumably an ulcer, inasmuch as a gastro-enterostomy gave lasting relief.

GENERAL RESULTS OF TUBE DRAINAGE

While it is perhaps not quite justifiable to draw any far-reaching conclusions on the basis of so small a series of cases, in view of the lack of that exact knowledge which only a relaparotomy can furnish, I feel, nevertheless, that the results recorded are at least suggestive. The general fact stands out clearly enough, that, the shorter the drainage of bile, the more likely to persist were symptoms similar to those complained of before operation, and that when the drainage was prolonged for four weeks or more, all such patients were cured permanently. Whether gallstones were present or not did not seem to make much difference.

I should therefore like to enter a plea for a more prolonged drainage of bile than I believe has hitherto been usual in most clinics. If one is going to leave the gallbladder in, I think a wise plan is to stitch the organ to the parietal peritoneum, leaving the cholecystostomy opening at the level of the rectus sheath, and to refrain from the inturning purse-string stitch, so that the mucosa-lined opening may not close too quickly if the tube is pulled out accidentally.

What is the rationale of bile drainage for pancreatitis?

It used to be thought that such drainage was used chiefly in order to get rid of infection in the bile. But a revival of our knowledge concerning the sphincter at the outlet of the common duct, first described by Oddi, the Italian physiologist, more than thirty years ago, together with the observation that a majority of cases of pancreatic swelling are unassociated with gallstones or infection in the common duct, has shown us that the keynote in the treatment of pancreatitis is not so much mere drainage of possibly infected bile as it is reduction and prevention of rises of pressure in the biliary system. The sphincter, it would seem, may without difficulty be provoked into spasm under certain as yet not well known conditions; and the consequent rise of pressure in the bile tract may force bile into the pancreas and so set up a pancreatitis of varying degrees of severity.² Consequently, if pancreatitis has already been caused, our chief concern after removing gallstones, if these are present, must be to provide a safety valve against any rise in bile pressure, and so avoid any further occasion for retroinjection of bile into the pancreas and aggravation of the lesion. Whereupon, we may trust Dame Nature to repair the damage already done in the pancreas!

But to repair such damage, consisting as it does frequently of multiple microscopic necroses with edema and possibly some hemorrhage, much time is necessary. I am inclined to place that time at three weeks at least, and if the pancreas is much affected, at two months or more.

One question will naturally occur to operators. If it is true that the sphincter of the common duct by its resistance may cause retroinjection of bile into the pancreas, and if the gallbladder is a sort of reservoir or safety valve protecting against sudden or extreme rises in bile pressure, why should not a cholecystectomy very quickly cause an increased pressure in the common duct, and so be followed more often than not by the entrance of bile into the pancreatic duct and by pancreatitis? From the work of Dr. Judd, we know that the contrary is the case. In his opinion, a cholecystectomy reduces ultimately the pressure in the common duct, and so conduces to the cure of pancreatitis.

I am sure Dr. Judd's conclusion must be correct, based as it is on a large and carefully collated experience. But I feel that the fact may be preferably explained otherwise. A short series of experiments on only three dogs, lately carried out with the object of measuring the pressure in the common duct before and after cholecystectomy, has shown that the pressure was not reduced in the common duct, at least inside of two months. By that I mean that the resisting power of Oddi's sphincter was found to be unaffected by the cholecystectomy. I think therefore that we must look for other reasons for the fact that pancreatitis is best cured by removal of the gallbladder. Here one is reduced to theorizing. I believe we must ascribe some effect to the postoperative care, especially the fluid diet at short intervals. We know that the arrival of food in the duodenum causes an opening of the sphincter and a flow of bile into the intestine. Therefore, two-hourly feedings would tend to prevent any accumulation of bile in the common duct. Jaboulay was able to cure a biliary fistula by the simple expedient of feeding his patient every two hours, day and night.

On the other hand, if I may be allowed to venture a hypothesis as yet unsupported by much evidence, I should be inclined to say that the removal of the gallbladder very possibly brings about a permanent diminution of bile pressure in the common duct, by virtue of removing the only muscular force of any power that is present in the biliary tract. While the bile pressure, as secreted in the liver, is not more than 150 mm. of water and often less, the gallbladder, as demonstrated by Freese of Johns Hopkins some years ago, possesses an expelling force amounting, if I remember rightly, to more than 200 mm. of water. This factor being removed by cholecystectomy, it is conceivable that with the very small and very elastic *vis a tergo* represented by bile secretion in the liver, the pressure in the common duct may rarely if ever rise to a point at which it may be forced into the pancreas against the slight pressure of the pancreatic secretion, before the sphincter relaxes at the call of food and the bile in the common duct flows harmlessly into the intestine.

If this were shown by experiment to be the case, it would very plausibly explain the good effects of cholecystectomy so regularly seen in the Mayo Clinic.

ABSTRACT OF DISCUSSION

DR. W. D. HAGGARD, Nashville, Tenn.: Dr. Archibald's study seems to confirm the general impression I have received in reference to drainage for pancreatitis. We should divide these cases into two groups: first, the cases in which there is infection of the gallbladder, in which it is essential to remove the gallbladder; second, cases associated with stones

2. Archibald, Edward: A New Factor in the Causation of Pancreatitis, Tr. Internat. Cong. Med., London, 1913; The Experimental Production of Pancreatitis, Paper read June 7, 1918, at Cincinnati Meeting of American Surgical Association.

in the common duct, in which it is paramount to remove the stones; and when we drain we cure the patient. In the cholecystectomy cases Dr. Archibald goes a step farther and drains through the cystic duct. He cures three out of four patients. Remove the gallbladder whenever wise and safe in cases of chronic pancreatitis and drain.

DR. E. STARR JUDD, Rochester, Minn.: Our experimental work on pancreatitis was brought about entirely by the rescarches of Dr. Archibald years ago, and it may be at variance with his work at the present time. This work was entirely original so far as Dr. Archibald is concerned. We thought, as our experiments went along, that while they were a little different from Dr. Archibald's, that we were coming to the same conclusions. The assumption was that pancreatitis was due to bile entering the pancreatic duct, because of the action of the sphincter. Archibald proposed to cure pancreatitis by paralyzing Oddi's sphincter. Dr. W. J. Mayo called attention to the fact that clinical evidence shows that removal of the gallbladder is a good procedure, in gallbladder cases, when the pancreas is involved. I remember the first case illustrating this point. The original treatment for chronic pancreatitis was drainage of the gallbladder. It had been drained twice, and all symptoms were relieved, which was the history in most of our cases of pancreatitis that were drained. At the third operation the pancreas was definitely enlarged and there were many adhesions about the gallbladder. It was so badly lacerated that it was impossible to do a cholecystotomy so the gallbladder was removed. The man was watched carefully, with the idea that he might have trouble, that possibly we might have taken away a safety valve. However, he promptly got well and remained well.

Unless there is definite mechanical obstruction in the common duct cholecystenterostomy is useless. Permanent bile drainage cannot be established in that way. The reason we believe that cholecystectomy is a better procedure in pancreatitis is that in every case in which the gallbladder is removed, the common duct dilates until its increased capacity compensates for the loss of the gallbladder, or the sphincter becomes incontinent. This dilatation has been mentioned by many observers when there is obstruction of the duct. In the experimental work of removing the gallbladder, conducted by Dr. Mann, we found what we thought was a definite enlargement in the common duct, and as nearly as it could be estimated in a large percentage of the dogs and cats, a definite dilatation existed in this duct. We tried to estimate how this took place, and it seemed to be due to fluctuation in pressure. The resistance offered by the liver itself was greater than that offered by the walls of the extra hepatic ducts or the sphincter. We presume that this fluctuation in pressure eventually brought about what Dr. Archibald was doing in experimental work on the sphincter. It seemed that the dilatation in the duct continued until there was enough hypertrophy in the wall to overcome the resistance offered by the little sphincter in the ampulla. When that took place we had paralysis of the Oddi sphincter and a continuance of the entrance of bile into the duodenum. In this way we had an explanation of how removal of the gallbladder might possibly cure cases of pancreatitis.

DR. J. EARL ELSE, Portland, Ore.: As has been stated, regurgitation of bile is a cause of pancreatitis. In a case seen at postmortem, Nature took care of a regurgitation of bile into the pancreas without leaving any evidence of inflammation although there was undoubtedly some present at one time. The outlet of the ampulla of Vater was almost completely occluded so that pressure on the gallbladder would force only a drop of bile at a time from it. The bile flowed freely from a persistent duct of Santorini. Dissection showed about 6 cm. of the lower portion of the duct of Wirsung to be dilated. From the upper end of the dilated portion a large anastomotic branch led over to the duct of Santorini so that the bile passed up the duct of Wirsung through the large anastomotic branch to the duct of Santorini and down through it to the duodenum. A search of the literature at hand failed to reveal a similar case.

DR. R. C. DUGAN, Ottawa, Kan.: Dr. William J. Mayo was the first surgeon I saw remove the mucous membrane

of the gallbladder instead of removing the whole gallbladder. It was done as the operation of necessity because he could not remove the whole gallbladder. Recently, I have been doing that operation by election and I think I get better results in many cases than from a complete cholecystectomy. The pouch of peritoneum left after the removal of the mucous membrane of gallbladder gives opportunity to drain as long as we want to, and when drainage is removed, the gallbladder is practically removed as far as function is concerned.

DR. EDWARD W. ARCHIBALD, Montreal, Canada: In cases of pancreatitis where there is infection and the gallbladder is removed and the common duct drained, it will be better to drain the common duct a long while rather than a short while. I have a profound admiration for the work that is going on in the Mayo Clinic; work which is not merely clinical, but is reaching out into the domain of experimental surgery. We must all regard such work as being nowadays a necessary complement to clinical work in any clinic of high standing. By it alone, we can get light on many problems. By comparing and discussing our results, as we have done today, we shall ultimately have complete knowledge of this subject.

FURTHER EXPERIENCES WITH THE KONDOLÉON OPERATION FOR ELEPHANTIASIS *

W. E. SISTRUNK, M.D.

ROCHESTER, MINN.

I wish to discuss in this paper the merits of the Kondoléon operation for elephantiasis and to report the results obtained in seven patients operated on by the method.

Kondoléon¹ of Athens, Greece, in 1912, first reported cases of elephantiasis in which operation was performed by his method. The operation seems to have been gradually evolved through others of a similar though distinctly different type, which had been performed by Lanz,² Oppel³ and Rosanow,⁴ and its aim is to establish, by a wide excision of the aponeurosis, a communication between the superficial and deep lymphatic channels. The deep aponeurosis seems distinctly to separate the superficial from the deep group of lymphatics. In elephantiasis, the edematous and hypertrophied tissues are found to lie above the aponeurosis, while the subaponeurotic tissues are usually quite normal. When large pieces of this tissue are removed, sufficient communication may be established to allow the deeper group of lymphatics and the muscles to drain the stagnant lymph ordinarily handled by the blocked superficial group, and this very markedly benefits the condition. The technic of Kondoléon's operation is as follows:

Long incisions are made along the outer and inner aspects of the affected limb, and through each of these a large slice of edematous fat is removed. The aponeurosis is then opened and a portion of it, three or four fingers in width, is excised throughout the entire length of the skin incision. The wound is then

* From the Mayo Clinic.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Kondoléon, E.: Die chirurgische Behandlung der elefantiasischen Oedeme durch eine neue Methode der Lymphableitung, München, med. Wchnschr., 1912, **59**, 2726-2729; Die operative Behandlung der elefantiasischen Oedeme, Zentralbl. f. Chir., 1912, **39**, 1022-1025; Die Dauer-resultate der chirurgischen Behandlung der elefantiasischen Lymphödem, München, med. Wchnschr., 1915, **62**, 541-542.

2. Lanz: Eröffnung neuer Abfuhrwege bei Stauung in Bauch und unteren Extremitäten, Centralbl. f. Chir., 1911, **38**, 152-155.

3. Oppel, V. A.: Conservative Operative Treatment of Elephantiasis, Khirurg. Arkh. Velyaminova, St. Petersburg, 1911, **27**, 387-394.

4. Rosanow, W. N.: Lymphangioplastik bei Elephantiasis, Arch. f. klin. Chir., 1912, **99**, 645-655.

closed without drainage in such a way that the skin, with a small amount of subcutaneous fat attached to it, comes in contact with the exposed muscles.

The first article in this country calling attention to and commending this operation was published in 1913 by Matas⁵ of New Orleans. He discusses in detail the etiologic factors that contribute to the production of true elephantiasis, giving his own opinion and that of others regarding the part which bacteria, usually streptococci, play in the production of this condition, and emphasizing repeatedly the necessity of such bacterial invasion in order that a true elephantiasis may be produced. Lymphatic or venous stasis, from various causes, usually precedes and is the predisposing cause of the bacterial invasion, although, according to Matas, many writers, including Le Dantec,⁶ Sabouraud⁶ and Unna,⁶ believe that true elephantiasis may occur independently of lymphatic or venous obstruction and solely as a result of repeated attacks of streptococcic infection. Matas states that the histopathologic elements that are essential to complete the picture of elephantiasis are (1) a mechanical obstruction or blockade of the veins and lymphatics of the affected region, usually an obliterative thrombophlebitis or lymphangitis or adenitis; (2) hyperplasia of the collagenous connective tissue of the hypoderm; (3) gradual disappearance of the elastic fibers of the skin; (4) the existence of a coagulable dropsy or hard lymphedema, and (5) a chronic reticular lymphangitis caused by secondary and repeated invasion of pathogenic micro-organisms of the streptococcic type. In conclusion he reports two cases in which operation was performed, one by himself and the other by his associate, Gessner, which were the first cases in this country in which the Kondol  n operation was used.

Royster,⁷ early in 1914, reported a case in which operation was performed by Kondol  n's method, and Hill,⁸ in 1915, reported a case in which the same procedure had been used.

The operation has been performed in the Mayo Clinic in seven instances. I have reported three of these cases in a recent article on the subject. In three of the patients the disease was located in the left arm, and in the other four patients, in one of the lower extremities.

In the first arm case an elephantiasis had developed following an infected vaccination wound, with repeated

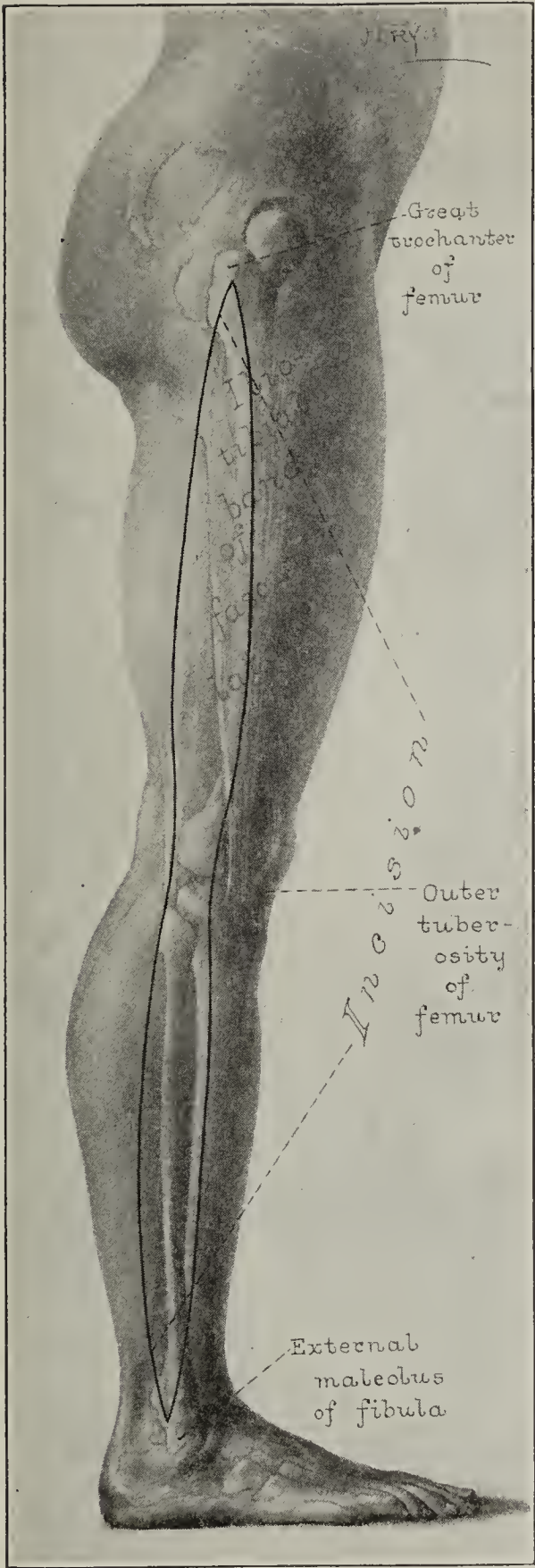


Fig. 1.—Line of incision on the outer surface of the leg and thigh.

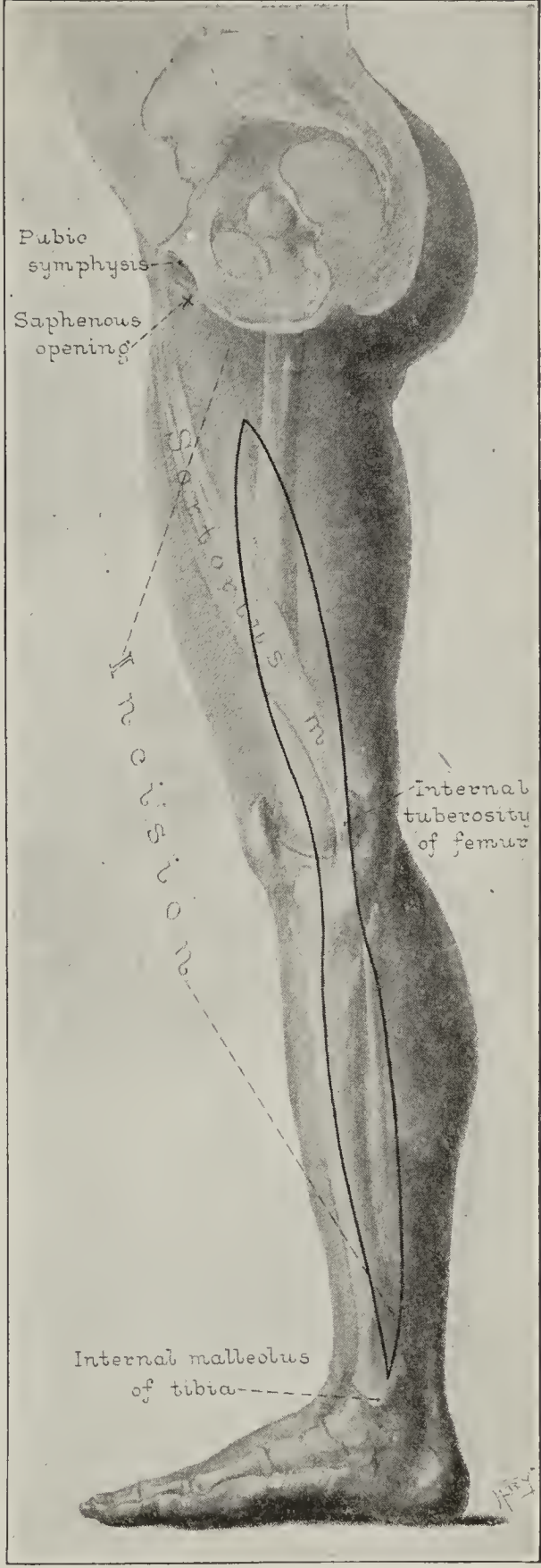


Fig. 2.—Line of incision on the inner surface of the leg and thigh.

erysipelatos attacks in the affected arm. The next arm case in which operation was performed was one of a simple lymphedema of the arm following the radical removal elsewhere of the left breast and axillary glands for a supposed malignant tumor of the breast, but which was afterwards proved to be benign. In the third arm case, an elephantoid condition had resulted from an injury to the arm two years previously.

5. Matas, Rudolph: The Surgical Treatment of Elephantiasis and Elephantoid States Dependent upon Chronic Obstruction of the Lymphatic and Venous Channels, *Am. Jour. Trop. Dis. and Prev. Med.*, 1913, **1**, 60-85.

6. Quoted by Matas (Note 5).
7. Royster, H. A.: Elephantiasis and the Kondol  n Operation, *THE JOURNAL A. M. A.*, May 30, 1914, p. 1720-1722.

8. Hill, L. L.: Elephantiasis, *Surg., Gynec. and Obst.*, 1915, **21**, 334-335.

In one of the leg cases, a woman aged 23, the condition was probably congenital, having been first noticed when the patient was a child $1\frac{1}{2}$ years old. In another case of a girl, aged 17 years, who had had trouble for six years, no etiologic factor was obtainable. Her tonsils were septic, and were removed following the operation. The third leg case in which operation was performed was that of a child with a chronic tuberculosis synovitis of the knee and tuberculosis of the inguinal lymph nodes on the affected side. The fourth case was in a woman of 21. The condition had developed six years previously, fol-

were made with the same findings as those reported by other writers. Dr. Broders, of the laboratory of fresh tissue diagnosis, has very kindly done this portion of the work and reports his findings as follows:

EXAMINATION OF TISSUES

Gross Pathology.—Grossly, the specimens examined presented a reduction in the thickness of the epidermis with a marked thickening of the dermis. A large amount of fat was present underneath the dermis, which was separated into lobules by fibrous connective tissue trabeculae. These trabeculae connected with the aponeurosis, which was also greatly thickened.

Microscopic Appearance of the Tissues.—Microscopically, there was a reduction in the thickness of the epidermis. The epithelial papillae were very much diminished in length and, in a number of areas, they had completely disappeared. The dermis showed a marked thickening and fibrosis. The sweat glands were partially compressed by the excess of fibrous tissue, while the veins and lymphatics were dilated. The elastic tissue of the skin had entirely disappeared. The fibrous trabeculae which separate the fat lobules and connect with the aponeurosis showed numerous dilated veins, capillaries and lymphatics, and also small groups of leukocytes. The aponeurosis presented a picture similar to that of the trabeculae. There were evidences of edema throughout the tissue.

TECHNIC OF OPERATION

In our first cases we followed as closely as possible the technic, as we understood it, which had been used by Kondol  n. We gradually realized that better results were obtained when a fair amount of hypertrophied skin was removed in addition to an extensive removal of the edematous fat, and that it was neces-

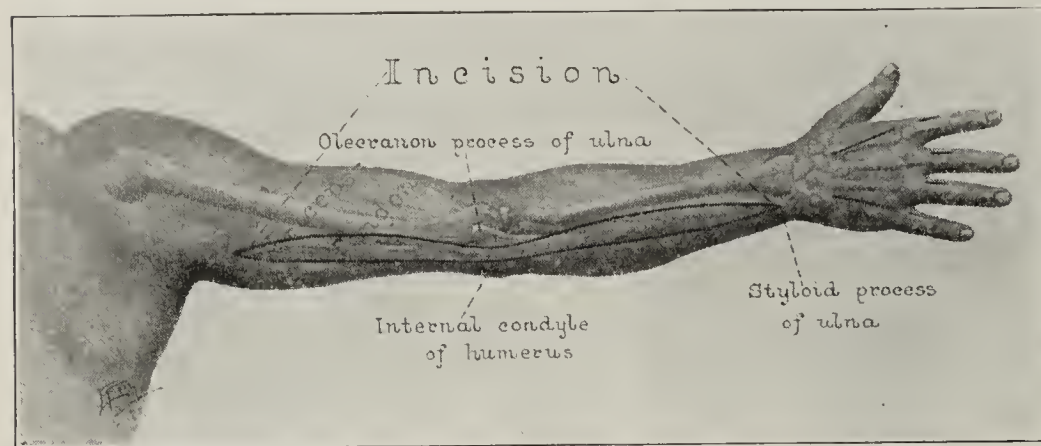


Fig. 3.—Line of incision on the outer surface of the arm and forearm.

lowing an attack of tonsillitis, with subsequent arthritis which was accompanied by fever. At the same time she also had four large boils on her face and right arm.

In all of the leg cases there was marked thickening of the dermal and hypodermal tissues with marked edema and thickening of the aponeurosis, but in none of these could a history of recurring erysipelatos attacks be obtained.

The results obtained in the arm cases were not so satisfactory as those in the leg cases. In each case improvement was quite marked shortly after the operation, but in two instances the patients still report some swelling which fluctuates in its extent. In the patient in whom the trouble had developed following vaccination, the arm and forearm have returned to normal, but a swelling of a fluctuating type still persists on the dorsal surface of the hand.

In all of the leg cases the improvement was very striking and occurred almost immediately following operation. In the first of these, operation was performed one and one-half years ago (previous to June, 1918), and the others eight months, four months and two months ago, respectively. All were heard from or seen during April or May, 1918, and in each case the improvement has been very marked and has persisted.

We were able to grow streptococci from the verrucose formations which were present in certain areas on the arm of the patient who developed elephantiasis following infection in the vaccination wound. However, although cultures were made from the edematous fat and thickened aponeurosis in nearly all of the other cases in which operation was performed, streptococci or other pathogenic organisms could not be grown. In the first patients operated on, no microscopic examinations were made of the tissues removed. In the later cases, however, careful examinations of these

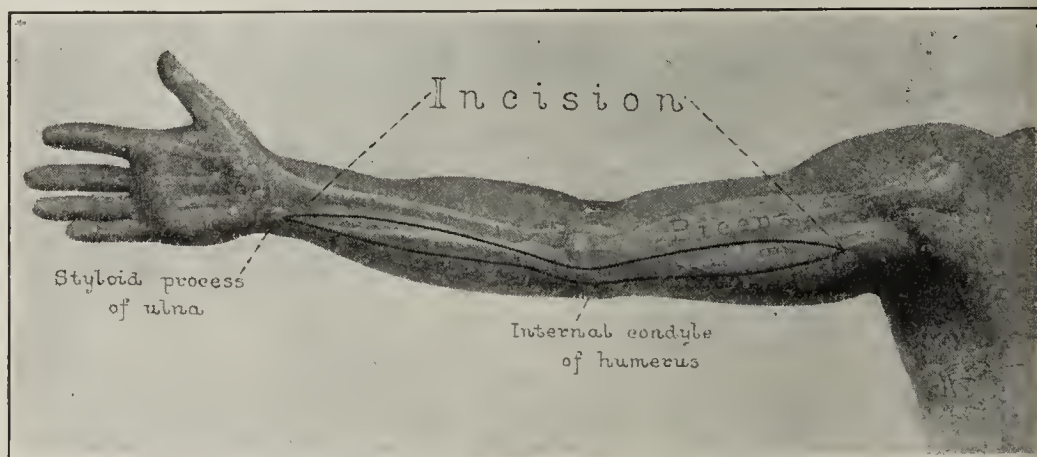


Fig. 4.—Line of incision on the inner surface of the arm and forearm.

sary, in order to obtain the best results, to remove, as Kondol  n has emphasized, a wide strip of aponeurosis. Since we have practiced the removal of the skin we have changed slightly our method of procedure, although we achieve, in the end, results identical, except for a wider removal of skin and fascia, with those obtained in our first cases. At present, we perform the operation as follows:

A long modified elliptic incision, which includes the skin to be sacrificed, is made on one side of the affected limb. On the outer aspect of one of the lower extremities this incision would extend from the trochanter to the external malleolus. Then, in order

to facilitate a wide removal of the subcutaneous fat, the skin is reflected on each side of the incision for a distance of about 1 or 1½ inches. The skin is retracted, and underneath each of the reflected skin edges, a long incision is made through the edematous subcutaneous fat down to and including the aponeurosis. These incisions are made almost parallel to the original skin incision. Included between them is a quadrilateral piece of edematous fat and aponeurosis. At the upper end, these two incisions through the aponeurosis are connected by a transverse incision. The tissues to be removed are now free except for the attachment of

After operation, the patient is kept in bed for eight or ten days. An elastic bandage is then applied and the patient allowed to get up and walk about. We have advised the use of this elastic bandage for several months, and if there is a tendency toward swelling when it is removed, it should be worn for an indefinite period. The suggestion of Matas, to administer anti-streptococcic serum or vaccine at intervals for some time after the operation, has been followed.

Our experience with the Kondoléon operation leads us to believe that in this we have a procedure whereby much aid can be offered to patients suffering with a true elephantiasis, and especially so to those in whom the condition is present in the lower extremities.⁹

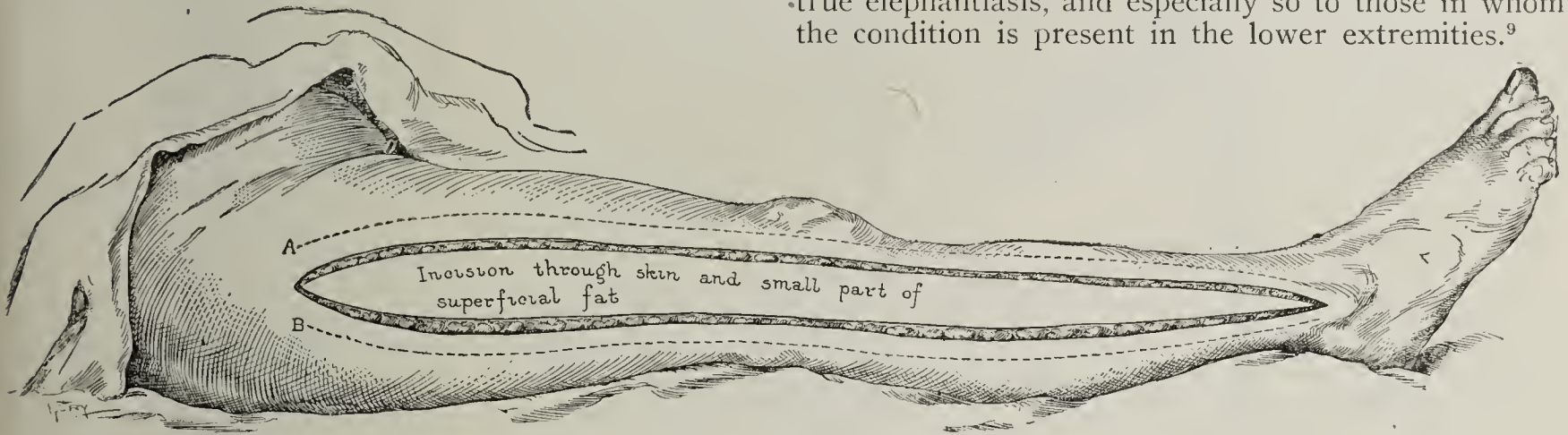


Fig. 5.—Incision used on the outer surface of the thigh and leg. Dotted lines *A* and *B* show extent to which the skin is reflected for the removal of subcutaneous fat.

the aponeurosis to the underlying muscles. By traction on the tissues that are to be removed, it is very easy to dissect the aponeurosis from the muscle throughout the length of the entire limb and to remove in one long piece the skin, edematous fat and aponeurosis. A number of vessels which tend to bleed profusely are encountered. These are temporarily controlled with forceps. After the tissue has been removed, these forceps are taken off, and surprisingly few of the

REPORT OF CASES

CASE 1 (41167).—A woman, aged 21, with the congenital type of elephantiasis of the left leg, which had been present since she was 1½ years of age, was first seen in the Mayo clinic at the age of 15. At that time there was a tremendous enlargement of the left foot, leg and thigh, and a marked thickening of the skin covering these. In August, 1911, according to Handly's method, one silk strand was placed on the outer and one on the inner aspect of the leg, from the ankle to the region of the left groin. The patient returned

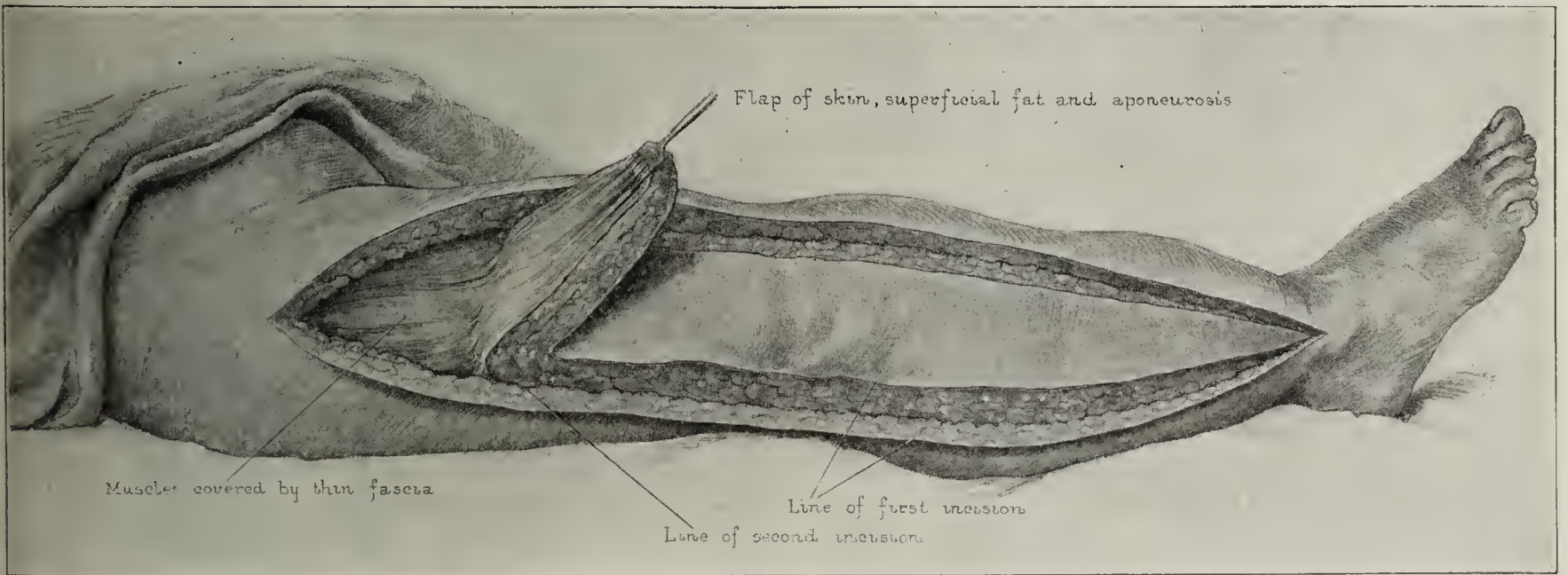


Fig. 6.—Skin, a large amount of subcutaneous fat, and aponeurosis removed in one piece.

vessels will be found to need ligatures. The wound is closed with interrupted silkworm-gut stitches, without drainage. It is necessary to do a similar operation on the opposite side of the limb. If the patient's condition permits, we usually do this as soon as the first operation has been completed; if not, after a period of eight or ten days has passed. The tissues, although diseased, heal remarkably well, and in none of the cases in which we have operated has there been the slightest infection (Figs. 1-7).

six months later without improvement; in fact, the enlargement had increased. In February, 1912, a double silk strand was placed subcutaneously on the outer and inner aspects of the leg, and the inner of these strands was extended upward into the fat of the abdominal wall, while the outer strands were carried as high as the left axillary line. The condition remained unchanged until her return more than four years later. At this time, December, 1916, an operation of the Kondoléon type was done, first on the outer side of the leg,

9. Elliott, J. A.: Elephantiasis Nostras: Report of a Case, Jour. Cutan. Dis., 1917, 35, 17-25.

and about one month later, on the inner side. The improvement was marked from the beginning, and at the time of her discharge, in March, 1917, the leg was much smaller than before the operation. A letter received in May, 1918, stated that the leg at present was smaller than when she left here,

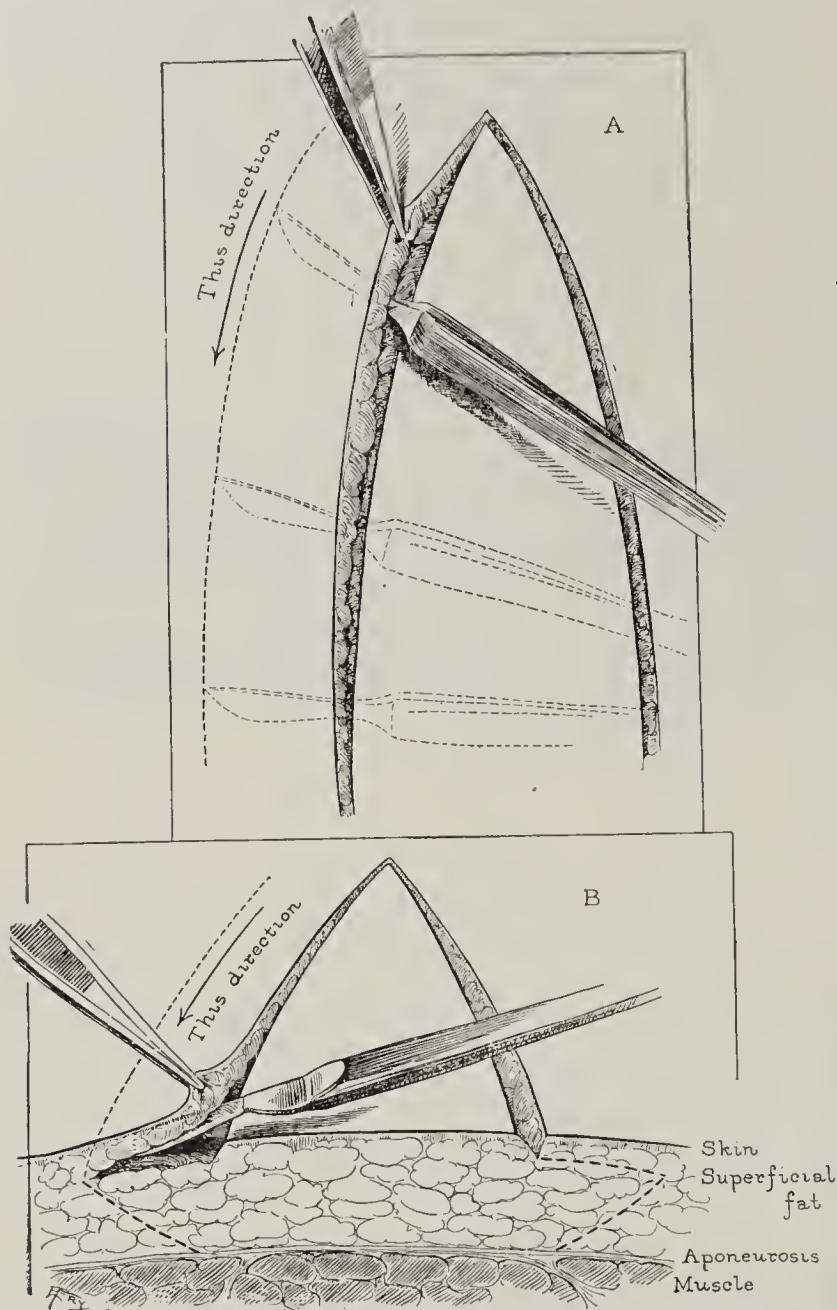


Fig. 7.—A, method used to facilitate the removal of a large amount of subcutaneous fat. After the incision has been made the skin and a small amount of fat are reflected in order that a larger amount of fat may be removed. B, cross-section of A.

and that she was able to walk and even to run with but slight inconvenience.

CASE 2 (170799)—A woman, aged 20, with elephantiasis nostras, presented a history that was negative until she was 11 years of age, when there was a severe infection following vaccination on the left arm. After the vaccination wound healed she was in good condition until two years before coming to the clinic. At this time, swelling of the left hand had developed and had slowly progressed until the forearm and arm were involved in the process. She had had many attacks of erythema in the swollen portion. The history and findings in this case have been reported in detail by Elliott. At the time of our examination, July 9, 1917, the patient presented a diffuse swelling of the arm, forearm and hand. The swelling was much more marked in the hand and gradually diminished up to a point a few inches below the acromion process. It also involved the proximal phalanges of the fingers. There was a definite thickening of the skin. July 13, an operation of the Kondol  n type was performed through incisions 5 or 6 inches long on the anterior and posterior surfaces of the arm and forearm. No incisions were made on the hand. Considerable improvement followed in the arm and forearm, but the condition in the hand remained stationary and some swelling also remained about the elbow. A second operation was done, September 29, at which time two incisions were made on the dorsal surface of the hand and one on each of

the lateral surfaces of the elbow. Multiple incisions were also made on each proximal phalanx of the fingers. The arm and forearm have returned practically to normal. Following the second operation there was considerable improvement for a while in the hand; later, however, the dorsal surface of the hand had a return of the swelling and at the present time (June, 1918) it is swollen.

CASE 3 (206558)—A woman, aged 51, had lymphedema of the left arm following amputation of the breast with removal of the axillary glands, done elsewhere. The wound had not been infected. Two months after the operation the arm began to swell, growing slowly but progressively worse and involving the dorsal surface of the hand, the forearm and the arm nearly as high as the shoulder joint. There was no thickening of the skin. Sept. 1, 1917, a Kondol  n type of operation was done. Long incisions were made on the outer and inner aspects of the arm and forearm from a point a few inches below the shoulder joint down to the wrist; also two incisions were made on the posterior surface of the hand. The swelling in the hand decreased at once, and there was marked improvement in the arm and forearm for a time. A recent letter (May, 1918), would lead us to infer that there is slightly more swelling at this time than there was when she was discharged from our care. This, however, is of a fluctuating character, and is less at times.

CASE 4 (216446)—A woman, aged 43, with an elephantoid condition of the left forearm, had a fall down stair-steps two years before being seen in the clinic, with injury to the left forearm. Three days later the skin on the outer surface of the forearm became red and then black, and remained so for two or three weeks. Three months later the forearm swelled and remained so until she was examined here in January, 1918. At times there was also swelling on the dorsal surface of the hand. When seen, the patient was found to have a

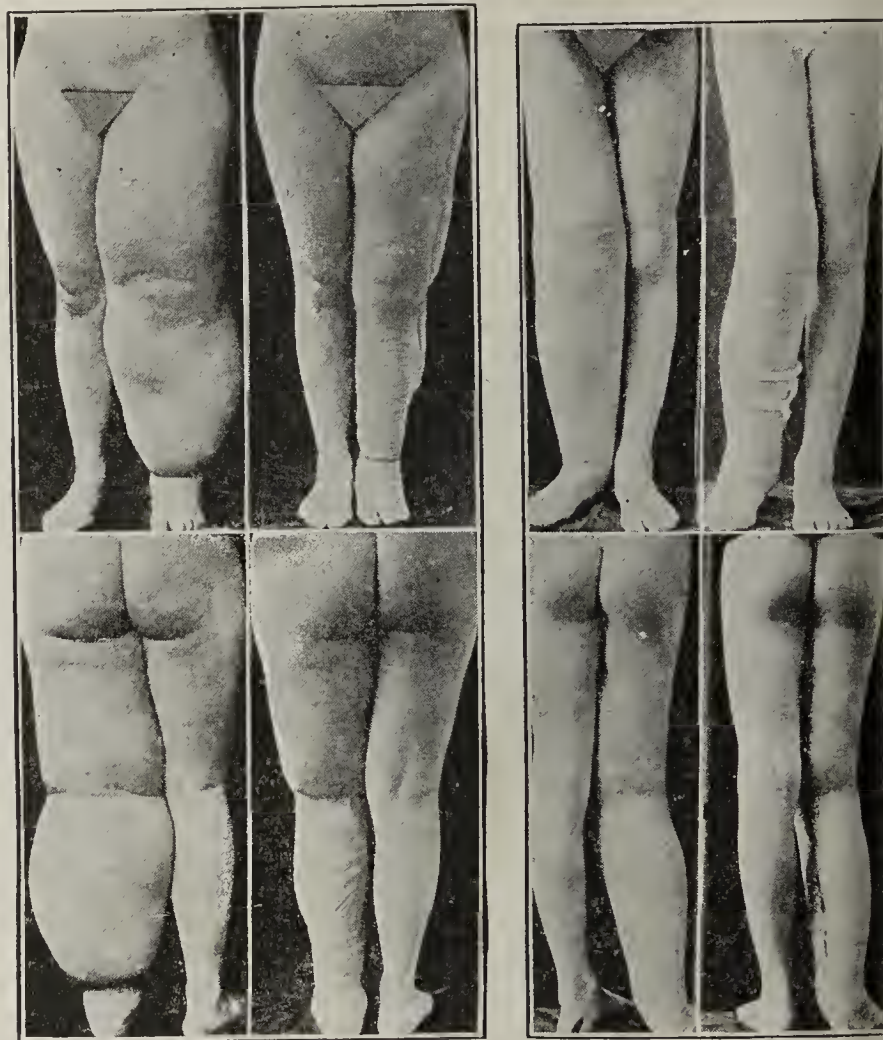


Fig. 8 (Case 1).—Anterior and posterior views before and after operation.

Fig. 9 (Case 6).—Anterior and posterior views before and after operation.

swelling of the left forearm, with considerable thickening of the skin. January 12, an operation of the Kondol  n type, similar to the one described in the previous cases, except for the fact that no incisions were made on the dorsal surface of the hand, was done. There was marked immediate improve-

ment which persisted until April 1. The patient, in a recent letter, states that at this time the forearm from the elbow to the wrist became inflamed and full of red blotches. Following this the swelling returned and at the present time (June, 1918), the arm has been swollen for two months. She states



Fig. 10 (Case 5).—Anterior and posterior views before and after operation.

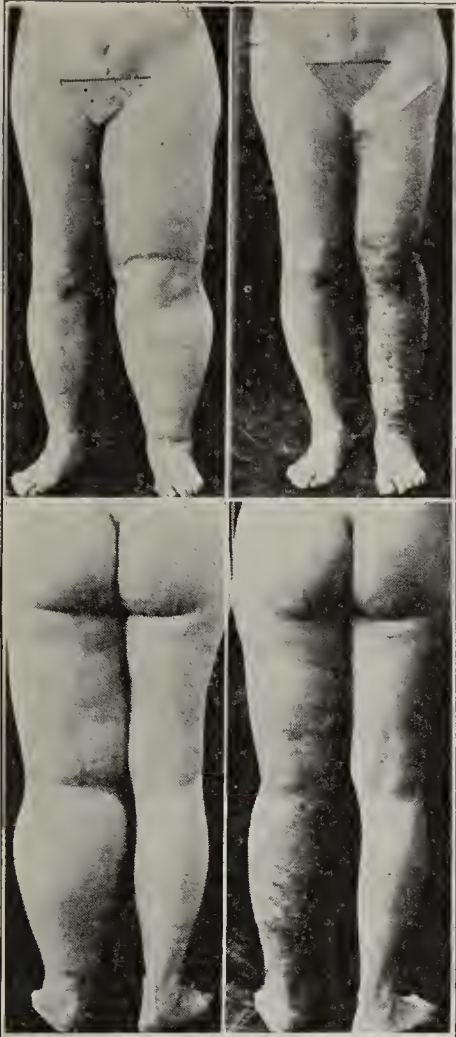


Fig. 11 (Case 7).—Anterior and posterior views before and after operation.

that the swelling is nearly as marked now as before the operation.

CASE 5 (213799)—A girl, aged 17, had a negative history until 1912. At that time the right leg became swollen without apparent cause and remained so until she was seen here in November, 1917. No etiologic factor could be obtained. The patient had septic tonsils, which were removed after her operation. When examined, there was a very marked enlargement of the right leg and thigh, with thickening of the skin. An operation of the Kondolón type was done, Nov. 27, 1917. It was followed by marked improvement which has been permanent to the present time (June, 1918).

CASE 6 (221137).—A girl, aged 12, when 3½ years of age developed swelling on the inside of the right knee, which was followed by a swelling of the leg and thigh. The condition began one month after an attack of measles. She consulted us in February, 1918, at which time there was fairly marked swelling of the leg and thigh, with considerable thickening of the skin. She also had a tuberculous synovitis of the right knee joint, with slight effusion into the joint, and a tuberculosis of the right inguinal glands. A Kondolón operation was done, Feb. 12, 1918. This was followed by a very fair decrease in the size of the limb, which has remained stationary to the present time (June, 1918). The result following the operation in this

patient was not quite so good as that obtained in the other patients in whom the condition was present in the leg.

CASE 7 (228071)—A woman, aged 21, five and one-half years before she was seen in the Mayo clinic, in 1918, developed tonsillitis which was followed by an arthritis with fever. At the same time there were several large boils on her face and right arm. Two and one-half years later the patient developed an amenorrhea, and during six weeks' time lost 30 pounds in weight. She was then told by her physician that she was anemic. The swelling in the right leg continued up to the date of her visit to this clinic, when there was a marked edema of the right leg with considerable thickening of the skin. A Kondolón operation was done on one side of the limb, April 20, and on the other side, April 30, 1918. It was followed by immediate and very marked improvement which has continued up to the present time (two months). In this instance the limb returned practically to a normal state.

ABSTRACT OF DISCUSSION

DR. HUBERT A. ROYSTER, Raleigh, N. C.: Elephantiasis is not a very common disease, at least not in this country. We have been taught heretofore that the disease was caused by the *Filaria sanguinis-hominis*, or some of the parasites circulating in the blood. I venture to say that unless one has looked up this subject within the last year or so, that opinion would still be held by the majority of physicians. As a matter of fact, as shown by Matas, cases in the southern part of this country rarely exhibit filariae. The case which I had was the only case of true elephantiasis that I have seen and it did not show the *Filaria sanguinis-hominis* in the blood either by day or by night. This patient was operated on in January, 1914, by the method just described, the Kondolón operation. Fortunately, I had just received and read carefully the exhaustive paper by Dr. Matas and I was able to give this man almost

perfect relief; whereas experience by different surgeons with other cases had ended in sad failures. I do not wish to discuss this operation in detail, because Dr. Sistrunk has given practically all that is known about it at the present time. I wish, however, to emphasize the principle that he established, as suggested by Kondolón, that in this operation is produced



Fig. 12 (Case 2).—Three months after Kondolón operation. Unfortunately, no photograph was taken in this case before the operation.

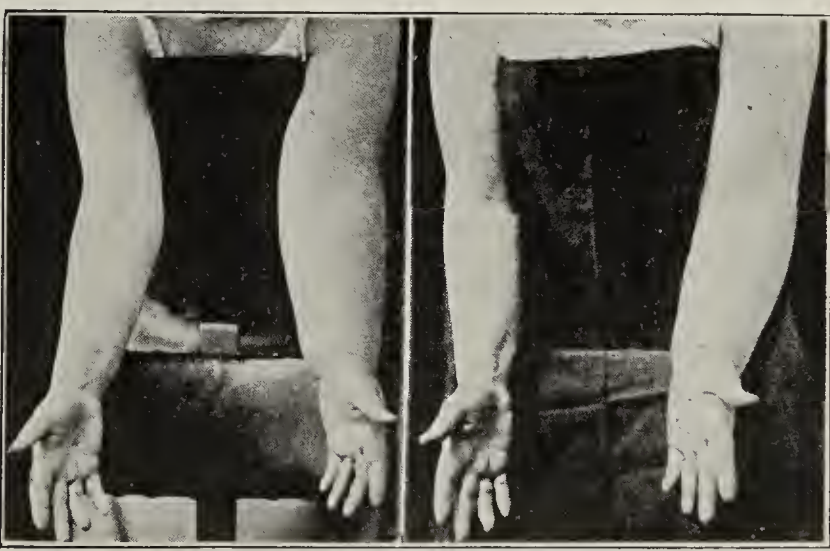


Fig. 13 (Case 3).—Arm before operation and two and one-half months after operation.

an anastomosis or communication between the superficial and deep lymphatics by removing the barrier between them. This principle is a practical one, for in the cases in which it has been done, the result has worked out either for great improvement or almost perfect recovery. My patient was a colored man who had been living in Florida recently. The history extended over seven years, with recurring attacks

of local inflammation resembling erysipelas. This again goes to show that in most of these cases there is an infection by the streptococcus of one type or another and during the period of the disease are exhibited, from time to time, recurring phases of this infection more or less acute. But very few observers have been able to prove the existence of the streptococcus in the tissues removed. My case was a typical Barbados leg and affected the limb only, from the knee down. There was a peculiar mass very horny, almost calcareous above the great toe. The bleeding at operation is usually quite free, and has to be controlled by hot packing and some ligatures. This case finally resulted in my having to operate on the foot in the same way three months afterward, and now the man's leg is practically well and he can perform his duties as a cook in a lumber camp.

DR. H. B. GESSNER, New Orleans: Dr. Sistrunk is to be congratulated on his excellent results and on his development of the technic. In regard to the etiology, there is no question about the importance of infection in producing these cases. As to the *Filaria sanguinis-hominis*, it must be extremely rare in this country. There is a tradition in New Orleans of a case in the Charity Hospital many years ago in which somebody found the *Filaria sanguinis-hominis*; the story is told how the investigator used to get up at midnight to take the blood and find the filariae dancing around. I have never known a case produced by filariae.

In addition to the one referred to by Dr. Sistrunk, I have had two other cases. In one of my cases the leg alone was involved, in another the forearm, in another the leg and thigh throughout their entire extent. In each of these cases there was a history of fascial and subcutaneous infection, not of an erysipelatos character. But I have seen a case in a middle aged woman in whom quite a considerable elephantiasis was traced to repeated attacks of erysipelas. The case in the forearm began in a finger infection. All of my patients were much improved, but none were cured entirely.

Dr. Matas has had half a dozen cases. In one the return to normal was almost complete.

Just a last word about the technic. We have not modified the technic, but our custom is to make a long incision on each side of the limb, through which the deep fascia is taken out quite extensively. I should estimate that in a leg we would probably take out half of the circumference of the deep fascia.

DR. H. R. DECKER, Pittsburgh: Is an effort made to spare the internal saphenous vein by a median incision?

DR. WALTER E. SISTRUNK, Rochester, Minn.: In answer to the question regarding the saphenous vein, we sacrifice that in removing the aponeurosis covering the muscles. It is along the line of incision and is deliberately cut with no bad results.

Cause of Leukemia.—The *Nederlandsch Tijdschrift* summarizes an article by Wiczowski in the *Przegląd Lekarski* relating that he succeeded in inducing a disease in a hen, resembling in some respects human leukemia, by intravenous injection of pleural effusion from a young man who had developed acute leukemia after a trauma. The leukocytes numbered 590,000 and there was pleurisy on one side. In the hen the hemoglobin dropped from 55 to 9 per cent. and the bone marrow showed infiltrates, etc. The clinical picture differed completely from that with so-called fowl leukemia.

TREATMENT OF VERNAL CONJUNCTIVITIS WITH RADIUM

TECHNIC

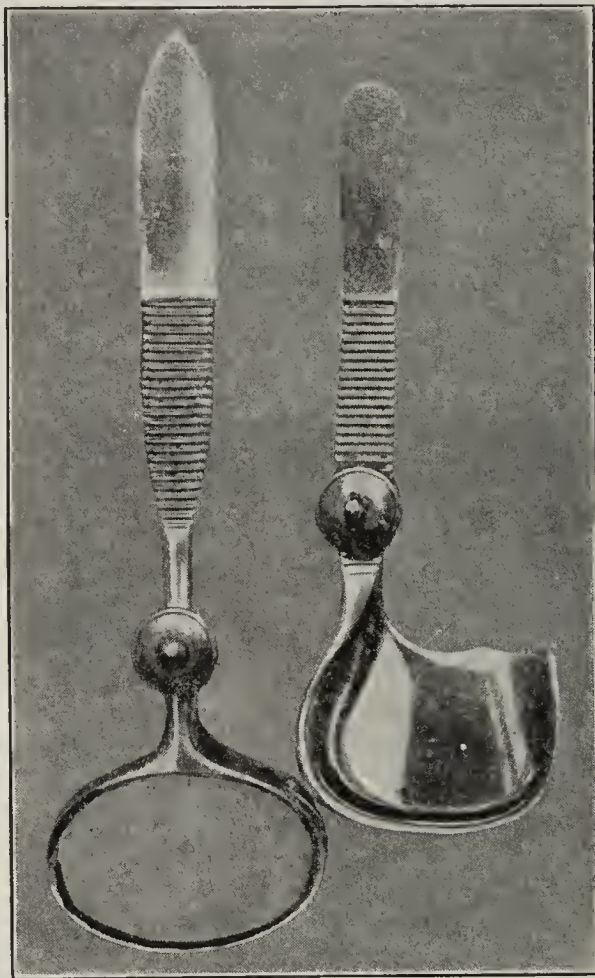
WILLIAM ALLEN PUSEY, M.D.

CHICAGO

In the course of the last fifteen years, I have treated with roentgen rays or radium several cases of vernal conjunctivitis. The results with either agent seem to be the same, and the application of the radium to the inner surface of the eyelids is so much less difficult than that of roentgen rays that in the last few years I have used only radium. I have had a great many requests for the technic of using radium in these cases. For that reason, I believe it may be interesting to describe the technic that I have found successful in my cases.

The lid to be treated is everted and held in the everted position by clamping lightly with lid forceps, such as are illustrated here-with. The blade next to the eye is of solid heavy metal, so that it prevents the eye itself being reached by an appreciable amount of rays. The outer blade consists of a rim with a large opening which leaves exposed the area of conjunctiva for the application of the radium. I have used in these cases a flat radium applicator containing in varnish 5 mg. of radium element. This applicator is of sufficient strength to produce a bright erythema on normal skin by an application of ten minutes through thin rubber cloth.

In order to avoid discomfort, I do not make any pressure in applying the radium to the lid, but pass it back and forth over the lid just short of the point of contact with the surface. I have estimated that in an application applied to the whole papebral conjunctiva with the applicator moving about, each part of the surface of the conjunctiva gets an exposure of one-third the total application; that is, with an application of thirty minutes, the applicator being moved back and forth, each part of the lid gets an exposure of ten minutes. I have preferred to make the application in broken doses. I make an application of five minutes' duration over the whole lid for six successive days, so that in the course of a week the conjunctiva gets thirty minutes of a moving exposure, each part of the lid thus getting ten minutes. This exposure with my applicator has not proved sufficient to give any evidence of roentgen-ray reaction. After such treatment, the patient is usually allowed an interval of several months, depending on the condition of the conjunctivitis. Usually the first series of treatments is followed by distinct improvement. In one successful case, I gave four series of such exposures in the course of a year without at any time producing an apparent radium reaction in the case, but obtaining a completely successful symptomatic result.



Lid forceps.

The number of cases treated is not sufficient to warrant any dogmatic statements, but all have been cases of severe vernal conjunctivitis, with papillomatous thickening of the conjunctiva, with characteristic grayish pellicle, and with extreme photophobia. They have been of many years' duration, have resisted skilful treatment before, and in the cases in which I have been able to carry the treatment along as far as I have thought necessary, the results have been successful to a noteworthy degree. Some cases have shown symptomatic curves that have now persisted for several years. The results, indeed, have been so gratifying in these otherwise entirely intractable cases, and the treatment is so easy, that the method, I believe, is worthy of wider application than it has received.

7 West Madison Street.

CLINICAL OBSERVATIONS OF CONGENITAL PYLORIC STENOSIS*

REPORT OF OPERATIONS IN 101 CASES

ALFRED A. STRAUSS, M.D.

CHICAGO

In considering congenital pyloric stenosis from the standpoint of clinical observation, I shall endeavor to emphasize some new facts regarding the diagnosis, etiology and operative procedure. Our results and opinions are gained from the observation of 101 cases sent to the clinics of Drs. Abt, Hess, Lackner, Jam-polis and Michaels, of which sixty-five were treated surgically and thirty-six medically. In this series, we had three deaths following surgical procedure. In the first thirty-four cases in which operation was performed there was but one death. A child was brought to the hospital in a moribund condition, pulseless, cyanotic, with impetigo infection over its entire body. Dr. Abt advised against operation because the child was in a dying condition. In spite of this fact I operated.

The second fatality was in a case in which distention occurred on the fourth day after operation, the child dying on the sixth day. Necropsy revealed a partial intestinal atresia with obstruction due to this anomaly at the ileocecal valve.

The third death occurred on the eighth day after operation. The child seemed perfectly well, taking nourishment regularly, when it suddenly became cyanotic, and hemorrhages from the lung occurred. Necropsy revealed a pulmonary embolism.

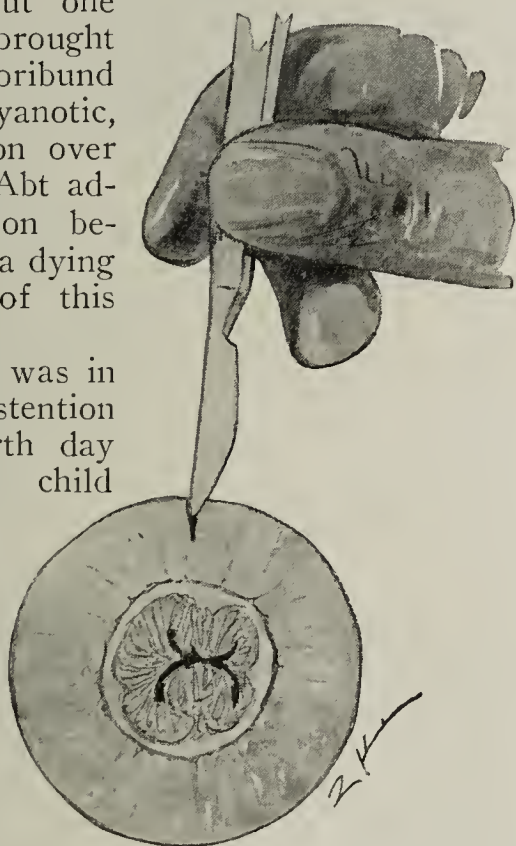


Fig. 1.—Transverse section showing sharp end of scalpel used to divide only superficial layers of muscle tumor.

The sixty-five cases in which operations were performed were not selected cases, operation being refused in no case. Twenty-four of the patients were in a moribund condition, markedly emaciated, with very feeble radial pulse. Five patients weighed less than 5 pounds each, and two weighed less than 4½ pounds. Four were in such a state of decomposition that a semi-comatose condition was present.

METHOD OF OPERATION

The method of operation was a pyloroplasty which I devised experimentally in 1913 and 1914.¹ I was stimulated to this experimental work by Dr. Abt, who insisted that gastro-enterostomy, on account of its high mortality, was not the proper operation for this condition. I performed my first operation on a human being in January, 1915, and this series dates from that time until June, 1918.

The pyloroplasty has as its underlying basis the object of reconstructing the pathologic form of pylorus into a normal one. The pyloric tumor shows on cross-section that it has, first, an infolding of its mucosa, and, secondly, a tumor composed of normal hypertrophied smooth muscle. In order to reconstruct this pylorus to the normal we must first unfold the infolding mucosa, which is done by shelling it out, and secondly reduce the muscle tumor, by using it as a plastic flap.

The operation when first devised required about thirty minutes. Since that time I have simplified the technic to such an extent that I do practically all cases within fifteen minutes or less.

The first important fact that I brought out three years ago was that this operation can be performed through an incision from three-fourths inch to 1 inch in length. This will admit the index finger and permit palpation of the pyloric tumor. A small, fine, ribbon-shaped hook is then passed along the index finger to the tumor, which is drawn out by means of the hook. This does away with handling or exposing any portion of the stomach except the pyloric end. On examining the pyloric region one can readily see the intermittent peristaltic contractions of the tumor, independent of any of the contractions of the stomach. As the tumor contracts it becomes white and cartilage-like, and as it relaxes it becomes pink and soft. This, I believe, bears an important relation to the etiology of the condition.

An incision is now made over the more bloodless portion of the tumor, which is usually the upper outer quadrant, starting well up on the normal side of the stomach and carrying it down almost to the duodenal end of the tumor. This incision is made with the

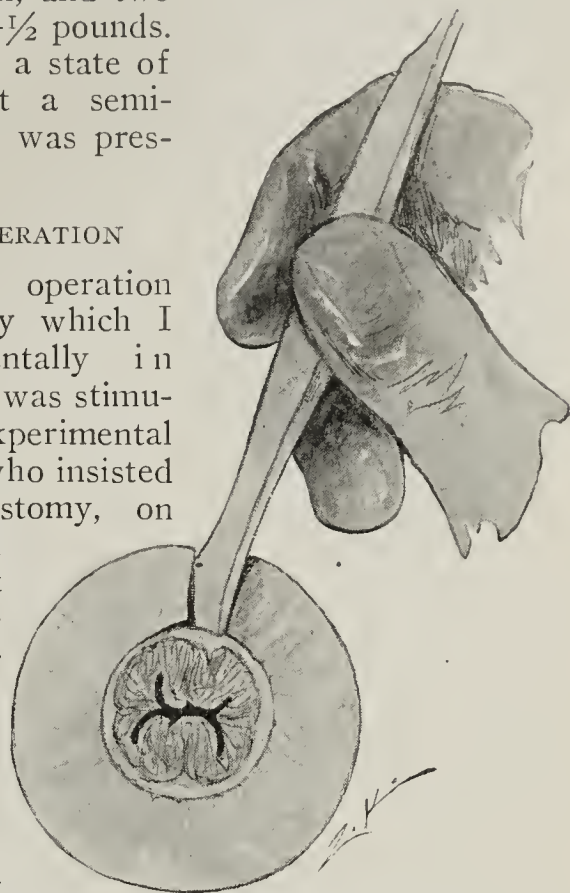


Fig. 2.—Breaking through muscle tumor to mucosa with handle of scalpel.

* From the Michael Reese Hospital.

¹ Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Strauss, A. A.: New Methods of Pyloroplasty for Congenital Pyloric Stenosis, THE JOURNAL A. M. A., Oct. 30, 1915, p. 1533.

sharp end of the scalpel, going through only the superficial layers (Fig. 1). The rest of the tumor is now split with the handle of the scalpel on the stomach end of the tumor where it converges into the normal stomach musculature (Fig. 2). By breaking through to the mucosa at this point with the handle of the scalpel, the line of cleavage is very easily obtained, and then without any trouble the tumor can be split down to the duodenal end without the slightest danger of puncturing the mucosa. It is absolutely wrong to try to divide

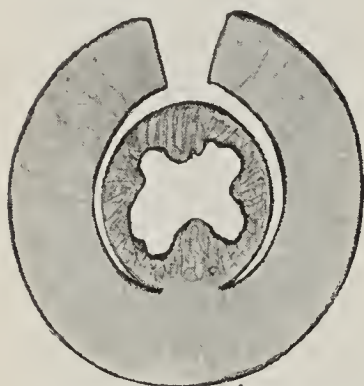


Fig. 3.—Mucosa shelled out from muscle tumor.

the tumor with a sharp scalpel down to the mucosa. This accounts for many deaths due to perforation of the mucosa when the Rammstedt operation is performed. By getting the line of cleavage of the mucosa near the stomach end of the tumor, the mucosa can easily be shelled out from the tumor. This unfolds the infolded mucosa (Fig. 3) and separates Meissner's from Auerbach's plexus, which is

the first abnormal condition relieved. The second step is to utilize the hypertrophied muscle tumor. This is accomplished by simply splitting the inner portion and using it as a flap (Fig. 4). These flaps are brought out and sutured over the shelled-out mucosa, and thus the pathologic pylorus is reconstructed into a normal one (Fig. 5).

The free end of the attached omentum is now sutured with a few interrupted stitches with fine black silk over the operated area so as to cover the raw surfaces. This prevents leakage and hemorrhage, at the same time giving a new blood supply to the split muscle flaps.

ADVANTAGES OF THE OPERATION

This operation has many advantages over the Rammstedt, the principal one being the reduction of the mortality from 30 per cent. in the Rammstedt to less than 4 per cent. Downes, the chief advocate of the Rammstedt operation, has a mortality ranging from 24 to 26 per cent. This high mortality is due to

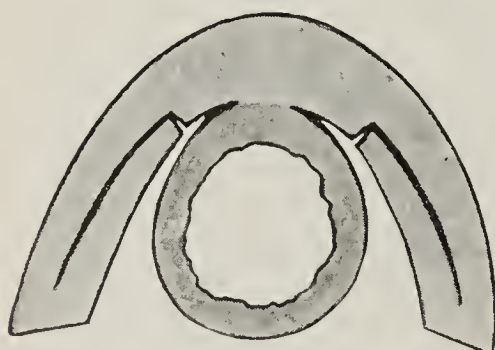


Fig. 4.—Splitting of muscle to produce flaps.

two important factors: either incomplete division of the muscle tumor, of which both Downes and Lewisohn report cases, or puncturing of the mucosa when trying to divide these fibers near or at the duodenal end.

The second great advantage of my operation is that it affords immediate and complete relief. In the Rammstedt the mucosa is not shelled out. As a consequence there is vomiting for a few days which may be sufficient to cause death. By shelling out the mucosa, a free passage for food is immediately established, there is no vomiting and the child rapidly improves. This is undoubtedly an important factor in the lessened mortality rate.

In babies of 3 or 4 weeks the tumor is much smaller than in the older patients. In these patients the Rammstedt operation produces practically complete relief,

while in the 7 to 12 weeks old babies the tumor is large and the Rammstedt operation in many instances is not sufficient unless the mucosa is shelled out. We have noted in dissecting out the tumor in these sixty-five cases that the size is in direct proportion to the age of the patient. In other words, we always find a small tumor, or only slight hypertrophy, in a 3 or 4 weeks old baby and always a large tumor in a 7 to 12 weeks old baby. There has been no exception to this rule. I believe, as I shall show later, that this bears an important relationship to the etiology of this condition.

In 30 per cent. of these cases the tumor is more or less one sided. Three fourths of the hypertrophy is on the outer two thirds of the pylorus, while the inner third is small and concave. When operating on these patients a single flap of the tumor suffices.

In the postoperative care, hypodermoclysis has been resorted to on only one occasion. In this case we were unable to feel pulsation at the wrist either before or after operation; the child was not able to swallow and was fed by catheter immediately after operation, from 1 to 1½ ounces of mother's milk being given every three hours. Within twelve hours we obtained a radial pulse, and the child made an uneventful recovery.

In the usual type of case, 1 ounce of physiologic sodium chlorid solution is given by rectum every three hours. As soon as the child is awake it is fed 1 dram

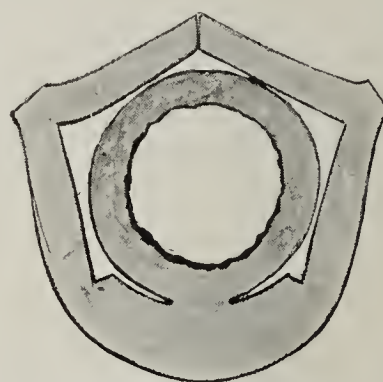


Fig. 5.—Flaps brought into position for suture.

of mother's milk every two hours and 1 dram of water in the interval. This is increased so that within twelve hours the patient receives one-half ounce every two hours. Within from thirty-six to forty-eight hours, an ounce is given every two hours; at the end of seventy-two hours, the child is put to the mother's breast.

In only six cases out of sixty-five have we seen any vomiting, and in these cases it was only a slight regurgitation. This, I believe, is due to the fact that the mucosa is completely shelled out and the tumor reduced so that there is practically no resistance at the pyloric end. The vomiting which occurs following the Rammstedt operation I am sure is due to the fact that the muscular contractions of the stomach have to enlarge the incomplete opening in the pylorus, which offers more or less resistance.

DIAGNOSIS

Regarding the diagnosis of this condition, I wish to state that the fluoroscopic examination is the most important means of making an accurate diagnosis. It not only shows whether or not the case is one of pyloric stenosis, but classifies the case immediately as to whether the patient should receive medical or surgical treatment. In the 101 cases in which we have employed fluoroscopy, sixty-five were classified as surgical, and in each instance a tumor was found at operation. Of the remaining thirty-six, which we classified as medical, not one has required surgical procedure, showing the absolute exactness of this method.

The reason many men, for example, Grulee, Lewis, Hall and Holt, have stated that the roentgenographic examination is of very little value is that they have depended entirely on the roentgenograms instead of

the fluoroscopic examination, and the method of taking the roentgenograms was faulty. Practically all the roentgenograms that have been shown were taken with the baby flat on its back. This allowed the bismuth in the dilated stomach to accumulate on the left side of the vertebrae, and no peristaltic waves were stimulated in the pyloric region.

The technic which I will describe for fluoroscopic examination has been developed by Dr. Ahrens, the roentgenologist at Michael Reese Hospital, who examined all cases with me. The baby does not have to be undressed for this examination. A small amount of bismuth is added to mothers's milk and the child is placed under a horizontal fluoroscope. It is allowed to nurse from the bottle while we watch the passage of the bismuth milk through the esophagus into the stomach. If the child is permitted to lie flat on its back, the bismuth milk gathers on the left side of the vertebrae as a large, round mass and will lie there indefinitely. If the baby is rotated toward the right side, almost on its abdomen, we will see the bismuth gradually gravitate toward the pyloric end of the stomach, and one notices immediate peristaltic waves in the pyloric antrum and pylorus. A small amount of bismuth is now squirted through, and then the pylorus clamps down tightly. Immediately peculiar and characteristic, snakelike, rhythmic, peristaltic contractions can be seen in the pylorus which are independent of the rest of the stomach. This is absolutely pathognomonic of this condition. The fluoroscopic examination consumes only about two or three minutes at this time. At the end of two hours the examination is repeated to see if anything has passed through, but as a rule the same picture is observed. At the end of four hours the child is again examined, for the last time. At the two later examinations roentgenograms are taken. In some cases we have observed retroperistalsis in the body of the stomach and a dilated esophagus, which is probably due to the retroperistalsis.

The important fact that we have established in these examinations is that the contractions of the pyloric antrum and pylorus are absolutely characteristic. We have standardized the emptying time so that any case in which one half or more of the bismuth milk remains at the end of four hours is recognized as a case of pyloric stenosis, and surgical interference is indicated. The cases in which 70 per cent. or more of the bismuth milk has passed through the pylorus at the end of four hours can, as a rule, be cured medically.

I believe that this simple method of fluoroscopic examination produces no shock, gives an immediate indication as to proper treatment, and is an ideal method of arriving at definite conclusions. It surely is much more accurate than aspiration of the stomach contents from time to time, as suggested by Holt. The stomach tube frequently curls up in the cardiac end of the stomach and nothing is aspirated, even though a large amount of the contents remains in

the stomach, and it cannot be denied that the frequent passage of the tube has a markedly bad effect on these moribund infants.

In sixteen of the thirty-six cases treated medically in which we saw peristaltic waves on the abdomen clinically, fluoroscopic examination showed that the emptying time was normal. The peristalsis would start up high on the stomach and force the food through the pylorus in a more or less normal manner. In these cases a similar hyperperistalsis could be noticed in the entire intestinal tract. In other words, we were dealing with cases of hypermotility of the entire gastro-intestinal tract.

In the remaining twenty cases treated medically, three fourths of the bismuth had passed through at the end of four hours, although the characteristic, rhythmic, snakelike contractions of the pylorus were noted. Because of this fact, medical treatment was decided on, and all of these patients were cured without operation.

In three of the cases in which operation was performed there was preoperative vomiting, not of projectile character, and absolutely no peristaltic waves could be seen on the abdomen. Fluoroscopic examination, however, revealed the characteristic, rhythmic, snakelike contractions of the pylorus and almost complete obstruction, and at operation a tumor was found in each case.

The palpation of a tumor is a matter of personal equation. The tumor can be best felt while the child is asleep or nursing. We have paid very little attention to the palpation of the tumor since we have worked out our fluoroscopic and roentgenographic technic.

To sum up, the diagnosis is made, first, by the

large, characteristic peristaltic waves; second, the fluoroscopic examination; third, the projectile vomiting; fourth, the emaciation; fifth, constipation, and sixth, palpation of the tumor.

ETIOLOGY

A great deal has been written on the etiology of this condition, and many hypotheses have been formulated. Since operating on these sixty-five patients I have come to some fairly definite conclusions, which are based, first, on the negative experimental results in trying to reproduce this condition, and, secondly, on the things observed while operating on these tumors. In 1915 I attempted to reproduce this condition in new-born puppies by shelling out the mucosa and infolding it with fine fascial strips. In this way we produced an obstruction similar to that seen in cross-section of the tumor. A slight hypertrophy of the stomach wall was found due to the hypermotility produced by the obstruction, but no pyloric tumor was formed. In several instances fine platinum electrodes, placed on the pneumogastric nerves, increased the peristaltic action, but no tumor was formed. By isolating the pyloric segment, by cutting away a circular strip of musculature, no independent peristaltic waves were produced and no tumor was formed.

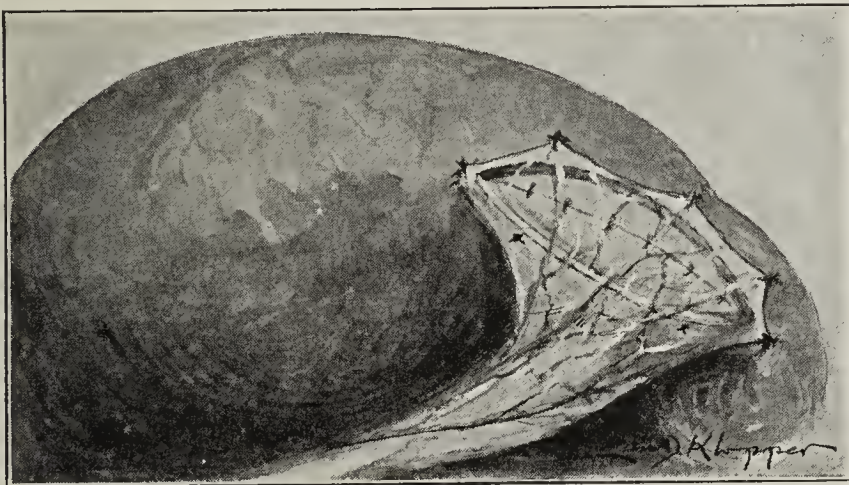


Fig. 6.—Flaps sutured and free ends of attached omentum over area of operation.

This experimental work demonstrated to my complete satisfaction that it is impossible to form a pyloric tumor unless some experiment can be devised whereby the independent, rhythmic, snakelike contractions of the pylorus can be reproduced.

Dissection of these sixty-five tumors at operation showed that the tumor was absolutely proportionate in size to the age of the infant. This demonstrates that the tumor must be a progressive, developmental affair. Whether this muscular hypertrophy starts before birth, within the uterus, or at birth we can fairly estimate by the fact that Dent reported a pyloric tumor in a 7 months fetus, and several investigators have found them in the new-born. I believe that the condition begins during the fetal development of the stomach and is brought about by the rhythmic contractions of the pylorus which doubtless start at that time, and is due to an abnormal stimulation from the intrinsic or extrinsic nerves of the stomach. This condition of hypertrophy, then, must progress very slowly during the fetal life, but becomes accentuated after birth, owing to the additional irritation produced by the taking of food. The tumor gradually increases in size as a result of the rhythmic contractions of the pylorus, until at the age of from 7 to 12 weeks we have seen tumors four or five times as large as those found at 3 or 4 weeks.

The size of the tumor, however, does not indicate the amount of obstruction present. For instance, a large tumor may be associated with very little pyloric obstruction, and a small hypertrophy may produce almost a complete obstruction.

I base my hypothesis on the fact that the fluoroscopic examination has in many instances revealed these characteristic, rhythmic, snakelike contractions of the pylorus, even though the child had vomited and the stomach was completely empty. It seems reasonable to conclude that the same contractions occur during fetal life, and are accentuated at birth, thus producing the tumor, which increases in size in proportion to the age of the patient.

30 North Michigan Avenue.

HYPERTROPHIC PYLORIC STENOSIS IN INFANCY*

WILLIAM D. HAGGARD, M.D.

Professor of Surgery and Clinical Surgery, Vanderbilt University,
Medical Department; Surgeon to St. Thomas Hospital
NASHVILLE, TENN.

A lusty boy baby, the first born of a healthy mother with ample milk, who about the third week begins frequent regurgitant vomiting, soon becoming projectile and associated with visible peristalsis, and in whom an olive-shaped tumor may be palpated in the upper right abdomen, is almost certainly the victim of congenital pyloric stenosis.

Undoubtedly there have been many infants, whose deaths were ascribed to marasmus, gastritis, inanition, etc., who really were suffering from unrecognized pyloric stenosis. Up to 1906, the mortality results of surgical intervention in former years, 53.9 per cent., were so forbidding as almost to contraindicate it in the minds of many physicians. The results are greatly improved by substituting simple pyloroplasty, Ram-

stedt's operation (1912), or the operation of Strauss (1914) for gastro-enterostomy. The operation may be done in less than half the time required for a gastro-enterostomy and with nearly one half the mortality, that is, 18 per cent. This may be further reduced by the employment of local anesthesia, hereafter to be discussed.

The essential pathology is a congenital hypertrophy of the pylorus, especially its transverse muscular fibers, spasm being added as a secondary consideration. "The effort necessary to force food through the narrowed and elongated pyloric lumen produces circulatory disturbances resulting in edema. As the food increases in amount, the muscular effort becomes greater, the lumen narrows down until finally at the tenth day, or a little later, it becomes more or less completely obstructed" (Downes).

At necropsy there is found at the pylorus a napkin-ring-like tumor, often as hard as cartilage, that projects into the duodenum, like a cervix uteri. It is pale in color, three-fourths to 1 inch in length, and in diameter as great as the last joint of an adult's thumb. The swelling has been compared in size and shape to an olive, a peanut or a pecan. On section the orifice is seen to be much diminished in diameter, but what is especially striking is the great thickness of the wall of the pylorus. The lumen may be still further diminished by thick folds of mucous membrane. Probably because of these powerful contraction waves, the prepyloric tissue, as well as the tumor itself, may be edematous. The walls of the stomach become hypertrophied. The stomach may be dilated or rather ballooned. It is sometimes smaller than normal.

Many writers have shown conclusively that the tumor remained after operation. Cases are reported by Morse, Walton, Downes and Holt, and in those of spontaneous cure, as in Howland's case, the hypertrophy remained. Roentgen-ray examinations have shown a closed pylorus three weeks after operation, and Lewis and Grulee picture one 256 days after gastro-enterostomy.

Probably the hypertrophic pyloric stenoses occurring in young adult life may be explained on the basis of a spontaneous cure during infancy with the congenital hypertrophy remaining.

The case of one of Palmer's patients, dying before permission to operate had been obtained, showed that the extirpated stomach had a water-tight pylorus that held without any escape through the dependent pylorus when the stomach was filled with water. In another instance, the pylorus was shown to be closed roentgenologically eight or ten years after a gastro-enterostomy. It is not a spasm but a true hyperplasia.

A case of pyloric stenosis presents a picture so characteristic and clear-cut that diagnosis should not fail.

SYMPTOMS

In the order of their importance the symptoms are as follows: (1) persistent, recurrent, explosive vomiting; (2) starvation stools and diminished urine, with emaciation; (3) visible gastric peristalsis; (4) palpable tumor; (5) bulging epigastrium, with stretched abdomen; (6) progressive loss of weight.

The symptoms may appear within a few days after birth, or be delayed until the second and rarely the third month. They usually appear during the third or fourth week. Vomiting is the first symptom usually noted. A previously healthy, normal, usually robust male, breast-fed baby, begins to vomit abruptly in the

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

third or fourth week without apparent cause. To the persistent, explosive, forcible vomiting is added symptoms of faulty nutrition, constipation, oliguria and steady loss of weight. The vomiting is characteristic and different from other vomiting in young infants. The baby is not simply "mewling and puking in the nurse's arms." Food is ejected from the mouth at times to a distance of three or four feet. The vomiting may come on directly after nursing, or it may occur several hours after food is taken. It may be a portion of food taken at a previous meal. Vomiting may occur only once a day and consist of food taken in the previous twenty-four hours. There is no increase in temperature, and at the first the child is hungry, even after vomiting. Then after a time the appetite may fail. The baby is good, surprisingly good, not fretful and usually sleeps quietly. Finally the vomiting becomes persistent, change of food may lessen the vomiting for a day or so and then it returns as severe as ever. There is motor insufficiency and food may be removed from the stomach with a catheter from six to ten hours after feeding. There may be remissions and gain in weight, which only disappear again as soon as vomiting recurs.

Visible gastric peristalsis is a constant symptom. The wave passes from left to right and may be elicited after taking food. The waves may be seen and felt often after flicking or manipulating the abdomen. Mitchell¹ says that the characteristic peristaltic wave looks like two balls rolling one after the other over the epigastrium from left to right. A good plan to elicit peristalsis is to give a meal of some artificial food rather rapidly, through a large-holed nipple and watch the abdomen for fifteen or twenty minutes.

Palpation a little to the right and above the umbilicus often reveals a tumor about the size and shape of a small green olive. Careful, persistent palpation with one finger to the liver side of the middle line, upward, backward and from right to left, against the spine, will very often disclose a firm tumor no bigger than a pimola. Visible peristalsis is seen to be the best evidence, except the tumor when felt.

In severe cases the patients become progressively worse and may lose a pound a week. The child may waste to a skeleton, weighing 3 or 4 pounds. The average weight of these patients coming to operation is 6½ pounds. The average time is six weeks and the average duration of symptoms about four weeks.

The roentgen ray is very valuable in showing the actual pathologic condition of the pylorus and especially whether retention is present. Fluoroscopy shows the rhythmic sinuous contraction of the pyloric tumor apart from contraction of the stomach proper. As pointed out by Strauss, if one half or more of the opaque meal is retained as shown by the screen or plate at the end of, say, four hours, operation should be the rule.

TREATMENT

Only the very mild cases without contractions of the tumor and with only partial retention should have medical treatment and dietetic treatment.

If the infant is not losing weight and the vomiting is mostly regurgitant and not projectile, and there is at least one milk stool every forty-eight hours and if the roentgen ray shows an appreciable amount of food passing through the pylorus, tentative medical treatment may be employed. All others should be treated by operation just as any other mechanical obstruction

in the alimentary canal. If no real material gain has been brought about in one or two weeks, or if the baby is losing 1 or 2 ounces in weight a day, operative treatment is urgently indicated before the child gets into a wellnigh hopeless condition. Even if the child should eventually recover, it will only be after a very prolonged and perilous course.

It has been shown by Holt and Downes at the Babies' Hospital, New York, that during a period of fifteen years when the operation was performed, only after the patient had resisted medical treatment, the operative mortality was 58 per cent. When the diagnosis was made and operation resorted to, usually soon after admission and diagnosis, the surgical mortality dropped to 43 per cent. Abt thinks that less than one third of the patients recover under medical treatment.

If every patient in cases of hypertrophic pyloric stenosis was operated on as soon as the diagnosis was established, with the present improved technic, the mortality for this condition, when the patient was subjected to operation, might be reduced generally to approach 10 per cent. Failure to seek prompt surgical relief is too often fatal. Even though the baby may be apparently holding its own under medical treatment, it may suddenly, and without apparent cause, become progressively worse and die in a short time.

Local anesthesia is very much more satisfactory in an infant than in an adult. An infant has very little or no physical consciousness of pain and no fear. Local anesthesia really blocks off all traumatic stimuli to the brain, to say nothing of the absence of the shock and dangers of an inhalation anesthesia. General anesthesia is no more satisfactory to the operator and may be extremely harmful to the child. It is certainly not as safe, nor is it necessary to give narcosis for the operation of pyloroplasty. Moreover, the mortality ought to be definitely lowered by the substitution of infiltration for pulmonary anesthetics in babies.

Even today there are many reports of infants brought to operation in a pitifully emaciated condition, due to long continued medical and dietetic treatment. In these cases, the opportunity and safe time for prompt surgical intervention had gone and the forlorn risk was assumed by surgery as a last hope, when really the death was a medical one and due to well-meaning, but misguided efforts to overcome an impermeable obstruction.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STRAUSS AND HAGGARD

DR. FRANK X. WALLS, Chicago: The term "congenital pyloric stenosis" should give way to the term "infantile pyloric stenosis." These cases invariably show an interval after birth in which the children are perfectly normal; in which they take their food and develop normally. There may be, as with every child, a primary loss of weight which is soon made up, and then the babies grow, add to their weight, present no symptoms of vomiting or of retention of food in the stomach, and have normal bowel movements. Then, after an interval of usually ten days to two weeks, the symptoms begin, as described, symptoms indicating stenosis of the pylorus. It must be understood that this is not an atresia; that food does in all of these cases pass through the pylorus into the gastro-intestinal tract in more or less amount. You will recall the case Osler speaks of as the first case published, giving credit to Beardsley. In that case the child lived until it was 5 years of age. These children do not all die in infancy; they suffer a great deal from symptoms due to insufficient food, marasmus, etc., and often pass away

1. Mitchell, E. W.: Ohio State Med. Jour., 1916, 12, 726.

from some definite intercurrent condition and are not thought to be cases of stenosis. We do not know anything about the causation of this disease. The tumor mass has been found in children who have been stillborn, and the tumor mass has persisted for a long while in cases in which operation has been performed. I think that the fact that the tumor mass persists for a long time after operation might indicate that the nervous mechanism has little to do with the hypertrophy as we understand it. We have cases of spasm of the pylorus which may persist for a long time, in which the symptoms may be very severe, but in which the spasm of itself does not lead to hypertrophy. These hypertrophic cases, however, are always associated with some spasm; that is, the normal musculature or the hypertrophic musculature is subject to the same stimuli that the normal musculature is, and we have spasm associated with the cases of obstruction.

DR. WELLER VAN HOOK, Chicago: In reviewing the papers presented we are particularly struck with the fact that we have turned aside from gastro-enterostomy almost entirely, which, of course, is but a temporizing method at best. We should bear in mind the value of directness of attack with reference to lesions everywhere in the body. In this field we hope to be able to do away with gastro-enterostomy, although its successes have been brilliant. The most important point added to the Rammstedt operation by Dr. Strauss is the entire circumferential freeing of the mucosa, which makes it possible for the fluids to pass rapidly. The plastic work on the muscle is, I think, not only unnecessary but mischievous. It is gratifying to see that Dr. Strauss is able to do his work through an incision so small. He is not disturbed after the delivery of the tumefaction by the escape of abdominal contents, so that the operation proceeds more surely and swiftly to its conclusion. We think well, also, of the idea of local anesthesia, but many will be comforted with the idea that children bear general anesthesia extremely well.

DR. I. A. ABR, Chicago: I have been my privilege to see these cases treated both medically and surgically. I remember the time when the medical treatment was preferred. Under this plan a number of patients recovered. The mortality with medical treatment, however, was extremely high. We found that a large number of these patients treated expectantly lost markedly in weight, developed toxemia and died within a short time. We learned, too, that if these babies lost more than one third of their body weight they were then within the danger point, and if the wasting continued they progressed rapidly toward the fatal end. Therefore, we were very grateful to the surgeons when they contributed gastro-enterostomy to the treatment of these patients, because more children were saved by this operation, if performed properly, than by expectant or medical treatment. But, as time went on, we observed that gastro-enterostomy performed on small babies was a difficult operation and that the mortality figures varied; some surgeons had a very low mortality, though in the aggregate the deaths from this operation were high. The Rammstedt operation and that of Dr. Alfred Strauss should obviously be the operation of choice. They are more rapidly performed, there is less shock and no danger of leakage because the stomach and bowel are not opened. Concerning the diagnosis, I wish to subscribe to what Dr. Strauss and Dr. Haggard have said with reference to the roentgen-ray examination. It has been held that it is unnecessary, that it contributes nothing toward the diagnosis. I believe, however, that if the roentgen-ray examination is made by a competent technician, with the baby in the proper position, we have an invaluable test concerning stenosis of the pylorus. We have made it a rule to submit every case to roentgen-ray examination after giving bismuth in milk. A picture is made shortly after the ingestion of the bismuth and another picture is made in four hours. At about the time of taking the first picture we observe the baby's stomach with the fluoroscope, noting whether the bismuth passes through the pylorus and also the movements of the stomach. I wish to take the liberty to remind surgeons that especial attention should be given to technic in operation on these small patients. Babies, as is well known, stand protracted operations poorly. No time should be lost and the operation should be finished as rapidly as is consistent with careful work. My

observation is that surgeons frequently lose valuable time in finding suitable instruments, sutures and needles or clamps while the little patient is being operated on. I think all of these interruptions increase the hazard of operation. I am sure that every abdominal surgeon knows all there is to be known about the closure of the abdominal wound, but I have not infrequently seen the abdominal wound separate completely several days after operation. These babies should be fed shortly after operation. Our babies are fed two or three hours after operation, and we give the first day dram doses of breast milk every two hours—after twenty-four hours we give from one-half to 1 ounce of breast milk every two hours. In three or four days these babies are put to the breast. We emphasize that early breast feeding is of great advantage in the after-treatment. I should like to ask Dr. Haggard what kind of local anesthesia he uses. Many of the stock preparations used for local anesthesia in adults contain too much morphin or cocain for routine use in infancy. I believe with Dr. Van Hook that babies stand general anesthesia very well.

DR. J. W. KEEFE, Providence, R. I.: I have been interested in this subject of pyloric stenosis in infancy for more than twelve years, and I am very glad to find that Drs. Strauss and Haggard are advocating operations at the site of the trouble. Gastrojejunostomy never appealed to me. The only criticism I have of Dr. Strauss' paper is that he does too much. One can make a small incision, with a clamp you can grasp the stomach, pull out the pylorus, grasp it with the thumb and finger of the left hand and with the knife in the right, cut down to the mucosa. An assistant can grasp the edge of the muscle with a mouse toothed forceps, which does not look like muscle, but more like cartilage, and can cut a crescentic piece from one side and then the other side. One can place a little omentum over the flap with one stitch and drop the pylorus back. It is all done in four minutes.

DR. ALFRED A. STRAUSS, Chicago: I believe that Dr. Haggard's idea concerning the local anesthesia is good, provided it is done perfectly. Local anesthesia not done perfectly will produce shock. It must be done carefully and by an expert. It may be preferable in some cases to a general anesthesia. I have had no postoperative hernias or wound infections in sixty-six cases in which operation was performed. There is a difference between the so-called pylorospasm, which is also a spasm of the entire intestinal tract, and a true case of congenital pyloric stenosis. The former have a normal emptying time, as observed under the fluoroscope, while the latter have a distinct, rhythmic, independent, snakelike spasm of the pyloric segment and a retention which may be complete or partial at the end of four hours. The size of the tumors is in direct proportion to the age of the patient. Dr. Keefe spoke of cutting a piece of the muscle away on each side. It takes but ten minutes to do this operation, and I believe it is best to have a complete reconstruction of the pylorus surrounded with normal muscle, since this hypertrophied muscle has been shown to be histologically normal. This is accomplished by making a muscle flap from the muscle tumor and suturing together with a few interrupted sutures, and the raw surfaces covered with the free edge of the attached omentum. Dr. Keefe's idea of cutting away the muscle will produce a greater hernia of the mucosa than the Rammstedt operation, which I believe is a very undesirable feature.

DR. WILLIAM D. HAGGARD, Nashville, Tenn.: In our local anesthesia we employ procain, 0.1 per cent. Any one not having heretofore tried it will find it surprisingly pleasant, exceedingly satisfactory and efficient.

Malaria in India.—In the Bombay presidency in the three-year period 1914-1916, according to *Public Health Reports*, there were admitted to the hospital 1,352,372 cases of malaria as compared with 1,171,600 in the three-year period from 1911 to 1913. The increase was due mainly to an accession of malaria in the province of Sind on account of excessive rains and an abnormal inundation of the Indus in 1916. It does not, it is said, indicate a relaxation of the efforts of the government to combat malaria in the especially malarious tracts.

Military Medicine and Surgery

EXAMINATION OF MEN ENTERING THE AVIATION SERVICE

A NEW TEST AND METHOD OF CLASSIFICATION FOR
LABYRINTH, MUSCLE TONE AND BLOOD
PRESSURE FINDINGS: PRELIMINARY REPORT

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To be an aviator a man must be physically qualified, his eyesight must be normal without glasses, and his static ear must respond to the regulation tests for nystagmus, past pointing and falling. This gives us an aviator who is a perfect type of man, but is this enough?

For ordinary maneuvering close to earth the man does not require to be so finely adjusted, for he is in a medium of air almost the same in density and condition as that at the earth's surface. This does not hold true, however, for the aviator who ascends to more than a thousand feet, as when he has attained a greater altitude, he experiences varying conditions of density and temperature, which change in a direct and fixed ratio at the different levels. Were it the practice of the aviator to ascend and descend to any given altitude at a moderate rate of speed, he might not have to be chosen with so much care; but we know that he must change his altitude suddenly, and in many instances to a great amount, so that he is subjected to violent variations of temperature and especially air pressure, sometimes within a few seconds. To consider this phase of aviation is my theme.

In order to understand the meaning of atmospheric influence, it is necessary to determine the difference in air pressure at the several altitudes. The pressure of air at sea level is about 14.7 pounds per square inch. At 20,000 feet altitude it has been reduced to less than half the earth's surface pressure, and at 30,000 feet it has fallen to about one third of the pressure at the earth's surface.

Motor manufacturers have had to recognize this fact in the equipment of carbureters furnished aeroplane machines, for it is necessary to have a regulating device to feed three times the amount of oxygen into the gasoline mixture at 15,000 feet that is required at the earth's surface. The temperature at 25,000 feet altitude is far below zero (F.), while the sun's rays register near 140 F. Thus the aviator may have his feet frozen, and his face, were it exposed, would be blistered from the sun's rays. As we ascend, the

content of the air is not changed, but the oxygen tension is diminished, at 16,000 feet it being only 25 per cent. of the tension at the earth's surface.¹ Should we attain a great altitude, therefore, it would become necessary to make use of an oxygen mask to be able to carry on proper aeration of the blood. Aeroplanes are now being supplied with a device by which oxygen is fed to the engine and to the aviator automatically, as the altitude becomes greater, and which diminishes the oxygen supplied as the altitude becomes less.

Most men do not experience much change going from a denser into a rarer medium, which occurs in ascent, but when traveling rapidly from a rarer into a denser air, some very striking symptoms are produced, which vary in degree from slight vertigo to syncope and at times motor paralysis.

It is necessary to have men selected, so far as possible, who are perfect. The life of the aviator is all important as the information which he supplies deter-

mines the maneuvers on the earth's surface or on the sea. His photographs are absolutely essential. When the war began a machine capable of 60 miles per hour was considered all that could be looked for, and the ascension to 10,000 feet altitude in half an hour was thought wonderful. In order to leave the earth's surface, the air craft was required to gain momentum by running on the ground for several hundred feet before it was able to take to the air. At the present time, the machine must be able to leave the ground almost immediately and be able to climb at the rate of 1,000 feet a minute. The speed of the present machines in the German army, we are told, is not

less than 140 miles an hour, while their scouting craft do as much as 200 miles an hour.

It has occurred to me that the examinations that are being made are not of sufficient scope, as they show nothing of the condition of the applicant in actual flying, and it is with this idea in view that I have directed my attention in the following work, which is, so far as I know, entirely new.

To have a sound body and a normal vestibular apparatus is well enough, but clinically, we know that some people who have all this are subject at times to dizzy spells, seasickness and fainting, when subjected to motion or air pressure changes, such as one would encounter in the act of flying. Therefore, some sort of test should be made to simulate actual conditions met in flying, and the results determined.

Aviators do not merely fly in their machines; they are required to do evolutions in order to escape from their adversaries or gain advantage of them in the game of war. No matter how expert a man may be



Fig. 1.—Dynamometer test for length of one nerve impulse at 60 kg., measured in seconds.

1. Report of Medical Research Board, Mil. Surgeon, February, 1918, p. 146.

with a machine gun, he would be powerless in combat unless he were able to outmaneuver his adversary in reconnoitering, so he can bring himself into a vantage position to get "on the tail" of his opponent and thus be able to put his machine gun into effective operation. In order to gain this advantage, it is necessary for the



Fig. 2.—Front view of cabinet and exhaust pump: *a*, altigraph; *b*, vacuum gage; *c*, petcock for letting air into cabinet; *d*, glass window; *e*, tube connecting cabinet with pump.

aviator to do trick flying, which means that he must be able to ascend and descend very rapidly and do irregular motions, thus making his adversary believe he is disabled or killed. He does this by falling as

TABLE 1.—DETERMINATION OF HEIGHTS BY THE BAROMETER*
Values of 60368 (1 + 0.0010195 × 36) log. $\frac{29.90}{B}$

Barometric Pressure		Altitude, Feet	Barometric Pressure		Altitude, Feet
Inches	Mm.		Inches	Mm.	
11.00	286	25,900	21.50	559	8,964
12.00	312	24,814	22.00	572	8,339
12.50	325	23,704	22.50	585	7,728
13.00	338	22,638	23.00	598	7,131
13.50	351	21,612	23.50	611	6,546
14.00	364	20,624	24.00	624	5,974
14.50	377	19,674	24.50	637	5,414
15.00	390	18,749	25.00	650	4,865
15.50	403	17,858	25.50	663	4,326
16.00	416	16,995	26.00	676	3,799
16.50	429	16,158	26.50	689	3,281
17.00	442	15,347	27.00	702	2,773
17.50	455	14,559	27.50	715	2,274
18.00	468	13,793	28.00	730	1,784
18.50	481	13,049	28.50	743	1,303
19.00	494	12,324	29.00	756	831
19.50	507	11,618	29.50	769	366
20.00	520	10,930	30.00	782	-91
20.50	533	10,259	30.50	795	-540
21.00	546	9,604			

* Smithsonian Meteorological Tables, third revised edition, 1907, pp. 100-103.

though hit or out of control. He must be able to drop, irrespective of plane position, for several thousand feet, if necessary, and be able at a given moment, to "flatten out" so that he can loop over or under his

opponent and bring up on his adversary's "tail," under and behind him.

In subjecting himself to these motions and traveling through the air at such terrific speed, forward, upward or downward, he experiences violent variations of atmospheric pressure conditions, and it is obvious that he should be tested as to his ability to resist these sudden changes in air pressure. To judge the ability of an applicant for this service, we should test him in some way which simulates, as nearly as possible, an actual flight with such maneuvers.

In order to obtain this information without actual flying, I have devised a cabinet which meets all the requirements in all particulars. The object of attempting this series of experiments was suggested to me by the reports that were constantly printed in the press stating that a certain number of planes were shot down in combat, while others went down out of control. It appeared to me that there must be a reason why so many fell out of control, not from any damage done by the opponent, but rather from some cause in the man himself who fell to his death. I have learned since beginning my experiments that in 50 per cent. of falls, nothing faulty with the engine has been discovered, the plane has had no marks of being hit, nor has the aviator received a wound from his adversary. Therefore, it appears that half of the fatalities in aviation are due to a cause other than those we term "effects of combat."

Causes that may produce the fall of an aeroplane may be divided into two classes: (1) from fault of the machine, and (2) from fault of the operator.

1. From fault of the machine, a fall may thus occur:

(a) The plane may have remained in the air too long by an extensive flight and have exhausted the supply of gasoline (this is not often productive of a fall, as the pilot can volplane to earth and land safely).

(b) The motor may have become fouled by faulty or worn machinery or connecting parts.

(c) The motor may have been hit and thus put out of commission.

(d) The steering gear or planes may have been shot away.

(e) The gasoline tank may have been hit and set afire or exploded.

2. From fault of the operator, a fall may thus occur:

(a) The operator may have been killed or injured, making it impossible to work the steering gear of his machine.

(b) The operator may have become entirely exhausted.

(c) The operator may have become dizzy from change of

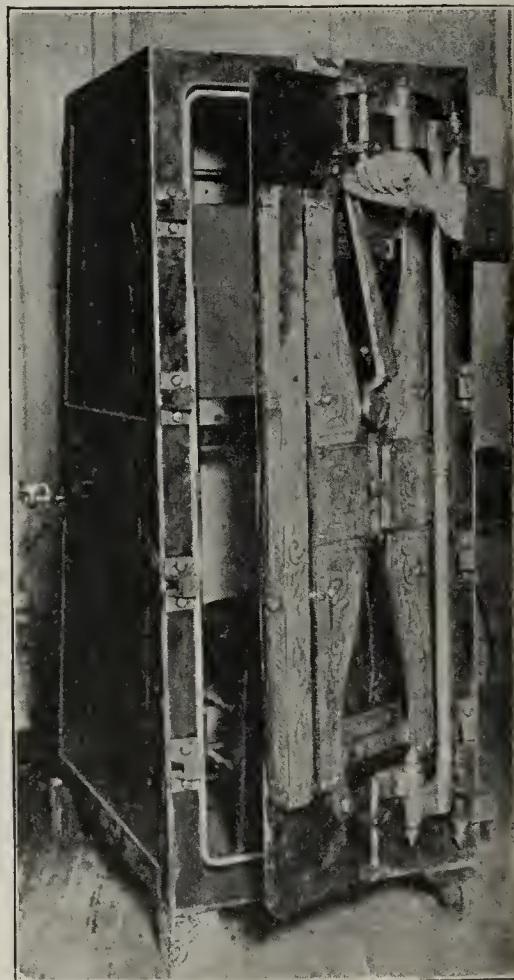


Fig. 3.—Rear view of cabinet, showing door with locking air-tight device.

air pressure, and the vertigo may have been so severe that he has lost control of his plane.

(d) The operator may have lost his motor power from great atmospheric pressure changes.

(e) The operator may have become unconscious from hemorrhage into the labyrinth, or from heart failure.

The object of these experiments is to ascertain if any of the causes mentioned as being the fault of the operator can be detected, and to find a remedy, so far as the army aviator is concerned, if possible.

single nerve impulse, for both the right and the left hands (Fig. 1). The turning test for nystagmus is done the same as in the present Army test for the horizontal canal, and is given in the number of seconds the nystagmus persists. The past pointing is also given in seconds for each hand instead of the number of times he points incorrectly, which gives us a better value to the amount of past pointing.

After this examination the applicant is placed in the cabinet and the air exhausted at the rate of 1,000

TABLE 2.—ASCENT TO 6,000 FEET ALTITUDE IN SIX MINUTES; DESCENT IN THIRTY SECONDS

Name	Age	Pulse		Blood Pressure				Dynamometer				Rotation												Class	Remarks			
				Before		After		Before		After		Before						After										
												Nyst.		10 to R.		10 to L.		Nyst.		10 to R.		10 to L.						
		Before	After	Systolic	Diastolic	Systolic	Diastolic	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L					
W.	19	138	76	145	85	2	2	3	1.5	23	18	20	22	14	16	20	20	24	31	15	19	Rejected for perforated membrana tympani after mastoid operation			
M.	26	...	...	140	66	145	65	4	3	3	2	10	10	5	5	5	5	14	12	24	17	14	17			
P.	19	...	...	140	80	150	70	3	3	2	2	24	24	10	5	10	5	22	31	27	9	21	24			
K.	24	...	...	140	70	150	74	6	5	4	3	17	17	5	10	5	5	12	14	20	9	21	23			
H.	25	...	...	120	80	130	70	6	7	6	4	25	25	20	35	27	35	27	28	15	20	15	18			
H.	25	146	82	120	82	3	5	4	5	16	15	47	40	13	17	15	18	12	14	12	17	P. P. to R., R. H. to R.; L. H. to L.; P. P. to L., normal			
G.	28	...	...	140	80	165	80	2	4	2	2	26	30	..	..	..	..	30	30	19	11	28	40
S.	24	...	...	134	84	150	78	4	3	3	4	25	24	15	15	20	20	24	20	8	9	12	14			
W.	21	...	66	146	92	160	80	4	3	4	4	26	26	10	10	15	10	22	18	12	16	14	16					
O.	22	...	...	138	60	158	75	4	3	3	2	22	20	5	5	5	5	18	17	25	25	13	17			
B.	19	...	...	138	80	140	80	2	2	2	1	27	25	..	..	..	..	20	22	8	10	18	8
B.	28	...	...	120	74	120	64	3	3	3	3	20	20	10	5	10	5	15	17	12	19	20	6			
V.	24	...	...	135	60	130	60	3	3	2	3	18	20	38	38	..	..	25	20	18	8			
L.	22	140	60	130	60	4	4	3	3.5	18	20	5	5	10	15	21	18	12	12	30	30				
E.	25	138	60	138	68	3.5	3	3.5	4	20	17	5	7	5	5	20	20	11	11	11	11		P. P. to R. divergent		
A.	23	...	...	122	70	110	65	2	2	1	1	22	18	10	10	10	10	15	12	8	15	10	15			
M.	25	...	...	120	82	115	70	...	...	...	...	20	20	5	5	10	5	14	13	16	16	17	8
D.	30	...	...	120	80	100	65	...	...	...	...	14	14	8	9	9	10	17	13	4	4	11	15
I.	19	...	...	120	65	135	75	2	2	1.5	1.5	23	18	8	8	4	4	15	13	5	5	8	10			
J.	35	120	75	124	88	3	3	2	2	25	25	35	22	18	25	15	20	12	7	16	22			Bal. serv.	
H.	23	...	...	138	88	142	104	3	3	3	2	17	18	5	5	5	5	2?	10	3	3	14	15			
D.	25	122	80	136	88	4	5	3	3	20	25	12	12	8	12	12	13	3	5	8	12				Left handed R. H.; shoots with L. H.
M.	22	140	70	150	80	2.5	2.5	2.5	2	32	25	10	12	12	17	20	21	12	12	5	5				
H.	21	120	65	125	80	2	2	4	3	20	20	3	3	3	3	18	19	3	3	2	2		L. H.; writes with R. H.
S.	29	124	74	120	67	3	2	1	2	20	18	2	2	3	2	20	14	23	25	18	18				
B.	22	120	70	125	80	3.5	5	4.5	2	25	20	1	1	2	2	21	14	21	22	17	18				
B.	22	86	74	126	88	130	80	5	3	5	2	24	24	35	20	10	10	20	12	8	22	12	12				
R.	23	130	78	125	70	3.5	3.5	3	3.5	22	25	15	15	15	20	23	18	13*	4*	13	3	* 10 to R., divergent			
K.	22	120	80	105	55	6	4	2.5	2.5	20	18	10	10	5	10	10	10	10	15*	5	5		* P. P. to L. Div. P. P.		
F.	19	72	68	122	72	110	65	5	5	5.5	5	30	22	15	15	5	5	17	13	to L15	to 15	to R15				
R.	21	...	82	138	80	112	65	22	25	16	17	12	12	12	14	5	5	14	15	Strongly R. H. L. H.			
S.	20	...	76	130	88	118	75	...	...	...	...	22	21	8	8	10	12	18	14	10	10	25	30	
T.	20	...	72	112	78	120	60	7	8	4.5	3	26	23	15	17	5	6	15	20	15	10	15	20				
D.	27	72	64	124	78	122	80	9	10	2	3	20	18	5	15	5	5	13	7	12	16	4	5				
L.	28	72	68	130	70	123	80	9	9	5	4	20	20	6	8	8	15	14	15	13	13	5	5	A A B A A A A B	L. H. L. H. L. H.; writes with R. H.			
D.	22	...	84	145	84	128	72	7	3	7	4	20	18	8	12	9	11	12	12	10	12	18	30					
H.	35	72	68	144	83	150	70	...	...	...	...	22	25	15	18	12	12	21	22	7	7	7	12	
L.	27	80	88	128	78	135	63	2	2.5	2.5	2.5	20	23	5	17	5	5	12	12	12	8	5	6					
K.	27	104	108	138	96	138	70	2	2	1	1	20	23	22	24	20	30	20	20	24	18	10	28					
W.	22	76	62	144	82	145	98	3.5	1	1	1	25	20	12	10	28	17	13	13	8	8	16	28					
J.	27	82	80	118	70	135	95	2	2.5	2	2	20	23	6	12	8	14	15	15	5	15	6	13					
L.	24	74	72	145	88	145	85	4	3	2	1	20	20	10	14	8	10	10	11	20	13	20	17					
W.	20	68	100	145	88	145	85	2	5	4	6	20	20	20	8	5	13	8	11	5	8	11	15					
O.	30	...	102	138	82	120	78	8	5	3	2	18	20	8	12	5	15	12	16	15	7	5	8			A		
K.	108	118	80	122	76	2	4	6	8	22	22	12	13	8	10	10	12	14	15	10	10	B				
S.	25	80	88	120	85	122	80	3	2.5	1.5	1.5	15	20	5	15	4	15	13	18	10	14	13	18	A				
W.	23	89	92	124	65	110	75	2	2	1	1.5	27	26	15	17	12	12	15	15	10	15	12	15	A				
W.	27	80	70	124	76	118	60	3.5	3	3	3	33	34	5	15	3	17	24	20	18	22	25	20	A				
W.	29	56	60	118	80	110	70	2.5	2	2	1.5	30	25	20	30	14	18	17	20	15	20	5	8	B				

In subjecting a man to this test, it is necessary to examine him both before and after he has been subjected to the test, so that a comparison of the findings may be had. He therefore is subjected to the regular physical tests for blood pressure, pulse, muscular tone and rotation. In testing the heart, I have taken both the systolic and diastolic pressures, and the rapidity of the pulse.

The muscle tonus is taken by the dynamometer for 60 kg. pressure and is represented in the number of seconds the pressure can be sustained by a

feet altitude per minute, until he has reached a height of 6,000 feet. He is kept in this rarefaction (which represents altitude) for a certain length of time, as shown in the tables. A fall is simulated by allowing air to enter the cabinet, and the time it takes to bring the pressure to that of the earth's surface represents a rapid or slow descent. In this manner, we can simulate an actual flight, and when the aviator has finally returned to the pressure of the earth's surface, he is again submitted to the tests for heart, motor power and rotation motions.

Tables 2 and 3 show the results of the different tests.

THE APPARATUS

The apparatus consists of a steel cabinet to which a vacuum pump is attached (Fig. 2). The cabinet is supplied with a mercurial altigraph (Fig. 2 *a*), the scale of which is marked to represent the vacuum in feet of altitude for each one-half inch. This altigraph will register from the earth's surface to an

air to enter the cabinet, and the other connecting the vacuum pump. The pump is a Geryk of the high vacuum, double cylinder, cantilever type, which is operated by a one-quarter horse power variable speed motor, with rheostat control, so that the pump can be operated fast or slow.

In trying men who had flown, it was determined that the sensations they experienced were exactly similar to those they had during an actual flight. One

TABLE 3.—ASCENT TO 6,000 FEET ALTITUDE IN SIX MINUTES; CONTINUATION AT 6,000 FEET FOR FIFTEEN MINUTES; DESCENT IN THIRTY SECONDS

Name	Age	Pulse		Blood Pressure				Dynamometer				Rotation												Class	Remarks					
				Before		After		Before		After		Before						After												
												Nyst.			10 to R.			10 to L.			Nyst.					10 to R.			10 to L.	
		Before	After	Sys-tolic	Dias-tolic	Sys-tolic	Dias-tolic	R	L	R	L	R	L	R	L	R	L	R	L	R	L	R	L							
C.	24	80	72	110	70	135	84	1	1.5	1	1	12	14	10	20	12	14	12	10	7	12	8	12	B	Rej. by board					
M.	22	72	72	125	78	145	80	5.3	6	6	6.5	22	25	10	15	12	16	17	21	15	20	22	45	A						
C.	25	96	80	128	75	125	84	3.5	5	4	4	16	20	12	15	5	7	15	17	5	11	10	13	A						
W.	..	96	92	134	78	150	75	2.3	4	1	2	20	25	26	30	17	21	25	24	20	17	7	18	A						
B.	22	92	76	120	84	122	85	1.5	2	1	1.5	20	22	11	11	14	16	20	16	16	16	10	13	A						
B.	22	72	58	122	64	106	58	1.5	2	3	2.5	13	23	15	16	15	15	20	16	35	37	8,23	25	B						
S.	26	78	72	140	68	140	60	1	1	1	2	32	33	10	12	15	16	27	24	20	32	25	22	A	* Divergent					
H.	24	90	84	124	70	120	65	1	1	2.5	2	23	26	16	20	12	20	27	26	10	18	15	6	A						
U.	19	84	80	135	75	135	80	1.5	1	1	1	22	22	20	10	20	25	16	20	22	27	18	21	A						
M.	26	68	60	118	70	128	80	4	2.5	3.2	3	20	22	12*	20	12	16	20	22	12	15	4	13	A						
G.	25	72	66	134	74	132	80	6.5	3.5	2.3	3.5	23	25	24	22	18	20	17	13	18	10	18	33	B						
V.	26	60	60	132	80	135	75	8	5	5	6.2	17	16	15	20	15	18	15	17	22	25	15	30	A						
G.	21	80	72	120	70	118	70	1.5	1	3	2	24	22	15	15	20	33	22	25	30	25	25	28	A	L. H.					
A.	27	72	72	140	90	128	80	2	2	2	2	20	18	20	15	10	17	20	18	25	33	15	18	A						
P.	30	96	80	138	75	134	70	1	1	2	3.5	30	28	10	10	10	12	23	25	4	12	12	15	A						
S.	21	82	88	127	70	120	80	1	1	2	1.5	20	22	16	18	12	15	18	18	15	18	17	20	A						
S.	25	84	70	130	80	125	82	2	2	2	1	21	16	30	22	22	21	15	11	25	20	15	18	B						
R.	24	64	72	120	78	118	76	1	1.75	1.5	1.5	20	20	35	22	20	18	25	18	5	15	20	15	A						
V.	26	76	82	128	86	122	72	2	1.5	1.5	1.5	18	20	15	18	13	15	15	17	12	15	5	6	A						
W.	25	80	80	125	80	130	80	1	1	1.5	1.2	20	24	20	15	17	17	20	21	18	15	18	22	A						
P.	22	80	72	130	65	128	65	1.2	1	1	1.5	22	24	18	15	15	18	25	20	20	25	15	12	A						
B.	21	76	72	115	60	100	60	1	3	2	1.5	20	25	10	15	4	7	17	20	13	17	4	8	A						
C.	26	74	64	138	88	115	68	1.5	2	1	1	15	18	5	15	10	20	10	15	15	20	15	12	A	R. H. for writing; throws ball with L. H.					
E.	20	76	68	148	88	130	80	2	1	1	1.5	15	15	30	30	20	30	8	12	25	25	12	14	A						
A.	23	84	76	140	70	115	70	2	1.5	3	2	27	24	8	8	35	20	18	18	10	10	30	18	A						
B.	28	92	76	138	80	120	80	1	4	4	6	20	20	4	5	5	7	13	17	11	11	4	5	B						
T.	25	72	72	140	80	120	84	4	3	3	7	15	16	5	5	7	7	12	12	3	3	3	3	B						
G.	24	96	86	138	88	120	80	2.5	3	2	1.5	22	26	5	13	10	13	16	19	35	45	6	8	B						
A.	22	96	90	130	86	115	70	6	6	2	2	20	20	5	15	10	18	9	7	5	5	5	5	A						
K.	20	90	92	124	76	122	76	2	1.5	2	2	22	24	7	12	20	35	20	15	8	10	15	8	C	Thin, hollow chest L. H. for most things					
G.	28	72	60	128	84	125	75	1.5	1.5	2.2	2.7	25	25	14	18	9	10	19	16	6	12	9	17	....					
D.	22	76	72	135	76	120	70	4	2.5	6	5	18	18	55	62	11	37	13	9	6	15	11	15	Fainted after vacuum test for 20 min. after out 10 min Scotch; red hair; 6 feet; strong						
J.	25	76	66	140	80	120	70	2	1.5	1.5	2	30	25	15	20	15	38	15	17	12	26	16	18							
S.	25	74	72	124	82	130	70	2	1.5	2	1	30	30	14	15	10	26	17	19	15	19	10	18							
R.	24	88	88	122	76	130	100	1	1	2	2	19	24	15	15	15	15	17	15	15	7	10	10							
M.	23	92	56	138	68	90	70	1	5	2	5	18	23	10	15	15	15	15	17	4	15	10	14						
S.	21	84	88	146	86	120	76	3	5	2	2	24	28	15	18	19	20	20	23	10	25	20	15	A						
P.	22	78	70	130	74	104	76	4	3	3	2	26	26	17	20	17	12	16	14	8	8	12	12							
N.	25	66	64	136	70	120	78	2	2	2	2	17	22	17	15	12	17	8	13	3	6	5	12							
L.	24	92	92	148	98	150	108	1	1	1.2	2.2	31	25	8	10	4	10	26	17	12	15	6	10							
M.	28	88	82	120	80	117	70	1.5	1	1	1	15	15	8	5	5	5	12	12	7	5	5	5							
B.	22	86	84	140	90	135	84	2	2	1.5	2	20	18	10	13	4	12	17	19	13	17	10	10							
W.	25	96	84	130	70	118	62	2	1	1	1	22	20	5	7	5	20	18	17	5	7	5	15							
S.	22	92	84	118	64	130	80	1	1	1	1.5	20	22	5	12	27	17	17	16	5	14	22	10							

altitude of 25,000 feet. The cabinet is made of plate steel, being 5 feet high, 2½ feet wide, and an average of 3 feet in depth, being more than 3 feet at the bottom and less at the top. There is a window in the front of the cabinet 14 inches square, of half-inch French plate glass, through which the one being tested can be observed (Fig. 2 *d*). The door in the rear, 2 by 4 feet, is locked by a lever which works sliding beveled dogs, making the door close air tight (Fig. 3). The cabinet is provided with four petcocks (Fig: 2, *a*, *b*, *c*, *e*), one for connection with the altigraph, one for a negative pressure gage, one to allow

intelligent flyer, of months' experience as an operator of a plane in actual warfare, told me the pain in his ears and head was the same as he had had in work in his machine, and so far as he could judge, the same experience as he had in actual flight. The type of the men examined should be noted as they are the same men who have been picked by the Aviation Corps for our flying squadrons. The fact of their being rare specimens both in mind and body would lead us to believe that they would show as little change in the tests as any body of men on earth, as they are all healthy men from the best American stock,

none of them over 30 years of age, while the great majority are from 20 to 24. Thus the material I have used is the hardest I could possibly find in which to show defects.

From a study of the tables it will be observed that those whose blood pressure was elevated showed a stimulation of the motor tone, and also a less depressed condition of the labyrinth. In those whose blood pressure was reduced, the muscle tone was less (most cases to the extent of 50 per cent. or more), and the labyrinth less active.

The matter for us to decide is whether we can tell which men will be most useful as aviators, and to classify the good from the poor. I would say that a man whose labyrinth is stimulated by a trial flight would be more acute than one in whom the labyrinth became less active. A man whose muscle tone is more, or at least as great after a trial, would be better than a man whose muscle tone is impaired. A man whose blood pressure is elevated would be better than if the blood pressure were lowered. On the one hand, we have a man who is being made more active,

The thought presents itself that the men who show the greatest effects of oxygen want are probably those whose defects would be shown in this test before they become actual aviators; and, therefore, I would expect the percentage of those affected by oxygen want to be materially reduced, were men selected for air service by this test before being accepted as pilots.

I do not wish to appear too positive in my assertions, as the work is novel, and I have not had opportunity to follow these men who have been subjected to my test, to find whether or not they remain competent to fly. I therefore submit it for its true worth, reserving the right to change my opinion on any point mentioned in the scope of this paper, although it has been carefully considered, and I feel my contentions well grounded. The results of observations surely indicate that the general circulatory system has a very marked and decided effect on physiologic problems, and should teach us to consider more than vestibular findings, such as we have been accustomed to do in the diagnosis of diseased or perverted symptoms. The tests for vestibular irritation should be taken in a more

TABLE 4.—SUMMARY

	Blood Pressure										Dynamometer			Nystagmus									
	Increase				Decrease				Same		Inc.	Dec.	Same	10 Turns to Right					10 Turns to Left				
	+10 Points		−10 Points		+10 Points		−10 Points		Sys- tolic	Dias- tolic				Increase		Decrease		Same	Increase		Decrease		Same
	Sys- tolic	Dias- tolic	Sys- tolic	Dias- tolic	Sys- tolic	Dias- tolic	Sys- tolic	Dias- tolic						+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.	
Table 2:	22%	24%	30%	8%	20%	32%	18%	24%	10%	12%	19%	80%	1%		14%	32%	48%	6%		10%	20%	70%	
Table 3:	13%	15%	13%	25%	43%	15%	25%	30%	6%	15%	32%	50%	18%		2%	12%	84%	12%		4%	12%	84%	10%

Past Pointing																				Left Handed								
	10 Turns to Right										10 Turns to Left										14% Increase		R	L				
	Right Hand					Left Hand					Right Hand					Left Hand												
	Increase		Decrease		Same	Increase		Decrease		Same	Increase		Decrease		Same	Increase		Decrease		Same								
	+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.		+10 Sec.	−10 Sec.	+10 Sec.	−10 Sec.	R	L	Inc.	Dec.
Table 2:	19%	32%	10%	35%	4%	8%	34%	15%	33%	10%	26%	26%	10%	26%	12%	30%	30%	12%	16%	12%	20%	5%						
Table 3:	10%	37%	4%	37%	12%	12%	37%	10%	37%	4%	2%	24%	2%	50%	22%	8%	8%	10%	66%	8%	.....	.....	20%	33%		

while on the other, we have a man who has a degree of shock, varying in degree with the amount of change exhibited. In the cases in which there is not much change in the findings, we would say they would be serviceable in balloon service, as they remain in the same medium of air for lengths of time. When the blood pressure and muscle tone are increased, and the labyrinth is more sensitive, I would consider the man a good risk. It is true that if this man flies long enough, he may have compensatory hypertrophy and arteriosclerosis, but not for a considerable time. The man with lowered blood pressure, lessened muscle tone and less stimulated labyrinth is a bad risk, and should never be allowed above the earth's surface. In this manner I have figured that in Table 2, 26 per cent. were unfit as aviators, and that in Table 3, 33 per cent. fell below the standard test. These men, in my opinion, will probably deteriorate rapidly and fall to their death if allowed to fly.

Tests for oxygen want do not enter into the conditions exhibited in my series of observations, from the fact that oxygen want manifests itself after time in the air and it is destined to be used as a test for the life of endurance of an aviator and not as a test to determine whether or not the man is fit to become a flier.

scientific manner, as some of them at present leave too much to be desired in the matter of duration and accuracy.

Nystagmus is marked in seconds and there is no reason why past pointing and falling should not be determined in the same way. In this way we shall arrive at a more uniform method, and our findings will be of more importance in diagnosis.

30 North Michigan Avenue.

Milk Substitutes.—In a recent issue of the *British Medical Journal* it is stated that, when there is a shortage of cow's milk, we require for many invalids, and indeed for others, a food which is at once a liquid, very easily digestible, inexpensive, very easily prepared, and without any strong flavor. It need not be a complete food, any more than cow's milk is, for it would not often be the sole food, except temporarily, as in brief febrile states. Such a food can be most simply made from oats as follows:

Boil 3 ounces of fine oatmeal in a double saucepan for at least an hour. Then cool to 140 F., and stir in two or three teaspoonfuls of extract of malt or of finely ground malt. The jellylike mass will quickly change to a syrupy liquid. Let it remain for an hour at the same temperature. It is then ready for use, and should measure 1 pint.

This liquid oatmeal has much the same composition as cow's milk, except that there is a deficiency of fat and some little of protein. It has lost most of the oatmeal flavor and is not so white as cow's milk.

SPECIAL TUBERCULOSIS EXAMINATIONS
IN THE MILITARY SERVICEFRANCIS B. TRUDEAU, M.D. (SARANAC LAKE, N. Y.)
Captain, M. R. C., U. S. Army
NEW HAVEN, CONN.

It was my privilege from the middle of last July to the middle of January of this year, to participate in the examination for tuberculosis of various branches of our army, including 7,589 prospective officers at the two Plattsburg training camps, 6,081 Regulars at Fort Ethan Allen, Plattsburg and Camp Devens, and 4,167 drafted men of the National Army at Camp Devens, Ayer, Mass.

Before taking up in detail our findings at the various camps, it might not be out of place to state a few lessons which practical experience taught us regarding the best method of procedure for the expeditious examination of so large a number of men.

BEST METHOD OF PROCEDURE

1. *The Personnel of the Examining Board.*—If the number of men to be examined is not more than 5,000, three medical officers will be able to examine the lungs of the entire command within one month. If the command is large, such as is found at the National Army cantonments, varying from 25,000 to 40,000, a larger board, of course, is necessary; but it was found most satisfactory to subdivide this larger board into smaller ones of three members each. The ranking officer takes complete charge of the workings of his board, including the paper work, which plays such an important rôle. Theoretically, this is supposed to be handled by the junior officer; but as the chairman of the board is held responsible for it, it inevitably results that he is the one who actually attends to it. Besides the medical officers, each board of three should have a noncommissioned officer and four enlisted men attached to it, each trained so as to be interchangeable with the other, should the absence of any one of them occur: one man assigned to each medical officer; one, who is able to use the typewriter, to act as clerk, while the noncommissioned officer is put in charge and made responsible for these men.

2. *Working Hours.*—The hours of work should not be too long, as the work is so intensive that it is tiring to both mind and body. A working day of between five and six hours is most satisfactory for the good of all concerned. A rest of ten or fifteen minutes should be taken at the end of each hour of examination.

3. *Number of Men to Be Examined per Day.*—If a detailed heart examination is not to be included, each officer can and should examine at least seventy-five men a day. This number can be raised to 100 should necessity demand, but ought not to exceed this mark, for after examining 100 men in a day, one's interest and powers of observation lag.

4. *Examination by Groups.*—We found it more satisfactory to examine the men in small groups of from five to ten each, rather than to have a long, continuous line. There are three main reasons for this:

(a) A line from 50 to 60 yards long is a most disheartening sight for the examiner.

(b) There is less noise with the smaller groups.

(c) The interval between finishing one group and starting the next is a very acceptable rest to the ears of the examiner.

5. *Posture During the Examination.*—If the examiner is young, active and not too heavy, the examination can be carried on standing, the medical officer moving down the line, instead of moving the line past him, thus eliminating the noise of the shuffle of feet. On the other hand, it may be found advantageous for the examiner to sit on a table, or something about that height, and have the men file past him.

6. *The Value of History Taking.*—We are told in Circular 20 from the Surgeon-General's Office that "conclusions of the examiners shall be based only on physical signs, sputum examinations and radiographs. Statements of the subject as to symptoms will not be

TABLE 1.—POSITIVE ANSWERS

	Drafted Men		Regulars	
	No.	Per Cent.	No.	Per Cent.
Family history	94	18.8	30	6.7
Pleurisy	80	16.0	22	4.4
Cough	161	32.2	61	12.2
Hemoptysis	114	22.8	22	4.4
	449		135	

accepted as proof of the existence of tuberculosis unless supported by objective evidence." Nevertheless, when we started in this work, we thought it might be helpful in many cases to obtain some sort of history of each man. We, therefore, used small cards for our own records, on which was a place for the man's name, rank, organization, a printed diagram of the chest, and four questions, concerning: (1) family history of tuberculosis; (2) pleurisy; (3) cough lasting for one month or more, and (4) hemoptysis. Every man was asked these four questions, and a positive answer to any of them was cause for a more thorough examination. This scheme, with some modifications, was used by the larger board at Camp Devens. It is quite apparent, on the face of it, that men who wish to get out of the service, as do many of our drafted men, will give more positive answers than men who are working to stay in, such as the men in the reserve officers' training camps, or the volunteer enlisted men. This was well brought out at Camp Devens, when we compared these four questions on the history records of 500 volunteers, among the Engineers, with the same questions among 500 of the drafted men. Table 1 was worked up by Capt. E. P. Eglee of our board.

Of 2,000 questions, 449, or 22.4 per cent., were answered affirmatively by the drafted men. Of the same 2,000 questions, 135, or only 6.7 per cent., were answered affirmatively by the Regulars. Another thing which pointed to the apparent unreliability of routine histories is the fact that out of 11,631 examinations at the first and second Plattsburg training camps and at Fort Ethan Allen, we found positive signs of tuberculosis, where there was also a positive history in only twenty-one cases, or 0.18 per cent. These figures, as far as they go, seem to indicate that routine history taking in our work has helped very little, if at all.

7. *The Examination.*—The preliminary examinations used by all boards of which I was a member consisted merely of inspection and auscultation after cough, particular attention being paid to breath sounds only in doubtful cases, and when time permitted, as some idea of these may be obtained by listening to the inspiration following the cough. The men were instructed by one of our corps men how to exhale, cough and inhale, but I am free to admit that this procedure was done very poorly in many cases. Nature teaches us that when we want to cough, the

act is most effectively accomplished by taking in a breath before we do so. Now, to instruct an intelligent man to cough, after breathing out, is often difficult; but when one is confronted by an uneducated man or a man who speaks no language which the examiner knows, it is next to impossible, in the time allowed, to make him understand what one wishes him to do. If one can get such a man, and there are many thousands of them in our army, to cough at any time during the respiratory cycle, and then take a deep breath, one should be more than satisfied. I feel certain that auscultation following the cough at the end of expiration is, indeed, the best method for the detection of râles; but this procedure is sometimes very difficult in the Army.

8. *Disposition of the Cases.*—After this preliminary examination, if the man's lungs are found to be normal, his name is checked off his company's roster, which should always accompany every organization of men to be examined, and he is told to dress and return to his barracks. If anything abnormal is found, he is requested to wait and later is again examined, this time by each member of the board. He is then either passed or sent before the final disability board for its decision. This board should consist of the president of the tuberculosis board and two other members chosen by him. This group of three should have the final word as to the disposition of all doubtful lung cases referred to them. They should be able to obtain sputum examinations and roentgenograms, and also, if possible, have access to an observation ward, where the especially doubtful cases may be watched for a period of not more than ten days, by which time some disposition should be made of every case. Every medical officer sending a case before this board should be informed as to its disposition, as otherwise he will learn little and lose interest.

THE FIRST PLATTSBURG RESERVE OFFICERS' TRAINING CAMP

At the first Plattsburg reserve officers' training camp, the board consisted of three members, Major (then Lieutenant) J. C. Gittings, Major (then Lieutenant)

TABLE 2.—EXAMINATIONS AT FIRST PLATTSBURG OFFICERS' TRAINING CAMP

	Number.	Per Cent.
Men examined	4,455	....
Tuberculous cases	10	0.22
Rejected for tuberculosis.....	5	0.11
Recommended for special service.....	4	0.09
Men with healed lesions, passed for active service	1	0.02
"Hold-ups"	325	7.20
"Hold-ups" who presented abnormal signs with negative history	118	2.60
Men presenting positive history with normal signs	156	3.50
Men presenting positive history, abnormal signs	51	1.10
Men with enlarged cervical glands or scars.....	19	0.42
Men presenting evidence of old empyema.....	14	0.31

J. W. Price, and myself. As we started work in the middle of summer, with the weather warm and clear every day, the examination of the entire camp, with the exception of one company, was carried on outdoors under the trees. This proved very satisfactory, as there was no shuffling of feet on wooden floors to contend with, and other small noises did not disturb as they do in a room. This, without a doubt, was the finest group of physical manhood that we have encountered anywhere. Each day we examined one company from 11 o'clock to a little after 12, and another company from 4 to shortly after 5 o'clock. These were the only hours the men could be spared from their training. The rest of the day we had for the reexamination

of our doubtful cases, picked out of the line, or, as we always termed them, "hold-ups." Our results in this camp are given in Table 2.

FORT ETHAN ALLEN, VERMONT

After finishing our examination of the first Plattsburg reserve officers' training camp, the same board was ordered to Fort Ethan Allen, Vt., to examine three regiments of cavalry, stationed at that post. These were all enlisted men of the Regular Army. Here the examinations were carried on indoors and under ideal conditions, as each examiner had a private

TABLE 3.—EXAMINATIONS AT FORT ETHAN ALLEN

	Number.	Per Cent.
Men examined	4,042	
Tuberculous cases	18	0.44
Rejected for tuberculosis.....	12	0.29
Recommended for special service.....	0	
Men with healed lesions, passed for active service	6	0.15
"Hold-ups"	333	8.20
"Hold-ups" who presented abnormal signs with negative history	49	1.20
Men presenting positive history with normal signs	229	5.60
Men presenting positive history, abnormal signs	55	1.30
Men with enlarged cervical glands or scars....	10	0.24
Men presenting evidence of old empyema.....	5	0.12

examining room for his own use. The men were examined in groups of five, ten or twenty each, depending on the size of the room and the desire of the examiner. It was at this place and under these conditions that in one day, one of us examined 163 men, while another examined 162, which was our record day and showed us clearly that 100 examinations a day should be the high limit for each physician, if the examination is to be of much value. The results we obtained in this camp are given in Table 3.

THE SECOND PLATTSBURG RESERVE OFFICERS' TRAINING CAMP

At the second Plattsburg reserve officers' training camp, our board again consisted of three members, Major (then Captain) A. P. Francine, Major (then Lieutenant) J. W. Price and myself. Our duties this time were to examine the hearts of the entire command, as well as the lungs. This work has already been reported,¹ but as the report dealt more fully with the cardiovascular part of the work, I will merely mention again a few points about the lung examinations. Here we found the working conditions very favorable, as each of us had a separate room in which to work. The physical type of the men we examined was again excellent, but on the whole not as good as the first Plattsburg camp, and, as will be seen, the percentage of tuberculosis was nearly twice as great. The details of the examination will be found in the article mentioned,¹ so I need not reiterate them here. For the sake of comparison I will give our findings. The most marked difference from our previous examinations was in the smaller number of "hold-ups." This, I think, was largely due to the fact that we were beginning to doubt the value of history taking, and, I believe, the sergeant who asked the men the questions, must have overheard us discussing this point, and become a bit doubtful himself as to the use of asking every man personally the four questions, for one day I happened into the large room, where the men collected before coming to us, just as the sergeant called them all to attention and asked, at the top of his voice, if any one of them had had tuberculosis in the family, or had had pleurisy, spat blood, or had a cough

1. Francine, A. P.; Price, J. W., and Trudeau, F. B.: Cardiovascular Lesions and Tuberculosis, THE JOURNAL A. M. A., Dec. 22, 1917, p. 2110.

for a month or more. One can easily see why this method would not be particularly conducive to bringing out positive histories, or, as we used to term them, "history hold-ups," especially when these men were all working for commissions, and were very reticent about answering any of these questions in the affirmative,

TABLE 4.—EXAMINATIONS AT SECOND PLATTSBURG RESERVE OFFICERS' TRAINING CAMP

	Reserve Officers.		Regulars.	
	No.	Per Cent.	No.	Per Cent.
Men examined	3,134		584	
Tuberculous cases	13	0.41	7	1.20
Rejected for tuberculosis.....	8	0.25	5	0.85
Recommended for special service	2	0.06	1	0.17
Men with healed lesions passed for active service	3	0.095	1	0.17
"Hold-ups"	104	3.30	42	7.20
"Hold-ups" who presented abnormal signs with negative history	42	1.30	8	1.30
Men presenting positive history with normal signs	51	1.60	29	4.90
Men presenting positive history with abnormal signs.....	11	0.35	5	0.85
Men presenting enlarged cervical glands or scars	1	0.03	1	0.17
Men presenting evidence of old empyema	4	0.12	0	

even when questioned personally by one of us. Besides examining the prospective officers at this camp, we examined 584 regulars. The results are given in Table 4.

CAMP DEVENS, AYER, MASS.

At Camp Devens conditions were entirely different from any of the camps in which we had worked, chiefly on account of the far greater number of men to be examined, and secondly, it was the first experience for most of us in one of the large Army canton-

TABLE 5.—EXAMINATIONS AT CAMP DEVENS

	National Army.		Regular Army.	
	No.	Per Cent.	No.	Per Cent.
Men examined	4,167		1,455	
Tuberculous cases	34	.81	8	.55
Men rejected for tuberculosis..	24	.57	8	.55
Men recommended for special service	1	.02	0	
Men with healed lesions passed for active service	9	.21	0	

ments. The examining board consisted of fifteen members and was divided into five smaller boards of three members each. As, I believe, our final results are to be published by our president, Major Joseph Pratt, I will confine my remarks to a summary of the findings of my own local board, composed of two other members: Major (then Captain) T. J. Abbott and Capt. (then Lieutenant) E. P. Eglee. As will be seen, the greater part of our work was done among the drafted men of the National Army. We also had

TABLE 6.—SUMMARY

	Prospective Officers.		Regulars.		Nat. Army.		(Total.)	
	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
Men examined	7,589		6,081		4,167		17,837	
Tuberculous cases	23	.30	33	.54	34	.81	90	.50
Men rejected for tuberculosis	13	.17	25	.41	24	.57	62	.34
Men recommended for special service	6	.07	1	.01	1	.02	8	.04
Men passed for active service	4	.05	7	.11	9	.21	20	.11

occasion to examine the One Hundred and Twenty-Fifth Regiment of Engineers, who were practically all enlisted men of the Regular Army, and happened to be stationed at this camp. During these examinations a written history of from eight to ten questions was taken of every man in camp. I am unable to use as much data in summing up our results at Devens as I have used in the summary of the work at the other camps, but the essentials are given in Table 5.

CONCLUSIONS

1. A tuberculosis examining board should not work more than six hours a day.
2. The number of pulmonary examinations a day for each medical officer should be at least seventy-five but not exceed 100.
3. The routine taking of histories in this work was of little value.
4. The one most important procedure in the pulmonary examination is auscultation for râles after cough, performed preferably and if possible at the end of expiration.
5. The disability board should consist of three members, the president of the examining board and two others chosen by him from the members of the board. This board should have final disposition of all lung cases referred to it.
6. The average incidence of tuberculosis among the various branches of the Army which we studied is 0.5 per cent. The percentage is slightly lower than this in the reserve officers and slightly higher in the National Army; while our Regular Army men maintain just this average.

OBSERVATIONS OF A TUBERCULOSIS EXAMINER IN THE ARMY

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The tuberculosis examining board effected an organization in this cantonment during the latter part of November, 1917, and has since been engaged in the examination for pulmonary tuberculosis of all drafted men reporting to this camp. The work of a tuberculosis examining board is in no way connected with the activities of the base hospital. It is essentially a camp board making a field survey for tuberculosis so far as it concerns the men assigned to the depot brigade or the several organizations within the division. The work of a tuberculosis examining board, omitting the details incident to a tuberculosis survey, may be compared with that of a medical officer holding a sick call when it is necessary to examine hurriedly a large number of men, collecting those that need hospital attention.. Prior to the present method of discharging all drafted men on Form 1010 who are physically incapacitated for service on account of active manifest tuberculosis, these men were referred to a disability board for discharge, the tuberculosis examining board reporting on the number and percentage of pulmonary defects referred to the disability board. Those cases of lung defects and lesions of an unimportant nature from a clinical standpoint, yet incipient, were not reported to the disability board, the services of these men being of value to the government, but were taken into account as percentage of tuberculosis found, Class A incipient, closed.

Incipient pulmonary tuberculosis has been defined as an infiltration limited to the apex of one or both lungs or a small part of one lobe; with no tuberculous complications; with slight or no constitutional symptoms, including gastric or intestinal disturbance, rapid loss of weight, and slight or no elevation of temperature or acceleration of pulse at any time during the twenty-four hours. Expectoration is usually small in amount or absent, and tubercle bacilli may or may not

be present. A further classification according to symptoms was found practicable and adopted.

Incipient A would depict a lesion with symptoms found in the present incipient stage; incipient B, an incipient lesion with symptoms of the present moderately advanced stage; incipient C, an incipient lesion with symptoms of the present far advanced stage. This classification was not a matter of official record, but merely statistical for the information of the president of the tuberculosis board.

In military practice it is of the greatest importance to determine promptly whether or not tuberculosis is present, and to hold to the service all men not presenting evidence of the disease on chest examination. Examiners without the necessary clinical experience may misinterpret physical signs and make unnecessary rejections for too slight causes. The healed and quiescent lesion in the absence of moisture may present difficulties in diagnosis that experience alone may enable us to overcome. Again, the diagnosis of incipient pulmonary tuberculosis in the absence of râles and confined to the apex of an upper lobe is not always an easy task, especially when there is no constitutional disturbance. It would not be amiss in Army work to establish certain standards to prevent unnecessary rejections for causes that would not warrant rejection when based on misinterpreted physical signs.

Long before there is softening of a tuberculous process changes in breath sounds occur.

We study the quality and strength and note the relations between inspiration and expiration, with special reference to their nature and duration. The production at the apex in incipient tuberculosis is a not clear, hoarse, vesicular sound of vibratory character first called to our attention by Bandler, its production often depending on a soft swelling of the finer air passages (Detweiler) or small isolated rhonci not yet accompanied by secretion in the bronchioles (Sahli) or on the air in consequence of the existence of small, airless nodules entering the alveoli by fits and starts (Turban). The cogwheel breathing, so early heard, occurs in infiltrated areas, nearly always accompanied by vesicular breathing of an exaggerated nature. When confined to one apex, it is of significance.

It is rather remarkable to what extent these early adventitious sounds may be elicited in crowded and at times very noisy examining rooms.

It is not an untenable theory that the tuberculous process begins at the hilum in childhood and is disseminated throughout the lung as a peribronchial process, often limited permanently to the deep lung, reaching the periphery when there is a failure of immunity to tuberculosis, and producing the disease in a clinical and manifest form. In these cases the clinical manifestations of tuberculosis appear at the surface of the upper lobes.

A soldier with tuberculosis is a distinct liability. Colonel Bushnell has pointed out that tuberculosis examiners owe it as their duty to the government to exclude from the Army men who will cripple it in effectiveness and swell the pension list. At the same time they are expected to hold to the service men not afflicted with manifest disability. Two classes of men, as stated by Colonel Bushnell and frequently observed by examining surgeons, will present themselves to the examining board: those who wish to serve, yet suspect that they have tuberculosis, endeavoring to conceal their past history and present symptoms, and those

who desire exemption, who will give a history and claim symptoms tending to mislead the examiner. It would, indeed, make for inefficiency were not the examinations of drafted men confined to objective facts and physical diagnosis. Statements of applicants must be supported by physical signs, but otherwise not given weight. We fully realize the need for haste in the present emergency, and the consequent practice of percussion and auscultation in unfavorable surroundings; yet notwithstanding all this, cases of well-marked manifest tuberculosis are detected in practically every instance. Quiescent and healed lesions not far below the clavicle are the types of pulmonary tuberculosis most frequently overlooked by surgeons on examining boards, reactivation later occurring.

The first report to the Surgeon-General on the tuberculosis survey in this camp covered the examination of 21,700 men. The total number of cases of tuberculosis found was 204, or 0.94 per cent.; cases recommended for discharge from the service, 138, or 0.636 per cent.; incipient pulmonary tuberculosis, Class A, 66, or 0.304 per cent. In the second increment, 5,396 men were examined. The percentage of rejections from the service was 0.685. In the third increment, 6,359 men were examined; the percentage of rejections was 0.519. In the fourth increment, 9,457 men were examined; the percentage of rejections was 0.327. In the fifth increment, 15,410 men were examined; the percentage of rejections was 0.24. A total of 58,322 men were examined. Undoubtedly the decreasing percentage of rejections was due in large measure to a rise in the physical standards demanded by the local boards, and the knowledge that was soon acquired that active and manifest pulmonary tuberculosis would be detected by the Army surgeons and promptly rejected. In considering the fact that all men examined by the tuberculosis board had previously been examined by reputable and well qualified physicians, and in many instances by distinguished specialists, this seemingly low average of rejections is not normal.

To the casual observer an analysis of these percentage tables might lead him to believe that many cases of tuberculosis had escaped detection. As a matter of fact, the records of the clearing station at Camp Grant and the laboratory at the base hospital show only twenty-three positive sputum reports since the organization of the tuberculosis examining board the latter part of November, a comparatively small percentage to the number of chest examinations made, and this notwithstanding the fact that considerable time had elapsed from the date of the primary examination to the departure of the soldier from the camp. With this small percentage of tuberculosis, it is evident that the healed quiescent lesion did not reactivate to an appreciable extent if overlooked, notwithstanding the fact that we are not as yet able to establish any standards of resistance to a given amount of tuberculous infection. The experience of the examiner and the personal equation must enter largely into the situation. Practical experience as a clinician and large experience as an examiner of soldiers are essential to the solution of this problem.

TUBERCULOSIS IN FRANCE

Major Edouard Rist has shown that at the clearing stations of the sixth French army where laboratory and sputum examinations were made, where the roentgen ray was established, and a nose and throat expert

employed, the number of discharges on account of tuberculosis was greatly reduced. Of the first 1,000 cases examined for the diagnosis of tuberculosis, only 193 had active tuberculosis. These were men who had served at the front, a percentage of less than 20 of the previously diagnosed cases. During the first year of the war, no less than 86,000 men were discharged from the French army on account of pulmonary tuberculosis. These figures spread alarm in France and the Allied countries, and especially in the United States. The impression prevailed that the whole French nation was permeated with tuberculosis and was sure to die from it if immediate measures were not taken for its prevention. A phthisiophobia was created in this country which might well account for the exceedingly high percentage of rejections from our army for pulmonary tuberculosis until the Adjutant-General finally issued an order requiring ocular demonstration of the tubercle bacillus as confirmatory evidence of the disease before rejection of soldiers for pulmonary tuberculosis could be accomplished, once enlisted, and then only of their own free will and accord.

Returning to the French army, all men in the war zone with a diagnosis of tuberculosis were sent to a clearing station where they were kept for a week and thoroughly examined. The result of this procedure was that several hundred soldiers were sent back to duty at the front who, if there had been no clearing station for such cases, would have been sent to the base hospital with a diagnosis of tuberculosis, would have been kept for months in the interior, and the greater part would have been discharged finally from the military service. As a matter of fact, between 80 and 90 per cent. of these supposedly tuberculous men were not tuberculous at all.

Tuberculosis examining boards in our army should profit by the mistakes of our allies, and we find this largely an incentive for a greater conservatism and careful study on recall of all diagnosed as tuberculous by examining surgeons on general boards. It is fair to assume that tuberculosis will not break out in the American Expeditionary Forces to the extent that it has in other armies, on account of the thorough examination and sifting out of consumptives at training camps. Surgeon-General Gorgas says, "I consider that prevention of tuberculosis remains the most important health problem in the country, in spite of all the work that has been done." Tuberculosis continues to present more complex social and economic problems than any other known disease, causing the greatest amount of suffering and dependence.

TUBERCULOSIS IN CHICAGO¹

At a recent meeting of the American Public Health Association at Washington, D. C., statistics incident to a survey that I made showing the prevalence of tuberculosis and its social and economic conditions in the city of Chicago were presented. This tuberculosis survey included a district of 8 square miles with an estimated population of 371,259, the total number of persons examined being 165,700. Of this number 14,282, or 28.6 per cent., were found to be tuberculous. An analysis of 6,610 cases classified as first, second or third stage cases shows that 4,407, or 61 per cent., were incipient, 2,240, or 33 per cent., moderately advanced, and 323, or 4.8 per cent., far advanced.

It is from this and other similar environment that large quotas of men are supplied to the National Army. It is of interest, therefore, to note more in detail just what was found in the examination of employees of large business houses. In one candy factory there were more than 1,000 people employed. Of this number 698 were examined, and 100, or 14 per cent., were found to be tuberculous. This factory distributes its products over almost the entire civilized world. Examination was made of 1,514 employees of the U. S. government in the Chicago postoffice, and seventy, or 4.6 per cent., were found to be suffering from tuberculosis. Many of the employees evaded examination for fear of losing their positions if found tuberculous. The Chicago Telephone Company showed forty-nine cases in 520 examined, or 9.4 per cent. The employees of every restaurant and hotel, including the very best in the city, showed from 8 to 20 per cent. suffering from easily detected tuberculosis. The Cook County jail is old and poorly ventilated, with no sunlight penetrating to 99 per cent. of the cells, which are cement cubicles with iron grating doors. Out of 427 regular inmates examined and 317 transients, 102 of the regular inmates were diagnosed tuberculous and 100 cases were found among the transients. All told, 27.1 per cent. of the population of the jail were tuberculous.

With millions of consumptives throughout the United States there is hardly a city, village or community free from the disease. We have all doubtless been infected since childhood, and we have bestowed on us an immunity against overwhelming infection, making us a less susceptible race than primeval man. Race immunity has handed down to us through successive generations a resistance to tuberculosis by recovery from the disease incident to mild infection, oft repeated.

METHODS OF ERADICATING TUBERCULOSIS

The methods of stamping out tuberculosis may be grouped under four headings:

1. Removal of those predisposing factors tending to lower the physiologic resistance of the individual, that is, bad housing, overcrowded, poorly lighted and badly ventilated tenements, inadequate and poor food supply, and insanitary conditions in general.
2. Removal of foci of infection, by hospitalization and segregation of open cases so far as practicable.
3. Effecting a cure of incipient closed cases at a time when this is possible and before there is softening of lung tissue.
4. Eradication of bovine tuberculosis and more widespread knowledge of the dangers resulting from the consumption of meat and milk from tuberculous cattle, notwithstanding the fact that the bovine bacillus is less virulent than the human bacillus for man.

Chemical Manufacture in Uruguay.—In 1915, when on account of the war, the scarcity of chemicals began to be felt in Uruguay, a project for making chemicals was revived and their manufacture begun on a commercial scale. This was the outcome of a recommendation by Dr. Latham Clarke, an American specialist in charge of the National Institute of Industry at Montevideo in 1913. At that time, apparatus was purchased in the United States but the work was postponed. At present, a large number of chemicals are made, including alcohol, ammonia, nitrocellulose, benzene, nitrobenzene, sodium bicarbonate and carbonate, ether, potassium products, barium and sodium sulphate, chloroform, sodium benzoate, iodoform, hexamethylenamin, glycerin, hydrogen peroxid, silver nitrate, salicylic acid, acetylsalicylic acid, creolin and acetone.

1. Results of this tuberculosis survey, presented in a paper read by Dr. John Dill Robertson, Commissioner of Health, Chicago.

THE STERILIZATION OF WOOLEN BLANKETS AND UNIFORMS

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AND

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The prevention and control of contagious diseases in Army cantonments and base hospitals is a complex problem which requires special measures to be worked out in sufficient detail to result, so far as possible, in automatic execution.

Contact infection, which includes hand-to-mouth infection and infection by the respiratory route, is accepted as being fundamentally important in the prophylaxis of contagions. A scheme, to be effective, should provide for measures involving early diagnosis, prevention of cross-infection in ambulances en route to the base hospital, rigid examination of patients in the receiving ward, the use of throat cultures to determine proper grouping of patients in wards, development of the cubicle system on the principle of isolation in each case, the wearing of face masks, and rigid ward discipline to develop and maintain the so-called aseptic technic. Important among preventive measures is proper sterilization of woollen blankets and uniforms.

The sterilizer issued the base hospital has proved satisfactory in the routine sterilization of cotton goods, surgical dressings and gowns, but destructive to woollen goods. It was found necessary, therefore, either to dispense with the routine sterilization of woollen goods or to modify the method used in sterilization of cotton goods, which consisted of sterilizing with from 12 to 15 pounds steam pressure (from 242 to 250 F.) for from ten to thirty minutes.

Numerous experiments and modifications demonstrated that, in the sterilization of woollen goods, certain precautions must be observed, (1) to produce effective sterilization; (2) to avoid damage to woollen fibers, and (3) to prevent shrinkage. These precautions should be discussed.

STERILIZATION

Bacteriologic cultures of pneumococcus, streptococcus, staphylococcus, influenza bacillus, pyocyanus and anthrax spores were effectively sterilized with 12 pounds of steam (242 F.) for ten minutes, or at atmospheric pressure (212 F.) for one hour, if the following precautions were taken:

1. That a vacuum of from 15 to 20 inches be established in the chamber of the sterilizer before the introduction of steam.

Experimental Proof.—Without initial vacuum, staphylococci and anthrax spores placed in the center of a bundle of blankets were not killed. With initial vacuum, all organisms were killed.

2. That the sterilizer be not overfilled.

Experimental Proof.—When the sterilizer was tightly filled, anthrax spores in the center of the sterilizer were not killed by 15 pounds of steam in fifteen minutes. When the woollen blankets and uniforms were loosely placed on trays of the sterilizer, all anthrax spores and other organisms were killed by 12 pounds pressure in ten minutes.

DESTRUCTION OF WOOLEN GOODS

The length of time woollen goods are exposed to heat is equally important to the degree of heat used (within the limits of 212 and 242 F.)

Experimental Proof.—1. No damage to woollen goods resulted when subjected to steam at atmospheric pressure (212 F.) for one hour. 2. No damage resulted when woollen goods were subjected to 12 pounds pressure (242 F.) for ten or twelve minutes. 3. If exposed for a longer time, even at a lower temperature, slight or severe damage resulted, as shown by the following test:

Blankets subjected to 6 pounds pressure (230 F.) for thirty minutes evinced abnormal dryness, increased friability and loss of vitality of fibers and texture.

SHRINKAGE

Sudden change of temperature is the cause of shrinkage.

Experimental Proof.—1. Blankets and two olive drab coats, treated only once, shrank when, at the end of the sterilization, the sterilizer door was thrown open to allow rapid cooling. The blankets lost one-half inch in length and breadth and the olive drab coats lost from one-fourth to one-half inch in the collar. 2. A blanket was put through the sterilizing process eight times without shrinkage when attention was given to avoidance of sudden change of temperature by opening the sterilizer door only 4 inches for ten minutes.

COMMENT

The sterilizer issued to this base hospital was manufactured by the American Sterilizer Company and given the Serial No. 10482. As indicated above, blankets or uniforms should be placed loosely on the wire trays in the sterilizer. Fifty uniforms and 150 blankets, respectively, represent its maximum capacity in one sterilization. The capacity of the sterilizer is sufficient to meet the demands of this base hospital which has averaged from 1,000 to 2,100 patients during the past several months. Wrinkling of uniforms is avoided by the use of hangers. This reduces the capacity of the sterilizer to twenty-five uniforms.

For several months past, routine sterilization of all clothing except shoes, worn by patients with contagious diseases, has been accomplished before being sent to the receiving ward for storage. All blankets and bedclothing have likewise been sterilized immediately after a patient that has recovered from a contagious disease is discharged from the hospital or transferred to another ward. Early in our experience the atmospheric pressure method was preferred as it theoretically offered a greater margin of safety as to preservation of valuable property. The past five weeks, however, since time exposure has proved more important than the degree of heat used (within limits of 212 and 242 F.), the shorter or pressure method has been adopted and found entirely satisfactory if conducted under reasonably careful observation.

SUMMARY

The following procedures effectively sterilize woollen goods without deterioration or shrinkage:

1. The woollen blankets or uniforms are placed on hangers or loosely on the trays in the sterilizer.

2. Sixty pounds of steam is introduced into the outer jacket of the sterilizer to prevent subsequent condensation of steam within the sterilizing chamber.

3. A vacuum of from 15 to 20 inches is created in the sterilizer chamber to facilitate penetration of the clothing by steam.

4. Sterilization is performed with either (a) 0 pounds of steam for one hour, designated as the atmospheric pressure method, or (b) 12 pounds of steam for ten minutes, designated as the pressure method.

5. Again a vacuum of from 15 to 20 inches is produced to facilitate drying.

6. The door of the sterilizer is opened about 4 inches for ten minutes to allow gradual cooling of the contents of the sterilizer.

Therapeutics

HEATSTROKE; INSOLATION

The fact that the treatment of heatstroke is frequently unsatisfactory and the outcome frequently fatal is an excuse for repeatedly outlining our knowledge of this condition. Although sunstroke is perhaps more serious and more fatal than heat prostration, the latter not only may be fatal, but is even more likely to cause prolonged disability. With sunstroke the victim may become suddenly unconscious and die within a few hours or even minutes. He may not come out of the comatose condition, or he may die with evidence of heart weakness. He may have convulsions, and if he is not comatose, he may complain of dizziness, nausea, headache and disturbed vision; the pulse is rapid, and the temperature may be exceedingly high. In heat prostration the symptoms are those of shock, with weak pulse, subnormal temperature, clammy perspiration and heart failure. There may be nausea and vomiting.

DIAGNOSIS

A patient found comatose, and having been exposed to intense heat, must have his condition diagnosed from many other serious conditions that cause coma or convulsions. An epileptic convulsion, with coma, or several epileptic convulsions and a comatose condition, may be difficult to differentiate from heatstroke, in a patient unknown to the physician. The most important immediate distinction is the high temperature of the sunstroke as against a moderately increased temperature in the epileptic. The epileptic will be very cyanosed at first, but his color soon improves. A patient suffering from alcoholic stupor can generally be aroused, and the temperature is either normal or subnormal. The odor of alcohol on the breath does not preclude any other cause for the coma; in other words, the ambulance physician and the police surgeon should be very careful not to transport a stupid patient to jail because he smells of alcohol. Head injuries should always be sought for whenever a patient is found comatose. The temperature is likely to be subnormal. There may be symptoms of paralysis of one side or the other of the body. In coma from apoplexy or from injury to the head, with hemorrhage, there is stertorous breathing, with a temperature normal or a little above normal; the pupils are likely to be dilated, or one may be dilated even if the other is not; and the difference in the flexibility or mobility of the extremities will generally show, even in coma, that there is paralysis. Coma from uremic poisoning will show no great rise of temperature, if any, and there may be repeated convulsions. In diabetic coma the temperature will also be about normal; the breath may give the peculiar sweetish odor.

Even if the temperature is high and sunstroke is suspected, in every case the patient should be catheterized and the urine quickly examined for sugar and albumin.

In the coma of opium poisoning the pupils are small and pin-point, the breathing very slow, the pulse generally slow and full, and the temperature normal or subnormal. In chloral poisoning there is subnormal temperature, a weak pulse, the pupils may be slightly dilated, and the condition is that of collapse. These are only brief suggestions, to urge a more careful study of every person found comatose.

Gauss and Meyer¹ studied 158 patients who suffered from heatstroke and were brought to the Cook County Hospital, Chicago. The seriousness of this affliction is shown by a death rate of 44.3 per cent. in these cases. It is interesting to note that Gauss and Meyer found that most of the patients gave a history of alcoholism, in greater or less degree. Most of the patients were thinly, that is, properly clothed for the summer season; most of the patients ate meat daily; a few ate meat three times a day. Some patients had prodromal symptoms of weariness for several days, or complained of headache and dizziness and great thirst, and some nausea and vomiting. Some patients had no prodrome whatever. When there was one or more days of more or less disturbing conditions or debility, the temperature was found not to be high; that is, these were more similar to heat prostration. When there was a very short period of symptoms of sunstroke, the temperature was generally, but not always found to be high. In some heat prostrations there was as low a temperature as 94, while in some cases of sunstroke the patients showed as high a temperature as 114. The pulse rate was generally proportional to the temperature. Most of the comatose patients had involuntary bowel movements.

As emphasized above, the urine of all stupid patients should be examined. Gauss and Meyer found that of twenty-five patients whose urine was examined on the second day of illness, all showed hyaline and granular casts, and some showed albumin. Of the 158 patients, 129 were comatose when admitted, and fifty-eight died without regaining consciousness; ten had relapses after gaining consciousness and died. Of those patients who recovered, the time of return to normal temperature varied up to three days.

It has long been noticed that a patient who has once had an attack of thermic fever readily has a recurrence with much less exposure to the sun. On the other hand, it has been found that a healthy white man can become acclimated to most intense tropical heat, and Shaklee² finds that the amount of sweating necessary to keep the temperature of the white man normal in a tropical climate is not excessive, even when he is doing physical work. He does find it essential, however, that the white man should have had for some little time a suitable diet, and should take up his work in the sun gradually, until he is able to do the full amount required.

Gradwohl and Schisler³ have studied thermic fever by laboratory methods, and find that insolation occurs when heat accumulates in the body and when the body does not excrete "its metabolic end-products, such as

1. Gauss, H., and Meyer, K. A.: *Am. Jour. Med. Sc.*, 1917, **154**, 554.

2. Shaklee, A. O.: *Philippine Jour. Sc. (B)*, 1917, **12**, 1.

3. Gradwohl, E. E. H., and Schisler, E.: *Am. Jour. Med. Sc.*, 1917, **154**, 407.

urea, nitrogen, creatinin and uric acid." In other words, insolation is an autointoxication due to heat retention and the retention of too large an amount of these substances. The condition in heatstroke is analogous to uremia. These investigators also found that there was a high retention of nonprotein nitrogen constituents in the blood, as occurs in renal insufficiency. They found that this study of the nonprotein nitrogen of the blood was of prognostic value, as when the nonprotein nitrogen of the blood was high, even if the symptoms were not serious, the patients died. On the other hand, if the symptoms were seemingly serious and the nonprotein nitrogen retention was low, the patient did not die. They also found that there was increased creatinin in the blood to the danger point.

In hospital patients that live more than a few hours, this blood examination should be made to ascertain, by a large number of statistics, whether the kidneys are really always at fault in serious sunstroke.

Mayer⁴ believes that deaths from high temperature may be due to accumulation of acid in the tissues. If this is true, it would be an indication for rectal injection, or perhaps venous injection, of alkalis.

Postmortems on patients who have died of sunstroke show congestion and cloudy swelling of the internal organs, especially of the heart, liver and kidneys; there may be edema of the brain and lungs; and there may be small hemorrhages found in different parts of the body. The blood is likely to be fluid and have a diminished coagulability. McKenzie and LeCount⁵ describe the findings in thirty-seven necropsies performed on patients who have died of heatstroke, and state that the cerebrospinal fluid in all cases is clear, colorless, and usually increased in amount. They found edema of the brain alone was present in twenty-two cases, edema of the leptomeninges alone in nine cases, and edema of both the brain and leptomeninges in four cases.

They urge the advisability of having large amounts of water drunk by all persons subjected to or working in intense heat.

TREATMENT

In the routine treatment of sunstroke with high temperature, if the temperature is at all high, the patient is generally put into a tub of cold water. The head is supported, a thermometer is placed in the rectum, ice is added to the water, and the patient's body is vigorously rubbed. It is generally noted that the temperature may stay more or less stationary and then fall rapidly; therefore, if the thermometer in the rectum—which should be read every few minutes—shows a fall to 103 or perhaps 102, the patient must be immediately taken out of the tub, as the temperature is likely to fall rapidly, even to subnormal. If the temperature goes below normal, the patient should be surrounded with hot water bags. During the tubbing treatment of course an ice cap is kept on the head.

This ice tubbing treatment has been handed down from book to book and from hospital to hospital. As many times noted, and also vigorously recommended, the failing heart, after the severe measures used to reduce the temperature, is stimulated with strychnin, digitalis, strophanthin, caffein, etc., by the usual methods. The question almost asks itself whether or not this treatment is too severe. One would almost

wonder if the death rate would be much more if nothing at all was done to the patient. Less shock would be caused, and consequently less heart failure, if the cold was applied by affusion or by ice coils to the abdomen and an ice cap to the head and perhaps a hot water bag to the feet. Or iced cloths might be wrapped about the patient and changed every few minutes.

Baruch⁶ indicates that the mortality in sunstroke is much reduced if affusions of cold water are used instead of tubbing. Sprinkling the body with cold water and then directing an electric fan over the patient will cause rapid evaporation and cooling. Is it possible that it would be too far a cry to try, as has been suggested, warm baths, in sunstroke, to promote perspiration (nature's method of reducing temperature) which is absolutely in abeyance in the thermic fever patient? Rectal injections of ice water are always of benefit, as well as the crunching and swallowing of cracked ice, if the patient is not stupid.

With the pathologic findings, and the chemical findings described above, showing that the kidneys are always in trouble and that the elimination of body poisons is at a low ebb, severe ice applications are extremely questionable; they simply increase the kidney congestion that has already started.

When the patient is flushed, full blooded, and the pulse is bounding and full, venesection would seem indicated to relieve the pressure on the cerebral vessels; and, as necropsy often shows edema of various parts of the brain, spinal puncture should be considered.

If the patient recovers consciousness, alkaline drinks would seem advisable, as in any serious condition like this acidosis readily adds its quota to the seriousness and danger of the symptoms. For many days the food should be cereals and starches, with plenty of water, and no meat.

The treatment of heat prostration or heat exhaustion is that of shock; gentle circulatory stimulation, body warmth, the coolest general atmosphere possible promoted by electric fans, absolute rest and quiet, and a prolonged convalescence, with tonics and good food.

6. Baruch, Simon: *The Principles and Practice of Hydrotherapy*, Ed. 3, New York, William Wood & Co., 1908, p. 384.

Professional Ethics in Cuba.—The *Revista de Medicina y Cirugia* of Havana relates that the Medical Press Association of Cuba has decided to undertake a tenacious campaign against quackery, quack advertising and quack practices, and against acts committed by physicians that do not conform to professional ethics. It says, "Notwithstanding the resolutions voted in recent national representative gatherings, the evils in the medical corps are increasing instead of diminishing. It is actually scandalous that, in the very capital of the nation, individuals with university degrees are serving as protectors for animal-magnetism healers, and that in some laboratory and other institutes—perhaps behind the back of their medical directors—efforts are made to get the clients away from physicians who send their patients there exclusively for some laboratory examination." Drs. Aragon, Jr., Montoro and Arteaga brought up the matter at the meeting of the Medical Press Association. Our exchange adds, "It is hoped that something can be done, backed by the authority of the Public Health Service and the ministry for Public Instruction, to fight these elements which show such contempt for professional ethics and their university degree. Now that the first steps have been taken, let the work be continued by the Academia de Medicina, the Colegio Medico and other professional organizations."

4. Mayer, A. G.: *Am. Jour. Physiol.*, 1917, **44**, 581.

5. McKenzie, Pierce, and LeCount, E. R.: *Heat Stroke*, *THE JOURNAL A. M. A.*, July 27, 1918, p. 260.

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SATURDAY, SEPTEMBER 7, 1918

THE DIETARY HABITS OF AMERICAN COLLEGE GIRLS

In a highly important and as yet too little known investigation of the food consumption of more than 350 boys, ranging in age from 13½ to an average of 16 years, in the upper forms in a large private boarding school, Gephart¹ has furnished the basis for a new understanding of the dietary needs of youth. In the past it has been taught that the nutritive requirement of the adolescent boy or girl is a fraction of that demanded by the adult, the proportion depending in a measure on the relative size of the individual. Du Bois has shown that boys just before puberty have a high metabolism; indeed, their basal metabolism as measured by the heat production during sleep or complete rest without food, may be fully 25 per cent. above that of the adult. Gephart's statistics give evidence that the growing, athletic boys whom he observed were not satisfied with the conventional 3,000 calories of energy daily assigned to the average adult. It was shown that they not only took 4,350 calories daily at the table, but also bought 650 additional calories in food at a neighboring store, the principal item being chocolate. Lusk² makes the comment that the 5,000 calories are half as much again as a farmer at work would require. These data explain the ravenous appetite of boys. Lack of appreciation of this factor or lack of provision for it are the probable causes of much of the undernutrition seen in children of school age. In any event, those entrusted with the distribution of advice about the ration allowances of children in war time, when economy and patriotism tend to go together, ought to bear in mind the evident uniquely large needs of the adolescent organism.

Something somewhat comparable, perhaps, though far smaller in absolute figures, may be detected in the data relating to the food consumption in girls' colleges. A dietary survey completed during the past year in one of the dormitories of Vassar College by Macleod and Griggs³ included nearly a hundred students whose

average age was 19.4 years, height, 5 feet 4 inches, and weight, 123.9 pounds. Whether this may be regarded as definitely past the age of growth need not be debated here. The essential fact is that the food consumption in this group, too, was found to be larger than current assumptions had led the investigators to expect. It amounted to about 2,700 calories per person per day, aside from the additional food with which at least 65 per cent. of these girls supplement their college meals. Their supplementary food was usually sugar in some form, candies, cakes or ice cream. It is a question in the minds of Macleod and Griggs whether this is due simply to the taste for sweets which is instinctive in all young persons or is in response to a physiologic need. Although it is not practicable to determine the average value in energy of the extra food thus consumed, it was by no means inconsiderable. It is recorded that in certain instances the girls must have averaged well over 1,500 calories apiece in addition to that which they obtained at their regular meals.

A few further facts elicited in the Vassar study are of incidental interest. The inedible waste averaged 15.6 per cent., the edible waste being decidedly less. The average daily intake of protein per person was estimated at 99.6 gm., or nearly 15 per cent. of the total fuel value, surely no unduly low figure. In February, 1917, when these figures were collected, the cost per meal of food alone was found to average 14 cents, the cost of food, preparation and service being 18 cents. Meat required more than 40 per cent. of this expenditure, dairy products somewhat less than one third, and the other food types smaller proportions. Such, at any rate, are the food habits of a representative group of college girls, quite aside from the question as to whether they seem well justified when evaluated according to the views now concurred in by students of nutrition.

INFANT MORTALITY STATISTICS

The difficulties both of securing and of interpreting data on infant mortality are illustrated in a recent article on the infant mortality studies made by the Children's Bureau.¹ As is well known to those interested in vital statistics, satisfactory birth registration anywhere in the United States is a recent development, and it is still true that birth records in many places are so defective as to be unavailable for exact studies. One of the first objects, therefore, of the investigation made in eight cities by the Children's Bureau has been to secure a record of all infants born within the year in the community selected for study. Even without a systematic canvass it was found possible by the use of neighborhood inquiry and baptismal records to add greatly to the number registered. In Saginaw, Mich.,

1. Gephart, F. C.: Boston Med. and Surg. Jour., 1917, 176, 17.

2. Lusk, Graham: The Science of Nutrition, Edition 3, New York, 1917, p. 559.

3. Macleod, Annie L., and Griggs, Mary A.: Dietary Study at Vassar College, Jour. Home Economics, 1918, 10, 97.

1. Woodbury, R. M.: Quarterly Publications of the American Statistical Association, 1918, 16, 30.

for example, more than 13 per cent. (149) were added by this method to the number (1,113) already on record. It is obvious from the conditions revealed by these studies that still greater efforts should be made to secure the accurate registration of births throughout the United States.

Although this is a time when human life is being lavishly spent for the high ideals of our country, it is a time also when for the same reasons life should be conserved and strengthened at every possible point. There is good reason to believe that the mortality in the first year after birth can be materially reduced by the application of known principles and methods. In order, however, to make such application and to understand what it is accomplishing, it is essential that each community should maintain a system of birth registration and see that the system is made effective.

Among the cities in which infant mortality has been studied, Baltimore affords some particularly interesting results. The Baltimore figures include for the first time in such studies, we believe, a sufficiently large number of colored infants to permit the calculation of a mortality rate, the rate for white infants being 95.9, for colored, 158.6. In the same city, striking racial differences are recorded, similar to those observed elsewhere, the Jews having the low rate of 51.0 and the Poles the high rate of 163.2. The rates for the artificially fed are from three to nine times those for breast-fed infants. Examination of the influences of some other factors leads to suggestive, if not convincing, results. The tabulation of infant mortality rates by the father's earnings, and the statement that "the mortality rate of infants whose mothers were gainfully employed during the lifetime of the infant was about twice the average rate" obviously need further analysis before they can be considered very illuminating. The fact that the infant mortality rate is much higher when the father's earnings are less than \$450 than when more than \$1,850 might be due partly to a difference in inborn vitality, correlated with the father's earning power, partly to a difference in the proportion of breast-fed and bottle-fed infants in the two groups, and partly to a difference in the number of children or the interval between births or to other unspecified factors. It has never helped very much in the realms of biologic speculation to term a correlated character a "cause." A cat is not deaf because it has blue eyes. In like manner it is necessary to analyze the apparent effect of the gainful employment of the mother—possibly due merely to the necessity for artificial feeding—and of the apparent effect of the size of the family—possibly due merely to the lack of proper spacing of births. It is evident that in all such considerations the age and experience of the mother form a factor of prime importance. The problem of the factors entering into infant mortality is without doubt far too complex to be solved by

any but expert mathematical handling, such as it is now receiving from the authorities of the Children's Bureau. The most essential part of this study, however, as of all vital phenomena, is the gathering of correct data.

THE DIPHTHERIA PROBLEM

Despite the fact that diphtheria antitoxin has proved to be a therapeutic remedy of great importance in the management of a disease which was among the first to derive curative benefits from modern immunologic investigations, the presence of diphtheria among us still presents a serious hygienic problem. In spite of the extensive use of small prophylactic doses of antitoxin, the morbidity and mortality from diphtheria remain surprisingly high and constant. The carrier problem has not been solved. An estimate based on figures obtained a few years ago from the registration area in the United States indicates that the yearly mortality from diphtheria in this country is more than 23,000, the morbidity presumably being ten times greater. Hence we can only reecho the need which Captain Zingher of the New York Department of Health has voiced for a practical and efficient method of active immunization that will protect the child and adult population.¹ Such protection, he adds, should be applied early in life, so that an efficient active immunity will be produced during that period when individuals are most susceptible and the disease causes the greatest mortality, that is, from 1 to 5 years of age. The protection of the infant derived from the mother is only temporary, lasting about six to nine months after birth.

Two factors, in particular, seem to point to the possibility of progress in the control of the diphtheria menace. A valuable clinical test of the existence of immunity is afforded by the carefully studied Schick reaction, while the use of the newer toxin-antitoxin mixtures seems to be successful in producing an active immunization. To the investigation and development of these diagnostic and immunizing procedures much credit is due to the Research Laboratory of the New York City Department of Health. Recommendations emanating from this source are deserving of careful consideration. In this spirit we refer to the insistence of the assistant director¹ that all infants below 12 and if possible below 18 months of age should—of course, with the consent of their parents—be actively immunized with appropriate doses of toxin-antitoxin, irrespective of the Schick tests that the infants may show at the time of immunization. Beyond this age the question of immunization should be guided by the Schick reaction.²

1. Zingher, Abraham: Active Immunization of Infants against Diphtheria, *Am. Jour. Dis. Child.*, August, 1918, p. 83.

2. Practical details are given in Captain Zingher's paper referred to in Footnote 1.

The public program in this important matter is thus formulated: The active immunization against diphtheria should be carried out first of all by the private physicians in the different homes, where a majority of the infants can be reached. The toxin-antitoxin injections produce so little local or constitutional disturbance in young infants that the immunization at this early period of childhood seems peculiarly desirable. In large centers of population the milk stations, day nurseries, children's dispensaries and the infant and orphan asylums reach large groups of children of the age suitable for immunization. The children of preschool age found in kindergartens and those of school age should be tested first with the Schick reaction, and those giving a positive test actively immunized. Whether, the program continues, such procedures can be made compulsory in the schools will depend on the enlightenment of the community in which the work is to be carried out. Adults, especially those frequently or constantly exposed to diphtheria, such as physicians, nurses, orderlies and patients in contagious disease hospitals, should also be tested with the Schick reaction, and those giving a positive reaction actively immunized. This is, indeed, an ambitious plan, but it has a promising aspect of progress from the point of view of the modern sanitarian.

Current Comment

THE SELECTIVE SERVICE LAW AND PHYSICIANS

Many letters have been received concerning the relation of the new Selective Service Law to physicians. A few of these letters have been selected to be answered in the Queries and Minor Notes department. It may be said that, as a general proposition, there is no difference between the new and the old Selective Service Law except as to the ages included and the slight broadening of the terminology concerning exemptions. With special exceptions, all male persons who are above 18 years of age and have not reached their forty-sixth birthday on September 12 must register. The exceptions are those who have registered under the previous draft acts, whether or not called for service; officers and enlisted men of the Regular Army; officers appointed and men of the forces drafted under the previous draft act; "officers and enlisted men of the National Guard while in the service of the United States; and the officers of the Officers' Reserve Corps and enlisted men in the Enlisted Reserve Corps while in the service of the United States; and officers and enlisted men of the Navy and Marine Corps and officers and enlisted and enrolled men of the Naval Reserve Force and Marine Corps Reserve while in the service of the United States." As we have stated before, there are in the United States 75,000 physicians, including those already commissioned, under 46 years of age.

The question of greatest interest is the disposition of physicians after their registration. There is nothing in the bill, as we read it, that provides for any different method of applying the selective service principles than that which has heretofore governed the disposition of those under 31 years of age. The Selective Service Boards are the only bodies empowered under the law to grant exemptions. Undoubtedly special regulations concerning physicians will be promulgated by the Provost Marshal-General. It is quite probable that in formulating these regulations the Provost Marshal-General will consult some or all of the Surgeon-Generals of the various services. As we stated last week, the problems of adequately providing for the medical needs of the Army and Navy and of the civil population are more complex than those affecting any other occupation, because of the great demand and the somewhat limited supply. Last week we outlined these demands, and it is not necessary to repeat them. The one question asked in most of the letters received is, What constitutes dependency so far as physicians are concerned? It has been suggested that physicians could not advance a plea for exemption on the grounds of dependency, since they are eligible for a commission, which would give an income sufficient to support a small family in fair circumstances. Local boards in some communities have refused to exempt physicians on the grounds of dependency for this reason; on the other hand, the opposite principle has been carried out by other local boards. In view of the large number of physicians now affected, these matters will no doubt also be considered in the special regulations concerning physicians.

BARLEY AS A WAR TIME SUBSTITUTE FOR WHEAT

When the United States Food Administration issued its appeal to this nation to "save the wheat," the advice was simultaneously given to make liberal use of substitutive cereals which may be available in greater abundance or lend themselves less readily to use overseas. Corn, rice, oats, rye and barley at once assumed a new prominence as "breadstuffs" for people little accustomed to consume them in such liberal portions as the new regimen seemed to demand. The belief, deeply ingrained in many persons, that wheat is an essential of good nutrition, has largely if not entirely been dispelled alike by the assurances of our foremost students of nutrition, and by the experience of a population that has voluntarily reduced its use of wheat so as to release more than 120,000,000 bushels for shipment to Europe in less than a year. If we are ready to admit that wheat is not indispensable,¹ there may still remain some concern regarding the nutritive virtues of the substitutive cereals. Polished rice has come into bad repute, perhaps unjustly or at least unnecessarily, because it is so milled as to lose its natural content of antineuritic vitamin. However dangerous the use of a diet deficient in vitamins may be, it should always be borne in mind in discussions

1. Why Wheat? editorial, THE JOURNAL A. M. A., Sept. 1, 1917, p. 732.

of the milling question that, as a rule, man does not live by polished rice alone; nor does our population subsist on wheat or any other cereal to the practical exclusion of all other vitamin-bearing foods. This being the case, the problem of the wheat substitutes is narrowed to the question, not of their perfection as the bearers of all nutrient virtues, but rather of their relative value in comparison with wheat as a part of a mixed diet. In this respect the liberal use of corn (maize) has already well justified itself.² A recent study of the dietary qualities of barley by Steenbock, Kent and Gross³ at the University of Wisconsin justifies the assertion that this cereal does not differ essentially in its nutritive qualities from maize, oats or wheat—a statement which “may serve to allay the fears of those dietitians concerned over the use of barley as a wheat substitute.” Like the other cereals, barley alone is unable to meet the demands of nutrition satisfactorily. By supplementing it with suitable protein, fat-soluble vitamin, such as butter or cream or milk affords, and with those inorganic elements in which the cereals are singularly deficient,⁴ one can prepare an excellent food mixture. This is precisely what is accomplished, in the usual order of culinary events, when our breadstuffs are cooked and served with milk, meats, eggs and green vegetables. There appears to be no reason for according to barley anything but a welcome on its return to the fold of human foods. Though it is inferior to wheat and rye from the technical standpoint of the baker of the loaf, barley is acceptable to the physiologist even without its conversion into “liquid bread,” the catchword so often cited to justify the use of beer.

HOW MANY MEALS A DAY?

Modern investigations of metabolism have demonstrated that the transformation of energy is determined by the needs of the body. Although it has little power to adjust its energy metabolism to the energy value of its food supply, the latter nevertheless has an unmistakable if slight effect. Rubner designated the specific effects of the three types of food on the energy exchange as their specific dynamic action. The simplest formulation of this somewhat obscure phenomenon that has come to our attention is attributable to Sherman,⁵ as follows:

When the digestion products of carbohydrate or fat are carried by the blood to the tissues, the energy metabolism (rate of oxidation) rises simply because of the increased concentration of oxidizable material; but some of the products of the digestion and intermediary metabolism of protein increase metabolism not only to a greater extent, but also in a somewhat different manner, since they seem to act as stimuli rather than merely as fuel. On an ordinary mixed diet, however, this apparent loss of energy due to the eating of protein is not a very large factor in the total metabolism, since the total specific dynamic action makes the metabolism of energy for the day only about one tenth higher on a full maintenance ration than when no food is eaten.

Not all meals are characterized by a large increment of heat production attributable to food per se. Soderstrom, Barr and Du Bois⁶ have demonstrated, in experiments conducted under the auspices of the Russell Sage Institute of Pathology, that the rise in metabolism following a small breakfast yielding about 225 calories is small and transient in character. This has raised the question—economic more than physiologic in significance—whether it may be advantageous to divide the daily food intake into five or six small meals instead of two or three larger ones as is now usually the custom. The answer has been given by the investigators just referred to. The frequent meals, just supplying the energy as it is required, would, they admit, diminish the specific dynamic action and result in a saving equivalent to, perhaps, 5 or 10 per cent. of the basal metabolism, or about 200 calories a day. Practically, it would be of little importance, since some of the specific dynamic action of the food is utilized in the increased metabolism of work. To this may be added the suggestion of a waste of time in taking frequent meals and the tendency to overeat.

CHANGING STANDARDS AND MEDICAL PROGRESS

We cannot forbear quoting the following comment from a recent scientific contribution to the statistics of infancy:

The medical profession is very reluctant to adopt new standards, but having been once convinced as to their correctness, they are just as loath to discard them. The result is that certain standards such as weights and measures, for example, are copied by one writer after another for years without any one, or at least very few, taking the trouble to verify their correctness. Standards which are correct in one country are often quite incorrect in another country, under different conditions.⁷

It would not be a difficult task to select illustrative instances to which this criticism is appropriately applicable. They include our inherited prejudices as well as our accumulated ignorance. In this category belong the assertions about drugs at length abandoned in view of their demonstrated inertness; the transmitted refinements of prescription which distinguish between white and dark meats or class all cheese indiscriminately with the indigestible substances; the exaggerated notions as to the quantity of protein required “for health and strength,” and the unfortunate underestimate of the energy requirement of growing boys and girls. The paper from which the preceding animadversion is quoted presented a few specific instances relating to the nutrition and growth of newborn infants and of several hundred cases at the University of Minnesota Hospital. Thus the classic German computations of the energy requirements of infants are given as from 100 to 110 calories per kilogram of body weight. The Minnesota data show that all of the infants at a very early age who made good

2. Corn in the War Time Dietary, editorial, *THE JOURNAL A. M. A.*, June 15, 1918, p. 1865.

3. Steenbock, H.; Kent, Hazel E., and Gross, E. G.: The Dietary Qualities of Barley, *Jour. Biol. Chem.*, 1918, **35**, 61.

4. Inorganic Elements in Nutrition, editorial, *THE JOURNAL A. M. A.*, Aug. 24, 1918, p. 660.

5. Sherman, H. C.: *Chemistry of Food and Nutrition*, New York, 1918, p. 190.

6. Soderstrom, G. F.; Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, Paper 26, The Effect of a Small Breakfast on Heat Production, *Arch. Int. Med.*, May, 1918, p. 613.

7. Ramsey, W. R., and Alley, A. G.: Observations on the Nutrition and Growth of New-Born Infants: An Analysis of Three Hundred Clinical Charts, *Am. Jour. Dis. Child.*, June, 1918, p. 408.

gains and left the hospital weighing more than the birth weight made their gain on much less than the quantity cited. It is apparent, Ramsey and Alley say in confirmation of Morse and Talbot⁸ and others, that infants, at least during the first ten days, in order to gain reasonably in weight do not require anywhere near 100 calories per kilogram of body weight, that the energy quotient varies in the individual cases from 43 to 75, and that when new-born infants during the first ten days receive 100 calories per kilogram they are usually overfed. This statement does not apply, of course, to the needs of the prematurely born infant. Again, although the number of stools of infants during the first weeks of life is variously estimated by different writers at from two to six a day, the Minnesota pediatricians observed an average of less than two a day. They remark that overfed infants, that is those receiving an approach to 100 calories per kilogram of body weight, were the only ones in which the stools were frequent and exceeded an average of two in twenty-four hours. Such are the contrasts of fact and fancy.

THE CASEIN OF HUMAN MILK

If human milk is to be the prototype of the ideal food mixture for the growing child, it is essential to learn as many details as possible regarding it. For obvious reasons, most of our accurate information regarding milk has been obtained from the secretion of the mammary glands of the cow. Despite the years already devoted to the study of the chemistry of cow's milk, much remains to be learned. Some of the recent discoveries, notably those regarding the phosphatids, the unsuspected proteins and the significant vitamins, bear witness to the possibilities of intensive investigation in this field.⁹ At the Laboratories of the Boston Floating Hospital, Bosworth and Giblin¹⁰ have completed a very thorough investigation of the casein of human milk, which is perhaps its most significant protein—at any rate, so far as the much discussed curdling of the milk is concerned. They found the human product to resemble the casein from cows' and goats' milk in every detail examined. It has the same proximate composition, the same degree of valence, and gives the same series of salts with bases. Like that of the casein from the other sources cited, the human protein has a molecular weight of nearly 9,000. It is acted on by the curdling enzyme rennin in the same manner, the resulting paracasein or curd protein being similar to that yielded by cows' milk. The demonstration of such fundamental resemblances, even if they may not be identities, will serve to dispel some of the prevalent misconceptions regarding unproved unique chemical features of human milk.

8. Morse and Talbot: Diseases of New-Born and Infant Feeding, 1915.

9. The Composition of Milk Fats, editorial, THE JOURNAL A. M. A., Nov. 3, 1917, p. 1529; Purins in Cow's Milk, March 16, 1918, p. 784.

10. Bosworth, A. W., and Giblin, Louise A.: The Casein of Human Milk, Jour. Biol. Chem., 1918, 35, 115.

Women's Employment.—As early as 1867, women were grinding drills, tending light machines, and performing filing operations in a machine shop in New Bedford, Mass.

Medical Mobilization and the War

Missing

A casual report states that Capt. Dana C. Schmahl, M. C., U. S. Army, St. Paul, is missing after action in France.

Red Cross Physicians in Manchuria

Four physicians of the American Red Cross have gone to Vladivostok to the Manchurian front to investigate refugee and civilian relief conditions. The Red Cross unit has taken over the surgical department of the Harbin Military Hospital, and will also establish an evacuation hospital near the front.

Prisoners in Germany

Lieut. Harold Abbott Goodrich, M. C., U. S. Army, Webster Groves, Mo., is reported to be a prisoner in the Göttingen Lazarett.—Capt. Howard F. Kane, M. C., U. S. Army, Machias, Me., has been in a German prison camp at Rastadt since May 27.—Lieut. Clarence C. Del Marcelle, M. C., U. S. Army, Green Bay, Wis., was recaptured by Americans after having been held captive by the Germans for four hours in a shell hole.

New Red Cross Medical Head

Col. Frederick T. Murphy, M. C., U. S. Army, St. Louis, who went to France a year ago in command of the Washington University Unit, established Base Hospital No. 21, and who was also in charge of Base Hospital No. 12 at the British front and was transferred to the general headquarters, A. E. F., has been relieved from that duty, and, it is reported, has been placed in charge of medical and surgical work under the American Red Cross.

Legal Suggestions for Soldiers and Sailors

The Boston Legal Aid Society has issued a "Handbook of Legal Suggestions for Soldiers and Sailors and Their Dependents," which sets forth in simple language the provisions which men entering the service and their families should know. A chapter on compensation for injuries has been added to this handbook, which may be obtained on application to Reginald Heber Smith, Chief Counsel, Boston Legal Aid Society, 39 Court Street.

Red Cross Donation to Canada

The War Council of the American Red Cross has contributed without restrictions \$500,000 for the relief of Canadian soldiers at the front, and with the gift sent a copy of the following preamble adopted by the War Council:

WHEREAS, The American people profoundly and gratefully recognize the devotion of the Canadian people, and the armed forces of Canada in the great war and are deeply appreciative of the spirit of heroism and self-sacrifice with which so many Americans have fought and died as members of the Canadian forces during the past years, and it is highly appropriate that the American Red Cross should extend to the Canadian soldiers a measure of assistance toward their relief and comfort, and

WHEREAS, Such tribute cannot be translated more serviceably or appropriately than by a gift through the Canadian Red Cross, and it is the desire of the American Red Cross to afford substantial recognition of the sentiment of brotherhood and sympathy which pervades this country in this present crisis of human affairs.

Wounded

It is reported that Lieut. James Farish Robertson, M. C., U. S. Army, Wilmington, N. C., was wounded in action, recently.—Lieut. Frederick C. Smith, M. C., U. S. Army, Halifax, Pa., is reported to have been seriously wounded.—Lieut. Thomas B. Scott, M. C., U. S. Army, Butte, Mont., is reported to have been wounded, August 17, and taken to a hospital in Paris.—Lieut. Daniel William Jeffries, M. C., U. S. Army, Marietta, Ill., is reported to have been seriously wounded.—Dr. Hugh Hildebrandt, M. C., U. S. Army, Washington, Ohio, had his right ear torn off and his hearing on that side entirely destroyed by a shell explosion, May 19.—Major Howard W. Beal, M. C., U. S. Army, Worcester, Mass., who for more than a year was in charge of the American Women's Hospital at Paignton, North Devon, England, and later organized a hospital unit in Worcester, is reported to have been severely wounded.

Awards for Bravery

Dr. Harry Burns, Middlebury, Vt., on duty with the 30th Infantry, has been awarded the Croix de Guerre.—Lieut. Morris B. Simpson, Council Grove, Kan., serving with the British Expeditionary Forces, has been awarded the Croix de Guerre.—The Italian government has awarded the "War Cross of Merit" to twenty-seven American Red Cross ambulance drivers.—Ten members of the Sanitary Service Unit No. 544, attached to the French Army, have been awarded the Croix de Guerre.—The distinguished service medal has been given to Lieut. Charles W. Myers, M. C., U. S. Army, Marysville, Pa., who on July 1, 1918, established under heavy shell fire an advance medical station for the treatment of men wounded in the first waves of the assault.—Lieut. Erling W. Hansen, M. C., U. S. Army, Minneapolis, has been recommended for promotion to captaincy and has received special commendation in dispatches for "exemplary courage and devotion to duty."—The Distinguished Service Cross has been awarded to Lieut. Lemuel C. Shepherd, M. C., U. S. Army, Norfolk, who "on June 3, near the Lucy-Torcy roads" declined medical treatment after being wounded, and continued courageously to lead his men.—Lieut. J. Elma Croop, M. C., U. S. Army, Erie, Pa., has been given the British Military Cross for gallantry under fire.—Privates Jefferson Holt and Charles Raffington, M. C., U. S. Army, on duty with the engineers, have been awarded the Distinguished Service Cross, because "during the day and night of June 2 and 3, 1918, they exposed themselves to severe and continuous fire beyond call of duty in order to bring aid to the wounded engineers and marines."

Bravery in the Medical Department

American Official Communiqué No. 106, dated August 28, announces among other awards of the distinguished service cross the following to the members of the Medical Department:

PVT. FRED GUNN, Medical Department, Infantry. "At the battle of Cantigny, France, May 28-31, 1918, he repeatedly on his own initiative left the security of the trench to administer first aid under fire and in full view of the enemy snipers and machine gunners. His brave conduct was a noble example and his ministrations relieved suffering and saved lives."

PVT. JOHN B. WHEN, Medical Department, Infantry. "For three nights at Cantigny, France, May 28-31, 1918, he worked unceasingly under fire, bringing the wounded to safety and ministering to them on his own initiative. He repeatedly left shelter to help wounded men."

PVT. FRANK J. REYNOLDS, Medical Department, Infantry. "During the fight at Cantigny, France, May 28-30, 1918, while acting as a stretcher bearer, he constantly and fearlessly exposed himself to artillery and machine-gun fire to succor the wounded, frequently on his own initiative, when he might have remained in security himself."

FIRST LIEUT. THOMAS M. BARBER, Medical Reserve Corps, Infantry. "On May 28-30, 1918, near Cantigny, France, he repeatedly demonstrated heroic self-sacrifice by caring for wounded under enemy fire and with apparent contempt for his own safety. When his aid station had been destroyed by shell fire he promptly moved into a shell hole near by and continued his faithful work."

Result of Survey of Medical Society of District of Columbia

A recent survey by questionnaire of 562 members of the Medical Society of the District of Columbia resulted in the following classification with respect to obligation for military service:

Available for service, in the following order:	
0 Failed to answer questionnaire	24
0a Insufficient data on questionnaire	1
1 Commissioned but not yet assigned to duty	14
2 Commissioned but discharged at own request; willing to reenter service	2
3 Commission awarded but not yet accepted	3
4 Application for commission pending	12
5 Independent means	4
6 No dependents	21
7 Dependents, minor degree. (Officer's salary sufficient or sufficient when supplemented by private means, or dependents all adults)	61
8 Dependents, major degree	127
Total available	269
Not available because of:	
Age	90
Sex	30
Foreign citizen	3
Physical disability (Rejected, 17; discharged, 4)	36
In active military service	120
Engaged in Red Cross or similar service	4
Total not available	293

EXPERIENCE OF THE NEW ARMY MEDICAL OFFICER

The new Selective Service Law is being received with various emotions by physicians under 46 years of age who are physically qualified for service in the Army. Some are rejoicing that a decision will be made for them; others are fearing that they may be "called." Many have been hesitating about volunteering for the Medical Corps fearing that they would not like the work. As a matter of fact, few men have regretted entering the service. Since the United States entered the war THE JOURNAL has received thousands of letters from men in service, and nine out of ten have expressed themselves as being glad they made the choice. To encourage those who fear they might not like the work, we quote below from two personal letters received in the same mail by two members of the editorial staff of THE JOURNAL. The first is from a physician who has been in active practice between fifteen and twenty years, devoting himself more or less to surgery, and who, it will be noticed, was at once ordered into practical work in a base hospital. The second is from a physician who has been in practice between twenty and twenty-five years, and has held important teaching and hospital positions in his specialty. At his own request he was ordered to an officers' training camp—Fort Oglethorpe. Both of these men have been successful in practice, undoubtedly averaging over \$10,000 a year.

My Dear Doctor:—Just a page or two from a six weeks' veteran in the service who has gotten his second wind on September morn and in the first leisure moment thought you might be agreeable to have a break in your morning grist of mail.

Speaking of leisure, it does seem strange that the gamut has been run of vaccinations, inoculation, statements of pedigree, physical examinations, etc., etc., and to learn that the government is satisfied that it has one listed from A to Z. However, it is a fine system and it is a personal satisfaction to learn of one's physical inventory.

As far as work is concerned, there is plenty. My assignment to the operating room has given me an abundance of operative work. In my room we have averaged ten operations a day during the month of August. They run along a somewhat uniform line, consisting of hernias, appendixes, cysts, neoplastic growths and suppurative processes; likewise traumas and fractures. The surgical department did 342 herniotomies with but three minor infections in August. A good record considering the intense heat.

The men here are a splendid lot of fellows and are typical of what the profession is doing in the war and the sacrifices they are making. It is really marvelous what these men are doing and what they are denying themselves, and the spirit in which they are doing it. It is surely a matter of organizational pride.

The officer on duty in the line has his four-and-a-half a day relief from duty. The medical officer is on duty twenty-four hours and especially in surgery he must remain within call. If he wants to go to a "movie" he has to look up a fellow officer who will stay in and protect his service. And then if you go wrong you are responsible for the acts of your relief. Neither does it matter if you are called during the night and miss several hours' sleep, you have no opportunity for a late "snooze" in the morning. To see men assume such tasks and to know that in private life they had not been accustomed to put up with such confinement and restrictions intensifies one's admiration.

There is but one criticism and possibly it is only a minor one and only of passing moment: During that hot spell a general order of the C. O. of the base hospital made it obligatory for medical officers to wear their coats in the hospital and also in the camp. Line officers and privates were going around in their shirts, but the base hospital officers were sweltering in their coats to maintain their professional (?) dignity. It created considerable grumbling, but we wore them. It would have been a consideration for comfort to have been permitted to go without them, but evidently others thought it wise not to exhibit such consideration for personal comfort.

When THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION arrives there is an eager scramble for copies, and interest is first directed to "Army News" to see who received orders or

who has come in. If the War Department would permit it, could you not publish the location of the evacuation and field officers and base hospitals overseas? I frequently hear: "Where is Base 26, 77, 34 located in France and who is the C. O.?" The men in the United States seem to wonder where their comrades of camp life are located "Over There." I am sure all the men would appreciate such information. (Not permitted. Ed.).

————— Captain, Base Hospital.

My Dear Friend:—Just a line to let you know how things are going. This is a real place, mightily glad they sent me here, the training is excellent and just the thing for the doctors; they make an old doctor young, and a young doctor better. We are carefully watched in our training and I feel a man can get what he works for. They say I have adapted myself well. This I do know: I am pleased with the work and it is mighty interesting. The instructors are men of high ability and if one does not profit by this training it is his fault, and not that of the staff of instructors. The teaching staff are in earnest and give the men the best they have, and it has been a big sacrifice for them. The military training and discipline is what we all need and it is going to be a great help to me if I ever return to private practice after this war. When a man finishes his internship in a hospital, he ought to have six months' military training as we get it here. I hope my sons can get it.

—————, Captain, M. C.
Fort Oglethorpe, Ga.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in THE JOURNAL, June 29, July 13, 20 and 27, August 3, 10 and 31.

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Long Beach—Sweet, R. B.
Los Angeles—Werner, E. S.
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Washington—Hines, C. G.
Horrigan, D. E.

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Knapp, J. L.
Sullivan, T. J.

MARYLAND

Baltimore—Hundley, F. S.

MASSACHUSETTS

Boston—Holmes, F. G.

MICHIGAN

Jackson—Peterson, E. S.

MISSOURI

St. Louis—Johnson, E. H.

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Trenton—Kuhl, P. E.

NEW YORK

New York—Klapper, H.

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Philadelphia—Newcomer, H. S.
Vaughn, J. W.
Pittsburgh—Jordan, H. D.
Scranton—Sullivan, J. J., Jr.

TEXAS

Abilene—Hollis, S. W.

VIRGINIA

Suffolk—White, L. W.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17, 24 and 31.

ALABAMA

Birmingham—Cocke, N. P.
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Marion Junction—Chisolm, J. R.
Montgomery—Salter, P. P.

ARIZONA

Flagstaff—Manning, T. P.
San Carlos—McDuffie, W. N.

ARKANSAS

Blue Ball—Pool, T. J.
Paris—Jewell, I. H.
Reson—Bell, J. F.

CALIFORNIA

Los Angeles—Bancroft, I. R.
Brown, H. V.
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Hanson, W. P.
Johnson, C. A.
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Schroeter, O. V.
Tulley, F. E.
Oakland—Lohse, J. L.
Pasadena—Griffith, H. M.
Hansen, C. O.
San Francisco—Addis, T.
Patek, R.
Susanville—Dozier, W. E.
Tulare—Chilson, W. C.

COLORADO

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Fraser—Harrison, F. H.
Recota—Wells, N. D.

CONNECTICUT

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Biram, J. H.
Monaghan, W. A.
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Peacock, C. L.
Snyder, H. W.
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Clermont—Cheek, P.
Collins—Harris, J. C.

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Hall, T. H.
Milledgeville—Garrard, J. I.
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Moultrie—Smith, S. A.
Ochlocknee—Sappington, J. S.
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Pinehurst—Lee, J. L.
Quitman—Mathews, W.
Rome—McCall, J. T.

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Shenandoah—Mullahey, L. T.
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Idaho Falls—Willson, H. L.
Pocatello—Roberts, E. N.

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Ashkum—Struthers, H. R.
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Schram, D. L.

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Voigt, R. A.

Waterous, W. H.

Welch, W. T.

Wieneke, C. H.

Zaleski, J. P.

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Spava—Snivley, C. D.
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Griffiths, C. B.
Plainfield—Cregar, P. B.
South Amboy—Tadeusiak, B. H.
Union Hill—Justin, A. W.

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Goldfein, M. D.
Kemp, H. W.
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Guile, H. V.
Hughes, B.
Kennedy, B. S.
Levy, E.
McLean, S.
Shank, E. W.
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Ossining—Schafmeister, J. F.
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Bradstreet, S. W.
Jewett, D. B.
Rockville Center—Wheelock, W. E.
Stapleton—Matusoff, I.
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Troy—Curtis, S. H.

NORTH CAROLINA

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Mantco—Johnston, W. W.

NORTH DAKOTA

Edgeley—Greene, L. B.
Jamestown—Shepard, G. P.

OHIO

Akron—Kneale, W. E.
McMaster, S. E.
Arcadia—Taylor, E. B.
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Cincinnati—Briscoc, H. A.
Curl, R. B.
Oliver, S. F.
Wolf, S.
Clark—Van Hyning, H. B.

Cleveland—Crouch, W. C.
Davis, C. V.
Hagedorn, A. F.
Kimmel, B. B.
Millhoff, W. C. D.
Riemenchneider, O. H.
Thompson, C. W.
Wilkins, G. R.
Columbus—Gaver, E. E.
Miller, G. W.
Columbus Grove—Wilcox, G. S.
Dayton—Bond, R. R.
Lauterbach, W. F.
McQueen, W.
Dover—Keller, W. R.
McQuire, S. B.
Hudson—Herrick, H. J.
Leesburg—Lowe, H. H.
Morral—Jolley, J. W.
National Military Home—Dixon, F. W.
North Baltimore—Powell, E. A.
Shandon—Clark, B.
Springfield—Riley, J. H.
Tiffin—Chamberlain, R. C.
Chamberlin, W. K.
Toledo—Burman, H. F.
Collier, E. M.
Kerr, L. E.
Kreft, F. G.
Morgan, H. J.

OKLAHOMA

Allen—Mills, J. T.
Idabel—Moreland, W. A.
Oilton—Noah, J. H.
Rutherford, B. C.
Okemah—Bloss, C. M.
Oklahoma City—Kelly, J. F.
Long, L.
Westfall, L. M.
Fauls Valley—Spangler, A. S.
Sallisaw—McKeel, S. A.
Shawnee—Hughes, J. E.
Tulsa—Douglas, R. A.

OREGON

Forest Grove—Bates, H. E.
Portland—Pease, G. N.
Westfall—Schenk, H. J.

PENNSYLVANIA

Evalon—Elliott, A. H.
Lutz, C. L.
Bitumen—Mervine, G. D.
Boyers—Sisney, T. L.
Braddock—Egan, J. P.
Canonsburg—Wilson, J. E.
DeBois—Patterson, F. G.
Dunlo—Livingston, W. W.
East Brady—Harter, T. H.
Hershey—Zimmerman, J. L.
Johnstown—Keiper, J. D.
Lebanon—Pretz, G. R.
McDonald—Douglass, J. A.
LaRoss, W. A.
Taylor, J. P.
McKees Rocks—Lafferty, J. A.
Meadow Lands—Gormley, J. A.
Mount Pleasant—Depta, M.
New Florence—Tittle, H. W.
Norristown—Wolfe, J. R. V.
Philadelphia—Bernard, M. B.
Coyle, W. V.
Davis, T. C.
Light, A. B.
Richards, J. L.
Tunis, J. P.
Pittsburgh—Butz, R. C.
Evans, D. R.
Eymann, W. G.
Kipp, H. A.
Kistler, J. D.
Newman, M. A.
Schuylkillhaven—Ryan, H. T.
Scranton—Van Vechten, G. J.
State College—Glenn, G. C.
St. Clair—Jones, E. T.
Washington—Beveridge, D.
Wilkes-Barre—Quinn, J. J.
Woodbine—Smith, W. C.

RHODE ISLAND

Providence—Heaton, H. W.

SOUTH CAROLINA

Chesnee—Cash, J. B.
Clover—Campbell, I. J.
Greenwood—Blake, C. H.
Routh, F. M.
Turner, W. P.

SOUTH DAKOTA

Kimball—Willy, R. G.

TENNESSEE

Centerville—Beasley, J. S.
Fountain City—Massey, J. F.
Knoxville—Rogers, O. W.

Memphis—Conley, H. P.
Madison—Swift, C. L.

TEXAS

Amarillo—Caldwell, A. J.
Ballinger—Love, A. S.
Beaumont—Pedigo, H. B.
Corsicana—Bowmer, O. C.
Dallas—Hendricks, H. H.
Dawson—Steen, C. T.
Dayton—Spear, J. D.
El Paso—Rogers, W. P.
Stark, H. H.
Ennis—Cook, C. P.
Fargo—Rogers, A. C.
Fort Worth—Dreiss, C. A.
Saunders, D. J.
Garner—Barrett, L. C.
Humble—Falvey, J. C.
Lufkin—Dillen, O. M.
Rockdale—Barkley, T. S.
Southmayd—Russell, B. A.
Stephenville—Gordon, T. M.
Sunsat—Wright, E. W.
Texarkana—Lanier, L. H.
Tyler—Pope, J. H.
Vernon—King, T. A.
Reger, H. J.
Waco—Stanislav, F. J.

UTAH

Salt Lake City—Lynch, H.

VERMONT

Barre—Woodruff, J. H.
Bennington—Cole, J. H.
East Arlington—Gray, S. K.
Orleans—Wells, R. M.

VIRGINIA

Catawba Sanitarium—Brown, W. E.
Edgehill—Baker, R. M.
Hurley—Wire, B. O.
Richmond—Foster, J. F.

WASHINGTON

Conlee City—Crampton, J. H.
Olympia—Steele, J. F.
Port Townsend—Simmons, W. R.
Seattle—Snow, A. G.
Sunnyside—Shuman, J. R.
Taylor—Howetson, J. W.

WEST VIRGINIA

Brammell—Brown, J. E.
Mason—Sayre, R. F.
Moundsville—Morgan, C. G.
Parkersburgh—Richardson, W. B.
Petersburg—Grove, J. B.
Wallace—Whisler, H. A.
Wheeling—Copeland, H. B.

WISCONSIN

Athens—Winneman, W. J.
Burlington—Newell, F. F.
Chetek—Malcolm, J. J.
Clintonville—Jefferson, H. A.
Fond du Lac—Twohig, J. E.
Lone Rock—Eagan, R. L.
Madison—Elson, J. C.
Marshfield—Sexton, W. G.
Mason—Harrison, D. C.
Milwaukee—Ross, P. M.
Ruschhaupt, L. F.
Montreal—Ringo, H. F.
Oshkosh—Andrews, N.
Tomah—Fitch, R. F.

ORDERS TO OFFICERS OF THE MEDICAL CORPS U. S. ARMY

Alabama

To Camp Dix, N. J., base hospital, Capt. J. T. KENT, Birmingham.
To Camp Hancock, Ga., Lieut. C. L. SALTER, Talladega.
To Camp Jackson, S. C., base hospital, Capt. J. SCHWARZ, Mobile.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. M. T. GAINES, Mobile.
To Camp Wadsworth, S. C., from Canal Zone, Capt. I. MICHLIN, Birmingham.
To Danville, N. Y., from Walter Reed General Hospital, Major E. D. BONDURANT, Mobile.
To Fort Oglethorpe for instruction, Lieuts. H. B. POWELL, Bessemer; C. S. MERRIAM, Montgomery.
To Lakewood, N. J., for instruction at the Cardiovascular School, Capt. G. W. BASS, Badsden.

Arizona

To Camp Kearney, Calif., Lieut. V. C. CHARLESTON, Bisbee.
To Hoboken, N. J., from Fort Oglethorpe, Lieut. E. R. MCPHEETERS, Clifton.

Arkansas

To Camp MacArthur, Texas, Capt. J. E. MARTIN, Springdale.
To Fort Oglethorpe for instruction, Lieuts. T. E. RHINE, Thornton; J. C. LAND, J. C. SWINDEL, Walnut Ridge.

Canal Zone

To Fort Oglethorpe for instruction, Capt. F. W. ROMAINE, Ancon.

California

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. H. W. NIELSEN, Fresno.
To Camp Crane, Pa., from Camp Lewis, Lieut. W. T. ROTHWELL, Los Angeles.
To Camp Fremont, Calif., to examine the command for nervous and mental diseases, from Talmadge, Lieut. M. H. HIRSCHFELD, San Francisco.
To Camp Kearney, Calif., Lieut. H. G. C. BOGE, Oakland. Base hospital, Capt. A. T. NEWCOMB, Pasadena; from Fort Sill, Major H. C. LOOS, San Diego.
To Camp Lewis, Wash., base hospital, from duty as a contract surgeon, Capt. T. ADDIS, San Francisco.
To Camp Wheeler, Ga., as camp surgeon, from Camp Gordon, Major J. M. WHEATE, San Francisco.
To Canal Zone, Major R. L. I. SMITH, Pomona.
To Fort Bayard, N. M., for observation and treatment, from Camp Kearney, Lieut. B. A. SWARTZ, Los Angeles.
To Fort McDonald, Calif., from Camp Fremont, Major O. ANDERSON, Ocean Park.
To Fort Oglethorpe for instruction, Capt. J. G. HAM, San Bernardino; Lieut. W. J. McKENNA, Los Angeles.
To Fort Riley for instruction, Lieuts. W. P. MARTIN, Fresno; A. E. DICKINSON, San Jose.
To San Francisco, Calif., Letterman General Hospital, from Camp Fremont, Capt. W. C. BAKER, San Mateo; from Fort Winfield Scott, Major H. C. MOFFITT, San Francisco.
To report to the commanding general, Western Department, Capt. G. E. FULLER, Chula Vista; C. M. C. WALTERS, Los Angeles.
To his home, from Western Department, Major E. L. SWIFT, Fort McDowell.
Honorably discharged, Capt. G. M. DUNNE, San Francisco. On account of physical disability existing prior to entrance into the service, Lieut. C. F. CURTIS, Hollywood.

Colorado

To Camp Dodge, Iowa, from Rockefeller Institute, Lieut. R. A. PAINE, Denver.

To *Camp Gordon, Ga.*, as tuberculosis examiner, from Fort Thomas, Lieut. O. A. GRANTHAM, Johnstown.
To *Camp Perry, Ohio*, from Fort Logan, Lieut. H. S. SHAFER, Denver.
To *Fort Oglethorpe* for instruction, Capt. C. H. WILKINSON, Canon City.
To *Fort Riley* for instruction, Capt. C. L. MILLER, Swink; Lieut. C. C. BELL, Denver.

Connecticut

To *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. T. L. STORY, Hartford.
To *Camp Shelby, Miss.*, base hospital, Lieut. J. F. YOUNG, New London.
To *Camp Wadsworth, S. C.*, from Camp Gordon, Lieut. B. C. PASUTH, Bridgeport.
To *Denver, Colo.*, from Army Medical School, Capt. L. F. WHEATLEY, Meriden.
To *Fort Oglethorpe* for instruction, Lieuts. J. H. BIRAM, Hartford; C. H. AUDET, Waterbury.
To *New Haven, Conn.*, from Camp Sherman, Lieut. E. S. BENNETT, New Canaan.

District of Columbia

To *Camp Crane, Pa.*, from Camp Meade, Lieut. S. C. COUSINS, Washington.
To *Camp Dick, Texas*, as flight surgeon, Major J. O. McREYNOLDS, Washington.
To *Camp Gordon, Ga.*, as camp surgeon, from Camp Lec, Major D. N. W. GRANT, Washington.
To *Fort Oglethorpe* for instruction, Lieut. C. F. X. LEIBELL, Washington.
To *Mineola, N. Y.*, from the Surgeon-General's Office, Lieut.-Col. E. G. SEIBERT, Washington.
To *Rockefeller Institute* for instruction, and on completion to *Camp Dix, N. J.*, base hospital, from Washington, Capt. L. A. MARTEL, Washington. For instruction in laboratory work and on completion to *New Haven, Conn.*, Yale Army Laboratory School, from Fort Oglethorpe, Capt. F. A. HORNADAY, Washington.

Delaware

To *Camp Dix, N. J.*, base hospital, Capt. S. M. D. MARSHALL, Milford.
To *Rockefeller Institute* for instruction in laboratory work, and on completion to *New Haven, Conn.*, from Camp Lee, Lieut. H. M. BAKER, Shelbyville.

Florida

To *Camp Lee, Va.*, base hospital, from Fort Riley, Lieut. C. L. KENNON, Jacksonville.
To *Fort Oglethorpe* for instruction, Major N. M. HEGGIE, Jacksonville; Lieuts. E. W. CROCKETT, Glen St. Mary; T. H. BATES, Lake City; S. PANIELLO, Tampa; R. O. COOLEY, West Palm Beach.
To *Fort Sam Houston, Texas*, base hospital, from Camp Beauregard, Major R. N. GREENE, Chattahoochee.
To *New York, Neurological Institute*, for instruction, from Richmond, Lieut. H. M. SMITH, Chattahoochee.

Georgia

To *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. G. Y. MASSENBURG, Macon.
To *Camp Crane, Pa.*, from Camp Upton, Lieut. J. R. McCORD, Atlanta.
To *Camp Dix, N. J.*, from Fort Oglethorpe, Lieut. V. G. WILLIAMS, Odessa Dale.
To *Camp Gordon, Ga.*, base hospital, Capt. H. L. RUDOLPH, Gainesville.
To *Camp Hancock, Ga.*, Capt. R. C. SIMMONS, W. J. SHAW, Rome; Lieut. G. M. ANDERSON, Ray City.
To *Fort Oglethorpe* for instruction, Lieuts. G. F. LONG, Americus; J. H. STEED, Dalton; D. M. BRADLEY, Waycross.
To *Washington, D. C.*, War College, from Camp Gordon, Lieut.-Col. W. T. CADE, Jr.

Idaho

To *Fort Logan, Colo.*, from Camp Dodge, Lieut. C. W. SLUSSER, Grangeville.

Illinois

To *Camp Crane, Pa.*, from Camp Grant, Lieut. R. M. FOUTS, Chicago; from Fort Logan H. Roots, Lieut. H. A. SULLIVAN, Rockford.
To *Camp Custer, Mich.*, base hospital, from Fort Oglethorpe, Lieut. J. D. HAWKS, Cambridge.
To *Camp Devens, Mass.*, from New Haven, Capt. C. W. LEIGH, Chicago.
To *Camp Dix, N. J.*, as orthopedic surgeon, from Boston, Lieut. S. L. STEVENS, Dalton City.
To *Camp Dodge, Iowa*, Capt. J. L. MANNING, R. A. SMITH, Chicago. Base hospital, Capt. D. L. SCHRAM, Chicago. Evacuation hospital, from Fort Riley, Lieuts. V. J. NEALE, Chicago; O. R. SAUL, Dana.
To *Camp Grant, Ill.*, base hospital, Lieut. H. CULVER, Chicago; from Camp Alfred Vail, Lieut. J. T. O'CONNELL, Jr., Chicago. To examine the command for nervous and mental diseases, Capt. J. F. WENN, Chicago.
To *Camp Hancock, Ga.*, Lieut. H. H. SEYL, Chicago.
To *Camp Meade, Md.*, base hospital, Capt. O. A. R. DONNELLY, Lieut. E. J. DEVINE, Chicago.
To *Camp Pike, Ark.*, base hospital, from Fort Leavenworth, Capt. C. CULBERTSON, Chicago.
To *Camp Upton, N. Y.*, base hospital, Lieut. V. M. CORMAN, Rushville.
To *Camp Wadsworth, S. C.*, from Blacksburg, Va., Lieut. J. V. DILLMAN, Louisville; from Camp Jackson, Lieut. A. J. FIRTIK, Chicago; from Camp Kearney, Lieut. R. C. TENEROWICZ, Chicago; from Camp MacArthur, Lieut. C. K. STULIK, Chicago; from Camp Upton, Lieut. J. SLIVKA, Chicago; from Fort Oglethorpe, Lieuts. S. CZAJOWSKI, Chicago; F. J. CHMELIK, Joliet; from Morrison, Va., Lieut. F. L. FORTTELKA, Chicago.
To *Camp Zachary Taylor, Ky.*, as orthopedic surgeon, from Boston, Lieut. G. E. LYON, Decatur.

To *Fort Des Moines, Iowa*, for consultation, and on completion to report to the Surgeon-General for further orders, from Fort Leavenworth, Major H. M. ADLER, Chicago.

To *Fort Oglethorpe*, from Camp Beauregard, Lieut. H. BARANCIK, South Chicago; from Camp Custer, Lieut. J. R. GERSTLEY, Chicago. For instruction, Capt. J. V. WHITE, Auburn; H. WOOD, Batchtown, L. B. CAVINS, J. K. P. HAWKS, Bloomington; S. FOMON, H. B. THOMAS, J. M. HUBER, Chicago; C. W. YECK, Pawnee; G. D. DRENNAN, Woodhull; Lieuts. S. P. BLIM, I. H. CHILCOTT, J. P. GRAF, M. B. JELLIFFE, S. E. LYNCH, Chicago; L. P. PETERS, Clayton; R. H. SMITH, Eureka; W. F. ALLISON, Paris; H. W. ACKERMANN, Rockford.

To *Fort Riley*, for instruction, from duty as an enlisted man, Lieut. H. H. BEIL, Chicago.

To *Fort Sam Houston, Texas*, Lieuts. J. BUCKLEY, L. C. R. Lovellette, Chicago; W. E. G. MAYES, Dawson.

To *Lakewood, N. J.*, Lieuts. G. H. ANDERSON, E. F. MEILKE, Chicago.

To *Millington, Tenn.*, Park Field, from Camp Wheeler, Lieut. L. L. TURNER, Chicago.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. A. E. CASSERLY, Chicago.

To report to the commanding general, Central Department, Lieuts. F. J. QUIRK, Chicago; R. A. HAMILTON, Hillsboro; J. G. YOUNG, Warsaw.

To *Sacramento, Calif.*, Mather Field, from Arcadia, Capt. W. E. MERCER, Liberty.

To *Walter Reed General Hospital, D. C.*, from Fort Sam Houston, Major E. W. FELL, Elgin.

To *Washington, D. C.*, Surgeon-General's Office, from Camp Custer, Major C. E. KAHLKE, Chicago.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. A. F. STEWART, Oneida.

Indiana

To *Camp Crane, Pa.*, from Camp Zachary Taylor, Capt. P. B. COBLE, Indianapolis.

To *Camp Dodge, Iowa*, Lieut. H. C. METCALF, Andersonville.

To *Camp Lee, Pa.*, from Fort Oglethorpe, Lieut. E. VAN REED, Lafayette.

To *Camp Upton, N. Y.*, as orthopedic surgeon, from Boston, Capt. W. C. MOSS, Bunker Hill.

To *Camp Wheeler, Ga.*, from Camp Lee, Lieut. J. L. HEDDING, Bluffton.

To *Fort Oglethorpe*, from Camp Custer, Lieut. C. H. MEAD, Bluffton; from Colonia, N. J., Capt. L. P. DRAYER, Fort Wayne. For instruction, Capt. F. HODGES, Indianapolis; M. J. COOMES, Versailles; Lieuts. R. S. KEMP, Kentland; H. G. WEISS, Rockport; R. E. SWOPE, Rockville.

To *Fort Sam Houston, Texas*, Lieut. H. H. DEEN, Leavenworth.

To *Hoboken, N. J.*, base hospital, from Fort Slocum, Major H. M. HOSMER, Gary.

To *New Haven, Conn.*, Capt. B. B. PETTIJOHN, Indianapolis.

To *Rochester, Minn.*, for instruction, and on completion to *Camp Grant, Ill.*, base hospital, from Camp Grant, Lieut. B. E. LEMMON, Greencastle.

To *Rockefeller Institute* for instruction in laboratory work, and on completion to *New Haven, Conn.*, Yale Army Laboratory School, from Fort Oglethorpe, Capt. J. P. SEALE, Fairmount.

To *Walter Reed General Hospital, D. C.*, from Camp Meade, Lieut. L. S. BOLLING, Attica.

To report to the commanding general, Central Department, Capt. A. H. CAFFEE, Terre Haute.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. C. L. SOUDER, Columbia City.

Iowa

To *Arcadia, Calif.*, as post surgeon, from Camp Dix, Major C. H. COGSWELL, Cedar Rapids.

To *Camp Dodge, Iowa*, Capt. J. W. WOODBRIDGE, Cylinder; F. R. SPARKS, Waverly; Lieuts. J. T. McCONNAUGHEY, Winfield; L. W. PENCE, State Center. Base hospital, Capt. J. D. GEISSINGER, Spirit Lake.

To *Camp McClellan, Ala.*, from Eastern Department, Capt. S. A. O'BRIEN, Mason City.

To *Fort Oglethorpe* for instruction, Lieuts. L. K. MEREDITH, Des Moines, C. O. YENERICH, Rockford; from duty as an enlisted man, Lieut. E. C. AMBROSE, Cranby.

To *Fort Riley* for instruction, Lieuts. W. G. WALKER, Corydon; W. W. DAUT, Muscatine.

To *Mineola, N. Y.*, from the Surgeon-General's Office, Lieut.-Col. E. R. LEWIS, Dubuque.

To *Washington, D. C.*, from Camp Upton, Capt. H. G. VAUGHAN, Oak Park.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. A. C. HANSEN, Chester.

Kansas

To *Camp Dodge, Iowa*, base hospital, Lieut. H. A. ALEXANDER, Topeka.

To *Camp MacArthur, Texas*, Capt. O. J. CORBETT, Emporia; O. M. OWENSBY, Pittsburg; Lieuts. D. L. HEIDRICK, Welda.

To *Camp Pike, Ark.*, base hospital, Capt. J. A. McLAUGHLIN, Greenburg.

To *Fort Oglethorpe* for instruction, Lieuts. C. O. DAVISON, Garden City; G. K. HAUGHEY, Wakeeney.

To *Fort Riley* for instruction, Capt. P. W. ROBINSON, Osawatomie; Lieuts. H. M. MAKINS, Abilene; J. W. WEST, Narka.

To *Jackson Barracks, La.*, Capt. E. D. ELBRIGHT, Wichita; Lieut. J. O. WILLIAMS, Emporia.

To *Middletown, Pa.*, Lieut. J. B. EDWARDS, Garden City.

To report to the commanding general, Central Department, Capt. W. B. COE, Waterville.

The following order has been revoked: To *Camp Grant, Ill.*, from Fort Riley, Capt. C. H. KOENTZ, Onaga.

Kentucky

To *Ann Arbor, Mich.*, for intensive training, from Camp Zachary Taylor, Lieut. E. MOORMAN, Harned.

To Camp Wadsworth, S. C., from Camp Wheeler, Capt. J. U. RIDLEY, Robards.
To Fort McPherson, Ga., Capt. E. L. BUSBY, Lexington.
To Fort Oglethorpe for instruction, Capt. L. H. KERR, J. D. TRAWICK, Louisville; G. LAWRENCE, Shelbyville; Lieuts. S. L. HENSON, Benton; J. G. CLEM, Louisville; E. A. NORTH, Newport.
To Hoboken, N. J., from Camp Meade, Lieut. W. C. KUNKLER, Louisville.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. O. BAILEY, Martha.

Louisiana

To Camp McClellan, Ala., from Camp Shelby, Lieut. W. M. LED-BETTER, Shreveport.
To Fort Oglethorpe for instruction, Lieuts. R. D. MARTINEZ, Bunkie; N. M. PALMER, Lessville; G. J. TAQUINO, New Orleans.

Maine

To Camp Dodge, Iowa, Lieut. A. H. RINGEN, Sweet Springs.
To Camp Jackson, S. C., from Camp Jackson, Lieut. H. G. McKAY, Bangor.
To Fort Oglethorpe for instruction, Lieut. C. C. HALL, Foxcroft.
To Fort Sam Houston, Texas, Lieut. F. E. LUMAN, Baring.
To Garden City, N. Y., Lieuts. R. D. WALTON, Frankfort; C. A. MACOMBER, New Sharon.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Dix, N. J., base hospital, from Northwestern Department, Capt. D. W. WENTWORTH, Sanford.

Maryland

To Camp Custer, Mich., base hospital, Capt. W. B. PERRY, Baltimore.
To Camp Pike, Ark., to examine the command for nervous and mental diseases, from Camp Sheridan, Capt. M. LEVY, Baltimore.
To Camp Upton, N. Y., with the board examining the command for cardiovascular diseases, from Camp Lee, Capt. A. D. ATKINSON, Baltimore.
To Camp Wadsworth, S. C., from Fort Oglethorpe, Capt. R. R. NORRIS, Crisfield.
Resignation of Lieut. W. R. JOHNSON, Baltimore, accepted.

Massachusetts

To Azalea, N. C., Lieut. W. W. WALKER, West Somerville.
To Camp Beauregard, La., as orthopedic surgeon, from Boston, Lieut. W. J. LA LIBERTE, Fall River.
To Camp Crane, Pa., from Camp Greene, Major J. C. HUBBARD, Boston; from Camp Zachary Taylor, Lieut. C. SALMON, Worcester.
To Camp Devens, Mass., base hospital, Major S. G. UNDERHILL, Lynn.
To Camp Gordon, Ga., to examine the command for nervous and mental diseases, Capt. G. A. PEIRCE, Tewksbury.
To Camp Greene, N. C., base hospital, Capt. F. X. CORR, Dorchester.
To Camp Hancock, Ga., base hospital, Lieut. D. LOWRY, Ayer.
To Camp Jackson, S. C., from Camp Wadsworth, Capt. G. D. HENDERSON, Jr., Holyoke.
To Camp MacArthur, Texas, to examine the command for nervous and mental diseases, from Camp Gordon, Lieut. B. L. ASHMORE, Palmer.
To Camp McClellan, Ala., Capt. J. W. SANBORN, Lieut. J. S. MCCORMACK, Boston.
To Camp Meade, Md., Lieut. W. L. WRIGHT, Boston.
To Camp Shelby, Miss., from Camp Devens, Lieut. E. J. BRAERTON, Boston.
To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. L. W. HARRIS, Cliftondale.
To Fort Myer, Va., as orthopedic surgeon, from Boston, Lieut. H. W. ELLAM, Gardner.
To Fort Oglethorpe, evacuation hospital, from Boston, Lieut. J. H. SHORTELL, Boston; from Camp Upton, Major H. T. HUTCHINS, Boston. For instruction, Capt. F. K. SHAW, Concord; A. G. HURD, Millbury; C. H. COLGATE, Rockland; H. RITTER, Springfield; Lieuts. D. G. LJUNGBERG, A. S. MACMILLAN, Boston; E. T. SAEGER, Brookline; F. S. LACZYNSKI, Holyoke; D. G. PLUMB, Melrose; A. J. LEARY, Newton; H. F. CLEVERLY, Situate; from Boston, Lieuts. N. W. GILLESPIE, A. KLEIN, Boston; from duty as an enlisted man, Lieut. M. GOLDBERG, Lynn.
To Fort Slocum, N. Y., Capt. A. C. DEDRICK, Fall River.
To Lakewood, N. J., for instruction in the cardiovascular school, Lieut. F. C. HALL, Brookline.
To Miami, Fla., gunnery school, from Garden City, Lieut. A. O. McLAUGHLIN, Haverhill.
To Mineola, N. Y., from the Surgeon-General's Office, Major W. B. LANCASTER, Boston.
To New Haven, Conn., Yale Army Laboratory School, for instruction, from Camp Lee, Capt. F. H. HIBBEN, Brookline.
To Rockefeller Institute for instruction, and on completion to Bellevue Hospital, N. Y., for further instruction, and on completion to Camp Wheeler, Ga., Lieut. J. H. COOK, Quincy.
To Walter Reed General Hospital, D. C., Lieut. J. B. A. JOHNSON, Lowell.
To report to the commanding general, Northeastern Department, Capt. G. S. ALLEN, Lawrence.
The following orders have been revoked: To Camp Dix, N. J., Lieut. W. F. BRADY, Holyoke. To Camp Lee, Va., to examine the command for nervous and mental diseases, from Camp Meade, Lieut. M. W. PECK, Marblehead.

Michigan

To Camp Crane, Pa., Lieut. E. V. MAYER, Detroit; from Camp Zachary Taylor, Lieut. T. E. HACKETT, Jackson.
To Camp Devens, Mass., as orthopedic surgeon, from Boston, Lieut. H. F. OHRT, Detroit.
To Camp Dodge, Iowa, Capt. J. C. CLIPPERT, Lieut. R. R. GOLDSTONE, Detroit.
To Camp Jackson, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. R. H. RUEDEMANN, Ann Arbor.
To Camp Perry, Ohio, Capt. G. J. SCHALLER, Detroit; H. W. KNAPP, Gaylord.
To Camp Pike, Ark., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. D. KING, Detroit; from Syracuse, Lieut. H. R. LEIBINGER, Detroit.
To Fort Oglethorpe, evacuation hospital, from Camp Zachary Taylor, Capt. J. A. ELLIOTT, Battle Creek. For instruction, Lieuts. P. R. URMSTON, Bay City; G. R. YOUNG, L. B. COWEN, D. WEIN-

GARDEN, Detroit; W. C. SWARTOUT, Muskegon; H. E. WHITNEY, Ostego.

To Garden City, N. Y., Capt. A. E. HENWOOD, Kalamazoo; Lieuts. W. H. ROBINSON, Detroit; S. R. EDWARDS, Grand Rapids.
To Mount Clemens, Mich., Selfridge Field, Capt. C. D. MUNRO, Jackson; Lieuts. R. L. CLARK, Detroit; J. J. McCANN, Ionia; H. A. MILLER, Lansing.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. C. M. SPENCER, Free soil.
To New York, Neurological Institute, for instruction, Capt. R. C. STONE, Battle Creek.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to proper station, from Camp A. A. Humphreys, Capt. C. L. BARBER, Lansing.
The following order has been revoked: To Camp Wadsworth, S. C., from Camp MacArthur, Capt. J. P. BLAND, Adrian.

Minnesota

To Azalea, N. C., from Fort Thomas, Lieut. G. BRELSFORD, State Sanitarium.
To Camp Custer, Mich., base hospital, Capt. E. H. HAMMES, St. Paul.
To Camp Dodge, Iowa, Lieuts. M. R. SATHE, Jackson; K. C. WOLD, St. Paul.
To Camp Grant, Ill., as orthopedic surgeon, from Fort Oglethorpe, Lieut. H. E. HULLSICK, St. Paul.
To Camp MacArthur, Texas, to examine the command for nervous and mental diseases, Lieut. F. W. WHITMORE, St. Paul.
To Fort Oglethorpe, evacuation hospital from Camp Sevier, Capt. B. A. KAMP, Albert Lea. For instruction, Major H. M. MORTON, Lieuts. H. N. MELECK, Minneapolis; H. N. KLEIN, St. Paul; B. RAVN, Windom.
To report to the governor of Minnesota, as Medical Aide, Capt. A. MACLAREN, St. Paul.
To Washington, D. C., from Army Medical School, Lieut. P. BLANCO, Rochester.
Honorably discharged, Major E. S. GEIST, Capt. R. J. SEWALL, Minneapolis; Lieut. J. OHAGE, Jr., St. Paul.
The following orders have been revoked: To Camp Crane, Pa., from Camp Dodge, Capt. C. E. CONNOR, Minneapolis. To Camp Wadsworth, S. C., from Camp Dodge, Lieut. M. SEHAM, Minneapolis.

Mississippi

To Camp Hancock, Ga., Lieuts. R. PAINE, Aberdeen; G. T. WARREN, Brockhaven.
To Camp MacArthur, Texas, Capt. W. N. BLOUNT, Collins.
To Fort Oglethorpe for instruction, Lieut. E. A. GRICE, Crowder; from duty as an enlisted man, Lieut. T. E. PHILLIPS, Whynot.
To Fort Sam Houston, Texas, Lieut. E. L. RAWLES, Sherard.
To Fort Sheridan, Ill., base hospital, from Fort Sill, Capt. R. M. STEPHENSON, Lexington.
To Jackson Barracks, La., Capt. B. J. PLUNKETT, Jackson.
Resignation of Lieut. J. S. ADAMS, DeKalb, accepted.

Missouri

To Camp Dix, N. J., base hospital, Lieut. E. KOWALSKY, St. Louis.
To Camp Dodge, Iowa, Capt. E. POWERS, Carthage.
To Camp Gordon, Ga., as tuberculosis examiner, from Fort Thomas, Lieut. M. O. COOMBS, Joplin.
To Camp Logan, Texas, as tuberculosis examiner, from Camp Pike, Lieut. R. SHEETZ, Orrick, from Camp Travis, Capt. A. G. WAINRIGHT, St. Louis.
To Camp MacArthur, Texas, Capt. D. S. WERTH, Kirkwood; Lieuts. A. D. KNABB, Springfield; J. C. McINTIRE, St. Louis.
To Camp Pike, Ark., from Fort Riley, Lieut. T. P. GRONOWAY, Bevier. Base hospital, Capt. T. E. WYATT, Kansas City.
To Camp Sherman, Ohio, as orthopedic surgeon, from Fort Oglethorpe, Lieut. K. C. PEACOCK, St. Louis.
To Camp Wadsworth, S. C., from Camp Dodge, Capt. J. M. EPSTEIN, St. Louis.
To Fort Oglethorpe for instruction, Capt. R. S. TILLES, St. Louis; Lieuts. D. J. ROYER, Joplin; F. L. DAVIS, St. Louis.
To Fort Riley for instruction, Capt. G. B. MITCHELL, Branson; R. W. SMART, Crane; J. J. O'KEEFE, H. B. MILLER, St. Louis; Lieuts. J. D. FERGUSON, Ava; J. R. PINION, Caruthersville; C. P. PICKETT, Mercer; W. F. MEYER, F. S. SETTLE, St. Louis; D. A. SEIBERT, Washington.
To Fort Sam Houston, Texas, Lieuts. N. ZOGLIN, Kansas City; H. H. HENDRICKS, St. Louis.
To Jackson Barracks, La., Capt. R. M. JAMES, Joplin.
To Millington, Tenn., Park Field, from Fort Oglethorpe, Lieut. G. C. BALCK, St. Louis.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. E. H. COON, Grand Pass.
To report to the commanding general, Central Department, Capt. E. L. MORGAN, Graham; J. F. DODSON, Kirksville; D. F. MANNING, Marshall.
Discharged, Lieut. E. A. HOEFER, Merceline.
The following order has been revoked: To Fort Riley for instruction, Capt. H. BRYAN, Carthage.

Montana

To Camp Meade, Md., base hospital, from Camp Lee, Lieut. W. G. DYE, Great Falls.
To Fort Riley for instruction, Lieut. M. HOPKINS, Gildford.

Nebraska

To Camp Bowie, Texas, base hospital, from Boston, Lieut. C. W. WAY, Wahoo.
To Camp Dodge, Iowa, Capt. G. H. GILMORE, Murray; Lieut. E. V. NEUMAN, Wausa.
To Camp MacArthur, Texas, Capt. L. C. ADCOCK, Omaha.
To Camp Wadsworth, S. C., from Fort Riley, Lieut. J. P. SWOBODA, Omaha.
To Camp Zachary Taylor, Ky., base hospital, Lieut. R. J. STEARNS, Omaha.
To Fort Oglethorpe for instruction, Capt. J. J. SNIPES, Lincoln.
To Fort Riley for instruction, Capt. E. I. WHITEHEAD, Holdrege; R. M. MORRILL, Lincoln; Lieut. J. E. INGRAM, Harvard.
To Fort Sam Houston, Texas, Lieuts. W. S. BARTHOLOMEW, Marion; J. C. STORKAN, Wilber.
The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. R. L. SMITH, Lincoln.

Nevada

To report to the commanding general, Western Department, for assignment to duty, Lieut. W. B. MORROW, Stewart.

New Hampshire

To Fort Oglethorpe for instruction, from Boston, Major R. J. GRAVES, Concord.

New Jersey

To Camp Cody, N. M., base hospital, from Boston, Lieut. W. W. SCHMIDT, Cliffside.

To Camp Dodge, Iowa, from Fort Riley, Lieut. J. L. WILSON, Jersey City.

To Camp Logan, Texas, as tuberculosis examiner, from Camp Travis, Lieut. C. ENGLANDER, Cedar Grove.

To Camp Meade, Md., as tuberculosis examiner, from Camp Sheridan, Lieut. S. BARISHAW, Jersey City.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Lieut. T. L. CALDRONEY, Paterson.

To Fort Oglethorpe for instruction, Capt. F. BROUWER, Toms River; Lieuts. F. N. BUNNELL, Barnegat; M. M. MACLAIN, Belvidere; J. NYDES, Hilton; J. J. BRUNE, J. W. HURFF, O. A. MOCKRIDGE, Newark; H. N. GOLDING, Patterson; from Camp Upton, Lieut. L. D. WHITNEY, Belleville.

To Fort Slocum, N. Y., Lieut. P. B. MEANS, Trenton.

To Washington, D. C., as tuberculosis examiner, from Washington Barracks, Capt. H. M. EWING, Montclair.

New Mexico

To Camp Kearney, Calif., Lieut. F. H. JOHNSON, Carrozo.

To Fort Oglethorpe for instruction, Capt. W. M. SCOTT, Alamogordo.

To report to the commanding general, Southern Department, for assignment to duty, Capt. M. M. CROCKER, Lordsburg.

To Washington, D. C., War College, from Camp Cody, Major J. J. REDDY.

New York

To Army Medical School for instruction, Lieut. R. E. CUMMING, New York.

To Azalea, N. C., from Markleton, Pa., Lieut. J. B. STENBUCK, Brooklyn.

To Camp Crane, Pa., from Camp Dix, Capt. W. G. DICKINSON, Oneonta; from Camp McClellan, Lieut. L. M. ALOFSIN, New York.

To Camp Custer, Mich., base hospital, Major W. M. FORD, New York.

To Camp Devens, Mass., base hospital, Lieut. R. D. RICHMAN, Morton.

To Camp Dix, N. J., base hospital, Lieut. G. S. LAIRD, Westfield.

To Camp Dodge, Iowa, evacuation hospital, from Camp Sheridan, Lieut. L. B. MATHEWS, Brooklyn.

To Camp Greene, N. C., from Fort Oglethorpe, Lieut. F. C. COSTEN, New York. Base hospital, Capt. E. W. KENNEDY, Rochester.

To Camp Hancock, Ga., base hospital, from Camp Sevier, Lieut.-Col. W. BENSEL, New York.

To Camp Jackson, S. C., from Camp Sevier, Capt. L. B. SACHS, New York. As orthopedic surgeon, from Fort Oglethorpe, Lieut. W. W. TRACEY, New York. Base hospital, from Camp Sevier, Major W. A. LAWRENCE, White Plains.

To Camp Lee, Va., as assistant to camp surgeon, from Southern Department, Lieut. E. KLINE, New York.

To Camp McClellan, Ala., Lieut. H. FRIEDLAND, New York; from West Raleigh, N. C., Lieut. V. W. WEISS, New York.

To Camp Meade, Md., Lieut. A. STONE, Brooklyn; from Fort McHenry, Lieut. J. D. VERILL, Brooklyn. Base hospital, Lieut. W. PHIPARD, New York.

To Camp Sevier, S. C., from Camp Joseph E. Johnston, Capt. G. S. SKIFF, Gainesville.

To Camp Shelby, Miss., from Camp Wadsworth, Lieut. S. D. EARTHART, Clifton Springs. Base hospital, Lieut. M. KEMP, New York.

To Camp Sheridan, Ala., base hospital, from Fort Slocum, Capt. W. M. KENNA, Mount Vernon.

To Camp Sherman, Ohio, from Fort Oglethorpe, Capt. J. J. S. WALSH, New York. As orthopedic surgeon, from Boston, Lieut. H. J. FEASTER, Brooklyn; from Fort Oglethorpe, Lieut. C. L. McNEIL, Poughkeepsie. As tuberculosis examiner, from Fort Benjamin Harrison, Lieut. E. F. SAMPSON, New York.

To Camp Upton, N. Y., base hospital, from Boston, Lieut. A. H. JASON, Brooklyn. To examine the troops for cardiovascular diseases, from Camp Devens, Lieut. J. J. H. KEATING, New York.

To Camp Wadsworth, S. C., from Camp Dix, Lieut. F. M. KUJAWA, Buffalo.

To Dallas, Texas, Love Field, from Mineola, Lieut. D. D. STOWELL, New York.

To Fort Benjamin Harrison, Ind., Lieut. H. G. HOTCHKISS, Rochester. Base hospital, Capt. B. R. NAIRN, Buffalo; from Camp Lee, Major E. W. PINKHAM, New York.

To Fort Oglethorpe for instruction, Majors J. S. BILLINGS, Douglass; P. W. NATHAN, New York; Capt. L. H. SMITH, East Aurora; R. A. MILLER, Newburgh; E. A. MULLER, New York; F. S. WINSLOW, Rochester; A. E. CHACE, Tarrytown; Lieuts. L. L. KRANZER, J. B. L'EPISCOPO, Brooklyn; C. C. WILLIAMSON, Gorham; S. A. COMBAS, Hempstead; J. E. WRIGHT, Mendon; F. M. CHAFFEE, Middlesex; H. PAGE, Newburgh; W. J. DELANEY, W. L. FELT, B. HUGHES, M. J. MAYER, A. C. SCHWENK, L. N. SMERNOFF, New York; J. B. DEUEL, Rochester; N. B. PALEN, Walden; from Boston, Capt. J. L. BENDELL, Albany; from Fort Wayne, Lieut. J. J. LANCER, New York.

To Fort Snelling, Minn., base hospital, from Camp MacArthur, Capt. A. VANDER VEER, Jr., New York.

To Garden City, N. Y., Lieuts. E. B. O'KEEFFE, Albany; M. GROLLMAN, P. YUDSKOWSKY, New York.

To Hoboken, N. J., Major G. H. KIRBY, New York; from Rockefeller Institute, Lieut. E. STILLMAN, New York.

To New Haven, Conn., Yale Army Laboratory School, from duty as an enlisted man, Lieut. D. M. MARKOVSKY, New York.

To Washington, D. C., from Camp Upton, Major R. L. CECIL, New York; from Camp Wheeler, Major H. R. GAYLORD, Buffalo; from Edgewood, Md., Major F. G. YOUNG, New York. American University, Experimental Station, from Fort Oglethorpe, Lieut. H. W. HAMMOND, Franklinville. War College, from Camp Upton, Lieut.-Col. A. A. SCHOENLEBER.

To Williamsbridge, N. Y., and on completion to Denver, Colo., from Azalea, N. C., Lieut. S. L. WANG, Staten Island; from Eastern Department, Lieut. J. J. STEINFELDER, New York.

Honorably discharged, Lieuts. A. FELDMAN, Brooklyn; H. ADLER, New York. On account of physical disability existing prior to entrance into the service, Capt. W. J. C. AUBRY, Cohose.

Resignation of Lieut. J. D. VOORHEES, New York, accepted.

North Carolina

To Camp Hancock, Ga., Lieut. E. C. REITZEL, High Point.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. J. M. EARNHARDT, Rockwell.

To Fort Oglethorpe for instruction, Capt. W. R. BAKER, Charlotte; from Hampton, Lieut. J. J. BAREFOOT, Graham.

To Rockefeller Institute for instruction in laboratory work, and on completion to New Haven, Conn., Yale Army Laboratory School, from Fort Oglethorpe, Capt. W. P. JACOBS, Elizabeth City.

The following order has been revoked: To Hoboken, N. J., from Fort McPherson, Major F. M. HANES, Winston-Salem.

North Dakota

To Camp Dodge, Iowa, Capt. J. A. CARTHER, Warwick.

To Fort Riley for instruction, Lieut. W. C. AYLEN, Mandan.

To Fort Sam Houston, Texas., Lieut. A. DEAN, Grand Forks.

Ohio

To Camp Gordon, Ga., base hospital, Capt. E. E. GAVER, Columbus; Lieut. A. H. BERR, Cleveland.

To Camp Greene, N. C., as camp surgeon, from Camp Sherman, Major G. C. BEACH, Jr.

To Camp Hancock, Ga., Lieuts. N. B. OSBORNE, Andover; R. G. FOLLANSBEE, Cleveland; G. A. PARILLO, Girard; B. CLARK, Shandon.

To Camp McClellan, Ala., from Camp Shelby, Lieut. S. W. SXTON, Steubenville; from Fort Oglethorpe, Lieut. A. M. SHAEFFER, Lancaster.

To Camp Meade, Md., base hospital, Capt. J. A. GOSLING, Tiffin.

To Camp Perry, Ohio, Lieut. G. R. WILKINS, Cleveland.

To Camp Sheridan, Ala., from Camp Lee, Lieut. F. C. PAYNE, Dayton.

To Camp Sherman, Ohio, base hospital, Major R. H. BIRGE, Cleveland.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. H. CHALAT, Cleveland.

To Fairfield, Ohio, Wilbur Wright Field, Lieut. J. G. MARTIENS, Dayton.

To Fort Oglethorpe, evacuation hospital, from Camp Sheridan, Capt. L. C. COSGROVE, Swanton; from Camp Sevier, Lieut. J. M. McGEORGE, Salem. For instruction, Capt. M. V. REPLOGLE, Bryan; F. J. WOOD, Cleveland; A. COHEN, Cleveland Heights; H. R. WRIGHT, Columbus; J. L. CANNON, Lima; Lieuts. R. E. STEPHIELD, Barberton; T. A. SPITLER, Carey; J. R. MONIHAN, Cleveland; L. M. HERSKOWITZ, E. HUFFER, G. H. SNYDER, Columbus; H. P. TIMBERLAKE, Demos; D. H. BOWMAN, Kenton; J. A. HEELEY, Parkman; A. TOMBAUGH, Williamstown. On completion to his proper station, from Garden City, Capt. J. W. TIPPLE, Cleveland.

To Fort Riley to examine drafted men for nervous and mental diseases, from Camp Pike, Lieut. G. H. REEVE, Cleveland.

To Fort Sam Houston, Texas, Lieut. C. S. WILMUTH, Mansfield.

To report to commanding general, Central Department, for assignment to duty, Capt. W. M. METZLER, Vanlue.

To Washington, D. C., for consultation, and on completion to Camp Sherman, Ohio, from Rockefeller Institute, Capt. W. C. GATES, Bucyrus. War College, from Camp Sherman, Major H. B. MCINTYRE.

The following order has been revoked: To Camp McClellan, Ala., from Walter Reed General Hospital, Major D. M. ROBERTS, New Richmond.

Oklahoma

To Camp Dodge, Iowa, Capt. J. S. LITTLE, Minco.

To Camp MacArthur, Texas, Capt. T. H. FLESHER, Edmond.

To Fort Oglethorpe for instruction, Lieut. G. M. WILKINSON, Delaware.

To Fort Riley for instruction, Lieuts. J. T. KING, Bokosho; S. W. REYNOLDS, Drumright; T. H. MCCARLEY, McAlester; P. C. McCALL, O'Keene; H. M. REEDER, Shawnee.

To Fort Sill, Okla., base hospital, from Camp Travis, Lieut. T. J. NUNNERY, Granite.

To report to the commanding general, Southern Department, Capt. F. L. WALTON, Muskogee; H. B. GWIN, Tulsa.

To Rockefeller Institute for instruction in laboratory work and on completion to New Haven, Conn., Yale Army Laboratory School, from Fort Oglethorpe, Capt. G. ELLISON, Norman.

Oregon

To Azalea, N. C., from New Haven, Lieut. F. R. MENNE, Portland.

To Camp Lewis, Wash., base hospital, Capt. T. H. COFFEN, Portland.

To Dallas, Texas, Love Field, from Mineola, Capt. H. L. UNDERWOOD, La Grande.

To Potomac Park, D. C., from Army Medical School, Lieut. F. J. BROWN, Vale.

Pennsylvania

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. W. M. HOLTZ, Pittsburgh.

To Camp Crane, Pa., from Camp Gordon, Lieut. I. A. DARLING, Warren.

To Camp Custer, Mich., base hospital, Capt. G. E. BOYD, Philadelphia.

To Camp Devens, Mass., as orthopedic instructor, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. W. H. HOLTZ, Pittsburgh.

To Camp Dodge, Iowa, as orthopedic surgeon, from Boston, Lieut. J. P. MAUS, Philadelphia. Base hospital, from Camp Meade, Capt. J. S. HAMMERS, Danville; from Fort Oglethorpe, Major A. DARE, Philadelphia.

To Camp Gordon, Ga., base hospital, Capt. J. BEATTIE, Lebanon; Lieut. H. S. BACHMAN, Philadelphia.

To Camp Jackson, S. C., from Camp Devens, Capt. J. H. WHITCRAFT, Wilkesburg.

To Camp McClellan, Ala., Capt. G. T. McGRAW, Avondale; from Camp Sevier, Lieut. R. F. WIVELL, Wilkes-Barre; from Fort Oglethorpe, Lieut. F. B. BLOCK, Philadelphia.

To Camp Meade, Md., Lieuts. J. F. GORMAN, G. W. A. HESS, Philadelphia.

To *Camp Sherman, Ohio*, from *Camp Wadsworth*, Lieut. H. GOOD-FRIEND, Scranton. As camp surgeon, from *Camp Dodge*, Major B. F. DUCKWALL, Pittsburgh. As orthopedic surgeon, from Boston, Lieut. E. H. MCCLISTER, Kittanning.

To *Camp Wadsworth, S. C.*, from *Camp Lee*, Lieut. A. R. SERAPHIN, Pittsburgh; from *Columbus Barracks*, Lieut. W. T. PALCHANIS, Pittsburgh.

To *Camp Zachary Taylor, Ky.*, from duty as a private, Lieut. J. J. QUINN, Wilkes-Barre.

To *Cleveland, Ohio*, Lakeside Hospital, from *Camp A. A. Humphreys*, Lieut. S. P. REIMANN, Philadelphia; from *Fort Oglethorpe*, Lieut. A. A. REDELIN, Freehold.

To *Dallas, Texas*, Love Field, from *Mineola*, Lieut. G. S. CUNNINGHAM, Pittsburgh.

To *Fort McPherson, Ga.*, from Boston, Lieut. W. C. ELY, Philadelphia.

To *Fort Oglethorpe* for instruction, Capt. C. C. RINARD, Munhall; W. B. DAVIS, L. VAN HORN, Philadelphia; Lieuts. E. L. WHISTLER, Carlisle; R. L. ANDERSON, Dormont; W. M. GARRETSON, East Petersburg; A. J. CRAIG, Fort Washington; P. T. HOPE, Mercer; I. E. PRATT, Millerton; A. F. BECK, H. J. FORMAN, Jr., E. S. HUBBS, Philadelphia; A. W. CROZIER, E. N. FOSTER, G. A. ZIEG, Pittsburgh; R. S. HEILMAN, Sharon; F. W. GUSTITES, Shenandoah; D. H. EDWARDS, Washington; from *Camp Joseph E. Johnston*, Capt. S. B. HARRIS, Norwood Station.

To *Fort Ontario, N. Y.*, Lieut. M. A. NEWMAN, Wilkes-Barre.

To *Fort Sam Houston, Texas*, Capt. G. C. McMASTER, Pittsburgh.

To *Garden City, N. Y.*, Capt. W. L. SCOTT, Joffre; Lieut. J. A. DOUGLAS, McDonald; C. LAM. SANTEE, Wapwallopen; W. C. SMITH, Woodbine.

To *Hoboken, N. J.*, from *Camp Meade*, Lieut. S. J. ROBERTS, Etters.

To *Lakewood, N. J.*, Lieut. C. W. ESPY, Wilkes-Barre.

To *New Haven, Conn.*, Lieut. I. C. STALBERG, Philadelphia.

To *New York*, Bellevue Hospital, for instruction, and on completion to *Camp Dix, N. J.*, base hospital, Capt. S. A. RULON, Phoenixville.

To report to the commanding general, Eastern Department, Capt. G. J. VAN VECHTEN, Scranton.

To *Walter Reed General Hospital, D. C.*, Lieut. E. H. BEDROSIAN, Philadelphia.

To *Washington, D. C.*, Major R. M. PEARCE, Philadelphia. American University, Experimental Station, Lieut. C. S. ORRIS, Tarentum.

Philippine Islands

To *Camp MacArthur, Texas*, as camp surgeon, from *Camp Fremont*, Major W. P. DAVENPORT, Cebu.

Porto Rico

To *Camp Las Casas, P. R.*, Lieuts. P. S. MALARET, Ponce; E. CUMPIANO, Rincon.

To *Camp Wadsworth, S. C.*, from *Camp Meade*, Lieut. J. H. FONT, Barronquitas.

South Carolina

To *Camp Hancock, Ga.*, Lieut. J. E. LAND, Anderson.

To *Camp Shelby, Miss.*, base hospital, Lieut. V. W. BRABHAM, Orangeburg.

To *Fort Oglethorpe* for instruction, Lieuts. B. J. WORKMAN, Charleston; G. H. WALTER, Orangeburg.

To *Washington, D. C.*, War College, from *Camp Jackson*, Lieut.-Col. L. R. POUST; from *Camp Wadsworth*, Lieut.-Col. J. F. JOHNSTON.

South Dakota

To *Camp Crane, Pa.*, from *Camp Grant*, Lieut. A. F. GROVE, Dell Rapids.

To *Camp Dodge, Iowa*, Lieut. A. S. JACKSON, Lead.

To *Fort Oglethorpe* for instruction, from Boston, Lieut. L. J. BROOKMAN, Vermilion.

To *Fort Sam Houston, Texas*, Lieut. F. H. CREAMER, Dupree.

To report to the commanding general, Central Department, Capt. J. F. BARTHELL, Winfred.

Tennessee

To *Camp Hancock, Ga.*, Lieut. L. R. SHEARIN, Memphis.

To *Camp Lee, Va.*, as assistant to the camp surgeon, from Southern Department, Lieut. C. D. ALLEN, Memphis.

To *Camp Logan, Texas*, as tuberculosis examiner, from *Camp Pike*, Lieut. M. L. CONNELL, Nashville.

To *Camp Shelby, Miss.*, base hospital, Capt. W. C. McREE, Trenton.

To *Camp Sherman, Ohio*, base hospital, Lieut. O. W. ROGERS, Knoxville.

To *Fort Oglethorpe*, evacuation hospital, from *Camp Upton*, Capt. H. H. SHOULDERS, Nashville; from *Fort Screven*, Capt. C. D. BLASSINGAME, Memphis.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. A. T. SIKES, Franklin.

To *New York*, Hospital for Ruptured and Crippled, for instruction, from Boston, Capt. J. R. SHELTON, Oliver, Springs.

Texas

To *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from *Fort Oglethorpe*, Lieut. O. N. MAYO, Belton.

To *Camp Bowie, Texas*, base hospital, Capt. J. W. HALE, Waco.

To *Camp Dodge, Iowa*, base hospital, from *Fort Benjamin Harrison*, Lieut. E. C. BRANNON, Waco.

To *Camp Jackson, S. C.*, base hospital, Major W. RALSTON, Houston.

To *Camp Kearney, Calif.*, Lieut. O. C. MICHIE, Childress; from *Fort Riley*, Lieut. R. E. CROMEANS, Strawn.

To *Camp MacArthur, Texas*, base hospital, from Boston, Capt. H. R. DUDGEON, Waco.

To *Camp McClellan, Ala.*, from *Fort Oglethorpe*, Lieut. L. W. EDWARDS, Nashville.

To *Camp Pike, Ark.*, as orthopedic surgeon, from *Camp Bowie*, Lieut. F. W. CARRUTHERS, Hillsboro.

To *Camp Sherman, Ohio*, from *Fort Oglethorpe*, Capt. C. P. MARTIN, Palestine.

To *Corpus Christi, Texas*, from *Fort Oglethorpe*, Lieut. H. F. WILKINS, Fort Worth.

To *Fort Oglethorpe* for instruction, Capt. W. F. GABERT, Hereford; H. H. ALLDREDGE, Higgins; A. L. RIDINGS, Sherman; Lieuts. G. HOGG, Edna; G. G. CASTLEBERRY, Post; E. P. GOODE,

Quinlan; H. P. RUSH, San Angelo; I. B. JOHNSON, Texline; I. E. COLGIN, Waco.

To *Fort Riley* for instruction, Lieuts. J. A. NEELY, Bellville; W. M. CRUMPLER, Port Arthur; A. C. BAIRD, Wolfe City.

To *New York*, Hospital for Ruptured and Crippled, for instruction, from Boston, Capt. J. H. SHELTON, Kingsville.

To report to the commanding general, Eastern Department, from *Camp Upton*, Major S. NORMAN, Texas City. Southern Department, Capt. S. D. BULLINGTON, Dallas; M. C. BELL, Odessa.

To *Washington, D. C.*, War College, from *Camp MacArthur*, Lieut.-Col. J. T. AYDELOTTE.

Honorably discharged on account of physical disability existing prior to entrance into the service, Capt. J. W. HILL, Dallas.

Utah

To *Camp Lewis, Wash.*, base hospital, Capt. H. B. FELTS, H. C. JORGENSEN, Salt Lake City.

Vermont

To *Camp McClellan, Ala.*, Lieut. S. K. GRAY, East Arlington.

To *Fort Oglethorpe* for instruction, Capt. C. H. BURR, Montpelier; R. H. MINER, Windsor; Lieut. W. S. SLICER, Roanoke.

To *Garden City, N. Y.*, Lieuts. R. M. WELLS, Orleans; R. H. BURKE, St. Johnsbury.

To *Lakewood, N. J.*, for instruction at the Cardiovascular School, Lieut. R. E. AVERY, East Barre.

To *Walter Reed General Hospital, D. C.*, Capt. W. J. TINDALL, Montpelier.

Virginia

To *Camp Beauregard, La.*, from *Camp Joseph E. Johnston*, Lieut. M. S. FITCHETT, Norfolk.

To *Camp Pike, Ark.*, as orthopedic surgeon, from *Fort Oglethorpe*, Lieut. W. I. LAUGHON, Bedford.

To *Fort Oglethorpe* for instruction, Lieuts. E. M. CHITWOOD, Austinville; T. A. WILLIAMS, Middleton.

Washington

To *Camp Kearney, Calif.*, Capt. I. A. WEISHBREDT, Seattle; Lieuts. R. BARTEAU, Rockford; J. P. LOUDON, Yakima; J. R. SHUMAN, Sunnyside.

To *Fort Oglethorpe* for instruction, Capt. L. B. BALDWIN, Seattle.

To *Fort Riley* for instruction, Lieuts. E. L. BRINSON, Acme; T. H. B. RUNNALLS, Puyallup; L. D. LONG, Seattle.

To report to the commanding general, Western Department, Capt. J. E. PRENCEL, St. John; A. G. SNOW, Seattle; Lieut. W. R. SIMMONS, Port Townsend; from *San Francisco*, Major J. C. BYRNE, Spokane.

West Virginia

To *Camp Grant, Ill.*, as orthopedic surgeon, from *Fort Oglethorpe*, Lieut. L. E. DAUGHERTY, Davis.

To *Camp Shelby, Miss.*, base hospital, Capt. F. D. FORTNEY, Newberg.

To *Camp Wadsworth, S. C.*, from *Camp Lee*, Lieut. H. E. WHALEY, Hansford.

Wisconsin

To *Camp Crane, Pa.*, from *Camp Upton*, Lieut. A. T. JOHNSON, Sauk City; from the Surgeon-General's Office, Major R. H. IVY, Milwaukee.

To *Camp Dodge, Iowa*, Capt. W. L. STEPHENSON, Ladysmith; Lieuts. E. A. LAPHAM, Rib Lake; G. PARKE, Viola.

To *Camp Greene, N. C.*, to examine the troops for cardiovascular diseases, from *Camp Lee*, Lieut. E. A. GATTERDAM, Wauwatosa.

To *Camp Joseph E. Johnston*, Jacksonville, Fla., base hospital, from *Fort Oglethorpe*, Capt. B. F. HOYT, South Kaukauna.

To *Camp Sherman, Ohio*, as tuberculosis examiner, from *Fort Benjamin Harrison*, Capt. H. C. MIX, Green Bay.

To *Fort Oglethorpe* for instruction, Capt. C. W. GIESEN, Superior; Lieuts. K. H. TRIPPE, Buckhannon; R. G. HAYS, Friendly;

J. F. McNARY, Milwaukee; H. T. SCHLEGEL, Wausaw.

To *Fort Riley* for instruction, Capt. W. H. FINNEY, Clintonville; W. M. GRATIOT, Mineral Point; F. C. HANEY, Watertown; Lieuts. P. LEICHT, Lake Mills; A. C. NIEMANN, New Holstein.

To *Markleton, Pa.*, from *New Haven*, Capt. L. W. DUDLEY, Milwaukee.

To *Mineola, N. Y.*, from *Madison*, Major J. A. E. EYSTER, Madison.

Wyoming

To *Fort Riley* for instruction, Capt. N. B. NEWCOMER, Sheridan.

To *Rockefeller Institute* for instruction in laboratory work, and on completion to *New Haven, Conn.*, for instruction, from *Camp Beauregard*, Lieut. J. F. O'DONNELL, Casper.

Survey of Illness.—The recent influx of negroes into Philadelphia has been a great factor in the city's increasing mortality as well as morbidity. According to the report of Dr. Charles Scott Miller, Chief of the Bureau of Vital Statistics, who, with the aid of registered nurses, has just completed the first illness survey ever made in this city, 514 persons, out of the 12,109 canvassed, were found to be ill. The report further states: The proportion of negroes to whites who were affected with pulmonary conditions is surprisingly high. Colds, bronchitis, grip, etc., run in some cases more than 50 per cent. higher in the negro than in the white. Many are classed under the heading "colds," which should properly be classed under the heading "tuberculosis." On the other hand, bronchitis and asthma are frequent diagnoses among this class of persons to "cloak" real tuberculosis. Under the auspices of the Philadelphia committee, a movement recently was launched among negroes for the purpose of checking the spread of tuberculosis and thereby improving the general health of the city.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CALIFORNIA

Medical College Suspended.—A letter from the College of Physicians and Surgeons of San Francisco states that the college has been suspended.

Personal.—Dr. Clarence A. DePuy, Oakland, has been appointed physician of Alameda County, succeeding Dr. Carl E. Curdts, who has entered the military service.—Dr. Harrison A. Putnam, Inglewood, was struck by an auto truck, while crossing the street, August 8, and was seriously injured. He is being cared for at the Pacific Hospital.

Osteopathic College Not Recognized as Medical School.—A recent communication from the secretary of the California State Board of Medical Examiners states that the College of Osteopathic Physicians and Surgeons of Los Angeles is no longer recognized as a medical school, and that after Aug. 1, 1918, graduates of that school will not be admitted to examinations for licenses as physicians and surgeons.

COLORADO

State Society Meeting.—The forty-eighth annual meeting of the Colorado State Medical Society will be held at Hotel Stanley, Estes Park, September 9 to 11, under the presidency of Dr. Edward Jackson, Denver. Among the papers on the program are those of Lieut. Horace G. Wetherill, M. C., U. S. Army, Denver, medical aide to the governor, on "The Nation's Need of Doctors and Nurses for the Army," and "The Work of the Army Tuberculosis Boards," by Dr. Oscar M. Gilbert, Boulder. Dr. Wetherill will also confer with the members of the local advisory boards during the meeting, regarding the rulings and provisions of the Provost Marshal-General's Office, and will be prepared to examine applicants for commission in the Medical Reserve Corps. Members of the local medical advisory boards from Wyoming and other adjoining states have been invited to be present at the meeting. Lieut.-Col. John R. Barber, M. C., U. S. Army, chief surgeon at Fort Logan will be guest of honor at this meeting.

DISTRICT OF COLUMBIA

No Commissions at Present for Colored Physicians.—The new draft legislation seriously affects the Washington colored doctors, of whom there is a relatively large number. For a number of months past no commissions as medical officers have been granted to physicians of that race on the ground that the proportion of medical officers for negro troops has already been enrolled. A committee recently sought relief from the Secretary of War for this situation but were informed that there is at present no prospect that more colored medical officers will be needed. This leaves many negro physicians who have vainly volunteered to serve as medical officers face to face with the prospect of being inducted into service by draft.

Honor to Memory of Senator Gallinger.—On August 26, the Washington Board of Trade held a special meeting to pay homage to the memory of the late Senator Jacob H. Gallinger. Resolutions were adopted, voicing the appreciation of the people of the District of Columbia of the distinguished services of Senator Gallinger as a national legislator and especially of the deep interest he had in the affairs of this district and the sympathetic understanding he always displayed of the needs of the city of Washington. This event was of special interest to the medical profession both because Senator Gallinger was himself a physician and because he could always be relied on to further the interests of physicians in legislation affecting them. He was largely instrumental in securing the necessary appropriations for a much needed new and enlarged municipal hospital for Washington, which when completed will be known as the Gallinger Hospital. One of the last acts of his legislative life was to secure the passage by the Senate of an act incorporating the Medical Society of the District of Columbia. This bill (still pending in the House of Representatives) is intended to revive a charter granted the medical society in 1817 and in the interest of historical continuity its passage is much desired by the local profession.

GEORGIA

Practice Act Amended.—Amendments have recently been made to the Georgia Medical Practice Act. Besides correcting certain ambiguities in the law it increases the requirement of preliminary education in the state to two years of college work for all students matriculating in and after the session of 1919-1920; provides for the recognition of certificates granted by the National Board of Medical Examiners, and provides for the revocation of the license of any physician convicted of violating the Harrison Narcotic Law.

District Society Meeting.—At the midsummer meeting of the First District Medical Society, held in Savannah, August 20, Major William C. Lyle, Augusta, medical aide to the governor and supervisor of medical advisory boards of the state, addressed the physicians on the part they are playing in the war, and the following officers were elected: president, Dr. J. Lawton Hiers, Savannah; vice presidents, Drs. William W. Evans, Halcyon Dale, and Harry Y. Righton, Savannah, and assistant secretary and treasurer, Dr. Victor H. Bassett, Savannah, succeeding Dr. Lehman W. Williams, who has entered the military service.

ILLINOIS

Sheridan to Be Reconstruction Hospital.—The War Department, August 21, announced plans for establishing a reconstruction hospital at Fort Sheridan at the close of the student training camp which is now in progress. At the outset the hospital will have a capacity of 1,000 beds, and provisions have been made for an eventual increase to a capacity of 4,000 or 5,000 beds.

Urges Birth Registration.—The Illinois Department of Public Health has discovered that in one county alone in 1917 more than 500 births were improperly reported to the county clerk instead of to the local registrars. The department has therefore written to every county clerk asking for immediate reporting of the stillbirths and deaths recorded in the county clerk's office from Jan. 1, 1917, to July 1, 1918.

Chiropractor Convicted.—A communication from the Department of Registration and Education states that James E. Kane of Decatur, a chiropractor, was fined \$500 and costs in the county court of Macon County for treating human ailments without a license. The communication states that Mr. Kane was one of the most flagrant and persistent violators of the laws of Illinois, claiming that in as much as he did not prescribe or administer drugs, it was not necessary for him to hold a license to practice. The case was tried three times before a unanimous verdict against Kane was obtained.

Chicago

Typhoid Carrier Delays Tunnel Opening.—The delay of two weeks in the opening of the Wilson Avenue tunnel and the Mayfair pumping station was due to the discovery that one of the workmen was a typhoid fever carrier.

Alleged Quacks Arrested.—Five persons were arrested in Chicago, August 24, on various charges of practicing medicine without a license. These were "Dr." August Laroich, 1333 Milwaukee Avenue, who is said to have been doing business under the title of the "Associated Doctors"; Dr. Maryan, 906 Milwaukee Avenue, whose specialty is said to have been "mystic bars"; "Dr." Helena Grawin, Fifty-First and Paulina streets, said to be a recent graduate of the chiropractic school operated by Dr. William L. LeBoy, whose license to practice was revoked, August 21 ("Dr." Grawin's specialty is said to have been drugless healing); "Dr." Stanley Kreizer, said to be a "professor of massage and water cure," and "one dentist," a Dr. Nickerson, proprietor of the "Nickerson Dentists" in South Chicago.

MASSACHUSETTS

Personal.—Dr. Francis D. Hart, Worcester, has been appointed associate medical examiner (coroner) to succeed Dr. Ernest L. Hunt, who has resigned to enter the military service.—Dr. Howard P. Bellows, Newtonville, was operated on recently at the Massachusetts Homeopathic Hospital, Boston.—Dr. Jeremiah J. Paglia, Worcester, was the guest of honor at a dinner, August 13. Dr. Paglia has been ordered to duty at Camp Devens, Ayer.—Dr. Frank E. Wheatley, North Abington, has been assigned to duty as medical aide to the governor.

MINNESOTA

Personal.—Dr. Edward W. Buckley, St. Paul, supreme physician of the Knights of Columbus, has returned after six

months' survey of the Knights of Columbus war work in France.

Clinic for Masaba Region.—A tuberculosis clinic is to be held in Hibbing this month at which all pre-tubercular cases will be studied. The work will be directed by the local profession in cooperation with the state board of health.

MONTANA

Action on Venereal Diseases.—The state board of health has adopted regulations characterizing syphilis, gonorrhea, and chancroid, as communicable diseases and requiring that all cases be reported, with provisions for quarantine in extreme cases.

Infantile Paralysis Clinic.—During the Montana State Fair, at Helena, Miss Marion Fox, Boston, gave instruction in the after-treatment of infantile paralysis. This work was conducted by the state board of health in cooperation with the management of the State Fair.

Initiative Chiropractic Petition.—The people of Montana are to have the opportunity, Nov. 5, 1918, to vote on the establishment of a law regulating the practice of chiropractic. It appears from the arguments against this measure that the bill providing for the licensing of practitioners of this cult has been repeatedly voted down in that state. It is quite probable that the same result will follow this effort and that the bill will not be enacted.

Free Tuberculosis Examination.—A free clinic for the examination of those suspected to be affected with tuberculosis was held at the court house of Blaine County, Chinook, August 12, under the auspices of the state board of health and the Montana Anti-Tuberculosis Society. Montana has only one state sanatorium, at Galen, which has accommodation for seventy patients, with no provision for incipient cases or for children. There is already a waiting list of 200.

NEW YORK

Cooperstown Institution for Government.—Edward S. Clark of Cooperstown, N. Y., has offered the government the use of the Mary Imogene Bassett Hospital and Pathological Laboratory for the period of the war and one year after. The government has accepted this offer and will use the institution as a general hospital in which special attention will be given to nervous conditions among aviators. An additional hospital building is in process of erection, and will be ready for occupancy early in 1919. Mr. Clark will provide 100 beds and full equipment for caring for them. The balance of the equipment will be furnished by the government. Mr. Clark's only stipulation as to the use of the hospital and grounds is that the government shall not intentionally bring any contagious diseases there. He has placed a small hotel at the disposal of the government until the new buildings are ready for occupancy.

New York City

Violate Harrison Drug Law.—Dr. Emil H. Keidanz and Dr. Solomon Rothman have been arrested and held on \$7,500 bail on charges of conspiring to violate the Harrison Drug Law. These men conduct a pharmacy which it is alleged has sold \$150,000 worth of habit-forming drugs during the last year. Most of the testimony on which the complaint was based was given by drug addicts. The defendants denied their guilt.

Red Cross Ambulance Service.—An emergency ambulance service for transporting sick and wounded men from transports and railway terminals to hospitals has been organized by the New York County chapter of the American Red Cross. The service is provided through its Motor Corps, which is one of the thirty-five similar organizations in the territory of the Atlantic Division. During the past week the Motor Corps has acquired sixteen new ambulances.

Personal.—Dr. Dudley H. Morris has been appointed police surgeon on probation to succeed Dr. Archibald Smith, resigned.—Dr. Gustav F. Boehme, Jr., has been named temporary police surgeon in place of Dr. Edward T. Higgins, who has been commissioned Captain in the Army Medical Corps.—Dr. Caroline S. Finley, head of the Women's Overseas Hospitals and two doctors of her staff, have been decorated with the French Croix de Guerre for bravery during an enemy air raid.

New York Hospitals Confer with Surgeon-General's Office.—After word had been received from the Surgeon-General's Office that plans had been developed for calling out hospital interns and a certain number of advanced and intermediate

medical students, the Hospital Conference of New York held a meeting, August 26, at which it was voted to send a committee to Washington to confer with the Surgeon-General for the purpose of forming a definite plan to furnish the greatest amount of medical and nursing aid to the Army without disorganizing civil hospitals. The Hospital Conference issued a statement setting forth the difficulties under which the hospitals of the city are laboring at the present time, and notes that the War Industries Board has declared that the motion picture business in all of its branches is an essential war industry, yet it has not occurred to any officer of the government to show equal consideration of the hospitals of the country as instruments of public service. An appeal is made to the President of the United States "To direct the War Industries Board, the Provost Marshal-General and the Surgeon-General of the United States Army to formulate, in accordance with existing laws, regulations which, while giving due precedence to immediate military needs, will nevertheless preserve the integrity of the civil hospitals of the country as instruments of public service, essential to the immediate care and comfort of the civil population, and necessary to the conduct of the war, in relation to which the hospitals serve as training schools for medical officers and nurses." The heads of several hospitals belonging to a committee, acting for the American Hospital Association and the Hospital Conference of New York, are working on a standard course of training for hospital assistants in six months for duty in France. It will be urged that hospitals which have not engaged specially in training hospital aids should adopt intensive six months' courses, substituting practical work largely for lecturing.

NORTH CAROLINA

Leonard Medical College Suspended.—A circular letter sent out by President Meserve of Shaw University recommends a temporary discontinuance of Leonard Medical College. The money heretofore expended in that school will be directed toward the further development of the other departments of the university.

Did Not Report Typhoid Fever.—Seven physicians of Robeson County are said to have been convicted during August for violation of the State quarantine law, in that they failed to report cases of typhoid fever as required by the statute. The physicians named are Drs. Nathan H. Andrews, Rowland; Henry H. Hodgins, Roscoe D. McMillan, and Benjamin F. McMillan, Red Springs; William F. Stephens, Fairmont; Daniel S. Currie, Parkton, and Wyatt P. Exum, Goldsboro.—It is said that there have been 150 cases of typhoid fever with eleven deaths among the German civilians and sailors interned at Hot Springs.

NORTH DAKOTA

New Board Members.—Governor Frazier has made the following appointments to fill the vacancies in the state board of medical examiners: Dr. Hugo O. Altnow, Mandan, succeeding himself; Dr. Henry G. Woutat, Grand Forks, to succeed Dr. John N. Ewbank, Rhame, and Francis Peake, Jamestown, to succeed Dr. William J. Breigs, Edgerley.

Supreme Court Decides Against Doctors.—In a decision granted by the Supreme Court, August 14, in the case of W. A. Beardsley versus Drs. Fred E. Ewing and John Ewing, physicians of Kenmare, in which damages were claimed on account of alleged mistreatment in a case of disease of the eye, the decision of the district court is said to have been affirmed which awarded the complainant \$7,500 damages.

OHIO

Work on Contagion Unit of Hospital.—Plans to hurry operation on the contagious disease unit of the proposed Youngstown Municipal Tuberculosis Hospital were approved at a joint meeting of the organizations and officials, August 9. Recommendation was made to the state safety director that he at once advertise for bids for the proposed unit, and a committee was appointed to make a statement of the situation to the war chest council, which is to be asked to lend for the completion of the building the difference between the \$25,000 now available in the city treasury, and the cost of the building, which is estimated at \$45,000 or \$50,000. Plans provide for a one-story structure with foundations sufficient for the addition of three or four stories later.

Personal.—Dr. Casper H. Benson, Columbus, physician of Franklin County, and Dr. Stephen A. Douglass, superintendent of the State Hospital at Mt. Vernon, will soon leave for Italy as a part of the commission of fifteen American phy-

sicians to be associated in sanitary work.—Dr. Louis J. Wise, Akron, was assaulted in his office and robbed, August 23.—Dr. Daniel W. Philo, Fremont, who underwent operation at St. Vincent's Hospital, recently, is reported to be convalescent.—Dr. Albert H. Herr, Lima, has withdrawn as a candidate for lieutenant governor on the Republican ticket, on account of accepting a commission in the Medical Reserve Corps of the Army.—Dr. Thurman H. Lautenschlager, Youngstown, chief surgeon of the Sharon Steel Hoop Company, has resigned to accept a position in the department of rehabilitation and reconstruction with the government.—Dr. Anderson L. Smedley, health officer of Hamilton since 1912, has resigned to enter the medical service, and has been succeeded by Dr. Henry Krone.

PENNSYLVANIA

Officers Elected.—The Sixteenth Censorial District Medical Society held its eighth meeting at Sayre, July 9. Dr. Donald Guthrie, Sayre, was elected chairman and Dr. Herbert L. McKown, Tunkhannock, secretary for the next meeting.

Personal.—Dr. Edward R. Walters, formerly director of health and charities at Pittsburgh, has been appointed medical adviser to the state workmen's compensation board of the western Pennsylvania district, with headquarters at Pittsburgh.—Dr. Roscoe F. Mauser, Fountain Springs, former resident surgeon at the Shamokin City Hospital, but who has been in service in France for two years, first with the French Ambulance Corps and later with the American Ambulance Corps, has been awarded the Croix de Guerre.—Dr. Thomas B. Kern, Bethlehem, who entered the Medical Reserve Corps last August, has been located in a German prison camp.

Philadelphia

Personal.—Dr. Wilmer Krusen, director of Public Health and Charities, who applied for an appointment in the Medical Reserve Corps, has been denied the appointment as the government considers his services more valuable in Philadelphia's war work.—Dr. Israel W. Rothberg has been appointed a clinical assistant physician to the Philadelphia General Hospital.—Dr. J. Milton Griscom has been elected secretary of the Wills Hospital Ophthalmic Society, succeeding Dr. Harold W. How, resigned.

CANADA

Beland Returns from Captivity.—Hon. Dr. Henri S. Beland, formerly postmaster-general of the Dominion, has returned after three years' captivity in Berlin, during which time he served as assistant to the prison physician.

Four Professorships Endowed.—A recent endowment to the University of Toronto provides a sum of between \$500,000 and \$750,000 for the establishment of four special chairs to be held by full-time professors. These chairs are, respectively, pediatrics, gynecology, orthopedic surgery, and a fourth to be determined.

Municipal Hospital Act for Alberta.—The Municipal Hospital Act is already in operation in Alberta; four government nurses are already in the field. Edmonton and Calgary will have among their exposition features a demonstration of public health work under the direction of these nurses, and talks on general health lines will be given, together with a display of literature and posters.

Canadian Hospital in France.—The Canadian people through the Canadian Red Cross have established a new Canadian hospital at Joinville-le-Pont near Paris, with accommodation for 500 patients and possibilities for further extension under canvas. The hospital will be under the command of Col. George E. Beauchamp, assisted by Lieut.-Col. Zephyr Rheame, as chief of the surgical staff, and Lieut.-Col. Jean P. Decarie as chief of the medical staff, all of Montreal.

Psychopathic Institution for Winnipeg.—The General Finance Committee for Winnipeg recently held a meeting to award a contract for the construction of the new psychopathic institute, to be established in Winnipeg, which is to be used for the care and treatment of soldiers from Manitoba, who are suffering from psychopathic conditions. The Provincial government voted \$50,000 two years ago for the establishment of this institution, but a sum exceeding this amount will be required. This excess will be provided for by a special vote at the next session of the Provincial legislature.

Hospital News.—Hereafter no alien enemies in Toronto will receive free treatment in any of the hospitals of that city.—A new military hospital is to be established at Ong-

wanada, Ont. It will have 1,000 beds. The grounds and building have been donated by the Maple Leaf Milling Company of Toronto.—According to Col. Clarence Starr the surgery of the war is distinctly orthopedic. The Canadian government is establishing five orthopedic hospitals in Canada, namely, at Toronto, Halifax, Montreal, Winnipeg and Vancouver. The Toronto institution will have a capacity for 1,500 beds.—Work on the Rosedale Military Hospital, Toronto, commenced about the middle of July. It will provide accommodation for 2,000 soldiers.

Personal.—Dr. Frederick N. G. Starr, Toronto, has gone overseas to join the Royal Army Medical Corps.—Capt. Donald T. Fraser, M. C., and W. G. Shepherd, Toronto, who have been with the British expedition at Wei Hai Wei, China, have been commended by the Militia Department, Ottawa, for valuable services rendered to the natives in that area.—Capt. William E. Ogden, chief medical officer, Spadina Military Hospital, Toronto, has been advanced to the rank of major.—Dr. Grant Cunningham, a former Army medical officer, has succeeded Dr. C. A. MacKay as medical officer of the Invalided Soldiers' Commission, Toronto.—Col. Arthur E. Snell, Toronto, received the D. S. O. two years ago, and has recently been awarded the Order of Companion of St. Michael and St. George.—Dr. Simeon E. Grondin, Quebec City, has been elected president of the Canadian Medical Association. The association will meet in Quebec City in 1919, for the first time in nearly twenty-five years.—Col. Wilbert G. Fraser, Ottawa, has been appointed A. D. M. S. of the Petawawa Camp near that city.—Dr. C. A. MacKay, Toronto, has left for St. John, N. B., where he will be medical director for the Invalided Soldiers' Commission in New Brunswick.—Dr. George L. Hodgins, for some time on the staff of the Toronto Free Hospital for Consumptives, Weston, Ont., has left for the Pacific Coast where he will reside and practice in the future.—Capt. Benjamin L. Guyatt, of the Toronto Military Base Hospital, was recently made M. O. C., Camp Borden, Ont.

FOREIGN

Meeting of French Surgical Association.—The Twenty-Seventh French Surgical Congress is to convene at Paris, October 7 to 10. Three subjects have been appointed for discussion, namely, extraction of projectiles in the chest; treatment and remote results of war wounds of nerves, and removal of splinters and repair of losses of bone substance. There will be no addresses on these questions, and no communication on any other subject will be allowed. The secretary general of the meeting is Dr. J. L. Faure, 10 rue de Seine, Paris.

Annual Meeting of Italian Pediatricists.—The Ninth Congress of Italian Pediatricists was held at Rome, recently, and the deliberations are said to have marked great progress in the coordination of the teaching of pediatrics with the national movement for welfare work for children of all ages, and especially for infants. Professor Concetti, director of the *clinica pediatrica* at Rome, presided, and in his address told what has been done in these lines in other countries. Baduel described the fine results accomplished by the Italian Red Cross in infant welfare work, and the undersecretary of state for the department of public instruction emphasized the highly patriotic nature of any and all attempts for improving conditions for children—the future forces of the nation. Cacace emphasized the necessity for systematic study of the child from the standpoints of biology, psychology, hygiene, and the clinical, historical, sociologic and legal standpoints. Professor Tedeschi delivered the main address, on the necessity for transforming the teaching and the practice of pediatrics to make it conform to the actual needs of the child, free from tradition, prejudice and sentimentalism. He and Pacchioni outlined legislation to make it compulsory for all midwives and perhaps for all girls between 15 and 18 to take a course of training in the care of infants and children. Pachioni urged that pediatrics should be taught during two whole years of the medical course, and by professors with practical experience. He urged further the widespread education of the public in the care of young children, and efforts to combat professional wetnursing. Comba discussed the possibility of organizing forty-day courses in pediatrics for the town and country medical officials, the *medici condotti*.

An Italian View of the Proprietary Evil.—Prof. A. Murri is professor of clinical medicine at Bologna, and one of the leaders of the profession in Italy, now in his seventy-eighth year. In a letter published in the *Medico Italiano*, he protests against the way he is being importuned to prescribe only

made-in-Italy pharmaceuticals. He declares his unswerving patriotism, but insists that:

"Drugs should be classified as the 'useful and the useless,' not 'Italian or foreign.' Unlimited nationalism should be left to the nation which has invented maritime assassination. We Italians are the disciples of Mazzini, the allies of Wilson; we are battling above all for a moral purpose, to establish our own rights and the rights of others. Our patients have the right to expect from us the advice which will conduce most to their recovery, whether it benefits or not the manufacturing chemists of our country. Our most sacred duty is to do for them what will aid best to restore them to health. And here, thank God, we can serve at the same time the supreme behests of our conscience, and the prosperity of the manufacturing chemists and pharmacists of our country. But in order to do this we do not have to slander every foreign product and exalt every domestic product. What we must do is to sterilize the mephitic fungus growth of pseudochemistry which chokes the pharmacies and the advertising pages with preposterous pharmaceuticals. Those who put them out make money with them because no one protests that the health and the life of human beings are wares that cannot be exploited to enrich others. The humblest mixer of chemicals, who may not even know where the stomach is situated in man, may yet get some physician to testify to the wonderful virtues of some concoction in which arsenic, iodine and iron are compelled to blend, and on which some Greek or fancy name confers the powers to make it proclaimed a restorer of all the biologic forces.

"These self-styled benefactors of mankind speculate with absolute confidence on that pestiferous plague of the human soul, credulity.

"To aid the chemical-pharmaceutical industry in Italy, it is necessary to purge it, elevate it, winnow it. We must found a supreme council of chemists, pharmacists and clinicians, not only experts but incorruptible, who would examine the made-in-Italy pharmaceuticals with the severest scientific impartiality. This certainly would not uproot from the world that evil plant, credulity. There will always be, if not the ignorant, the stupid, which, like a baby, accept the secret, the mysterious, the miraculous. But good Italian physicians when they can be sure that in prescribing a product made in Italy they are serving the best interests of their patients, will never think of prescribing a foreign product. And I shall be the first to obey the dictates of competent persons who are devoted to the truth and not to the chase for gold or the mistaken conception of the duties which a physician owes to his country and to the health of the sick in his charge."

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Death of Ayerza.—Dr. A. Ayerza, professor of clinical medicine at the University of Buenos Aires, author of numerous works on various medical topics, and vice president of the Consejo Nacional de Educacion, died July 14, aged 57.

Personal.—Dr. R. P. Vento has been advanced to the chair of physiology and medical physics, left vacant by the death of Prof. M. S. Toledo, at the University of Havana.—Dr. Carlos Chagas has been elected honorary professor of the University of Bahia, Brazil.

Da Rocha Retires from Army Medical Service.—The government of Brazil has accepted the resignation of General Ismail da Rocha of the medical corps of the army. His long years of service in the Corpo de Saude of the army, his collaboration on the medical press and in matters affecting the welfare of the profession in general, and his extensive private practice, it is considered, entitle him to withdraw from active service.

Subsidy for the Annals of the Uruguay Medical School.—The handsome journal issued by the medical faculty of the University of Montevideo, to contain the annals of the institution and other matters affecting the medical department and medical education, is now in its third volume. The legislature was recently appealed to for a larger subsidy for the undertaking, and it was voted to raise the appropriation for the purpose from \$2,000 to \$4,000.

Monument to Carrion.—The Fifth Latin-American Medical Congress, which was held at Lima in 1913, voted to erect a monument at Lima in honor of young Carrion who attempted to prove in his own person by scientific experiment the identity of Peruvian verruga and Oroya fever. The sum of 1,000 milreis was recently forwarded to the committee in

charge of the matter, subscribed by physicians in Rio de Janeiro and S. Paulo. The treasurer of the fund is Prof. L. Avendano of the Facultad de Medicina of Lima, Peru.

Medical Bibliography of Brazil.—The Academia Nacional de Medicina has appointed a committee to collect data to enable the publication of the complete medical bibliography of Brazil. The committee appointed in charge of the work consists of Drs. A. Nascimento, O. da Fonseca, J. Moreira and B. Valverde. They are now sending out questionnaires to all the medical men in Brazil asking for copies of all works or reprints and details as to the publication of all articles and works bearing in any way on the medical sciences. A resident physician in each district has also been appointed to collect data.

Rio to Have Institute of Radiology.—The medical faculty of the University of Rio de Janeiro has voted unanimously in favor of organizing a model Instituto de Radiologia, with the assistance of the government. The present roentgen institute is to be enlarged and form part of the new institution, and there is to be a department for radium therapy. The minister of foreign affairs has been solicited to obtain from the United States, through the Brazilian embassy, the quantity of radium necessary for the purpose. The committee in charge of the organization of the new institute comprises Professors Terra, Peixoto, A. Porto and E. Rabello, with Prof. A. de Castro as the spokesman.

A CORRECTION

Formaldehyd-Phenol in Camphor Paraffin.—In the issue of August 24, page 688, in the abstract of the article by Connell on "Formaldehyd-Phenol in Camphor Paraffin," the formula for Connell's antiseptic calls for a 0.5 per cent. addition of formaldehyd to the mixture to be obtained by adding 5 parts of a 10 per cent. solution of formaldehyd in alcohol to 9 parts of the mixture. This should have read 95 parts instead of 9 parts.

LONDON LETTER

LONDON, Aug. 7, 1918.

Another Hospital Ship Torpedoed

Another hospital ship has been torpedoed by the Germans. She had taken on board at a foreign port about 600 wounded, the majority seriously, a number of the Women's Army Auxiliary Corps, the usual complement of medical officers, and a crew of 115. The attack occurred some miles from land, the night was pitch dark and the sea was decidedly choppy. Few of those on board would have been saved had not the ship, though badly damaged, been able to remain afloat for two hours. The torpedo completely smashed one of the wards occupied by cot patients, many of whom must have been killed outright by the explosion. The ship's officers and crew were quickly at their posts, and the order "wounded first" was, of course, followed. Every one kept their heads and the medical staff is described as magnificent in bringing the men from the wards to the deck. Man after man had to be carried as he lay in his cot, and it was a very trying task to get them into the boats. Every one who could lend a hand went below to bring up the wounded. They were picked up by destroyers. The number missing and presumed drowned are 116, which includes two medical officers and one United States soldier.

The Annual Meeting of the British Medical Association

The eighty-sixth annual meeting of the British Medical Association has been held in London. As in the three preceding meetings during the war, scientific proceedings and social functions have been excluded and the meeting confined to the discussion of medical politics by the representative body. Sir Clifford Allbutt, who was elected president in 1914 for the annual meeting arranged to take place in 1915 at Cambridge and has been reelected ever since, was again reelected, constituting a record which is likely to remain unique. The finances of the association have been adversely affected by the war. After providing against depreciation and all visible liabilities, the balance to be carried forward to the surplus funds was \$14,000. The receipts of the association are lower by \$6,000 owing to the increase in the number of members serving abroad who pay a reduced subscription. The difficulties in publishing the *Journal* have been further increased. The price of paper has advanced until for a paper of inferior quality five times the prewar rate is being paid. The expenditure on paper in 1916 was \$40,000; in 1917 it was \$65,000, and the cost of printing was

also higher. A satisfactory feature was an increase of \$7,000 in the revenue from advertisements. But it is reckoned that the diminished number of pages in the present issues will not be compensated for by the increased rate charged. The paper supply has been cut down by the government more drastically than was expected, and instead of as in prewar times about sixty or seventy pages of reading matter and as many of advertisements, there are now only about thirty-two of each. The question of raising a voluntary fund to assist the candidature of physicians for seats in Parliament was discussed. While the desirability of the medical profession's being more fully represented was admitted, the difficulties of any scheme were realized. Almost of necessity a member of Parliament must belong to one of the political parties in existence and owe allegiance to it and not to the profession. If he came forward as representing the medical profession he would be defeated. The proposals for a state-aided midwifery service were considered. A resolution was carried that it would be detrimental to the public interest that the practice of normal midwifery should be placed solely in the hands of midwives; also that, in any scheme for the improvement of the midwifery service, private physicians should be responsible for the clinical supervision of midwives. The desirability of a ministry of health was endorsed, and it was resolved to cooperate with the Royal Colleges and other public medical bodies in pressing the project on the government.

The Male Birth Rate and the War

In THE JOURNAL, June 1, 1918, p. 1619, I referred to the increase of male births in proportion to female that has taken place during the war. The figures are 1,049 males to 1,000 females during 1916 against 1,033 to 1,000 in the preceding five years, and the proportion is the highest recorded during the last half century. In the *Daily Mail*, a woman physician, Dr. Arabella Kenealy, discussing the problem how to raise the male birth rate, accepts the explanation that it is Nature's method of compensating for the male losses of life in the war, and she gives a very interesting explanation. She expounds the view that sex is determined by the relative vital power of the parents. When the vital power is greater in the father, daughters predominate; when in the mother, sons. As men make greater efforts as bread-winners she thinks that women's power is more conserved and thus she accounts for the normal preponderance of male births. The father being thus in a special sense the parent of the daughter and the mother of the son, each sex inherits preponderantly from the other. Parental power is not available for output but is locked up in the constitution—invested vital capital, not vital income available for expenditure. But just as to meet an increase of daily expenditure one may have to realize investments, so to meet increased bodily or mental activity one must draw on constitutional capital by converting vital investments into vital currency. Now the stress of war falls most heavily on men, and to meet the strain they draw on their vital reserves. Hence their parental power is diminished in comparison with women, and male births increase. Dr. Kenealy states that the strain—educational, athletic and industrial—put of late years on adolescent girls has raised the female birth rate by decreasing women's maternal power and thus relatively increasing men's paternal power. In the cultured classes particularly, she finds that strenuous games during the years of development have so weakened women's constitutional and maternal power as to cause a huge excess of girl births. By forbidding all strenuous activities, social or athletic, before and after marriage, Dr. Kenealy states that she has frequently succeeded in securing male offspring in patients whose stock had for generations produced girls exclusively.

PARIS LETTER

PARIS, July 25, 1918.

Treatment of Purulent Arthritis

At one of the recent meetings of the Société de Chirurgie de Paris, Dr. Willems of Ghent reported the good results which he had obtained by means of active mobilization as a means of draining an arthrotomized joint. In a case of arthrotomy of the knee, for example, every time the patient extends and flexes the knee, the two synovial surfaces come in contact and glide one over the other, thus forcing the pus out of the wound. If these movements are made often enough and for a sufficient length of time, the pus is expelled from the joint almost as rapidly as it forms, and retention need not be feared. Three conditions are necessary to

achieve this result: Make the incision sufficiently long, passing above the subtricipital bursa and down to the line of articulation; keep the incision open all the time throughout its entire length; institute maximum movements as soon as possible, in fact, very early. When the joint begins to become dry, there is a tendency to locking of the joint; this tendency to stiffness may be prevented by making a progressive closure of the wound by secondary suture.

The perfect drainage of the articulation which is assured by the active mobilization presents the following advantages: The infection is limited to the synovia; the temperature is kept down, rarely passing 38 C. in the evening; the general condition of the patient remains excellent; the muscles do not atrophy; the motion of the joint is entirely conserved. Willems has treated twenty cases of purulent arthritis involving the large articulations—these cases being caused by war wounds: knee, 11; elbow, 4; tibio-tarsal articulation, 5. A complete cure was obtained in 13, that is to say, with conservation of motion and of the musculature; in two cases motion was not complete; four ankyloses; resection was required in only one case.

Primary or Secondary Suture of the Soft Parts in Fracture Cases

Now that primary and secondary suture of wounds limited to the soft tissues or of wounds of the joints is recognized as a classical intervention, it seems that the same procedure should be adopted in cases of fracture. In this connection it is of interest to refer to 115 cases of this type reported to the Société de chirurgie de Paris by Dr. Thévenot. Among these 115 cases there were 88 cases of primary suture and 27 cases of secondary suture. These sutures were done in cases of fracture of the femur, of the leg, arm and forearm. The result obtained shows conclusively that such suture is fully justified, as much so as it is in cases of wounds of the soft tissues. What is the proportion of wounded who should benefit from that procedure? In quiet periods, Thévenot has done immediate suture in 40 per cent. of the cases. During an attack, when the wounded are not recovered so soon and the special sanitary formations receive only the severe cases (the mild cases of fracture being immediately switched to the rear by all sanitary formations), the percentage of primary sutures diminishes considerably. During the rush of work incident to an attack it is better, in doubtful cases, to disinfect and drain the wound, because it releases the services at the front so that they can receive the newly wounded, evacuate rapidly the men in course of treatment to the formations situated farther in the rear, which will make the secondary suture.

Reform in Medical Teaching in Paris

The Council of the Medical Faculty of Paris has prepared a report on the results of an examination into ways and means as to how medical teaching can be carried on after the war, in order that the medical school can sustain competition with medical schools in other countries. Important reforms have already been instituted during the course of the war. Among these, it may be noted, that since November, 1917, several teaching clinics have been held in the afternoon. Before that time they had been held only mornings. This permits students and physicians to get well coordinated instruction in the hospitals at any hour of the day. It is possible now to acquire in two or three months the knowledge which formerly would have taken over a whole year. This afternoon clinical teaching will be developed after the war, and the faculty proposes to combine this teaching with much lecture work (*un vaste enseignement libre*) entrusted to the hospital physicians.

The faculty believes that it is also urgently necessary to establish an Institut de biologie médicale for purposes of experimental research, and to construct a model hospital conforming to modern needs in every particular. This work will cause a considerable expense, therefore the faculty has made an urgent appeal to the public authorities. In order to encourage private contributions, the Association des amis de la Faculté de médecine has been organized. The first and organization meeting will be held next November, and will be attended by all those who wish to donate, bequeath or pledge themselves for a certain sum to the progress of medicine and the expansion of the influence of France. On the other hand, the medical faculty has agreed to extend its relations with the neutral countries and the allies. It has under consideration the project of interchanging students and professors. For the next school opening, the faculty has arranged several conferences which will be held by savants from America, England and Spain.

Deaths

Arthur David Dryfoos, New York City; College of Physicians and Surgeons in the City of New York, 1899; aged 41; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; formerly captain, M. R. C., U. S. Army; assistant neurologist to the Vanderbilt Clinic, and attending neurologist to the German Dispensary and the Lebanon Hospital; was found dead in his office, August 22.

Dayton Parker, Detroit; Detroit Medical College, 1876; aged 72; a veteran of the Civil War; one of the founders and vice president of the Michigan College of Medicine and Surgery, Detroit, and one of the founders of the Emergency Hospital, Detroit; police surgeon of Detroit from 1901-1906; once a member of the state board of charities; died at his home, August 19, from heart disease.

Frederick Henry Cleaves, Boston; George Washington University, Washington, D. C., 1887; aged 54; a Fellow of the American Medical Association, and a member of the Association of Military Surgeons of the United States; acting assistant surgeon, U. S. P. H. S., since 1901; died at his home at Brookline, Mass., August 18.

Charles J. Meade, St. Paul; McGill University, Montreal, 1892; aged 48; a Fellow of the American Medical Association; formerly professor of clinical medicine in Hamline University; visiting physician to the City and County Hospital and St. Joseph's Hospital, St. Paul; died at his home, August 22, from heart disease.

Lieut. Frank Butler Sanders, M. R. C., U. S. Army, Hagood, S. C.; Medical College of the State of South Carolina, Charleston, 1910; aged 30; a Fellow of the American Medical Association; on duty with the American Expeditionary Forces in France; was killed, July 24, by the accidental explosion of a shell.

John Joseph Keating, Brooklyn; Baltimore Medical College, 1898; aged 42; supervisor of milk inspection for the New York Department of Health; for several years a member of the staff of St. Catherine's Hospital, Brooklyn; died at Saranac Lake, N. Y., August 16, from tuberculosis.

Milton Henry Haskins, Denver; Northwestern University Medical School, Chicago, 1875; aged 67; formerly coroner and health officer of Kingman County, Kan., and local surgeon of the Missouri Pacific system; died at his home, August 15, from uremia due to prostatic hypertrophy.

Louis H. A. Schneider, New York City; College of Physicians and Surgeons in the City of New York, 1890; aged 49; a Fellow of the American Medical Association; a member of the Alumni Association of Bellevue Hospital; died at his home, August 22, from cerebral hemorrhage.

Robert John McFall, Paris, Tenn.; Vanderbilt University, Nashville, Tenn., 1892; aged 51; a Fellow of the American Medical Association; while driving over a grade crossing in Paris in his automobile, August 14, was struck by a train and instantly killed.

Niels C. Evans, Mount Horeb, Wis.; University of Illinois, Chicago, 1884; aged 61; a Fellow of the American Medical Association; at one time a member of the general assembly from the western district of Dane County; died at his home, August 21.

Ogden Hoffman Reynolds, Frankfort, Ky.; Kentucky School of Medicine, Louisville, 1888; aged 61; a Fellow of the American Medical Association; died in the King's Daughters Hospital, Frankfort, August 21, from acute peritonitis.

William Henry Mason, Stockton, Calif.; Albany (N. Y.) Medical College, 1911; aged 33; radiologist at the Stockton State Hospital; died at his home in that institution, August 20.

Una Howe Hasskarl, Brenham, Texas; University of Texas, Galveston, 1912; aged 31; a member of the State Medical

Association of Texas; was killed instantly, July 10, in an automobile accident, 8 miles north of Dallas, Texas.

George K. Ewing, Ewington, Ohio; College of Physicians and Surgeons, Baltimore, 1881; Medical College of Ohio, Cincinnati, 1890; aged 61; a Fellow of the American Medical Association; died at his home, August 17.

George D. Brinkman, Springfield, Ohio; Starling Medical College, Columbus, Ohio, 1886; aged 64; for many years jail physician; died in the Springfield City Hospital, August 19, from cerebral hemorrhage.

John Sidle Burnett, Akron, Ohio; Ohio Medical University, Columbus, 1897; aged 52; at one time a member of the Ohio State Medical Association; was instantly killed by a fall from a bicycle, August 26.

John Emmet Gable, West Palm Beach, Fla.; Hahnemann Medical College, Chicago, 1909; aged 51; while driving into West Palm Beach, August 11; died in his automobile from cerebral hemorrhage.

John P. Wickersham, Peru, Ind.; Chicago College of Medicine and Surgery, 1917; aged 37; died at the home of his mother in Seaman, Ohio, June 24, from tuberculosis of the intestines.

Jacob Outwater Polhemus, Nyack, N. Y.; College of Physicians and Surgeons in the City of New York, 1869; aged 54; died in the Nyack Hospital, July 20, from arteriosclerosis.

Frederick William Hill, Brooklyn; Eclectic Medical College of the City of New York, 1900; aged 44; died at his home, August 7, from abscess of the lung.

Anson Jerome Avery, Northville, N. Y.; Berkshire Medical College, Pittsfield, Mass., 1867; aged 74; died at his home, August 16, from cerebral hemorrhage.

Joshua George Wolfe, Ashland, Ky.; Hospital College of Medicine of Louisville, Ky., 1906; aged 51; died at his home, August 23, from heart disease.

Samuel S. Alexander, Christianburg, Ky.; University of Louisville, Ky., 1853; aged 85; died at his home, August 12, from cerebral hemorrhage.

Edward Henry Stevens, Athens, Pa.; New York University, New York City, 1888; aged 51; died at his home, August 12, from nephritis.

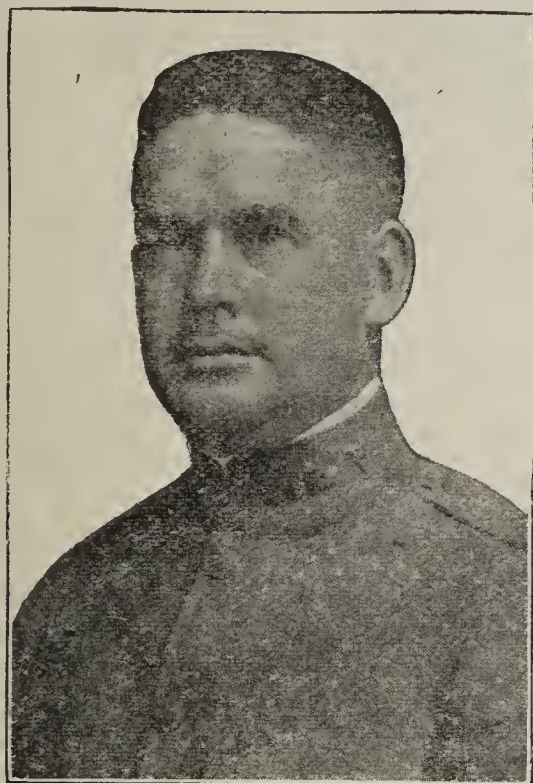
Clarence B. Putnam, Colusa, Calif.; Missouri Medical College, St. Louis, 1883; aged 57; died at his home in Marin County, August 4.

Robert Lee Kurth, Curreyville, Tex.; University of Texas, Galveston, 1916; aged 25; died, July 17, after an operation for appendicitis.

William Richardson Barker, Malden, Mass.; Dartmouth Medical School, Hanover, N. H., 1863; aged 95; died at his home, July 28.

Thomas A. Bair, Sabinsville, Pa.; Jefferson Medical College, 1879; aged 70; died at his home, June 14, from cerebral hemorrhage.

Rudolph Berendsohn, Brooklyn; Long Island College Hospital, 1881; aged 78; died at his home, August 16.



Died in the Service
IN FRANCE
LIEUT. FRANK B. SANDERS, M. C.,
U. S. ARMY, 1888-1918

Marriages

LIEUT. DAVID ANDREW BIGGER, M. R. C., U. S. Army, Rock Hill, S. C., on duty at Camp Crane, Allentown, Pa., to Miss Hazel Mott of Watsonville, Calif., at Allentown, Pa., August 3.

LIEUT. JOHN ALEXANDER MCINTOSH, JR., M. C., U. S. Army, Memphis, Tenn., on duty at Camp Greenleaf, Ga., to Miss Ethel Brown, also of Memphis, August 19.

LIEUT. THEODORE LEROY STORY, M. R. C., U. S. Army, to Miss Theresa May Hiney, both of Hartford, Conn., June 29.

CAPT. VERNON ROBERTS, M. C., U. S. Army, National Home, Wis., to Mrs. Armin Mueller, in New York City, July 24.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

DR. A. W. CHASE'S NERVE PILLS

Contribution from the Chemical Laboratory of the
American Medical Association
A. H. Clark, Ph.G., B.S.

The label on the box of "Dr. A. W. Chase's Nerve Pills" states that they are "prepared for the Dr. A. W. Chase Medicine Co., Props., Buffalo, N. Y.," and that they are "used in the treatment" of "thin and watery blood, nervous disorders, brain fag, nervous headache, nervous dyspepsia, irregular heart action, sleeplessness," etc. A circular within the box sets forth the alleged virtues of these pills and of other products of the company. This circular calls attention to the use of these pills in the treatment of almost everything from pale, sallow complexion, to paralysis and locomotor ataxia. Sexual debility and female troubles occupy a prominent place among the diseases and symptoms which are made "next to impossible of occurrence" through the use of these pills.

The circular declares that on every box of these pills will be found a portrait of Dr. A. W. Chase, of Chase's Family Recipe Book fame. The inference is that these pills are made according to a formula in this book. A careful search of Chase's Recipes, or Information for Everybody,¹ also a later edition² failed to reveal a formula for any such pills as the ones purchased. On page 130 of the 1900 edition a formula is given for "Nervous Pills." These are essentially an alcoholic extract of Ignatia amara (St. Ignatius bean). These were said to be originated in 1854 by Rev. John W. Dagnal, the "Retired Physician," and much used by Professor Palmer of the University of Michigan. Dr. Repheto³ calls attention to these in answer to an inquiry about Chase's pills. He states that this formula was much used by eclectics and because of poor results Dr. John King of Cincinnati introduced a substitute composed of extract of gentian, powdered savine leaves, powdered Ignatius leaves, and iron iodid.

The examination made in the chemical laboratory, discussed below, shows that "Dr. A. W. Chase's Nerve Pills" do not correspond in composition to pills prepared by either of the formulas mentioned above. They are coated, chocolate colored, and have a strongly persistent bitter aloes-like taste. The coating readily washed from the pills but the pill mass did not readily disintegrate. Even standing over night in water they were not entirely disintegrated.

The pills weigh approximately 0.318 gm. (5 grains) with coating; the medicament alone weighs 0.210 gm. (3.5 grains). Microscopic examination did not show vegetable structure. Qualitative examination showed the absence of chlorids, bromids, iodids, phosphorus and phosphorus compounds. Abundance of sulphate was present, also carbonate. Iron and manganese were present in large quantities, calcium and sodium in lesser amounts, aluminum and magnesium in small amounts. The manganese was probably present as black oxid (manganese dioxid), since the manganese did not dissolve in water, and the pills with hydrochloric acid gave abundance of chlorin. Emodin bearing drugs were present and alkaloids also were present in small amounts. Iron, manganese, and sulphate were determined quantitatively. The iron oxid weighed indicated the presence of iron equivalent to 0.0395 gm. ($\frac{3}{8}$ grain) anhydrous ferrous sulphate in each pill. The amount of manganese pyrophosphate obtained indicated manganese equivalent to 0.021 gm. ($\frac{1}{3}$ grain), manganese dioxid in each pill. The quantity of alkaloid present was so small that it could not be determined accurately.

The chemical examination indicates that these pills contain iron, possibly in the form of ferrous sulphate which is in a state of more or less decomposition due to exposure and contact with the other constituents of the pills, manganese dioxid, aloes or aloin, vegetable extractive, and traces only of some alkaloidal drug.



"Here is the Nerve Food I know that will help you."

Malnutrition Failure to get the good of the food you eat.

It is not what you eat, but what you eat, digest and absorb, that counts in keeping up the health and vigor of the human body. If you are not getting the benefit of the food you eat you should suspect the nervous system, for the nerves control the flow of the gastric juices of the stomach and the other chemical fluids of the digestive system which effect the digestion of starches, fats, etc.

Especially at this season of the year digestion lags, appetite falls, you do not get the good of the food you eat and vitality is consequently lowered. You feel the effects in loss of energy and ambition, feelings of fatigue come over you and you lack in courage and good cheer.

Eating more will not help you, for you must have nourishment in an easily assimilated condition so that it may be taken up by the blood stream without effort. In short, you need such assistance as is best afforded by Dr. Chase's Nerve Food.

By using this food cure you enrich the blood and supply nourishment directly to the starved nervous system. The nerves which control the process of digestion are invigorated, digestion is improved, appetite sharpened, and gradually you are restored to health and vigor.

This is Nature's way. Dr. Chase's Nerve Food supplies the elements and the processes of Nature convert these elements into new, rich blood and new nerve force. You cannot fail to be benefited by such treatment, and the results obtained are lasting.

50 cents a box, 9 for \$2.50, all dealers, or Edmanston, Bates & Co., Limited, Toronto. Do not be talked into accepting a substitute. Imitations disappoint.

Dr. Chase's Nerve Food



"Dr. A. W. Chase's Nerve Pills" used to be called "Dr. Chase's Nerve Food" before the Federal Food and Drugs Act made falsifying expensive. Then "Food" became "Tablets" and, later, "Pills." In Canada, however, it continued to be sold as a "Food." The illustration above is a reduced photographic reproduction of an advertisement in a Canadian magazine.

TWO MISBRANDED NOSTRUMS

Brazilian Balm.—B. F. Jackson & Co., Arcade, N. Y., were alleged to have shipped into Massachusetts a number of packages of "Brazilian Balm." The claims made for this stuff, either direct or inferential, were to the effect that it would cure consumption, prevent lockjaw and would "clear out of the system" the germs of typhoid and diphtheria. These and many other claims were designated by the federal authorities as false and fraudulent. As no one claimed the property, the court condemned it and ordered that it should be destroyed.—[Notice of Judgment No. 4764.]

Wright's Indian Vegetable Pills.—The government filed a libel for seizure and condemnation of 1,080 packages of "Wright's Indian Vegetable Pills" charging that the claims made for them were false, fraudulent and misleading. The

claims were to the effect that the pills would cure yellow fever, smallpox, erysipelas, consumption, cancer, venereal disease, paralysis, epilepsy and other conditions too numerous to mention. The government, on the other hand, charged that "in truth and in fact it was not of a medical nature such as would produce any such results and was entirely worthless for that purpose." The Wright's Indian Vegetable Pill Co., New York, admitted the allegations of the libel and the court permitted the product to be delivered to the company on payment of the costs of the proceedings and the execution of a bond in the sum of \$250.—[Notice of Judgment No. 4594.]

Keeping Well in China.—Beware of Chinese cooking. It is frequently very rich and its tastiness often leads to over-indulgence and indigestion.—American Chamber of Commerce of China.

1. By A. W. Chase, M.D., Published by R. A. Beal, Ann Arbor, Mich., 1900.

2. Dr. Chase's Combination Receipt Book, F. B. Dickerson Co., Detroit, 1915.

3. Medical World, Aug. 1912, p. 336.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PHYSICIANS AND THE SELECTIVE SERVICE LAW

To the Editor:—For the last six months I have been about to make application for appointment in the Medical Reserve Corps, but had to defer it until now. I have a good opportunity to take about four weeks of postgraduate work at this time which I wish to do before making such application. However, under the new draft law I shall be a registrant on September 12. 1. I desire to know, in this connection, what effect, if any, will the fact of my registration have on my privilege of joining the Medical Reserve Corps later. 2. Would there be any advantage in my applying now, and taking the postgraduate work deferred to afterward, or in proceeding as I have planned, that is, to take the postgraduate work first.

B. F. W., Iowa.

ANSWER.—1. Application for a commission in the Medical Reserve Corps may be made before or after registration, or even after induction into camp.

2. Apply now. It is probable that if you ask to be sent to the Medical Officers' Training Camp at Fort Oglethorpe your request would be granted and you would then receive postgraduate military medical work, which will be of great service to you.

To the Editor:—1. I would like information as to how the medical men are classified in the selective draft regulations. 2. In what class would a man with three dependents be placed?

W. L. N., Minnesota.

ANSWER.—1. Medical men will be classified by the local and district appeal boards as are other registrants under the selective service regulations. No doubt special regulations for physicians will be promulgated by the Provost Marshal-General.

2. The local boards will no doubt consider the dependency of the physician in accordance with regulations to be issued by the Provost Marshal-General. See Current Comment, "The Selective Service Law and Physicians," this issue.

To the Editor:—1. I am 41 years old, graduated from the Atlanta Medical College, have a wife and two girl children—ages 17 and 9. I have not any money, property or source of income save my professional work. Is it my duty to join the Medical Reserve Corps, or to remain at home and make a living for my family? 2. Will the same rule concerning dependents apply to physicians as to other drafted men?

C. A. J., Georgia.

ANSWER.—1. Unless you receive a commission before September 12, you must register. It will then be the duty of the selective service boards to determine your disposition under the selective service law, under the regulations to be issued by the Provost Marshal-General.

2. See answer to W. L. N., above.

To the Editor:—1. I am the only physician in this town, as the other two have gone. My age is 33 years. I have a large stone quarry where I do the surgical and accident work. What would you advise me to do? My patients are asking me not to join, but I want to do what is right. 2. When a man is drafted, will he have to work in a private's pay for six months?

U. S. C., Illinois.

ANSWER.—1. Not knowing all the circumstances, we cannot advise. The selective service boards are empowered, under the law, to exempt those engaged in necessary occupations or employments, and will no doubt take the factors mentioned into consideration in determining your status.

2. A physician who is drafted is given an opportunity to apply for a commission, and if physically, morally and professionally qualified, a commission is issued to him.

VOLUNTEER MEDICAL SERVICE CORPS

To the Editor:—1. I write this letter for an explanation of a blank which I received from Washington to fill in on behalf of the Council of National Defense. It is a Volunteer Medical Service Corps application blank to be filled out by every doctor in the United States. Now, I am 59 years old, and unable to be of any service. If I volunteer, will I have to go at my age? 2. If I do not fill out the blank, what will be the consequences?

D. P. L., Ohio.

ANSWER.—1. No.

2. If you do not fill out the application blank, you will not receive the button indicating that you are a member of the organization. That is all.

To the Editor:—Today I received an application blank for membership in the Volunteer Medical Service Corps from the Council of National Defense. I do not understand this thing and write for information. From this name "Volunteer" I would infer it was not compulsory, yet some of my physician friends seem to think it is and nearly all have signed it up and returned it. Is it compulsory and what is the penalty if one does not send it in? I have noticed no particulars in THE JOURNAL of the American Medical Association about it, and of course I am in the dark as to what to do.

M. S. F., Kansas.

ANSWER.—Membership in this society is not compulsory. See answer to W. E., below.

To the Editor:—There seems to be a considerable variation of opinion in regard to the Volunteer Medical Service Corps. Martin and his element seem to be pushing things with a pretty high hand, with their committees, sub-committees, little buttons, regulations—everybody to register or sign up. We are at a loss to know what is right.

W. E., Michigan.

ANSWER.—The formation of a new and special organization for the purpose of enlisting physicians in war service has from the beginning seemed to THE JOURNAL unnecessary and unwise. The needs of the Army and Navy have been met promptly so far by voluntary enlistments, and there has been no indication that the needs of the future would not have been satisfied in the same way, even under the volunteer system. However, the passing of the new selective service law now renders such an indefinite and indeterminate society as the Volunteer Medical Service Corps superfluous and uncalled for. The vigorous promotion of this organization is creating a regrettable confusion and anxiety among physicians that should be avoided in these trying times. This is no time to fritter away energy in the construction and maintenance of intricate machinery of questionable value to do work which is being done and will be accomplished satisfactorily through regularly established channels.

Every man, including physicians, under 46 years of age, must register on September 12. The selective service boards are the only bodies empowered to dispose of those registered under the law. This will be done under the regulations promulgated by the Provost Marshal-General. Undoubtedly special regulations for the guidance of those boards will be worked out by the Provost Marshal-General conferring with the Surgeon-Generals. So far as those above 46 years of age are concerned: They will have in the future, the same privilege of volunteering as they have had in the past. The operation of the new selective service law will, without doubt, take into account the needs of the civilian population while providing for the medical requirements of the government.

LITERATURE ON THE LIFE OF AMBROISE PARÉ

To the Editor:—Please inform me where I may obtain books on the life of Ambroise Paré. I have read of him and his works, but have never been able to obtain a book on his life.

A. I. LAWBAUGH, M.D., Larium, Mich.

ANSWER.—We may refer you to the following books:

Paglet, S.: Ambroise Paré and His Times, New York, G. P. Putnam's Sons.

Andrews, J. G.: Ambroise Paré and His Times, *Med. Press and Circular*, 1900, p. 107.

Cumston, C. G.: A Brief résumé of the Life and Work of Ambroise Paré, *Boston Med. and Surg. Jour.*, 1901, 145, 395.

Buck, A. H.: Growth of Medicine, Yale University Press. One chapter is devoted to Paré.

LITERATURE ON DIETETICS

To the Editor:—Kindly advise me as to the latest books on dietetics, especially as applied to sanatoriums.

E. C. DAVIS, M.D., Puposky, Minn.

ANSWER.—See "Literature on Diet and Nutrition," Queries and Minor Notes, THE JOURNAL, Sept. 8, 1917, p. 843.

NO LICENSURE WITHOUT PASSING A STATE BOARD EXAMINATION

To the Editor: Will a physician who has entered the Army in the Medical Reserve Corps be given a license to practice medicine or surgery in the United States without having passed the state board examinations? Please omit my name.

J. C.

ANSWER.—No.

Observation.—Men become more keen and appreciative in proportion to the individual opportunities they receive, and the more they are encouraged to observe for themselves the greater becomes the value of their effort.—F. M. Caird.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

HAWAII: Honolulu, Sept. 9-13. Pres. R. W. Benz, 1141 Alakea St., Honolulu.

IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

ILLINOIS: Chicago, Sept. 24-27. Mr. F. C. Dodds, Supt. of Registration, Springfield.

IOWA: Des Moines, Sept. 10-12. Sec., Dr. G. H. Sumner, Capitol Bldg., Des Moines.

KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

MASSACHUSETTS: Boston, Sept. 10-12. Sec., Dr. W. P. Bowers, Room 501-1 Beacon St., Boston.

MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.

NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 24-27. Mr. H. J. Hamilton, New York Dept. of Education, Albany.

OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Florida June Examination

Dr. W. M. Rowlett, secretary of the Florida Board of Medical Examiners, reports the written examination held at Jacksonville, June 17-18, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 15 candidates examined, 10 passed and 5 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Columbian University	(1902)	86.3
State University of Iowa College of Medicine	(1901)	92.3
Tulane University	(1918)	93
Baltimore Medical College	(1905)	75
Johns Hopkins University	(1918)	90.9
Maryland Medical College	(1901)	79.7
University of Maryland	(1902)	89.5
Medical College of Ohio	(1880)	75
Chattanooga Medical College	(1908)	76
University College of Medicine	(1903)	90.5
FAILED			
University of Arkansas	(1907)	55.6
University of Georgia	(1912)	66
Long Island College Hospital	(1887)	62.7
Meharry Medical College	(1914)	71.4
University of Nashville	(1894)	56

Iowa June Examination

Dr. G. H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 6-8, 1918. The examination covered 8 subjects and included 100 questions. An average of 75 per cent. was required to pass. Thirty-three candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Rush Medical College	(1917)	88
State University of Iowa College of Medicine	(1918)	82.9, 83, 86.1, 86.9, 88.1, 89, 89.1, 89.2, 90.1, 90.5, 90.7, 90.9, 91, 91.1, 91.2, 91.5, 91.6, 91.9, 91.9, 92.5, 92.5, 92.6, 92.7, 93.1, 93.6, 93.9.
State University of Iowa College of Homeopathic Medicine	(1918)	81, 86.4, 88.9.
Washington University	(1918)	90
University of Pennsylvania	(1918)	92.7

Michigan May-June Examination

Dr. B. D. Harison, secretary of the Michigan State Board of Registration in Medicine, reports the written examination held at Detroit, May 30-June 1, 1918. The examination

covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 22 candidates examined, 19 passed and 3 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Tufts College Medical School	(1918)	87.7
Detroit College of Medicine and Surgery	(1918)	78.6, 79.2, 79.4, 79.8, 80.2, 80.5, 82.2, 82.5, 82.6, 82.9, 83.1, 83.6, 84.2, 85.1, 85.4, 86.5, 86.5.
Western University	(1916)	80.4

FAILED

Detroit College of Medicine and Surgery (1918)
* Three candidates were conditioned in one subject.

Missouri June Examination

Dr. George H. Jones, secretary of the Missouri State Board of Health, reports the written examination held at St. Louis, June 17-19, 1918. The examination covered 14 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 95 candidates examined, 79 passed and 16 failed. Nine candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Howard University	(1917)	81.1
Loyola University	(1917)	79.1
Northwestern University	(1918)	89.3
University of Kansas	(1918)	81.2
Maryland Medical College	(1912)	75.1
American Medical College	(1895)	82.5
Barnes Medical College	(1906)	77.2
National University of Arts and Sciences	(1916)	76.4
St. Louis College of Phys. and Surg.	(1917)	75.1
(1918)	75.1, 75.8, 76.1, 79.5, 80.2, 81.7, 82.1, 84.2.		
St. Louis University	(1918)	77.8, 78.1, 79.1, 79.1, 79.8, 80.1, 80.4, 81.1, 81.1, 81.4, 81.9, 81.9, 82, 82.1, 82.2, 82.4, 82.5, 82.6, 82.7, 82.8, 83, 83.1, 83.1, 83.1, 83.3, 83.3, 83.5, 83.6, 84.3, 84.4, 84.8, 85.1, 85.4, 85.5, 86.1, 86.1, 86.1, 86.1, 86.5, 86.7, 86.8, 86.8, 87.1, 87.9, 88.2, 89.3.
Washington University	(1900)	88.6; (1918) 80.3, 81.1, 81.6, 81.8, 82, 82, 84.1, 85.1, 85.5, 86.8, 87.1.
Meharry Medical College	(1918)	77.8, 82.1
FAILED			
St. Louis College of Phys. and Surg.	(1917)	56.6
(1918)	53.6, 60.2, 61.1, 66, 69.1, 71.1, 72.3, 73.1, 73.5.		
Meharry Medical College	(1916)	60.7, 67.1, 70.1; (1917) 58.9, 60.9, 61.4

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Chicago College of Med. and Surg.	(1916)	Illinois
Loyola University	(1916)	Illinois
Kansas Medical College	(1905)	Kansas
Louisville National Medical College	(1906)	Kansas
Cornell University	(1910)	Illinois
Meharry Medical College	(1913) (1914) (1917)	Tennessee
McGill University	(1897)	Kansas

New Hampshire June Examination

Dr. W. T. Crosby, secretary of the New Hampshire State Medical Board, reports the written examination held at Concord, June 24-26, 1918. The examination covered 12 subjects and included 60 questions. An average of 75 per cent. was required to pass. Of the 5 candidates who took the physician's and surgeon's examination, 3, including 1 osteopath, passed and 2, including 1 osteopath, failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Boston University	(1918)	79
Harvard University	(1918)	90
FAILED			
McGill University	(1918)	70
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Tufts College Medical School	(1906)	Mass

Vermont June Examination

Dr. W. Scott Nay, secretary of the Vermont State Board of Medical Registration, reports the oral, practical and written examination held at Burlington, June 10-12, 1918. The examination covered 12 subjects and included 120 questions. An average of 75 per cent. was required to pass. Eighteen candidates were examined, all of whom passed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Jefferson Medical College	(1918)	91.3
University of Vermont	(1918)	80.1, 81.1, 84.1, 85.1, 85.4, 86.1, 87.2, 87.4, 88.3, 88.8, 89.1, 89.9, 90.2, 90.6, 90.9, 91.2.
McGill University	(1911)	88.2

Book Notices

THE ACTION OF DRUGS. A Course of Elementary Lectures for students of Pharmacy. By Torald Sollmann, M.D., Professor of Pharmacology and Materia Medica in the School of Medicine of Western Reserve University, Cleveland. Cloth. Price, \$1.50. Pp. 213. Philadelphia: W. B. Saunders Company, 1917.

This book consists of a course of lectures given to senior pharmacy students. It is not intended to be a complete study of the subject, but merely to give the young pharmacist a concise survey of the modern conceptions and knowledge of drug action. The author naturally is under considerable difficulties in making the work concise and elementary, yet at the same time sufficiently complete and technical to be of value. Probably future revisions will add many things and omit others. Many statements are very didactic, and must be taken by the student with a realization of the fact that their author gives them an authoritative character. For example: "Calcium sulphide is sometimes used internally against boils. This has no rational foundation." "Calomel in large doses is often an efficient diuretic." "The action of digitalis enables the heart to compensate more or less perfectly for any valvular defects." Such statements are not adequate without explanation. Dr. Sollmann's book is perhaps the first book for pharmacists which concerns the actions of drugs. It is questionable whether any clear knowledge of the actions of drugs can be given to pharmaceutical students who have not the necessary basis of studies in anatomy, physiology and pathology.

TYPHOID FEVER CONSIDERED AS A PROBLEM OF SCIENTIFIC MEDICINE. By Frederick P. Gay, Professor of Pathology in the University of California. Cloth. Price, \$2.50 net. Pp. 286. New York: The Macmillan Company, 1918.

In this book the author undertakes to deal with typhoid fever as a problem of scientific medicine rather than to handle it as a question solely of the clinic or of the laboratory. The point of view is broad and the treatment, on the whole, well balanced. The treatise illustrates one of the newer tendencies in American medicine, and, it is to be hoped, will prove a forerunner of other books on special topics which shall not only give critical surveys of the enormous mass of accumulated research, much of which may otherwise remain unasimilated and valueless, but shall also stimulate investigation by pointing out unsettled questions. Such books are sure to serve the cause of medical advancement.

As might be anticipated from the author's own work, the chapters on immunization, the practical aspects of vaccination, and vaccine and serum treatment are particularly full and discriminating. The chapter on the carrier condition and the section dealing with laboratory diagnosis of typhoid are also informed throughout by the author's own personal experience. Public health workers may wish to take exception to a few statements in the earlier part of the book, such as that on page 10 in which the author declares it will "be evident that all significant information concerning the nature of the disease itself and its method of dissemination, as well as all effective means that have been devised to prevent and cure it . . . have depended on laboratory data and are based on the recognition of the single bacterial causative factor." This statement appears to overlook the fact that much of the epidemiologic work on the relation of typhoid to sewage-contaminated drinking water has been carried out, and in the nature of the case must be carried out without ever ending or attempting to find the typhoid bacillus. The evidence that causes an investigator to attribute a typhoid epidemic to a particular milk supply does not, as a rule, depend on laboratory data. The author's comparison of European typhoid rates with those obtaining in the United States, of course, worth making (pages 17-19), but it is unfortunate that the figures are brought down only to the year 1913, and that the great improvement observed in this country in 1914, 1915 and 1916 is apparently overlooked. The figures for these years are easily accessible, and since the book bears the publisher's date of 1918, might presumably have been included. The typhoid rates for 1914-1917 stand very favor-

ably in comparison with the European figures, and make the author's remarks on our "backwardness" seem a little antiquated at the present time. On page 7 the author appears to accept by implication the curious theory of Pettenkofer (not Pettenkoffer) that typhoid bacilli pass through a "ripening stage" in the soil! He also seems to endorse the hardly substantiated view that "epidemics caused by contaminated milk, when compared with those produced by contaminated water, are characterized by suddenness and violence of onset" (p. 65).

There are relatively few typographical errors. We have noted Baerthelin (for Baerthlein), page 35, and "paratyphus" in the note on page 153. The author's style is in general clear and straightforward. There are few sentences like the one on page 50, beginning: "The possibility of other insects serving as transmitters of typhoid is rendered possible . . .". The book has a good bibliography, but unfortunately no index.

THE HUMAN MECHANISM Its Physiology and Hygiene and the Sanitation of Its Surroundings. By Theodore Hough, Professor of Physiology, University of Virginia, and William T. Sedgwick, Professor of Biology and Public Health, Massachusetts Institute of Technology. Revised edition. Cloth. Price, \$2. Pp. 572 with 167 illustrations. Boston: Ginn & Co., 1918.

This edition of a well known book can be heartily recommended as a textbook for college students, nurses, or any layman desiring to inform himself in a general way concerning the structure and function of the various elements of the human body and its hygiene. The teacher can easily amplify the subject covered by the text and correct such minor mistakes as appear here and there. The book is simple in outline, lucid in presentation, and accurate in fact. Relieved from the responsibility of treating any one subject in much detail, the authors have succeeded in presenting to the general reader and student the workings of the human mechanism as a whole and its care. It contains all the general information which many educated persons need but do not have. Though not primarily intended for the home, the book ought to be in the library of every family at all concerned about the health and care of its members. The text is some twenty pages longer than in the previous edition. Some new illustrations have been added. The two parts of the book are also issued separately as "Elements of Physiology," and "Hygiene and Sanitation."

SYPHILIS AND PUBLIC HEALTH. By Edward B. Vedder, A.M., M.D., Lieut.-Col., Medical Corps, U. S. Army. Published by Permission of the Surgeon-General, U. S. Army. Cloth. Price, \$2.25. Pp. 315. Philadelphia: Lea and Febiger, 1918.

The increased interest in the prevention of venereal diseases as a war measure has produced numerous books on the subject. Colonel Vedder's book differs from most of those available in that it is addressed primarily to the medical profession and is based on practical knowledge of Army procedures. In an appendix the author includes the technic of the Wassermann reaction and the Australian law, on which so many of our present laws for the control of venereal diseases are being modeled.

AMPUTATION STUMPS: THEIR CARE AND AFTER TREATMENT. By G. Martin Huggins, F.R.C.S., Medical Officer to the Government Schools, Salisbury, Rhodesia. Cloth. Price, \$2.75. Pp. 228, with 95 illustrations. New York: Oxford University Press, 1918.

The author states that he was responsible for the treatment of some 3,000 amputation cases during the past year. He describes the original operation, and discusses corrective measures and the fitting of adequate artificial limbs. The book covers the subject fully, and presents illustrations from actual cases. As a record of a large personal experience the book deserves consideration in the forming of any conclusions as to the disposition of military casualties in which amputation has been performed.

Milk as a Food.—A quart of milk is equivalent in fuel value to a pound of lean meat, or eight eggs. It is, therefore, a very much cheaper source of fuel than either one of these foods. —*Good Health.*

Social Medicine, Medical Economics and Miscellany

Experiences with Rehabilitation of the War Maimed in Germany

The *Hospitalstidende* gives a report on a special meeting in connection with the exhibition of artificial limbs and other prostheses at Berlin recently. Beckmann had been investigating factories, mines, etc., to ascertain to what extent the war maimed were being utilized as workers. Comparatively few of the severely disabled were found in the ranks of workers, very few, that is, of those with disability estimated at 50 per cent. It was estimated that the work they would be able to do would be the equivalent of about one-third of what a normal workman would produce, but experience has shown that their output averages two-thirds. Still more favorable are the conditions in certain forms of work for which the war maimed readily adapt themselves, as for instance the fireworks factory at Spandau, where they turned out the equivalent of 94 per cent.

On the basis of his investigations, he urged rehabilitation centers in every large province, so that the training could begin while the man is still taking treatment, and a place in some workshop could be found for him. The branches of work must be selected which call least on the injured limb, but the selection should be preceded by a period of work among his comrades in order to determine the special capacity in each case. Dr. Rodike stated that the war maimed agricultural workers who own a farm or whose parents own one, regularly return to agricultural life. But about 50 per cent. of the farm hands have taken up other vocations, and it is somewhat difficult to find other positions for them. Hartmann commented on the difficulties in training men in handicrafts, as this requires more all-around training than is customary in industries where work is distributed and only one small part falls to one workman.

Another disadvantage of teaching a handicraft is that the men have to bring their materials to the workroom, and sometimes this is quite a load. Besides this, the teacher is seldom able to devote much time to any one of the men at a time, so that the disabled men have to work alone too much. Men who have lost a leg are much better off than after amputation of the upper arm. On the whole, he said, the hope of training the disabled men in handicrafts has had to be largely abandoned. In mining, the war maimed can scarcely be used, and the mining officials are against employing them. Dr. Wullstein protested against the assumption that the man must always return to his former trade or one closely allied to it. Unskilled workmen can be trained to be skilled, and they can select their own trade thereafter. For example, a man amputated at the shoulder can be trained to be a clerk in a store, a telephone operator, a meter inspector. The state and the community should look out for these war maimed. It is particularly advantageous to have the one-armed men trained by a one-armed man in the rehabilitation centers. Schlesinger remarked that it depended mainly on the man's physical capacity and his intelligence.

The speakers that followed denounced Dr. Wullstein's suggestion, declaring that nothing must be allowed to interfere with the general principle of restoring the man to his former trade or to one closely allied. The well paid industrial worker, for instance, should not like it at all to be placed in some poorly paid subordinate municipal or state position. In Austria the plan has been adopted to appoint the postmen from the list of one-armed war maimed. H. Scheuermann, who reports the meeting for the *Hospitalstidende*, remarks that the consensus of opinion seems to be that the war maimed as a rule cannot count on remunerative positions, but in certain branches of industry, and in running certain machines, adapted to the use of the maimed, they may do as well almost as the normal worker.

Medicolegal

Why New Trial was Denied in Malpractice Case

(*Campbell v. Peters (Me.)*, 102 Atl. R. 881).

The Supreme Judicial Court of Maine, in overruling a motion made in behalf of the defendant for a new trial, after the plaintiff had obtained a verdict for some sum not stated by the court, says briefly that this was an action brought by the plaintiff against the defendant for alleged malpractice in the performance of a surgical operation. The case came up on motion for a new trial on both the ground of liability and the damages awarded. On the question of liability arose the usual conflict of testimony between medical men when called to testify on the one side and the other of a medical or surgical case. The jury found for the plaintiff on this issue, and its verdict, if accorded the benefit of the well-established rules of law, should not be disturbed. Nor does the court think, under the testimony, that it would be warranted incutting down the amount of the verdict. The jury is as much a part of the judicial system, under the constitution and laws, as the presiding justice or the law court. While this court might have a different judgment from the jury in a case, it is not authorized to substitute its judgment for the jury's, when the jury has exercised a judgment not so inconsistent with the most favorable interpretation the evidence will bear as to indicate bias, prejudice or improper influence.

Federal Court Follows State on Hospital Liability

(*Paterlini et ux. v. Memorial Hospital Association of Monongahela City, Pa., et al. (U. S.)*, 247 Fed. R. 639)

The United States Circuit Court of Appeals, Third Circuit, which affirms a judgment for the defendants, says that this action was brought against an incorporated hospital and its directors individually, by the parents of a boy who died while a patient in the hospital, to recover damages for negligence alleged to have caused his death. The jurisdiction of the court was based on diversity of citizenship, the plaintiffs being citizens of Italy, and the defendants citizens of Pennsylvania. The proofs showed that a ward student nurse had occasion to administer a cathartic of Epsom salt to the boy. Finding no salts in the customary place, she, in violation of the rules, went across two corridors to the dressing room, which connected with the surgical room, where were two 1-gallon bottles, one labeled, "Bichloride, Poison," and the other, "Solution of Salts." She put her tray on a table, and when she went to get her glass reached at the same time for the bottle and picked up the wrong one. The proofs showed further that the executive work of the hospital was in charge of experienced and capable people, and there was an entire absence of any proof showing an act of commission or omission on the part of the directors, or on the part of any executive officer of the hospital. In the absence of such proof, it is clear that the court was justified, and indeed it was its duty, to charge the jury that there was no proof that justified a verdict against the directors personally or against the hospital for negligence on the part of its executive officers.

Nor does the court think that the hospital should be held liable for the negligence of the student nurse. The corporation being created by the state of Pennsylvania, being supported by charitable contributions of its citizens and by appropriations by that state, and the charitable uses and trusts which such a corporation administers being subjects over which the courts of that state are given statutory jurisdiction, the case would seem especially one in which a federal court would from comity, if for no other reason, incline to follow the settled law of Pennsylvania if such a law was found to exist; and the settled law of Pennsylvania is such that a plaintiff in a case like this would have no ground on which to support a case in a court of that state. Why should the fact that he is a nonresident of that state, and therefore with less claim on its public charities than its own citizens, enable him, by going into a federal court, to obtain a judgment which would be denied to a citizen of Pennsylvania? The jurisdiction of the federal court given to non-

residents against citizens of the local state is to insure an impartial trial, not to create rights of action which citizens of the state, in like condition, do not have. It was urged that this court should not follow the Pennsylvania cases, because, as was alleged, they were not based on sound principles. But the simple fact is that if liability by a hospital, to a patient, for the negligence of a nurse exists, it is one imposed by law and is not created by contract. The Pennsylvania courts charged with the responsibility of imposing or not imposing liability, and having the wide field of encouraging, as well as of beneficially administering, charitable trusts, held that they would not impose liability on the part of the trust to a beneficiary for the negligent act of an employee or agent in administering its benefits. Whatever the reasoning process by which it is reached, the conclusion commends itself to this court. This court sees no reason why it should depart from, and every reason why it should abide by, the ruling of the Pennsylvania courts.

Duty of Railroad Companies When Employees Are Injured

(*Troutman's Administratrix v. Louisville & N. R. Co. (Ky.)*, 200 S. W. R. 488)

The Court of Appeals of Kentucky says that it was a new question for that state which was presented by this case as to the legal duty of a railroad company to furnish medical aid and suitable attention to its employees who are injured in the course of their employment. The court holds that, when an employee of a railroad company is injured while attempting to perform some service within the scope of his employment, whether his injuries are due to his own want of care or to the negligence of the railroad company, the company through its superior servants immediately in charge at the place where the accident occurs, such as the conductor in this instance, is under a duty to take such action as may be reasonably necessary and sufficient under all the surrounding circumstances to furnish the injured employee medical aid and attention suitable to the injury received, if there are no members of his family present who are capable of performing and do undertake to perform this service; and this duty exists although there may be no contract obligation requiring it or statute making it mandatory. The court does not, however, undertake to lay down any rule as to the length of time this care and attention must continue. It deems it sufficient here to say that the duty to observe it springs out of an emergency, and a variety of circumstances may control its duration. What a railroad company must do in the exercise of reasonable care to furnish medical aid and assistance to an injured employee must necessarily depend on the time, place, character of the injury and surrounding circumstances; but whatever the time, place or circumstances, the legal duty is there, and unless the company performs this duty, it may be required to respond in damages for its failure.

If, however, adult members of the family of the injured man are present when the accident occurs, or come to him before his removal by the company, or at any time thereafter, and express a desire to take charge of the injured employee, the servants of the railroad company present at the time should deliver over to them the care of the case and do what they advise. The wishes of the injured man, if he is capable of understanding the conditions, should also, of course, be respected, and such convenient and practicable arrangements made as he desires; in other words, the injured man and his family have the right to determine what course shall be pursued.

In this case, in which a judgment in favor of the defendant railroad company is affirmed, the evidence showed that the conductor, in his efforts to save the life of the injured man, exercised such care as a person of ordinary prudence would have exercised under like circumstances, and that the injured man, his wife and his friends all believed that it was best that he should be taken to the hospital at another station, as the conductor said should be done, and all in fact consented, tacitly at least, that he should be taken there. Under these circumstances to hold the company liable would be to penalize it for doing everything in its power to save the life of its injured employee.

Society Proceedings

COMING MEETINGS

- Am. Assn. of Electro-Therapeutics and Radiology, Boston, Sept. 10-12.
- Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
- American Association of Railway Surgeons, Chicago, Oct. 16-18.
- American Public Health Association, Chicago, Oct. 14-17.
- Colorado State Medical Society, Estes Park, Sept. 9-11.
- Delaware State Medical Society, Wilmington, Oct. 8.
- Indiana State Medical Association, Indianapolis, Sept. 25-27.
- Missouri Valley Medical Society, Omaha, Sept. 19-20.
- New Mexico Medical Society, Albuquerque, Oct. 7-8.
- Ohio State Medical Association, Columbus, Oct. 1-3.
- Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
- Utah State Medical Association, Salt Lake City, Sept. 10-11.
- Vermont State Medical Society, Burlington, Oct. 10-11.
- Virginia State Medical Society, Richmond, Oct. 22-25.
- West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
- Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

August, 1918, 16, No. 2

- 1 Neuroblastoma Sympathicum; Report of Case. S. B. Wolbach and J. L. Morse, Boston.—p. 63.
- 2 Variations in Lipoid ("Fat") Content of Blood of Infants Under Certain Nutritional Conditions. W. McK. Marriott, St. Louis, and W. R. Sisson, Boston.—p. 75.
- 3 *Active Immunization of Infants Against Diphtheria. A. Zingher, New York.—p. 83.
- 4 Infantilism, with Two Cases of Erisand and Frölich Types, Respectively. J. P. C. Griffith, Philadelphia.—p. 103.
- 5 *Intrathecal Injection of Horse Serum in Treatment of Chorea. L. Porter, San Francisco.—p. 109.
- 6 Breath Holding in Infants. I. A. Abt, Chicago.—p. 118.
- 7 Balantidium Coli Infection; Report of Case in Child. L. R. DeBuys, New Orleans.—p. 123.

3. Active Immunization of Infants Against Diphtheria.—Zingher would have all infants below 12, and if possible below 18 months of age, actively immunized with three doses, each 10 c.c. of toxin-antitoxin. These injections should be given irrespective of the Schick test the infants may show at the time of immunization. The injections are given subcutaneously in the arm or below the angle of the scapula, and repeated every seven days. The toxin-antitoxin is well tolerated by young infants, and for that reason the dose advised is the same as that given to older children. The relatively larger dose of toxin-antitoxin will, of course, also give rise to a better immunizing response. All children over 18 months of age, as well as all youths and adults, should be tested with the Schick reaction first, and only those giving a positive reaction immunized with toxin-antitoxin. Three injections, each 10 c.c., are given subcutaneously, one week apart. In infants below 18 months of age the Schick test is not a necessary part of the immunization, since all the infants should be actively immunized. The toxin-antitoxin mixture should be prepared in a reliable laboratory and carefully tested for potency in the guinea-pig before it is sent out for use. The mixture used should be slightly toxic and should represent about 85 per cent. of a lethal plus to each unit of antitoxin. The active immunization against diphtheria should be carried out first of all by the private physicians in the different homes, where a majority of the infants can be reached. In larger centers of population the milk stations, day nurseries, children's dispensaries, infant and orphan asylums furnish large groups of children suitable for immunization. The children of preschool age found in kindergartens and those of school age should be tested first with the Schick reaction, and those giving a positive test actively immunized. Adults, especially those frequently or constantly exposed to diphtheria, such as physicians, nurses, hospital orderlies and patients in contagious disease hospitals, should

also be tested with the Schick reaction and those giving a positive reaction actively immunized.

5. Chorea Treated by Intrathecal Injection of Horse Serum.—Intrathecal injections of horse serum have been instrumental in gaining striking and rapid improvement in most of the cases so treated by Porter, but no improvement has been such that a cure can be claimed on the basis of "absolute cessation of all twitching within a week." Only in the mild cases was twitching entirely absent after two weeks, and all three of these seven patients had been affected for at least three weeks before treatment was inaugurated. One patient, a girl (a mental defective with a neurotic heredity), showed absolutely no reaction to the injections of serum. The most striking results followed the use of the horse serum in the maniacal and very severe cases. Before the serum was used, two of these patients could be kept in bed only by the use of restraining packs, but within forty-eight hours after the first injections both were able to carry a cup to their mouths and to drink without any assistance from the nurse. The restraining pack was no longer necessary and there was a steady diminution in all the excessive movements, while the mental conditions, especially the emotional overflow, were markedly improved. By the end of the third week it was with difficulty that choreic movements could be brought out, but even then they could be elicited by allowing excessive excitement or persistent mental strain to affect the patient. Porter sums up his ideas on this subject by stating that on the whole the result obtained does not encourage the hope that this is any advance on other methods of treatment. Porter states that undoubtedly the use of horse serum is of great value in controlling the very severe cases, but one would not choose to use horse serum in the treatment of any moderately severe or mild case.

Boston Medical and Surgical Journal

August 8, 1918, 179, No. 6

- 8 Physical Examination as Civil Service Instrument. A. F. Downing, Cambridge.—p. 181.
- 9 *Studies in Personality Among Feeble-minded Delinquents Seen in Court. V. V. Anderson and C. M. Leonard, Boston.—p. 192.
- 10 Fracture of Long Bones; Clinical Study. F. Reder, St. Louis.—p. 197.

9. Personality Among Feeble-minded Delinquents.—The object of this paper is to call attention to the value of certain facts other than the mere diagnosis of feeble-mindedness that are distinctly worth while in the consideration of the case of a feeble-minded delinquent in court. For this purpose 100 cases were chosen. These were all adult women, ranging in age from 17 to 55 years. The mental age of each of these persons was determined by means of the Yerkes-Bridges point scale and Goddard's revision of the Binet scale. The diagnosis of feeble-mindedness was arrived at by the usual methods. Sixteen per cent. were undoubtedly self-supporting, steadily employed, and apparently gave satisfaction where they worked; 38 per cent., while more or less self-supporting, changed positions frequently, and worked irregularly; 35 per cent. never worked at all; while 11 per cent. did housework at home. Eighteen per cent. never used alcohol or drugs; 82 per cent. used alcohol, 5 per cent. used drugs as well as alcohol. Nineteen per cent. were moral, while 81 per cent. were undoubtedly immoral women. Twenty per cent. were first offenders, 80 per cent. were repeaters. Anderson and Leonard call attention to the fact that some feeble-minded persons seem to get along fairly well under outside supervision, and do avoid serious social difficulties, and therefore are not necessarily—because they are feeble-minded—vicious, incorrigible and irresponsible. However, the majority of feeble-minded delinquents seen in court are institutional cases, and are incapable of measuring up to the social standards of the community in which they live.

California State Journal of Medicine, San Francisco

August, 1918, 16, No. 8

- 11 Prevention of Blindness Work of State Industrial Accident Commission. W. J. French, San Francisco.—p. 377.
- 12 Plea for Complete Urologic Diagnosis at One Sitting. M. Krotzkyner and G. W. Hartman, San Francisco.—p. 378.

- 13 *Prevention of Congenital Syphilis by Antisyphilitic Prenatal Therapy. H. Lissner, San Francisco.—p. 384.
- 14 Results Following Operative Treatment of Pelvic Inflammatory Disease in Stanford University Clinic. J. A. Sperry, San Francisco.—p. 388.
- 15 Training of Fixation and Fusion in Strabismus. K. Pischel, San Francisco.—p. 391.

13. Prevention of Congenital Syphilis by Antisyphilitic Prenatal Therapy.—Most cases of congenital syphilis have been preceded by two or three miscarriages, premature births or stillborn children due to syphilis. Proper treatment of acquired syphilis before pregnancy will to a considerable extent diminish this waste, which can at best be only partially controlled. But intensive treatment of every syphilitic mother during her pregnancy will (a) prevent miscarriages, premature births, and stillbirths due to syphilis, in the vast majority of cases; (b) produce a live child at full term who will not develop congenital syphilis, in the majority of cases. Such treatment does not interfere with the normal course of pregnancy, labor or puerperium. Lissner urges that such antenatal therapy should be widely advocated by medical men of prominence and influence, in order that it may become a well established routine procedure. Immediate widespread adoption of this method will insure a large increase in the future population of the world.

Canadian Medical Association Journal, Toronto

August, 1918, 8, No. 8

- 16 Psychogenetic Conditions in Soldiers, Their Etiology, Treatment and Final Disposal. C. K. Russel.—p. 673.
- 17 Chirurgical-Orthopedic Observations and Moral Treatment of Wounded Man. I. H. Cameron.—p. 685.
- 18 Surgery of Nerve Injury. H. Williams, London, Ont.—p. 693.
- 19 Role of Physiotherapy in Treatment of Returned Invalidated Soldier. R. Wilson.—p. 700.
- 20 Industrial Rehabilitation. H. E. T. Haultain, Toronto.—p. 703.
- 21 Present Position of Vaccine Therapy. W. Boyd.—p. 706.
- 22 Public Health. T. J. Norman, Alberta.—p. 718.
- 23 Blindness of Newborn—Preventable Disease. G. G. Copeland, Toronto.—p. 724.

Cleveland Medical Journal

June, 1918, 17, No. 6

- 24 Typhoid in Cleveland in 1917. M. E. Fulk and R. G. Perkins, Cleveland.—p. 359.
- 25 Simple Hematologic Methods and Diagnostic Significance of Findings. C. L. Cummer, Cleveland.—p. 373.

Florida Medical Association Journal, Jacksonville

June, 1918, 4, No. 12

- 26 Our Needs in Medical Legislation. F. J. Walter, Daytona.—p. 354.
- 27 Eye from Standpoint of General Practitioner. M. P. DeBœe, Cocoa.—p. 357.
- 28 Autogenous Vaccines in Treatment of Diseases of Ear, Nose and Throat. H. H. Fox, Miami.—p. 360.
- 29 Qualifications of Examiner and Examination to Correct Defects of Sight. L. C. Ingram, DeLand.—p. 361.

Journal of Experimental Medicine, Baltimore

August, 1918, 28, No. 2

- 30 *Experimental Trypanosomiasis; Its Application in Chemotherapeutic Investigations. L. Pearce and W. H. Brown, New York.—p. 109.
- 31 Studies in Bovine Mastitis. Nonhemolytic Streptococci in Inflammation of Udder. F. S. Jones, Princeton, N. J.—p. 149.
- 32 *Classification of Hemolytic Streptococci. R. A. Kinsella and H. F. Swift, New York.—p. 169.
- 33 *Relation Between Hemolytic and Nonhemolytic Streptococci and Its Possible Significance. R. A. Kinsella, New York.—p. 181.
- 34 *Renal Function in Experimental Hydronephrosis. R. A. Johnson, Minneapolis.—p. 193.
- 35 Proteose Intoxications and Injury of Body Protein. Toxic Protein Catabolism and Its Influence on Nonprotein Nitrogen Partition of Blood. G. H. Whipple and D. D. Van Slyke, New York.—p. 213.
- 36 Id.: Metabolism of Dogs with Sterile Abscess, Pancreatitis and Pleuritis. J. V. Cooke and G. H. Whipple, San Francisco.—p. 223.
- 37 Id.: Increase in Nonprotein Nitrogen of Blood in Acute Inflammatory Processes and Acute Intoxications. J. V. Cooke and G. H. Whipple. San Francisco.—p. 243.

30. Experimental Trypanosomiasis.—The authors endeavor to show that the use of experimental trypanosomiasis in chemotherapeutic experiments should be based on a clear

conception of the experimental disease as it occurs in laboratory animals and that the use of one or another of the experimental infections is not to be undertaken in a haphazard fashion but that there are definite principles on which the experiments may be based. In the first place, one must know the behavior of the various species of trypanosomes in the animal body, the character of the infection produced, and the response which may be expected from these organisms to the particular class of therapeutic agents to be employed, and further than this, one must know even the peculiarities of the particular strain to be used. It is of equal importance also that one should be familiar with the various factors which may influence these reactions and the means to be employed to insure constancy of reaction under all circumstances. Finally, one should realize clearly that limitations to the usefulness of any particular form of the experimental infection or species of trypanosome as well as the limitations to deductions which may be drawn from all classes of experiments. In order to reproduce experimental conditions analogous to the natural infections of man and animals, Pearce and Brown have utilized the rabbit as the animal that most nearly fulfils the desired requirements. From this point of view, the results of treatment of chronic tissue infections are indicative of curative power or therapeutic potency as contrasted with trypanocidal action.

32. Classification of Hemolytic Streptococci.—Twenty-eight strains of streptococci of the hemolytic type from various pathologic sources were studied by Kinsella and Swift and their cultural characteristics, power to produce hemolysis of red cells, and behavior in the complement fixation reaction are reported. The chief conclusions as to variability are drawn from a consideration of the complement fixation reactions between these hemolytic strains and their corresponding antisera. The several variations in fermentative activity noted by others were present in this series. The similarity between all the strains studied was strikingly emphasized by the complement fixation reactions. Although the strains came from different pathologic sources and displayed many superficial variations in cultural activity, judged by the complement fixation test all the strains were nearly identical.

33. Hemolytic and Nonhemolytic Streptococci.—Kinsella claims that the relation between hemolytic and nonhemolytic streptococci is orderly and arises from the fact that the former variety is unique while the latter is heterogeneous. Analogous considerations of the classification, distribution, and pathogenicity of the streptococcus group and the pneumococcus and colon typhoid groups show a definite parallelism. These considerations suggest that unique varieties of bacteria associated with man are the more highly invasive, while the heterogeneous varieties are more saprophytic.

34. Renal Function in Experimental Hydronephrosis.—The object of Johnson's investigation was the study of the function of kidneys in the early stages of experimental hydronephrosis by means of the phenolsulphonephthalein test of Rowntree and Geraghty. He found that complete obstruction of the ureter causes atrophy of the renal parenchyma, especially marked in the portions lateral to the renal sinus. The longer the duration of the obstruction, the greater is the degree of atrophy. If the obstruction is removed within two weeks the kidney may regain its normal structure except for a varying amount of atrophy in the lateral portions. Kidneys obstructed for two weeks or less may regain their normal function, as measured by the phenolsulphonephthalein test. The longer the period of obstruction, the slower is the rate of recovery. A hydronephrosis of seven days' duration required forty days, and one of fourteen days' duration required 152 days to recover normal function.

Journal of Infectious Diseases, Chicago

August, 1918, 23, No. 2

- 38 Life Phases in Bacterial Culture. R. E. Buchanan, Ames, Iowa.—p. 109.
39 *Repeated Agglutination Tests by Dreyer Method in Diagnosis of Enteric Fever in Inoculated Persons. E. B. Krumbhaar and W. B. Smith, France.—p. 126.
40 *Antigenic Properties of Gelatin. W. A. Starin, Columbus, Ohio.—p. 139.

- 41 *Effect of Exposure to Cold on Antibody Production. A. G. Foord, Chicago.—p. 159.
42 Hormone Medium. Simple Medium Employable as Substitute for Serum Medium. F. M. Huntton.—p. 169.
43 *Influence of Incubation on Wassermann Reaction. E. H. Ruediger, Bismarck, N. D.—p. 173.
44 *Streptothrix Isolated from Blood of Patient Bitten by Weasel (*Streptothrix Putorii*). G. F. Dick and R. Tunnicliff, Chicago.—p. 183.
45 Simultaneous Acid and Alkaline Bacterial Fermentations from Dextrose and Salts of Organic Acids Respectively. S. H. Ayers and P. Rupp, Washington, D. C.—p. 188.

39. Agglutination in Persons Inoculated Against Typhoid.—Krumbhaar and Smith maintain that the diagnosis of fevers of the enteric group may be made by agglutination tests in many cases when cultures have been negative, but the test should never be used as a substitute for cultures. In inoculated individuals the diagnosis may be made by quantitative agglutination tests, if three or more tests are made at suitable intervals and the resulting curve interpreted in the light of the inoculation and clinical data and the date of onset of the disease. The Dreyer macroscopic method used with standardized agglutinable cultures not only gives excellent results, but allows comparison to be made of results obtained at different times in different laboratories. These results should be expressed in agglutinin units. For proper comparison, every step in the method should be standardized. Distilled water should be uniformly used as a diluent, and that readings should always be made with a hand glass (4 diameters) in the illumination advised by the Oxford Standard Laboratory. If standard agglutinable cultures are used, they should be carefully guarded against contamination. If contamination occurs, especially if they have become acid, they should be at once discarded. The authors present figures showing the gradual fall in T. A. B. agglutinins in forty inoculated individuals. If the presence of agglutinins may be taken as an index of protection, these and similar tests show that the methods of prophylactic inoculation now in vogue protect the average individual for more than a year. There is, however, considerable variation in the individual response, and apparently also in batches of vaccine. Figures are also given to show that paratyphoid B inoculation in persons who have already received typhoid and paratyphoid A vaccine, causes a distinct rise in the typhoid agglutinin curve. A single experiment is given which tends to show that as compared with the American method now in vogue, more efficient prophylactic inoculation may be obtained by giving two (or possibly even single) doses at more frequent intervals.

40. Antigenic Properties of Gelatin.—A study made by Starin of the results of anaphylactic, precipitin, complement-binding, and meiotagmin reactions, shows that all were constantly negative, with gelatin as an antigen, in rabbits, guinea-pigs, and dogs, the recipients of the injections.

41. Effect of Cold on Antibody Production.—Chilling rabbits twice a day during the period of immunization for periods of seven to ten minutes in water at 8 C. did not cause any change in the hemolysin production for sheep corpuscles, and a single chilling seventeen to twenty-nine days after the period of immunization failed to change the hemolysin content of the serum. Chilling rabbits thoroughly during the period of immunization caused a moderate increase in agglutinin production for *B. typhosus*. Chilling once fifteen days after the period of immunization caused an increase in the agglutinin content of the serum, which increase persisted for twenty-four hours. Cold baths in ice water at 0 C. for one to ten minutes failed to cause hemorrhages or thrombosis in the lungs of rabbits.

43. Incubation and Wassermann Reaction.—Ruediger presents the results he obtained with the Wassermann reaction under different incubation conditions. Only one antigen was employed, and the only difference there was, was in incubation time and method. He found that complement binding is better in the incubator at a temperature of 37 C. than in the open water bath at the same temperature. Complement binding takes place gradually, many hours being required for its completion. Complement binding is much better at a temperature of 10 C. than at a temperature of 37 C. or of 21 C.

Ruediger suggests that perhaps the optimum temperature for complement binding and the length of time necessary for its completion in the Wassermann reaction have not yet been determined.

44. *Streptothrix Putorii*.—The clinical picture in the case studied by Dick and Tunnicliff was similar to that of a rat-bite fever, but the streptothrix isolated from the blood differs both morphologically and culturally from the organism associated with that disease, *Streptothrix muris-ratti*.

Journal of Nervous and Mental Disease, Lancaster, Pa.

July, 1918, 48, No. 1

- 46 Certain Pluriglandular Anomalous Functions Associated with Psychopathic Sexual Interests. M. O'Malley, Washington, D. C.—p. 1.
- 47 Analysis of Action of Morphin on Vegetative Nervous System of Man. W. M. Kraus, New York.—p. 36.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

July, 1918, 11, No. 6

- 48 *Relation Between Chemical Structure of Opium Alkaloids and Their Physiologic Action on Smooth Muscle. Pharmacologic and Therapeutic Study of Some Benzyl Esters. D. L. Macht, Baltimore.—p. 419.
- 49 Toxicity of Venom of Mexican (Durango) Scorpion as Compared with that of Chinese Scorpion. S. Kubota, Baltimore.—p. 447.

48. *Pharmacologic Study of Benzyl Esters*.—A pharmacologic study of the benzyl esters, benzyl benzoate and benzyl acetate, showed that these esters produce the same effects on smooth muscle tissues as the opium alkaloid papaverin. Benzyl benzoate and benzyl acetate are easily metabolized by the body and are comparatively nontoxic. The low toxicity and the papaverin-like action of the benzyl esters on smooth muscle has led to their clinical employment in conditions of excessive peristalsis or spasm of smooth muscle viscera, with successful results.

Medical Record, New York

August 17, 1918, 94, No. 7

- 50 Treatment of Duodenal Ulcer. G. R. Satterlee, New York.—p. 265.
- 51 Treatment of Intestinal Stasis by Duodenal Lavage. C. D. Aaron, Detroit.—p. 268.
- 52 Serum and Vaccine Treatment of Pneumonias. F. E. Stewart, Philadelphia.—p. 270.
- 53 Acute Intestinal Obstruction. J. M. Lynch and J. W. Draper, New York.—p. 274.
- 54 Variable Hyperopic Astigmatism in Children and Its Correction. E. S. McClelland, Los Angeles.—p. 276.
- 55 Rabelais' Mention of Parts of Human Skeleton, D. W. Montgomery, San Francisco.—p. 279.
- 56 Homigrade Thermometer. F. E. Aspinwall, La Grange, Ky.—p. 281.

Military Surgeon, Washington, D. C.

August, 1918, 43, No. 2

- 57 How United States Is Meeting Tuberculosis War Problem. G. E. Bushnell.—p. 127.
- 58 *Tuberculosis as Army Problem. L. Brown and J. H. Pratt.—p. 139.
- 59 Statistical Review of Pulmonary and Cardiovascular Defects Found in 82d Division, U. S. National Army, Camp Gordon; Report on After-Results in Five Hundred Measles Cases. A. P. Francine.—p. 160.
- 60 Venereal Disease Problem at Camp Bowie, Fort Worth, Texas. R. F. Metcalfe.—p. 174.
- 61 Radical Treatment of Local Venereal Diseases by Cauterization and Circumcision. G. L. Qualls.—p. 179.
- 62 Plan for Better Handling of Venereal Diseases in Army. L. Thompson.—p. 184.
- 63 Work of Urologic and Venereal Service of Base Hospital, Camp Lewis, American Lake, Wash. A. H. Peacock.—p. 187.
- 64 Painful Abdominal Scars. E. P. Quain and C. Eggers.—p. 195.
- 65 English Orthopedic Hospital for Treatment of Chronic Disabled Soldiers and Sailors. C. M. Allaben.—p. 200.

58. *Tuberculosis as Army Problem*.—Brown and Pratt urge that the men should be examined sooner after their arrival at camp, and that twenty-five men should be sent to the examining boards every half hour, supplied with clean handkerchiefs and, if questionnaires be used, with pencils. The questionnaires are valuable in the tuberculosis examinations for several reasons—they suggest a more careful examination when questions have been answered affirmatively; they are a

check on the men examined; they saved time as the man, transferred from board to board, had always his record with him; and, finally, they kept together all records and examinations made of each man and could be returned to the original board. The authors praise Bushnell's rapid auscultatory method in tuberculosis examination in the Army, and suggest: (a) That on the rapid examination, all suspicious cases should be kept for reexamination until the quota for the morning or afternoon be finished. (b) That day in and day out, morning and afternoon, the most suitable number of examinations proved to be about forty for each examiner (eighty a day), and this could for a time be increased to fifty. (c) That fuller description of the examinations required should be furnished the examiners and should include instructions somewhat as follows: (1) Use auscultation only in first rapid examination. (2) Listen to the breathing in four or five places at least on each side, front and back, before using the auscultatory cough. (3) Use the auscultatory cough whether the breathing is normal or abnormal (see No. 20 does not make this clear). (4) Any man whose râles detected by two members of the board should be referred to the tuberculosis specialist for study. (5) Attention should be called to the fact that, as Laennec has pointed out, too hard coughing obscures rather than helps the detection of râles.

The authors recommend that the entire board meet weekly with the roentgenologist and tuberculosis specialist to consider the cases referred to the tuberculosis specialist and by him accepted or rejected. At such conferences difficulties can be discussed and the workers greatly stimulated. It is suggested that the examiners be urged to check up their physical examinations with the roentgen ray, but that they should recall that a negative roentgenogram especially a flat plate, does not exclude the presence of pulmonary tuberculosis. However, such instances are of rare occurrence. The authors would urge that a ward be set aside in the base hospital in each camp for the study of men suspected of pulmonary tuberculosis, and it be equipped with scales and with a measuring rod. It is further recommended that the tuberculosis wards in the base hospital be used for the instruction in the art of diagnosis of pulmonary tuberculosis of all ward surgeons and other men on the medical staff, as well as all regimental surgeons, who are not proficient in this work. Colonel Bushnell's efforts to teach this to the Medical Corps of the Army are praised highly.

Brown and Pratt also recommend that careful records of the work of each member of the board should be kept and checked up from time to time, in order to eliminate from the board careless and inefficient men. The members of the tuberculosis disability board should be men who have had experience in dealing with pulmonary tuberculosis, and, if at all possible, men who have seen pulmonary tuberculosis in the Army. The president of the tuberculosis board should see that his assistants use the same terminology, that suggested by Colonel Bushnell. The differentiation of the types of râles is most important. To obtain the best results, the tuberculosis board should work in harmony with the division, brigade and regimental officers, realizing the great strain under which they, too, labor. Greater provision should be made for the future disposition of the tuberculous soldier, when he has been in camp over two months. Even with great care, certain cases will develop tuberculosis when least expected. More sputum examinations should be made, even when the sputum is not collected under surveillance. If positive, the man should be admitted to the base hospital and several sputum specimens, collected under observation, examined. On each man's discharge card or blank should be noted the reasons for his discharge and, if due to pulmonary disease, the location of such disease and the fact whether or not tubercle bacilli have been found.

Minnesota Medicine, St. Paul

August, 1918, 1, No. 8

- 66 Diagnosis and Treatment of Brain Injuries with or without Fracture of Skull. W. Sharpe, New York.—p. 285.
- 67 Diagnosis and Treatment of Tuberculous Arthritis of Hip Joint. H. W. Meyerding, Rochester.—p. 291.

- 68 Some Rare Pathologic Conditions of Appendix; Report of Cases. G. A. Geist, St. Paul.—p. 295.
- 69 Essentials in Pediatric Diagnosis. G. E. Zimmerman, Sioux Falls, S. D.—p. 298.
- 70 One Thousand Consecutive Cases of Confinement. F. H. Knickerbocker, Staples.—p. 303.

New York Medical Journal

August 17, 1918, 108, No. 7

- 71 Righthandedness in Its Relation to Visual Conditions. G. T. Stevens, New York.—p. 269.
- 72 Blood and Soul. J. Wright, Pleasantville.—p. 271.
- 73 Congenital Syphilis and Physician. J. M. Wallfield, New York.—p. 277.
- 74 Preventive Treatment of Bone and Joint Maladies. F. Pridham, Baltimore.—p. 279.
- 75 Thyroid Gland. L. J. Simonton, Cumberland Valley, Pa.—p. 281.
- 76 Heart in Pulmonary Tuberculosis. H. Schwatt, New York.—p. 282.
- 77 Immunization Therapy in Bronchial Asthma. A. I. Rubenstone, Philadelphia.—p. 285.
- 78 Surgery vs. Treatment in Tuberculous Laryngitis. M. Lubman, New York.—p. 287.
- 79 Karyotype Therapeutics. J. M. Taylor, Philadelphia.—p. 289.

New York State Journal of Medicine

August, 1918, 18, No. 8

- 80 *Ophthalmic Changes in Tabes and Paresis. I. S. Wechsler, New York.—p. 304.
- 81 Epidemiology of Contagious Diseases of Eye. M. Cohen and H. Noguchi, New York.—p. 313.
- 82 Diarrheal Diseases of Infancy. R. Sloan, Utica.—p. 317.
- 83 *Intestinal Intoxication in Infants. O. M. Schloss, New York.—p. 324.
- 84 *Complement Fixation with Specific Antigen in Acute Poliomyelitis. M. Neustaedter, New York.—p. 328.
- 85 Early History of Infantile Paralysis. L. C. Ager, Brooklyn.—p. 330.
- 86 Chemical Examination of Blood and Urine in Normal Pregnancy and in Toxemia of Pregnancy. J. R. Losee, New York.—p. 333.

80. **Changes in Tabes and Paresis.**—From the study of the more recent investigations of the pathology of neurosyphilis, particularly with reference to optic changes, Wechsler has gained the impression that there is no fundamental difference between tabetic neurosyphilis and so-called cerebrospinal or, better, diffuse neurosyphilis. It seems evident that an inflammatory process is behind every form of syphilitic involvement and that the spirochete is at the bottom of the reaction. Obviously, the inflammatory reaction is in direct proportion to the kind of tissue involved. There is every reason why the meninges should respond more violently than the parenchyma of the brain. The reaction, too, of vascular, interstitial structures will be of a different nature than that of parenchymatous tissue. But lymph and plasma cell infiltration and mast cells are the fundamental characteristics of syphilis. This picture occurs in tabes, paresis and optic atrophy, just as it does in interstitial neurosyphilis or, say, aortitis. There is, therefore, no valid reason for calling a protean clinical picture cerebrospinal syphilis. In the first place, tabes and paresis are anatomically just as cerebral and spinal, and secondly, the pathology is based in all cases on a similar reaction to the same agent. Wechsler uses the term interstitial, or diffuse, neurosyphilis instead of cerebrospinal syphilis. Very careful examination of the optic nerve has revealed inflammatory reactions, even in very old cases of optic atrophy. Wechsler believes that it would be advisable therefore to drop the term primary optic atrophy or, rather, employ it in the sense that the atrophy takes place *pari passu* with the inflammatory, exudative process. It is equally descending with an inflammatory neuritis, though the vascular changes are not nearly so violent. Wechsler suggests that if the inflammatory character of optic atrophy will come to be recognized, it may be possible to attempt rational and possibly hopeful treatment in cases which have hitherto been the despair of therapeutics.

83. **Intestinal Intoxication in Infants.**—If the patient is not vomiting and the diarrhea is not severe, Schloss gives sodium bicarbonate by mouth in 3 to 5 per cent. solution. Milder grades of acidosis may be corrected in this manner. In the presence of severe vomiting or diarrhea or if the acidosis is severe it is necessary to give the bicarbonate intravenously or subcutaneously. For such administration the solutions

should be prepared specially. For intravenous injection a 4 per cent. solution of sodium bicarbonate is used, for subcutaneous injection a 2.5 per cent. solution. For most cases a subcutaneous injection is sufficient. Intravenous injection should be given only when the acidosis is very severe, and not until measure have been taken to replace the loss of fluid. Otherwise the concentration of the blood may be much increased and harm result. By means of this treatment, the toxic symptoms in most cases of intestinal intoxication may be eliminated.

84. **Complement Fixation with Specific Antigen in Acute Poliomyelitis.**—A specific antigen is prepared by Neustaedter in the following manner: A 5 per cent. suspension of brain and cord of monkeys, that have died of poliomyelitis, is filtered through a Berkefeld or a Heim filter, sterile water being used as a menstruum. Trypsin is added in proportion of 1:50 and permitted to act at room temperature for three hours; 0.4 per cent. tricesol is then added to stop further action by the trypsin. This is kept in a refrigerator and ready for use. It keeps well for a month without impairing its activity. In making the tests the antigen is diluted 1:5, the spinal fluid is used in ten times the amount of the serum. The tubes are incubated as a rule for two hours in the water bath at 37 C. Two units of complement and two units of amboceptor are used, the cells having been sensitized with the amboceptor before they are added; 0.1 c.c. of a 5 per cent. suspension of sheep's corpuscles was used for indicator of the reaction of fixation. The complement was a pool of the serum of from six to ten pigs in every set of tests. The serum from each pig had been tested before pooling for natural antisheep amboceptor, for specific fixation with each control antigen and serum combination to be used in the tests, for hemolysis of 0.1 c.c. of a 5 per cent. suspension of sheep's erythrocytes with the Wassermann unit of antisheep amboceptor. On hundred and fifty-two spinal fluids and sixty blood serums were examined. The cases were frank and suspected, in the febrile and afebrile stages. The duration of the disease was from one to forty days. Twenty-three, or 53.5 per cent., gave a positive reaction; twelve, or 27.9 per cent., gave a doubtful one, and four, or 9.5 per cent., a negative reaction. Of fifteen spinal fluids from cases of tuberculous meningitis seven proved negative with the poliomyelitis antigen, one +, one ++, six were anticomplementary. Of twenty spinal fluids of cases of epidemic cerebrospinal meningitis, thirteen were negative, three doubtful and four anticomplementary. Of twenty-two spinal fluids of cases of tertiary syphilis, one gave a ++++ reaction with the poliomyelitis antigen, one +, five ++, three were anticomplementary and the rest negative. Of forty spinal fluids of normal and diverse pathologic conditions, one gave a ++++ reaction with the poliomyelitis antigen, seven were anticomplementary, and the rest negative. Of sixty blood serums of various pathologic conditions, none gave a positive reaction with the poliomyelitis antigen. It would appear that an antigen has been found which probably is specific and fixes complement, hence of positive diagnostic value in poliomyelitis.

Ohio State Medical Journal, Columbus

August, 1918, 14, No. 8

- 87 Infection of Female Genital Tract; Its Relation to Arthritis. E. C. Steinharter, Cincinnati.—p. 468.
- 88 Hospital Standardization. H. K. Yaggi, Salem.—p. 470.
- 89 The Gallbladder from Surgical Standpoint. A. H. Dunn, Chillicothe.—p. 473.
- 90 Evisceration. J. H. McCassy, Dayton.—p. 476.

Oklahoma State Medical Association Journal, Muskogee

August, 1918, 11, No. 8

- 91 Rectal Examination in Labor. C. V. Rice, Muskogee.—p. 251.
- 92 Prevention and Treatment of Puerperal Laceration. W. W. Wells, Oklahoma City.—p. 258.
- 93 Surgical Aspects of Obstetrics. E. F. Hayden, Tulsa.—p. 264.
- 94 Typhoid. T. W. Brewer, Miami.—p. 270.

Rhode Island Medical Journal, Providence

August, 1918, 2, No. 8

- 95 Medical Activities of Navy. J. C. Da Costa.—p. 115.
- 96 American Flag. S. H. Davis, Westerly.—p. 123.

Surgery, Gynecology and Obstetrics, Chicago

August, 1918, 27, No. 2

- 97 *Experience with Foerster's Operation for Gastric Crises and Spastic Paralysis. K. Kawamura and T. Kimura, Kyoto, Japan.—p. 129.
- 98 *Esophageal Diverticula. E. S. Judd, Rochester, Minn.—p. 135.
- 99 Epithelioma. A. C. Broders and W. C. MacCarty, Rochester, Minn.—p. 141.
- 100 Exfoliative Vaginitis; Report of Cases. W. Kerwin, St. Louis.—p. 151.
- 101 Fibrosarcoma of Mesentery. B. Solomons, Dublin, Ireland.—p. 154.
- 102 Surgical Methods in Treatment of Malign Affections of Superficial Lymphatic Tissue. J. L. Yates, Milwaukee, Wis.—p. 156.
- 103 *Induction of Labor at Term. C. B. Reed, Chicago.—p. 163.
- 104 Problem of Reconstruction and Reeducation of Disabled Soldier. R. W. Lovett.—p. 169.
- 105 Combined Inguinofemoral Hernia Due to Suppurative Destruction of Poupert's Ligament, with Use of Sartorius Muscle in Repair. E. D. Twyman, Kansas City, Mo.—p. 182.
- 106 Case of Aberrant Thyroid Tumor of Tongue. M. A. Rabinowitz, Brooklyn.—p. 191.
- 107 *Study of Krukenberg Tumor. R. H. Major, Rosedale, Kan.—p. 195.
- 108 Carcinoma of Umbilicus; Report of Two Cases. F. Warner, Columbus.—p. 204.
- 109 Extraperitoneal Cesarean Section in Certain Infected Cases with Carrel After-Treatment. J. W. Markoe, and R. McPherson, New York.—p. 209.
- 110 Lipemata in Sarcomatous Transformation; Report of Two Cases. H. Schiller, Chicago.—p. 218.
- 111 *Case of Gastric Ulcer Caused by Shell Fragment. L. Leyva, France.—p. 220.
- 112 Case of Transfusion of Blood in Septicemia of Long Duration. C. Moncany, France.—p. 221.
- 113 Unusual Propagation of Vascular Bruit. C. Moncany, France.—p. 222.
- 114 *Modified Rammstedt Operation for Relief of Pyloric Obstruction in Infants. R. C. Cupler, Chicago.—p. 223.
- 115 Radical Cure of Hemorrhoids. C. J. Drucek, Chicago.—p. 224.
- 116 Artificial Vagina Utilizing Single Portion of Ileum. A. W. Abbott, Minneapolis.—p. 227.
- 117 Improved Murphy Drip Apparatus. H. D. Furniss, New York.—p. 229.

97. **Foerster's Operation for Gastric Crises and Spastic Paralysis.**—Foerster's operation was performed successfully in two cases cited by the authors. In the first case, vomiting and pain stopped entirely from the day following the operation and with a normal appetite of a healthy person, the patient gained in weight daily. The second patient, a boy, who could not stand up at all before the operation, walked fairly well with crutches and especially well when led by the hand. But at times after the rhizotomy, paraplegia occurred, which later disappeared partially although not completely. As its causes, the following technical failures are enumerated: harsh treatment of the spinal cord, injury of small arteries resulting in hemorrhage into dural sac and disturbance of nutrition of the cord, excessive desiccation of the cord on account of a long-continued depression of the head with elevated pelvis. Therefore, if a final decision as to the results of the operation is to be given, it is necessary to observe the patient for a long time afterward. In Little's disease, the after-treatment of the patient is of supreme importance. The use of the plaster of Paris bandage, with its covering easily removable, suitable exercise, massage, electrotherapy, etc., should be continued for some time.

98. **Esophageal Diverticula.**—In thirty-five cases in which operations were done in the Mayo Clinic there were two deaths. In each instance death occurred on the second day; both patients were very old and feeble. The cause of death in both instances was cardiac disorder. One died after the first of a two-stage operation; one after excision of the sac and inversion of the base. In one of these, because of many general contraindications to operation, the patient was taught to pass a stomach tube, and for some months he lived by feeding himself in that manner; then the sac became so large that it produced a great deformity in the esophagus. The patient could no longer pass the tube and an operation seemed imperative. The first stage of the operation was performed but death took place suddenly the next morning. The history of the second patient is much the same, except that the sac was smaller and was removed at one operation. This patient also died the morning following the operation. In two of the remaining cases, there was some evidence of a recurrence

of the diverticulum. One of these patients was entirely relieved by passing a sound a few times, and in the other case it was necessary to reoperate for the recurrence. When heard from recently nearly all of the thirty-three patients were entirely free from symptoms. Judd believes that the infolding operation and the two-stage operation are the procedures preferred and can be performed with practically no mortality. In operating on these cases, the approach was from the left side of the neck in all except one case and that was from the right side. In six cases a transverse incision was made. One patient had been operated on for diverticulum one year before coming to the clinic. There was recurrence in one case. The patient began to have trouble about one month after operation and was operated on nine months later by the two-stage operation. This was the only recurrence in the series. The sac was excised and the base inverted in eighteen cases. The sac was excised and the base ligated and turned in in four cases. The Bevan operation was done in three cases. The two-stage operation (C. H. Mayo) was done in ten cases. There were two deaths following operation, both on the second day. Both patients were known to be poor surgical risks; one a male aged 76 years, the other a male aged 73 years.

103. **Induction of Labor at Term.**—Reed reports the results of his method of inducing labor by introducing a Voorhees bag in a second series of 100 cases, primiparas fifty-one, multiparas forty-nine. The average duration of labor was eight hours and eight minutes. This figure is greater by fifty-three minutes than the average in the first series, but it may possibly be accounted for by the presence of sixteen more primiparas in this series. The longest labor was twenty-eight hours; the shortest, one hour. The shortest labor in a primipara was one hour and twenty-five minutes. The bag broke during or shortly after insertion, three times; but it was reinserted only once. The membranes were ruptured by the introduction of the bag five times. In one case of hydramnios it was intentional. There were no maternal deaths. Forceps were used sixteen times, to hasten labor three, deep transverse arrest seven, uterine inertia four, occipitoposterior two; version and extraction was done twice, once to expedite labor in a heart case and once for prolapsed cord. The average time for the expulsion of the bag was three hours and nineteen minutes, as compared with three hours and twenty minutes in the previous series. The longest detention of the bag in the cervix was nine hours, the shortest ten minutes. In all cases but two, weights were applied after the introduction of the bag, the traction being just sufficient to keep up a mild pressure on the cervix. In no instance was it necessary to dilate the os before inserting the bag. Five cases required a few whiffs of chloroform during the introduction of the bag to control nervousness rather than actual pain. Involution was normal in all cases.

107. **Krukenberg Tumor.**—Including Major's case, at least fifty-five cases of Krukenberg tumor have been reported. To this number Major would add eight probable cases. Eighteen cases were collected in which the presence of a primary growth in the gastro-intestinal tract was demonstrated. Five cases have been reported in which no primary tumor of the stomach or intestines was observed at necropsy. Three of these may be open to the objection that no microscopic examination of the stomach was made. Two of the cases at least meet every apparent objection and cannot be regarded as other than primary ovarian tumors. In forty-three cases where the data were completed, the Krukenberg tumor was bilateral in thirty-nine instances (90 per cent.). The tumor occurred in the majority of cases during the period of sexual activity—the average age was 36 years. The statement sometimes made that the Krukenberg tumor is relatively benign is not borne out by the subsequent history of these patients. All of the cases reported in the literature where the later course was known terminated fatally.

111. **Gastric Ulcer Caused by Shell Fragment.**—A soldier, wounded at Verdun, April 23, 1916, by several splinters of shell, arrived at the American ambulance with the diagnosis of superficial wounds of the right thigh, left leg, forehead, and scalp. The wound of the thigh was the largest and

involved the external muscles. Many splinters were removed and the patient was completely healed of his wounds forty-five days after his arrival at the hospital. Just as he was about to be discharged, he complained of abdominal pain and said he had the sensation of a foreign body in his abdomen. Palpation did not reveal any muscular resistance, but the continuous pain in the epigastric region was more severe on pressure. The patient was a big and very fat man. There was no appreciable trace of any wound, but the abdomen was striated, as is often the case in stout people. Roentgen examination was negative. One night the patient complained of severe pain and on examining the feces Leyva noted the presence of blood, the feces being of a coffee ground color. He suspected gastric ulcer. The roentgen ray showed on the posterior wall of the stomach 2 inches from the pylorus, an ulceration of a half inch in diameter.

A superumbilical laparotomy, following the method of Pauchet, was performed. This method consists in opening into the lesser peritoneal cavity through the gastrocolic omentum in order to explore the posterior wall of the stomach. There were no adhesions, and exactly at the place indicated by the roentgen ray Leyva found an ulcer, nonperforated, and behind it a shell splinter very irregular and sharp pointed, about a half inch thick. Leyva calls attention to the possibility of a soldier having a splinter in his abdomen without any appreciable trace of a skin wound; that the roentgen ray does not always show the presence of foreign bodies; the great responsibility that rests with the war surgeon when he makes a diagnosis of malingering.

114. Modified Rammstedt Operation for Relief of Pyloric Obstruction in Infants.—The operation described by Cupler differs from the Rammstedt procedure only inasmuch as serosa is made to cover the mucosa.

Vermont Medicine, Rutland

July, 1918, 3, No. 7

118 Indigestion. A. L. Patch, Windsor.—p. 165.

West Virginia Medical Journal, Huntington

July, 1918, 13, No. 1

- 119 Gastrojejunostomy in Ulcerative Perforation of Duodenum. W. W. Golden, Elkins.—p. 1.
- 120 Paroxysmal Tachycardia. E. S. Dupuy, Beckley.—p. 2.
- 121 Clinical Consideration of Peptic Ulcer. J. A. Lichty, Pittsburgh.—p. 6.
- 122 History of Five of Fifteen Cases of Dementia Praecox Treated by Isotonic Salt Solution. L. V. Guthrie.—p. 14.
August, 1918, 13, No. 2
- 123 Practical Points in Etherization. T. H. Becker, Bluefield.—p. 41.
- 124 Vesical Calculi. T. K. Oates, Martinsburg.—p. 47.
- 125 Diagnosis and Treatment of Cerebrospinal Syphilis. J. D. Willis, Roanoke, Va.—p. 49.
- 126 Mental Defectives. J. R. Bloss, Huntington.—p. 56.

Wisconsin Medical Journal, Milwaukee

August, 1918, 17, No. 3

- 127 Epidemiology of Acute Appendicitis in Relation to Acute Nasal and Tonsillar Infections. J. S. Evans, Madison.—p. 91.
- 128 Value of Complement Fixation Test in Diagnosis of Tuberculosis. J. J. Seelman, Milwaukee.—p. 93.
- 129 Pathology of Glaucoma. C. Zimmermann, Milwaukee.—p. 98.
- 130 Eye in Its Relation to Constitutional Diseases. E. H. Brooks, Appleton.—p. 103.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Journal of Tropical Medicine and Hygiene, London

July 15, 1918, 21, No. 14

- 1 *Sudanese Streptococcal Dermatitis. A. J. Chalmers and R. G. Archibald.—p. 141.
- 2 *Curability of Madura Foot. F. Woolrabe.—p. 146.
- 3 *Treatment of Human Trypanosomiasis by Injectio Antimonii Oxid. W. E. Masters.—p. 146.

1. Sudanese Streptococcal Dermatitis.—Chalmers and Archibald describe a form of chronic infective eczema of the acanthotic type associated with a streptococcus, which apparently is, at all events at times, the sole causal agent. The lesions are types of a "streptococcal dermatitis" caused by

S. versatilis Broadhurst, 1915, and are readily cured by vaccine therapy. This organism is a common denizen in the feces of horses in the Sudan and elsewhere, and hence the possible source of the infection.

2. Curability of Madura Foot.—Woolrabe cites a case to show that there are conditions in which patients with madura foot may recover. In 1915 a male Siamese, aged 25, came to the hospital very anemic and emaciated. His foot, a typical madura foot of the white kind, as shown by the microscope, was twice the normal size, honeycombed with sinuses, and with two toes gone. Treatment was more or less after the subjoined scheme, but he followed it only if and when he liked, namely: 1. Total immersion of foot in weak tincture of iodine solution, 1:50 or 1:100, for several hours a day. 2. Painting of foot and lower third of leg with tincture of iodine every three days. 3. Painting ulcerated surfaces with liquor epispasticus (official B. P. cantharides blistering solution) every week. 4. Occasional courses of potassium iodide by Curle's method (*Practitioner*, London, December, 1912). 5. Large doses of syrup of iron iodide and Easton's syrup at other times. He left without warning in about five months. Whether post or propter, his foot was of normal size, and the sinuses were healed. He could walk well and was in robust health.

3. Treatment of Human Trypanosomiasis by Injectio Antimonii Oxid.—Injectio antimonii oxid consists of antimony oxid dissolved in equal parts of glycerin and water slightly heated, and is prepared in capsules of 1 c.c. and 2 c.c., containing $\frac{1}{100}$ and $\frac{2}{100}$ grain each of the drug, respectively. It is prepared and supplied in 100 c.c. sealed phials, of which from 2 to 3 c.c. can be given at each injection, always intramuscularly and not subcutaneously. Sixty-three cases of trypanosomiasis were chosen by Masters for a series of experiments. Of these, thirty patients absconded before they had received $\frac{30}{100}$ grain of the drug. The remaining thirty-one patients received 925 capsules of the drug between them. These cases were divided into two classes, thus:

Class A: In all these trypanosomes were found in the gland juice on the first examination. Some of them were in the first and some were in the second stage of the disease—that is to say, some were curable and some were incurable. The attempt was to clear out the trypanosomes from the lymphatic circulation as ascertained by repeated gland punctures. Of the twenty-one cases in this class, twelve were found to be negative and nine positive after treatment. Of the nine positive cases only two had received the minimal course of $\frac{40}{100}$ grain of the drug.

Class B: In these the cervical lymphatic glands were so atrophied that no trypanosomes could be found, or if they were found at the onset, the disease was so advanced that repeated examinations later would have been impracticable. The purpose was to ascertain the influence of the drug on the course of the symptoms of the disease in late cases. Of the ten cases in this class, six patients died in whom no improvement was noted; one was slightly improved; two were much improved, and one was discharged free from all signs and symptoms of the disease. Masters is convinced that injectio antimonii oxid will clear the trypanosomes from the lymphatic circulation more readily than any drug or combination of drugs hitherto applied to the disease. The general symptoms are more rapidly and more generally cleared up than with any other medicaments. The drug should be given in $\frac{3}{100}$ grain doses every other day until a minimal dose of $\frac{40}{100}$ grain has been given. If the trypanosomes are not cleared out by the $\frac{40}{100}$ dose, sodium arsanilate, 0.77 gm., should be given in addition to more injectio antimonii oxid every fifth day. One large dose is more effective than many small doses.

Lancet, London

July 27, 1918, 2, No. 4952

- 4 Pathology of War Neuroses. J. S. Bury.—p. 97.
- 5 Gunshot Wounds of Peripheral Nerves. C. Noon.—p. 100.
- 6 *Gunshot Wounds of Thorax; Their Later Stages. J. A. Wilson.—p. 102.
- 7 Capsulate Mucoid Forms of Paratyphoid and Dysentery Bacilli. W. Fletcher.—p. 192.

- 8 Trypsin Digested Blood Medium for Culture of Pfeiffer's Influenza Bacillus. J. Matthews.—p. 104.
- 9 Laked-Blood Agar Medium for Isolation and Cultivation of Meningococcus, Enterococcus and B. Typhosus. W. J. Wilson and G. Darling.—p. 105.
- 10 Military Orthopedic Surgery; Its Scope and Aims. R. Jones.—p. 115.

6. **Gunshot Wounds of Thorax.**—Fifty cases of gunshot wounds of the thorax in the later or terminal stages are analyzed by Wilson. On an average, the men were admitted eighteen days after being wounded. Wounds of entrance were: chest, nineteen; back, twelve; shoulders, eight; sides, seven, and neck, four. Seven cases of wounds of thoracic wall did not penetrate the pleura. Two of these had hemoptysis, four had hemothorax; of the latter two manifested pleuritic friction. One had a small swelling over the ribs due to incarceration of a piece of cloth; here also pleuritic friction was heard over the adjacent area. This came on late in the course of the illness, probably because of extension of the inflammation. One developed pneumonia and another a persistent form of basal congestion or bronchopneumonia. Thus, concussion may cause hemoptysis, hemothorax or pneumonia. In most of the cases of penetrating wounds, hemoptysis was present sometimes for several days after the wounding. Several men stated quite definitely that they did not spit blood, and yet they presented physical signs of effusion. In eight cases ribs were broken, in four the scapula, in two the humerus (one requiring amputation at the shoulder), in one the clavicle. In one, vertebrae were damaged; in one the esophagus was slightly damaged. In three, the pleura had been sewed up, in one, the diaphragm. In sixteen cases, the wounds were through and through; some of these had only short tracks through the lungs. Several did not present any physical signs of hemothorax. In thirteen cases, resection of the rib was performed for empyema. Several had physical signs of contralateral disease of the lung or pleura. Several cases with the physical signs of effusion were not aspirated, as there were no indications of sepsis; physical signs gradually disappeared. Pleuritic friction was frequently heard in the later stages. Twenty-eight, or more than half, returned to duty in from two to four months. Two patients died from septic pneumonia.

Medical Journal of Australia, Sidney

July 6, 1918, 2, No. 1

- 11 Value of Roentgen Rays in Diseases of Alimentary Tract. H. Harris.—p. 1.
- 12 Value of Roentgen Rays in Gastro-Intestinal Diseases. C. Ayres.—p. 5.
- July 13, 1918, 2, No. 2
- 13 Bacteriologic Study of Seventy Cases of Urinary Infection, with Special Reference to Pyelitis. K. F. C. Brunnich.—p. 23.

Archives des Maladies du Cœur, etc., Paris

July, 1918, 11, No. 7

- 14 *Acute Leukemia. C. Achard and A. Leblanc.—p. 289; L. Giroux and Verdier.—p. 309.

14. **Acute Leukemia.**—Achard and Leblanc report two cases in men of 46 and 63, fatal in about six weeks in one and in five and a half months in the other. In the first case the symptoms were those of a severe acute hemorrhagic infection with stormy onset and high fever; the other case progressed slowly and inexorably to the terminal cachexia without any acute incidents, but the blood picture was about the same in both. They give the tabulated details of similar cases from the literature and discuss some of the problems presented, the relations between the different elements of the blood, the nature of the reactions in the blood-producing organs, etc. In Giroux and Verdier's case the patient was a man of 25 who had been at the front for three years. The disease ran a rapidly fatal course in two weeks.

Archives Médicales Belges, Paris

February, 1918, 71, No. 2

- 15 *Organization of the Surgical Service. Depage.—p. 113.
- 16 Tropical Dysentery in Spain. F. Martinez.—p. 124.
- 17 Segmentary Lymphoma of Jejunum. Delporte and Sand.—p. 135.
- 18 Inversion of Viscera; Two Cases. Colard and Couturier.—p. 140.

15. **Organization of Surgical Service.**—Depage's address "L'organisation sanitaire des armées" was presented at the recent Inter-Allied Surgical Conference. He discussed the subject from the standpoint of the treatment of wounds, which, he says, first entered on the scientific period with the introduction of the Carrel method. Carrel's innovation was not so much any special method of treating wounds, but the adoption of the principle that the whole treatment of the wounded must be according to a certain system from beginning to end, whatever hospitals he may pass through—the hospital system forming a whole with interchangeable parts, like an industrial establishment. The wounded man, through whatever hands he passes, gets uniform treatment. The authorities formally adopted in March, 1917, this principle of technical coordination so far as fractures were concerned. The principle of linked hospitals was applied in several sectors. Heitz Boyer's linked group included the hospital at Châlons, 28 km. from the front; here the urgent operations were done; then came the Troyes hospital, 70 km. farther back, to which the wounded were sent as soon as all danger of infection was past. They stayed here until the wound had healed or the fracture became consolidated. Then they passed to the *centre de physiothérapie*, only 3 km. distant, if there was hope of the men's returning to the service. If not, they were sent to the *filiale de reconstitution* near Fontainebleau, not far from Paris.

In Belgium conditions have not permitted this system of linked hospitals, the men being kept at the advanced hospital until complete recovery. This has numerous advantages in a quiet sector, but is out of the question during an offensive movement. In conclusion Depage emphasizes the tangible benefits from keeping abreast with the progress of science. Before the introduction of the Carrel method, less than 5 per cent. of the men with fracture of the femur recovered function enough to resume active service. Now nearly 50 per cent. return to the front. Since the beginning of the war France has dismissed from the service with a comparatively high pension 18,000 men with fractured femur. If the Carrel method had been applied from the first, 9,000 men could have been restored to the service and the treasury saved these 9,000 pensions, to say nothing of the saving from a shortened hospital stay, and the saving of man power. These figures illustrate the influence which war surgery exerts on the finances of a country according as it is well or badly applied.

Archives de Médecine et de Pharmacie Militaires, Paris

April, 1918, 69, No. 4

- 19 *Primary Suture of War Wounds. G. Gross.—p. 481.
- 20 *The First Aid Station. M. Gaujard.—p. 499.
- 21 *Action of Microbes and of Antiseptics on Catgut Ligatures. K. Taylor.—p. 513.
- 22 *Backward Dislocation of Elbow. M. VERNY.—p. 517.
- 23 Roentgen Localization of Projectiles. R. Bonneau.—p. 519; L. Roué.—p. 523.
- 24 *Mumps and Myocarditis. M. Pujol.—p. 527.
- 25 *Results of Physical Training. L. Lièvre-Brizard.—p. 539.
- 26 *Present Status of Autochthonous Malaria. Rieux.—p. 559.
- 27 *Conclusions Adopted by Fourth Inter-Allied Surgical Conference.—p. 570.

19. **Primary Suture of War Wounds.**—Gross regards the primary suture of war wounds as the greatest progress in military surgery realized during the war. Until then primary suture was exceptional. "Thanks to Tissier's works," he says, "the primary suture is now prevailing more and more and, in all probability, tomorrow it will be the routine practice. The Inter-Allied Conference endorsed it, and a pleiad of young surgeons are showing me daily the magnificent results obtained with primary suture of wounds." He adds that he has been studying it with the closest attention for more than two years and has been striving to popularize it. The only conditions necessary for constant results are a good surgical and a good bacteriologic technic; being able to keep the wounded long enough for complete healing, that is, about two weeks, or, if they have to be evacuated in four or five days, to pass them into the hands of some other surgeon skilled in carrying out the system. This *liaison chirurgicale* is indispensable if military exigencies compel the patients to be sent farther back from the front. He recapitulates the

whole theory and practice, the main point being that every war wound which does not contain the streptococcus should be sutured. Practically every war wound reaching his hospital is given the primary suture, but the stitches are cut if the bacteriologist's report in a few hours shows the presence of streptococci.

20. First-Aid Posts.—Gaujard gives an illustrated description of dugouts and cellars equipped for a first-aid post, such as have proved most efficient. The posts serve also as regimental infirmaries. He has been impressed with the frequency of skin affections, infection developing in erosions, scratches, etc. The frequency of these infections is shown by the lymph glands in the axilla; in examining one company preliminary to vaccination, only twenty-three of the men were found free from this adenitis.

21. Disintegration of Catgut Ligatures.—Taylor reports, as the result of considerable research, that a catgut ligature in a wound is liable to become disintegrated, and secondary hemorrhage follow, when the wound contains the *B. aerogenes-capsulatus-welchii*. No other micro-organism seems to attack the catgut, and none of the antiseptics modifies the elasticity or the strength of the catgut, but under the influence of hypochlorite solution, the surgical knot always comes untied. Hence he warns that Carrel's solution is contraindicated for a wound in which an important vessel has been ligated, especially in the presence of the *B. aerogenes-capsulatus*.

22. Backward Luxation of Elbow.—Verny found in three cases that an otherwise irreducible backward luxation of the elbow corrected itself spontaneously when the man hooked his elbow over the round of a ladder, the highest he could reach, and bore his weight on it. The relaxation of the triceps is probably responsible for this as the elbow is hooked high up on the ladder standing against the wall, the man leaning against the ladder as he stands sideways at the foot.

24. Mumps and Myocarditis.—Pujol has encountered nine cases of myocarditis among 450 men with mumps, but some other cause seemed to have cooperated in six cases. In three cases, however, the mumps seemed to be alone responsible for the myocarditis. The three men recovered, but were unable to resume active service and were given sedentary positions. In two of the cases the heart symptoms attracted attention at the height of the parotitis. One man complained of dull retrosternal pain and a few painful extrasystoles. In all, the heart action was extremely weak. This was not noticed in repose, but the reserve force was very small, and gave out at any slight exertion, with dyspnea, precordial pain and pounding in the chest when the man tried to climb stairs, carry his bed roll, or march. The physical signs are minimal, merely a variable degree of tachycardia, but functional tests readily reveal the depreciation of the organ. It is futile to attempt to return such men to active service; they merely return to the hospitals again after a change of sectors or an *affaire*. Only the milder cases can be returned to their posts with request that they be spared all but light duty. On the other hand, complete dismissal from the army is only exceptionally called for.

25. Results of Physical Training.—Brizard gives the average findings from 349 men taking a course of physical training at the *centre d'instruction physique du Gouvernement militaire* at Paris. The average for a man of 37 taking an eight weeks' course is a gain in weight from 64.8 to 65 km.; in the chest measure, from 90 to 93 cm. inspiration, and from 85.5 to 89.1 expiration. The waist measure was reduced from 79.2 to 77.1 and the spirometer showed an increased capacity of from 33 to 36.5.

26. Autochthonous Malaria.—Rieux concludes his study of the new foci of malaria that have developed in France, by urging the examination for malarial plasmodia of the colonial troops, of men returning from service in the Orient, and of Italian and other alien laborers employed in the army zone. Isolation and disinfection should be enforced for all carriers. The early diagnosis of new cases of malaria is also imperative, with prompt isolation and disinfection.

27. Inter-Allied Surgical Conference.—The brief conclusions are reproduced on the seven war questions discussed:

transfusion of blood, trench foot, wounds of rectum and bladder, pseudarthrosis after wounds, conservative operations on the foot, and osteosynthesis in treatment of fractures. The addresses on the seventh question, sterilization of war wounds, are to be given in full in the following number.

Archives de Médecine des Enfants, Paris

July, 1918, 21, No. 7

- 28 *Differentiation of Diphtheria Bacillus. E. C. Aviragnet and Le Soudier.—p. 337.
- 29 *Epidemic of Meat Poisoning. J. Renault and Romme.—p. 351.
- 30 Congenital Luxation of Right Shoulder. H. L. Rocher.—p. 359.
- 31 *Abscess at Anus in Children. J. Comby.—p. 365.
- 32 Hair Balls. J. Comby.—p. 369.

28. Differentiation of Diphtheria Bacillus.—Aviragnet and Le Soudier admit that bacteriologic examination is not very useful for treatment in cases of diphtheria, as antitoxin is given in suspicious cases without waiting for bacteriologic confirmation. But in prophylaxis it is supremely important, for convalescents, and for all atypical cases of infectious sore throat when diphtheria is prevailing. When the examinations at several days' interval give negative findings, such cases may be regarded as nondangerous.

29. Meat Poisoning.—Fully 220 children developed severe poisoning after eating at the municipal canteen, and it was traced to paratyphoid bacilli in the meat. The bacilli had been killed by the cooking given the meat, so no infection resulted, but the toxins were not modified by the cooking, and severe alimentary disturbances followed, suggesting cholera, and three of the 220 died. Seven of the fourteen attendants at the canteen were also affected.

31. Abscess at Anus in Children.—Comby has encountered eight cases of a simple abscess at the anus in infants or young children. Straining at stool, erosions from repeated introduction of the thermometer or other cause, scratching from irritation by the oxyuris, soap suppositories or other occasional cause may induce local suppuration. Evacuation and disinfection of the abscess is all that is necessary to ensure healing. This should be systematically done before assuming a tuberculous or syphilitic origin. He warns that the thermometer or other object introduced into a child's anus should be thoroughly sterilized and cautiously worked in to avoid injuring the tissues.

Archives Mensuelles d'Obstétrique et de Gynécologie, Paris

January-March, 1918, 7, No. 1-3

- 33 *Anemia in the Pregnant. E. Petersen (Copenhagen).—p. 1.
- 34 Pituitary Extract in Obstetrics. M. Chneerson.—p. 22.
- 35 Colloidal Gold in Puerperal Septicemia. Chauveau.—p. 36.
- 36 *Welfare Work for Mothers and Children. P. Desfosses.—p. 52.

33. Anemia in the Pregnant.—Petersen reviews what has been written on the subject of anemia, resembling pernicious anemia, which develops in pregnant women. It is only during the last half of the pregnancy that this form of anemia develops, and the evidence he presents seems to indicate that the pregnancy in itself is the cause. None of his three cases or of Esch's six or of the others on record had shown any symptoms of anemia at any time before, and nothing except toxic action from the pregnancy could be found to explain it. In a very few cases the anemia subsided after delivery, but in the majority it continued a rapidly progressive course to a fatal termination. The women erroneously ascribe to the fact of the pregnancy any ill feelings noticed. Pallor is the first symptom to attract attention. It grows more pronounced every day, with a yellowish tinge. The mucous membranes are blanched and there is a tendency to severe epistaxis, petechial spots and hemorrhages in the retina. There may be edema of the legs, and fever may mislead the diagnosis. Vomiting and diarrhea are common, and bilirubin in the serum and urobilin in the urine testify to the destruction of red corpuscles. The mortality in the twenty-three cases compiled by Esch was 70 per cent.; in Schevelov's compilation of fifty-two it was 65 per cent.; in Seitz' forty-three it was 50 per cent.; in Deluen's five cases all died. In Petersen's cases, two of the women died. The third recovered after artificial interruption of the pregnancy. He insists that the pregnancy should be arrested if the anemia proves rebellious to medical

measures, of which the most effectual seem to be intramuscular injections of defibrinated human blood.

36. Protection and Welfare Work for Mothers and Children.—Desfosses tells what is being done and being planned for the reconstitution of the race in France. He describes in grateful terms the work of the Children's Bureau of the American Red Cross, and gives the French laws bearing on the protection of pregnant and parturient women and on the care of the children.

Bulletin de l'Académie de Médecine, Paris

July 2, 1918, 80, No. 26

- 37 *Poisoning from Cyanamid. J. P. Langlois.—p. 6.
- 38 *Proper Doses of Drugs. C. Fiessinger.—p. 7.
- 39 *Muscle Autolysates. P. Delbet and Karajonopoulos.—p. 13.
- 40 *Pyocyaneus Meningitis. J. Abadie and G. Laroche.—p. 15.

37. Cyanamid Poisoning.—Workers on calcium cyanamid are liable to dermatitis and burns from the lime and also from the extremely high temperature to which the calcium carbide has to be raised to combine with the nitrogen. Langlois calls attention to the serious danger for such workers if they take an alcoholic drink. His research on animals confirms the clinical observation of the sensitization of the vasodilator centers by the cyanamid, so that a small glass of wine is liable to send the pulse up to 104 and the blood pressure extremely low, with rapid respiration. The man in a typical case described had syncope after drinking 30 centiliters of red wine. The syncope returned whenever he raised his head, and nausea and extreme vasodilation of face and conjunctivae were pronounced. The blood pressure kept very low for an hour, but by the end of the eighteenth hour there were no further signs of disturbance.

38. Doses of Drugs.—Fiessinger classes drugs according as they have a specific action on the disease or a mechanical action, like that of a drastic purgative, or a symptomatic or functional action. In this latter group the doses should not be large. Small doses, long kept up, should be the rule for symptomatic drugs. With digitalis, for instance, large doses wear out the heart; on the other hand, all laud its efficacy and harmlessness when given subcontinuously in very small doses. Patients, otherwise apparently doomed, recuperate under this and live for many years a quiet existence, avoiding extreme exertions. Danger begins with doses over 0.1 gm. of pulverized digitalis; 8 or 10 drops of the 1 per thousand solution is the extreme limit. Belladonna likewise is prescribed often in too large doses; with 0.01 gm. of the extract, signs of intolerance are common. Atropin sulphate acts effectually in doses of 0.0001 or 0.0002 gm.

Manquat agreed with Fiessinger that the doses of symptomatic drugs are altogether too large as generally given; 0.5 gm. or less of chloral have as good a sedative effect as 2 gm. He witnessed the death of a man twenty minutes after injection of 1 c.c. of pantopon. Another man of 65 succumbed after taking 0.5 gm. of antipyrin, and a child of 5 died after 0.3 gm. of antipyrin had been given in a suppository. He has also witnessed two serious mishaps after ingestion of 0.5 gm. pyramidon. Robin emphasized that the disturbance in function precedes the organic lesion, and by treating the functional disturbance early, we may hope to ward off or attenuate the organic lesion. This can be attempted with the small symptomatic doses, but different drugs with a similar action should be used in turn so that the organism will not become habituated to any one. Fiessinger asked to have a committee appointed to study the proper dosage of the more commonly used drugs when they are prescribed for their symptomatic action alone.

39. Destruction of Tissues as Factor in Shock.—Delbet reports research which confirms the extreme toxicity of crushed muscle tissue even when aseptic. Absorption of this muscle autolysate is undoubtedly a factor in traumatic shock. The practical conclusion is that the crushed tissues should be cleared out as an emergency measure at once, without waiting for the shock to subside.

40. Pyocyaneus Meningitis.—In Abadie's case, intraspinal injection of the patient's own serum apparently cured the young man when the spinal fluid and blood serum contained

the pyocyaneus in pure culture. The meningitis had followed a skull wound. Three applications of this autoserotherapy were made, injecting 3 c.c. of his serum at intervals of eighteen and five days. The serum agglutinated at 1 per thousand, showing the high antitoxin content.

Journal de Médecine de Bordeaux

July, 1918, 89, No. 7

- 41 *Scabies. W. Dubreuilh.—p. 183.
- 42 *War Suprarenal Insufficiency. J. Carles.—p. 185.
- 43 *Fracture Centers. A. Charrier and Maurizot.—p. 188.
- 44 Differentiation of True and False Aneurysms with the Oscillometer. F. Gadaud and G. Jeanneney.—p. 192.
- 45 *Exercise for Brain-Workers. P. Nadal.—p. 195. Conclusion.
- 46 Vital Statistics at Bordeaux. Davezac.—p. 204.

41. Scabies.—Dubreuilh remarks that the civilian and military hospitals are encumbered with cases of scabies; even the society women have it, as their husbands bring it to them on their furloughs. He has found the best salve for civilian use a mixture of 200 gm. lard with 20 gm. each of black soap, sulphur precipitate and balsam of Peru with 10 gm. beta naphthol. The whole of this is rubbed vigorously with the hands into the skin, sparing only the face and scalp, which are never affected, and the middle of the back, which is seldom involved. The salve should be rubbed in energetically for fifteen or twenty minutes at night, then sleeping in gloves and socks to keep the salve on the hands and feet. He advises repeating the applications the third and fifth nights, changing the linen the first and last days. The important part of treatment is to rub the salve all over, not merely where the lesions are apparent, beginning with the fingers and toes separately and paying special attention to the genitals, buttocks and breast. Ordinary laundering disinfects the linen. Another important feature of treatment of scabies is that the suspects in the environment must be treated too and at the same time, or reinfection is certain. The cleansing bath should not be taken until morning, when the salve is applied at night.

42. War Suprarenal Insufficiency.—Carles has within the last year encountered fifteen cases of what seemed to be Addison's disease, in men on active service, except that it displayed a tendency to spontaneous subsidence, even in the apparently gravest cases. A few weeks of rest and quiet, abstention from meat, and treatment with suprarenal extract soon banished all the symptoms. In two of the cases there was what Loeper has described as suprarenal dyspepsia, notably improved by epinephrin. The symptoms developed in all after a period of exhausting fatigue, an infectious disease, or gassing. The asthenia was the most striking symptom, more mental than physical. For months the men were incapable of reading a paper, writing a letter or even answering questions that required any thought. Improvement in this respect was rapid under epinephrin treatment. The blood pressure was low, but this is common among all the men at the front. A certain tendency to bronzing of the skin was perceptible in all the fifteen cases. The suprarenal glands after recovery are left below par, and resumption of active service is extremely likely to rearouse the old trouble, and the next time it might prove grave beyond recuperation.

43. The Fracture Center.—Charrier expatiates on the great progress that has been realized by collecting the fractured femur cases, for instance, in a hospital especially equipped for fractures. One of his illustrations show a long ward with the interminable series of frames and hammock suspension for each fractured limb.

45. Exercise for Brain Workers.—Nadal reviews the exercises which a busy brain worker would find convenient and useful. "Thinking," he reiterates, "is a product of the sensations which reach the consciousness from all parts and promote or check the mysterious fermentations of the subconscious. Thought is actually a secretion of the body as a whole." The brain worker is too apt to forget that the product of his brain, in the ultimate analysis, is the result of the functioning of his physical body. Nadal suggests a number of simple indoor exercises, convenient for the sedentary worker. He denounces bicycling as the poorest form of outdoor exercise, as only the legs work.

Lyon Médical

June, 1918, 127, No. 6

- 47 *Trauma and Tuberculosis. Péhu and Daguet.—p. 241.
48 *Intoxication with Illuminating Gas. R. Pauly.—p. 247.
49 *Embedding in Paraffin. C. Dunet.—p. 256.
50 Kidney Anomalies; Three Cases. De Teyssier.—p. 260.

47. **Traumatism and Tuberculosis.**—Péhu and Daguet report five cases in which pulmonary tuberculosis developed after a war wound of the chest. These were the only ones in which tuberculosis has developed in a total of 146 cases of war wounds of lungs or pleura or both. Even in these five, the tuberculous process developed on the same side only in two. To accept a direct connection between the war wound and pulmonary tuberculosis, tubercle bacilli must be evident in the sputum, the tuberculous lesion must be on the same side as the wound—a scar may be merely evidence of some superficial incision on the other side—and the interval between the wound and the pulmonary disease must not be too long.

48. **Poisoning by Illuminating Gas.**—Two women found in the same room with a gas jet open presented absolute coma for thirty-six hours, with trismus during all this period, and a temperature of 39.6 C. in the woman of 33 and 40 C. in the girl of 17. The temperature gradually subsided to normal in the course of six days. The gas seems to poison the central nervous system with a more lasting toxic action than it has on the blood. Both the women recovered after a week of weakness of the legs; there was no albuminuria or glycosuria. Treatment consisted in injections of caffein and camphorated oil, with an abundant venesection followed by subcutaneous saline infusion. During the first day arrangements were made also for almost continuous inhalation of oxygen.

49. **Improved Technic for Embedding in Paraffin.**—Dunet accomplishes the same purpose as the usual water and alcohol technic by placing the specimen—dried between blotting paper and not rinsed—directly in the mixture consisting of 10 parts of pyridin, 40 parts chloroform and 50 parts acetone. These ingredients are mixed cold beforehand; the amount used is about twenty times the volume of the specimen. The latter is suspended by a thread in the mixture in a test tube or other vial, and is left in the fluid for from ten minutes to an hour according to size. The fluid is then poured off and fresh used for a second bath for the same length of time. The specimen is then transferred directly into the paraffin. Specimens treated by this rapid method take stains as usual, and the specimens keep perfectly.

Paris Médical

June 8, 1918, 8, No. 23

- 51 *Auscultation in Sphygmomanometry. Tixier.—p. 449.
52 Technic for Bacteriologic Examination of a Chancre. L. Tribondeau.—p. 454.
53 *Distomatosis of the Liver. De V. de Lavergne.—p. 459.
54 *Factitious Diplopia. F. Terrien.—p. 462.

51. **Auscultation in Estimation of the Pulse.**—Tixier extols the facility, constancy and accuracy of the findings with auscultation in sphygmomanometry. He quotes Gallavardin's saying that sphygmomanometry is to chronic disease what the thermometer is to acute disease. Any old sphygmomanometer can be arranged for auscultation by adding the pneumatic cuff, the bulb, phonendoscope and biauricular stethoscope.

53. **Distomiasis in Man.**—Lavergne has encountered the eggs of the distoma in stools from two soldiers within the last year, and is convinced that they would be found oftener if systematically sought. The parasite is widely prevalent in cattle in France, especially in sheep. The parasite and its intermediate host abound in marshes, and man can acquire it not only in drinking the water but in dirt getting on his hands before eating.

54. **Factitious Diplopia.**—Terrien says that men who have had diplopia sometimes complain of it after it has ceased, hoping to get longer sick leave. This can be detected by having the man look at the light of a candle in a darkened room, while a light blue glass is placed in front of one eye, and then an opaque glass is substituted for the transparent glass. If he says the diplopia still continues, his simulation is revealed.

Presse Médicale, Paris

July 4, 1918, 26, No. 37

- 55 *Resistance of the Meningococcus to Antiserum. M. Bloch and P. Hébert.—p. 337.
56 General Anesthesia in War Surgery. P. Picard.—p. 340.

July 11, 1918, 26, No. 39

- 57 Bacteriologic Diagnosis of Dysentery. A. Ascoli.—p. 357
58 *Bleeding Bronchitis. H. Violle.—p. 359.
59 Treatment of Chancereulous Bubo by Injection of Iodoformed Petrolatum. W. Dubreuilh and E. Mallein.—p. 361.

55. **Resistance of Meningococcus to Antiserum Treatment.**—Bloch and Hébert ascribe the fatal outcome in certain cases of meningitis, notwithstanding early and intensive serotherapy, to invasion of the blood by the meningococcus. The meningococci may become ensconced in the perivascular sheaths inside the pia or nearby. Parameningeal foci of this kind, in contact with the ventricular-subarachnoid fluid without opening directly into it, would explain the cases rebellious to intraspinal injection of the antiserum. These reservoirs of infection are outside of the meninges, and are not reached by the intraspinal injection. From these foci the meningococci can invade the blood—inducing septicemia—or they can start the meningitis anew. In order to act on these foci, the antiserum has to be injected into the general circulation as well as into the subarachnoid space. Another reason for the injection into the general circulation is that the meninges will not stand too frequent intraspinal injections. Anaphylaxis need not be feared if the antiserum is injected simultaneously into the spinal cavity and into the general circulation. A very severe case is described in which the man of 30 had meningococcus B meningitis and septicemia with double iridocyclitis. Under early and vigorous serotherapy by both routes, complete recovery followed. The antiserum can be given by the vein or intramuscular or subcutaneous, but the intramuscular route seems preferable.

58. **Bleeding Bronchitis.**—A somewhat similar article by Violle was summarized in these columns, Aug. 17, 1918, p. 605.

Revue Médicale de la Suisse Romande, Geneva

June, 1918, 38, No. 6

- 60 *Placenta Praevia and Eclampsia. G. Rossier.—p. 353.
61 Diaphragmatic Hernia. C. M. du Pan.—p. 363; Montandon.—p. 373.
62 Suprarenal Insufficiency. N. Betchov and V. Demole.—p. 379.
63 *Expulsion of Esophagus Mucosa. A. Sauvin-Thury.—p. 386.

60. **Placenta Praevia.**—In case of placenta praevia, Rossier tampons the vagina only when the cervix is not dilated enough to admit two fingers, and only when, through a boiled speculum, he can pack in sterilized iodoform gauze from a Dührsen box. Tamponing done in this way is free from objections. If the cervix allows the passage of two fingers, tamponing is contraindicated, and the woman should be prepared for an eventual abdominal operation. The Braxton-Hicks version condemns the child in advance, as a rule, and hence with a viable fetus it should be reserved for cases in which cesarean section is impracticable.

60. **Eclampsia.**—Rossier insists that in case of eclampsia the woman should be delivered as promptly as possible, and declares that cesarean section realizes this better than anything else. In a case described, the convulsion lasted for thirteen minutes and was followed by twenty minutes of coma. The blood pressure was 180, but dropped to 150 after venesection, and there was 32 per thousand albumin in the urine. The condition improved but by the fourth day the blood pressure had run up to 195, and there was 7 per thousand albumin in the scanty urine. The next day the blood pressure was 210, and the cervix was permeable only for one finger. Confident that the child would die if there were another convulsion, he delivered it by a classic cesarean section, and both mother and child did well thereafter, the blood pressure rapidly falling and no further convulsions developing. This technic applied in nineteen cases has given a mortality of 21.1 per cent. This is less than with any other treatment that has been applied in his service.

63. **Expulsion of Lining of Esophagus.**—Thury gives an illustration of the lining of the esophagus as it was expelled

entire by a multipara of 48. She had always been in good health, and nothing pathologic could be found in it except the fact of its expulsion as a tube 34 cm. long, with an additional segment 4 cm. long. While eating breakfast she felt a sudden pain as if she had swallowed an overlarge chunk of bread. The pain was so severe that a physician was called in to give a dose of morphin. By the fourth hour the pain was terrible, and she began to vomit blood and seemed to be suffocating. An hour later her neck became enlarged, and she expelled a membrane from her mouth, her husband drawing it out, believing that it was a tapeworm. She vomited from time to time brownish blood, about a liter in all. There was no history of swallowing a caustic or taking medicine, and the mucosa showed no signs of inflammation. Swallowing afterward was extremely painful and almost impossible. Treatment was restricted to a few swallows of diluted hydrogen dioxid and sterilized oil, with nutrient enemas. By the end of a week she was able to take fluid food by the mouth, and in two months seemed to be quite restored except occasionally a slight difficulty in swallowing. The only explanation that seems plausible is the assumption of a spontaneous submucosa rupture of a varicose vein in the esophagus. Such a hemorrhage might have detached the mucosa and led to its expulsion.

Correspondenz-Blatt für Schweizer Aerzte, Basel

June 29, 1918, 48, No. 26

64 *Food Problems. W. Silberschmidt.—p. 849.

65 Wartime Diets. A. Gigon.—p. 857.

66 Transfusion of Blood. C. A. Pettavel.—p. 862. To be continued.

67 Triple Staining Culture Medium for Differentiation of Typhoid and Dysentery. R. Massini.—p. 887.

64. **Food Problems.**—Silberschmidt remarks that in Switzerland 50 per cent. of the albumin, 70 per cent. of the fat and 20 per cent. of the carbohydrates consumed are derived from domestic milk and its products. All the sugar is imported, and 60 per cent. of the carbohydrates. He urges breeding of fish in the lakes. The wartime diet seems to have increased the number of urinary disturbances, especially in the elderly. He adds that in Germany a loss of from 200 to 350 gm. per day has been repeatedly observed of late. Last year an average loss of 10 per cent. in the weight of adults was recorded. The increase in insanity may possibly be due in part to this cause, as also the cases suggesting exophthalmic goiter which have been reported in Germany. The well known fact that ill fed persons are more prone than others to intestinal disturbance has been confirmed anew. In various cities there have been epidemics of enteritis and dysentery, but the specific dysentery bacilli could not be discovered. Perhaps in the undernourished otherwise harmless bacteria may induce infections. The young seem to stand the war diet better than those beyond 40 or 45; the power of adaptability in general declines with age.

He urges physicians to educate people to the advantages of the fireless cooker as ensuring more thorough and more savory cooking while saving fuel. Every housewife should be an excellent cook and it is now more important than ever that girls should be trained in cooking. The introduction of municipal kitchens has not proved a success everywhere. In Zurich, however, the school soup houses have been enlarged and are working well. The poorer scholars get the soup free, and any one can buy a quart of a good nourishing soup for a few pennies, and take it home. This keeps the family together at meals, and vegetables and fruit, perhaps from their own garden, give variety. He warns physicians further not to be misled to recommend substitute foods without thorough knowledge of them.

Policlinico, Rome

July 14, 1918, 25, No. 28

68 *Bridge Flaps. I. Scalone.—p. 653.

69 Neurologic Centers. G. C. Riquier.—p. 656.

70 *Anglo-Saxon Medical Journalism. L. Verney.—p. 659.

68. **Bridge Flaps for Large Defects.**—Scalone reports success in promoting the healing of large wound areas by loosening up the skin around and cutting a long strip which is twisted around to bridge the defect, the free end sutured

to the other side of the area. Sometimes a second flap is cut to suture to the first, thus leaving only three small triangles of the area uncovered. It is better not to scrape away the granulations; the flap is applied directly over them, after rinsing off any purulent secretion. He cuts the flap with the adipose tissue so that it will be thick enough. The free end is sutured to a space cut for it into sound tissue. Several flaps can be used, thus nearly covering the area with the pedunculated flaps bridging it in different directions. The sound skin can be stretched to bring it over the defect where the flap was cut. In one case of a large gap on the back of the hand, he bridged it with a flap of skin from the abdominal wall, but usually he takes the best nourished strip of skin available close by and cuts it with a broad base.

70. **Anglo-Saxon Medical Literature.**—The first instalment of Verney's article was summarized in these columns, August 17, p. 608. He here describes in detail different medical periodicals in England and America and in the British colonies, saying, "The *Journal A. M. A.*, the most widely read medical journal in the world, has a weekly issue of nearly 70,000; the *British Medical Journal* of at least 22,000, and the *Lancet* nearly as much. We will not be telling any secret when we say that the most widely distributed Italian medical journal, the *Policlinico*, has only about 10,000 subscribers." He remarks that the "most pronounced characteristic of the Anglo-Saxon medical journals is their practical tendency. The aim is to render immediately utilizable the results of scientific research. The articles are written in a simple, direct style which renders them easy to read even for those who know only the rudiments of English." He continued "Of course it happens in the Anglo-Saxon medical journals, as well as in the Italian, that the same names are found repeated in many journals. There are certain authors who write year after year, under many headings and in diverse forms or with few variations the same observations and the same lucubrations in journal after journal; they are victims of graphomania, and scatter their writings a little everywhere."

Verney concludes with the remark that the powerful development of the Anglo-Saxon medical literature arouses admiration, and that the development will probably continue in the near future on a still larger scale. "In Italy, since we have discovered Anglo-Saxon medical literature, we are watching its progress with growing sympathy. This is evident from the increasing amount of space given in the Italian journals to extracts from the English and American medical press. The medical press in Italy bears honorable comparison with it, although in many respects it has reached a stage of progress beyond the Italian. The Italians appreciate above all the practical value of the articles published; the complete and vast abstract system; the importance assigned to social medicine; the campaign against nostrums, and the editorial supervision over the advertising pages. With extreme satisfaction and without a shade of rivalry we hail these valuable features, deriving from them a wholesome and stimulating incentive to emulation."

Riforma Medica, Naples

July 6, 1918, 34, No. 27

71 Three-Day Fever. U. Gabbi.—p. 522.

72 Vaccine Therapy in Typhoid. M. Pennetta and G. Melosci.—p. 524.

73 *Senile Cataract. N. Scalinci.—p. 529.

74 The Danger of Tuberculosis in Factories. E. Tedeschi.—p. 531.

73. **Senile Cataract.**—Scalinci discusses whether it is better to attempt the extraction of an unripe senile cataract in the capsule or to attempt to ripen it artificially, when the disturbance in vision is prolonged and of a high grade. He describes a case to illustrate the fine effect realized by multiple puncture of the equatorial portion of the lens, repeated a week later. The cataract was ready for extraction a month afterward, and by the end of another month the woman of 61 was able to read the No. 2 type in De Wecker's book. The cataract had been years in developing and had not made any progress during the ten months following a preparatory iridectomy. He has always been able to follow

the puncture procedure with the extraction of the cataract in from eight days to five weeks. This artificial ripening of the cataract is called for mainly in the dyscrasic type of senile cataract.

Rivista di Clinica Pediatrica, Florence

June, 1918, 16, No. 6

- 75 *Incomplete Form of Pituitary Deficiency. M. Pincherle.—p. 281.
To be continued.
76 *The Fifth Cusp. G. Guidi.—p. 299.

75. **Pituitary Deficiency.**—In this instalment of his study of the masked hypophysis syndrome, Pincherle describes four cases of diabetes insipidus in boys of from 7½ to 16 years old. The physical development was backward in all, but satisfactory progress was evident under systematic treatment with pituitary extract, continued for months.

76. **The Fifth Cusp.**—Guidi refers to the anomaly described by Sabouraud as a sign of inherited syphilis. He found the fifth cusp in nineteen of 150 children examined but nothing was found to suggest a syphilitic taint in any instance.

Archivos Españoles de Pediatría, Madrid

May, 1918, 2, No. 7

77. *Inversion of Bladder in Infants. E. N. Coronas.—p. 257.
78 Astasia-Abasia-Phobia in Child under Three. J. C. M. Fournier.—p. 265.
79 *Chloroma. A. Catalina.—p. 277.
80 Influenza in Children. C. S. de los Terreros.—p. 314.

77. **Inversion of Bladder in Infants.**—Coronas gives an illustrated description of complete inversion of the bladder through the urethra in two female infants of 13 and 18 months. Both were breast fed, but fed very irregularly and were given inappropriate food in addition from the very first. Each had a history of gastro-intestinal derangement and enteritis, with other signs of physical inferiority and tendency to rachitis. One had been given four spoonfuls of castor oil, fractioned, in twenty minutes, and this had been followed by prolapse of the rectum which had kept up for two weeks, when the inverted bladder appeared in the vulva. It protruded so extensively that the mouths of both ureters were exposed. In two similar cases on record in infants, whooping cough was evidently a factor in one and enterocolitis in the other. The inverted bladder was easily restored to place in one of his cases, but it fell out again as soon as it was no longer supported, demonstrating the futility of all measures except a radical operation. In the other case the tumor was hard to reduce, even under chloroform, but once reduced, there was no further trouble from it. The operation consisted in abdominal cystopexy, on the same principle as abdominal fixation of the uterus, using silk. In both cases there was incontinence of urine for a long time but finally the sphincter regained its function.

79. **Chloroma in Boy of Five.**—Catalina's patient presented left exophthalmos and several bunches in the skull and abdomen. One of the bunches in the skull had suppurated; the pus issuing from it was green. The spleen was much enlarged and the blood with 4,000,000 reds and 14,400 whites showed 30 polynuclear neutrophils, 25 large mononuclears and 21 eosinophils per 100 leukocytes. Benzol and the roentgen rays merely reduce the number of leukocytes, and this alone does no good in such cases. Small doses of arsenic and heliotherapy seem the only promising measures.

Prensa Medica Argentina, Buenos Aires

May 30, 1918, 4, No. 36

- 81 *Kinetic Surgery. G. B. Arana.—p. 535.
82 Banti's Disease with Syphilitic Origin. L. L. Resio.—p. 539.

81. **Kinetic Amputations.**—Arana has now an experience with thirteen cases in which he applied in amputation the principle of kineplastics, for vitalization of the artificial limb. He reviews Vanghetti's suggestions in this line to utilize muscles, tendons, nerves, vessels and skin to make the most of the motor function left in them. Of course the muscle has to be perseveringly trained to its new task. The simplest form is the loop formed by the muscles and tendons below the stump of the bone, the opening in the loop being lined with skin. The motor force in the muscle loop imparts

motion to the prosthesis or to a tool held in the loop. Another application of the principle is what is called the key, the muscles of the stump being formed in the outline of a hook, allowing a space in which a tool or other object can be held. Arana's illustrations show these various types, including one in which the muscles are formed into two of these hooks. The loops can be made on the side of the stump. Theoretically any number of key hooks or loops are possible, but in practice two seem to be the limit. Union of the antagonist muscles gives a better hold.

Revista de Medicina y Cirugia Practicas, Madrid

June 21, 1918, 121, No. 1511

- 83 Sheet Lead Effectual Treatment of Varicose Ulcers. A. Ledo.—p. 321.

Revista de Medicina y Cirugia, Havana

May 25, 1918, 23, No. 10

- 84 Electric Fulguration Treatment of Prostatism. D. Geiringer and J. Campuzano.—p. 263.
85 Small Epidemic of Rubeola. V. P. Castello.—p. 268.

Revista Sud-Americana de Endocrinologia, etc., Buenos Aires

April, 1918, 1, No. 4

- 86 Case of Anaphylaxis from Injection of Lecithin. S. Dessy.—p. 95.

Semana Medica, Buenos Aires

May 9, 1918, 25, No. 19

- 87 Case of Porokeratosis with Black Pigment and Atrophy. N. V. Greco.—p. 527.
88 Differential Reactions of Stovain. J. A. Sanchez.—p. 532.
89 *Thready Pulse Sign of Perforation in Typhoid. G. Giacobini.—p. 535.
90 *Prophylaxis of Tuberculosis. E. R. Coni.—p. 536.
91 Physiologic Role of Sulphur. E. Fynn.—p. 539.

89. **Filiform Pulse in Typhoid.**—Giacobini has noticed that when the temperature drops in typhoid fever, the pulse becomes at the same time characteristically filiform when the hypothermia is the consequence of perforation of the bowel. With hemorrhage, the temperature may drop likewise but the pulse does not become thready in the same way. This filiform pulse with sudden hypothermia calls for immediate operation, even when there are no pains or other symptoms suggesting peritonitis, no tympanism, vomiting or special tenderness. The filiform pulse, he declares, points unerringly to a perforation as he has established in a large number of cases.

90. **Prophylaxis of Tuberculosis.**—Coni relates that as early as 1893, Argentina took the lead in sending children to a seashore sanatorium as a means of warding off or curing tuberculosis.

Siglo Medico, Madrid

June 15, 1918, 65, No. 3366

- 92 Bladder Calculi. A. P. Martin.—p. 463.
93 Demography of Prevailing Epidemic. L. Lasbennes.—p. 466.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 1, 1918, 1, No. 22

- 94 Centennial of F. C. Donders. G. van Rijnberk.—p. 1493.
95 Scalp Disease from Microsporon Lanuginosum. D. Muijs.—p. 1497.
96 *Necrotic Scarlatinal Lymphadenitis. A. Welcker.—p. 1509.
97 Menstruation Eosinophilia. D. Klinkert.—p. 1517.
98 *Abnormally Short Umbilical Cord. F. M. G. de Feyfer.—p. 1522.

June 8, 1918, 1, No. 23

- 99 *The Weight Curve in the Tuberculous. P. J. L. de Bloeme.—p. 1558.
100 *Acute Myeloblast Leukemia. L. S. Hannema.—p. 1567.
101 *Morphin and the Parasympathetic System. E. C. van Leersum.—p. 1575.
102 Urticaria from Muscular Exertion. N. A. van de Roemer.—p. 1579.

95. **Necrotic Scarlatinal Lymphadenitis.**—Welcker remarks that every epidemic of scarlet fever has its special features; and in a recent epidemic he encountered eight cases of destructive processes in the lymph glands of the axilla or neck. Only one of the eight children recovered; they were all under 5 and the disease was of a specially severe type from the first. The destructive adenitis developed a few days after the eruption; the infiltration spread through the adjoining tissues, with the hard swollen gland in the center. The

process in the neck extended down to the esophagus and trachea, involving all the soft tissues, the dry necrosis destroying muscles, vessels and skin indiscriminately. In the one case of recovery, the process lasted for months before all the devitalized tissues had been cast off. Several cases are recorded in the literature in which erosion of a vessel had entailed fatal hemorrhage, or erosion in the pharynx allowed the escape of food. Aneurysms have also been described as a sequel, as also the spread of the necrotic process to the pleura, lung or pericardium.

Most writers say that, as a rule, the process comes to suppuration which can be cleared out and the whole arrested. But Welcker's experience has not been so favorable. In all his eight cases the clinical picture resembled that of bubonic plague. Cutting into the infiltrated region disclosed merely a patch of mummified tissue. The incision in the one case coming to recovery may have contributed to this outcome, but more probably it was a milder form of secondary infection, manifested further in suppurating arthritis in the elbows and the shoulder on the other side.

98. Overshort Umbilical Cord.—De Feyfer reports two cases in which delivery was hampered by the shortness of the umbilical cord. Considerable force had to be used to extract the child, tearing the cord in one case; it measured 22 cm. Along with the labor pains, the women had complained of spontaneous pains in the abdomen during the parturition.

99. The Weight Curve in the Tuberculous.—De Bloeme gives the annual weight curve in the inmates of two sanatoriums for lung disease in adults and children. He compares his findings with similar figures published by sanatorium physicians in America and elsewhere. He found that in both adults and children the gain in weight was nearly or over twice as much between May and October as in the rest of the year. This tendency to greater gain in weight during this part of the year should be borne in mind in estimating the effect of dietaries.

100. Acute Myeloblast Leukemia.—Hannema reports the clinical and necropsy findings in a factory worker of 39 who had been exceptionally healthy until July, 1917, when ulcerative febrile stomatitis developed, with anemia. He entered the hospital the third month. The reds then were over 2 million, the whites 10,000, but in five days the whites ran up to 30,000 and the blood picture was that of aplastic anemia, myeloblasts, myelocytes and promyelocytes forming 70 per cent. of the leukocytes. He died at the end of the third month, with nothing to suggest pathologic hemolysis at any time, and no swelling of lymph glands. Ziegler has reported a similar case with 18,200 whites two weeks after the onset of a pericarditis. Then suddenly the whites ran up to 240,000, with 65 per cent. myeloblasts and myelocytes, and the necropsy findings showed the same leukemia picture as in Hannema's case.

101. Action of Morphin on the Vagus.—Van Leersum's charts demonstrate that, besides its action as a narcotic, morphin has a decided direct action on the center for tonus of the parasympathetic system.

Hospitalstidende, Copenhagen

June 19, 1918, 61, No. 25

103 *Etiology of Orthostatic Albuminuria. C. Sonne.—p. 817.

104 Disappointing Results from Parenteral Injections of Milk in Treatment of Eye Diseases. K. K. K. Lundsgaard.—p. 826.

105 *Diastase Content of Blood and Urine. E. Winsløw.—p. 832.

103. Orthostatic Albuminuria Occurs Only in Left Kidney.—Sonne agrees with Jehle that the lordosis in the erect position is the cause of the orthostatic albuminuria, as a rule. But he explains that the lordosis affects the circulation only in the vein from the left kidney. This vein is longer and lies higher than the right renal vein, and it passes across the spine just behind the taut aorta. The lordosis forces it against the aorta, as he shows in detail. This compression readily explains the circulatory disturbance in the connected kidney, with its resulting albuminuria. If this assumption be correct, then orthostatic albuminuria can occur only in the left kidney, and his catheterization of the ureters in ten patients with orthostatic albuminuria showed that the albu-

minuria was exclusively on the left side in all. In six other patients the albuminuria was a sequel of acute nephritis, and in all these cases, of course, the albuminuria was bilateral.

105. Importance for Diagnosis and Prognosis of Diastase in Blood and Urine.—Winsløw emphasizes that with acute disease of the pancreas, determination of the diastase is a simple and reliable method for the diagnosis, if complicating diabetes and nephritis can be excluded. With chronic disease of the pancreas, the diastase content is an index of the development of the process. It also throws light on the prognosis with diabetes, to a certain extent. With kidney disease, determination of the diastase is a reliable and very instructive diagnostic measure. Other methods of investigating pancreas functioning—such as Sahli's glutoid reaction, Schmidt's nucleus test, and the olive oil meal have not stood the test of time, or else, like the duodenal tube, they are too disagreeable for common use. But the diastase can be determined rapidly and reliably, without annoying the patient. He reviews the literature on the subject and describes the technic, reiterating that all glycogen-containing organs produce diastase. The diastase is estimated by the quantity of a 1 per thousand solution of starch which 1 c.c. of the blood or urine being examined will digest in thirty minutes at a temperature of 38 C.

He uses a set of ten or twelve test tubes and in all after the first one he puts 1 c.c. of a 1 per cent. solution of sodium chlorid. In the empty glass No. 1, and in No. 2 is placed 1 c.c. of the fluid to be tested. The contents of glass 2 are well mixed, and 1 c.c. is then transferred from this to glass 3, and so on, the glasses thus containing in turn 1 c.c.; 0.5; 0.25; 0.125, and so on, of the fluid under investigation. Then into each glass in turn is dropped 2 c.c. of the 1 per thousand solution of starch. After the set of tubes has been kept on the water bath at 37 C. for half an hour, a few drops of an iodine solution are added to each glass, and the last glass that does not show a permanent blue tint is the index. For example, if this is glass 3, then 0.25 c.c. digests 2 c.c. of the 1 per thousand solution of starch in thirty minutes; 1 c.c. would digest 4 times as much, and thus we say that the diastase figure is 8. Or, to express it in a formula,

$$\frac{d}{30 \text{ minutes}} = 8.$$

In normal conditions the diastase content of the blood serum is from 8 to 16. In pathologic conditions it ranges from 128 to 1,024 or more. In the urine, the normal range is from 16 to 32. In his six cases of amyloid degeneration of the kidney, Winsløw found constantly normal diastase figures. Specimens can be kept on ice for a week or at room temperature for several days without modifying the diastase content; a film of toluol will protect against putrefaction while it does not affect the diastase action. In the one case in which the blood serum showed a jaundice tint, the diastase content was normal. With disease in the pancreas from obstruction of its outlet, there is retention of diastase; when approximately normal conditions are restored, the excess of diastase is thrown off through the kidneys.

Ugeskrift for Læger, Copenhagen

June 20, 1918, 80, No. 25

106 Quinin as Substitute for Pituitary Extract in Obstetrics. A. G. Lauritzen.—p. 979.

June 27, 1918, 80, No. 26

107 Calcium in Therapeutics. J. Buchholtz.—p. 1005.

108 Eczema from Contact with Fertilizer. P. Trautner.—p. 1016; A. Larsen.—p. 1017; O. Olsen.—p. 1018.

109 *Poisoning with Mineral Oils. Bjerrum and Chrom.—p. 1023.

109. Poisoning with Mineral Oil.—Bjerrum remarks that liquid paraffin and petrolatum are not poisonous, but that "petroleum" (probably he means kerosene) is very toxic for children. In a recent case, a child 15 months old died in a few hours after drinking a small amount of petroleum, presumably 4 or 5 gm. There had been violent vomiting immediately but the child died with symptoms of heart failure. Chrom comments on this case that Straume advises against the use internally of liquid paraffin and petrolatum as in his experiments on cats these practically always induced diarrhea and loss of appetite, together with somnolency. He found the lethal dose of petrolatum for a cat was from 72 to 86 gm. per kg. of body weight; the lethal dose of liquid paraffin was from 27 to 107 gm. Stubenrath, on the other hand, reported that he found them harmless when of American make. In any event, Chrom protests against the use of mineral oils in any form in the preparation of food.

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THE FIRST YEAR OF THE SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY*

ANTHONY BASSLER, M.D.

NEW YORK

The activities manifested at the first meeting of this section last year proved the wisdom of the House of Delegates in its establishment. Constantly spreading interest in it since that time is reason enough for its necessity and assures a progressive success. Although many of our gastro-enterologists and proctologists are now serving the country in efficient war work, the program, because of the rapidly increasing numbers of men interested in these fields, in quality and extent is but a small part of what was easily possible. Throughout the breadth of our beloved country, general practitioners, internists, surgeons and others are keenly in search of knowledge on these subjects, and they feel that this is a forum of first importance in which to help them. The House of Delegates builded well and it seems a pleasure on the part of many Fellows of the Association to prove it. In doing this no outside organization did other than its full share collectively and individually, and as your chairman, it pleases me to state that the American and Southern Gastro-Enterologic Associations, the American Proctologic Society and others have shown a most admirable spirit, a spirit of true fellowship of the highest fraternal type.

You will remember that Dwight Murray in the chairman's address last year said:

It seems to me that during our discussion of the symposiums much can be said which would be of great benefit to the military service and the life of the boys in the Army as to the care of their digestive and eliminative tracts. Advice along this line could come from no more competent body of medical men than are in this section of the American Medical Association, and I believe it would be pertinent, notwithstanding the fact that we shall have many good physicians as officers of the Army, and without doubt it would be welcomed. Nothing could make for greater efficiency in our Army than the keeping of the gastro-enterocolonic tract in a normal condition. Possibly the offering of such advice at the present time may be too late, but I would recommend the appointment of a committee of five to formulate rules for the care of the gastro-intestinal tract. Such committee should deal especially with nutrition and elimination, and submit its report to the general committee of national defense, if it is found that the medical advisory board would welcome such advice.

DEPARTMENT OF GASTRO-ENTEROLOGY IN MEDICAL SERVICE OF THE ARMY

As a result of this, a committee of five was appointed, consisting of Dwight Murray of Syracuse, M. E. Rehfuess of Philadelphia, William Gerry Morgan of Washington, Dudley Roberts of Brooklyn and William M. Beach of Pittsburgh. After indefatigable labor and much expense and time, they succeeded in having the Army authorities recognize gastro-enterology and proctology, with the appointment of men in the cantonments and for oversea service. It must be to our credit that the responses to the requests that went out were prompt, and soon practically all of the positions were filled with qualified men.

Thus it is plain to all that the two greatest epochs in the history of gastro-enterology and proctology that history records anywhere in the world have been accomplished in little more than a year's time: first, the recognition of this field of work by the largest national medical organization of any country in the world in the establishment of a separate section for it, and second, a recognition by the Army authorities of the fact that men so trained would be valuable additions to the Army medical staff in caring for the lads we are so proud of today. To the men who have had to do with bringing these two events about much credit is due.

DUTY OF THE PHYSICIAN IN WAR

In this moment of the nation's fight for right principle of free government, it would sadly behoove me to narrate on matters of medical topics. Beyond anything that these might be is the fact that we are at war with a country which seeks in medieval ways to fasten on the world the rule of "might makes right" by advanced methods of destruction and after years of preparation for it. Nothing that the human being holds dear—his work, his health and life, his loves and affections, his freedom, his spirituality, his achievements of the past, his country—nothing must be left him. The heart, soul and body of another counts for nothing against the sordid desire of this viciousness, and when this is brutally and ruthlessly carried out in antithesis of all laws, religions and ethics, there is nothing to do but to fight for the right, and we ennoble ourselves in doing so. God in his mercy will see us safely and securely through, but while we are passing through, the medical profession of America must do its share. At no time should we be the servants of the people and the country as liberally as at present. Our work in the war is tremendously important, and every one of us with real blood in his body must feel this. The country needs more medical men, and every

*Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

one who possibly can should serve. To you, gentlemen of the section, remember that a commission in this great work awaits you, an opportunity to serve your country and your fellow man, and the noblest of all professions.

ANOMALIES OF THE BILE DUCTS AND BLOOD VESSELS

AS THE CAUSE OF ACCIDENTS IN BILIARY SURGERY *

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CHICAGO

The rapid increase during recent years in the number of operations on the gallbladder and bile ducts has been accompanied by the report of a series of cases of injuries to the ducts and of severe hemorrhage from vessels in their vicinity.

This subject is of the utmost importance to every surgeon and merits a closer study of the causes of such accidents and of their prevention in the future.

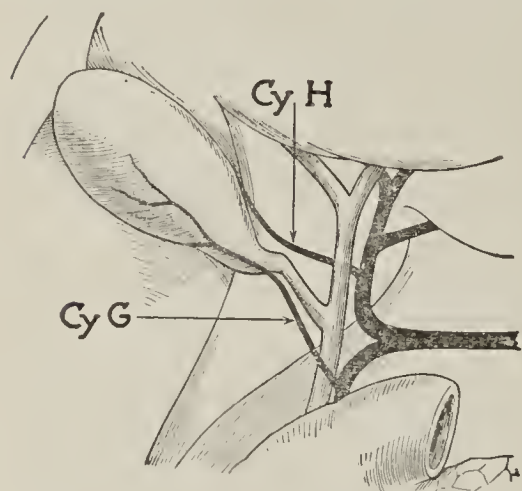


Fig. 1.—Normal angular mode of union of a short cystic duct with the hepatic duct well above upper border of duodenum. Specimen also shows two separate cystic arteries, one (Cy H) arising from the common hepatic artery and passing to the neck of the gallbladder, the second, or accessory cystic artery (Cy G), arising from the gastroduodenal artery and crossing the common duct. If one does not remember the possibility of such an accessory cystic artery, severe hemorrhage may result, and in the effort to grasp the bleeding vessel the common duct or the hepatic duct may be injured.

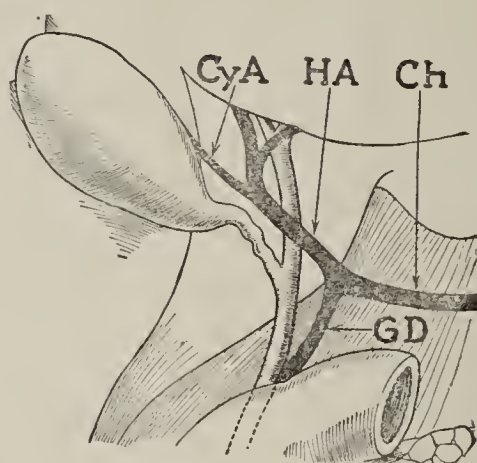


Fig. 2.—Anomaly of the hepatic artery (H A). Either the main hepatic or only the right branch passes across the front of the hepatic duct, making a wide arch toward the right before giving off the cystic artery (Cy A). The hepatic artery is thus liable to be injured tangentially in mobilizing the neck of the gallbladder during cholecystectomy. C H, common hepatic trunk or artery which divides into the hepatic artery proper (H A) and the gastroduodenal artery (G D).

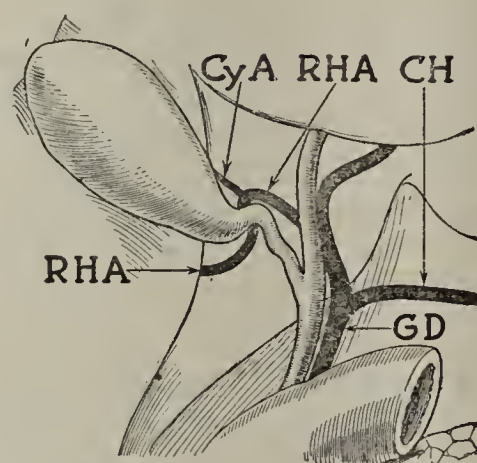


Fig. 3.—Right hepatic artery (R H A) runs parallel to cystic duct and then arches behind it at neck of gallbladder to enter right lobe of liver. Before doing so it gives off the cystic artery (Cy A) at neck of gallbladder. This anomaly is of great importance because the relatively large hepatic artery (size of radius in our specimen) may be injured during mobilization of neck of the gallbladder or of the cystic duct. C H and G D, as in Figure 2.

Eliot¹ has recently collected all of the published case reports of injuries of the bile ducts during operation. Twenty-one of twenty-three accidents occurred during cholecystectomy, and the remaining two during pyloric resections for cancer. There were three types of injury to the hepatic and common ducts: (a) removal of a portion of the wall; (b) complete division, and (c) removal of the junction of the cystic and hepatic ducts.

The most important factors in the etiology of such injuries of the ducts are:

1. The lack of knowledge on the part of the majority of surgeons that variations in the mode of union, course and length of the cystic, hepatic and common ducts are far more common than our textbooks on anatomy have led us to believe.

2. The presence of anomalies in the mode of origin and course of the cystic and hepatic arteries resulting in hemorrhage, and the inclusion of the bile ducts

either in the grasp of the artery forceps or in a ligature applied around the bleeding point.

3. The obliteration of landmarks as the result of inflammatory changes.

We are all familiar with the classical description in every textbook of anatomy, of the acute angle (Fig. 1) formed by the junction of the short cystic duct with the hepatic duct, and also with the mode of origin of the cystic artery from the right hepatic artery (Figs. 1 and 5) and its entrance into the gallbladder at the junction of its neck with the cystic duct. If these time honored relations were present, as we were formerly taught, in every person, no accidents would occur; hence we are greatly interested with the exceptions to the rule.

Our knowledge of the anomalies in the distribution of the blood vessels of this region is in great measure due to the investigations of Rio Branco² and Descomps,³ while the first to call attention to variations in the mode of union of the cystic and hepatic ducts was Ruge,⁴ whose work was confirmed by Kunze,⁵ Descomps³ and myself.

The most important vascular anomalies, according to Rio Branco and Descomps, are the following:

1. *Hepatic Artery (Right).*—(a) In 12 per cent., the main or the right hepatic artery crosses the front of the hepatic duct (Fig. 2).

(b) In 10 per cent. (Fig. 3), the right hepatic artery runs parallel to the cystic duct and might be injured during cholecystectomy.

(c) In 8 per cent., a right hepatic artery lying behind the hepatic duct makes a curve or arch toward the right of the hepatic duct and might easily be injured tangentially.

2. *Cystic Artery.*—(a) Anomalous origin of the cystic artery is present in 12 per cent. Of chief interest is its origin from the gastroduodenal artery, entering the gallbladder after crossing the common duct obliquely (Fig. 1).

(b) There may be two cystic arteries (Fig. 1). One artery may arise from the right hepatic, the other

* From the Department of Surgery, Rush Medical College.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Eliot, Ellsworth, Jr.: Surg., Gynec. and Obst., 1918, 26, 81.

2. Rio Branco: Surgical Anatomy of the Coeliac Axis, Paris, G. Steinheil, 1912.

3. Descomps: Bull. de la Soc. anat., 1910, 4, 328; Recherches d'anatomie chirurgicale sur les artères de l'abdomen, le tronc coeliaque, Paris, G. Steinheil, 1910.

4. Ruge, E.: Arch. f. klin. Chir., 1908, 77, 47-78.

5. Kunze, H.: Beitr. z. klin. Chir., 1911, 72, 491-504.

from the gastroduodenal or one from the right hepatic and the other from the common hepatic, or, finally, both from the left hepatic. Bleeding may occur if the second cystic artery is overlooked, mistaken for a strand of fibrous tissue, and divided before ligation.

(c) In the relation of cystic artery to hepatic duct, in 27 per cent. the cystic artery arises on the left side of the hepatic duct and must cross in front of it (Fig. 4) to reach the gallbladder.

3. *Gastroduodenal Artery*.—This is of importance in common duct operations.

(a) In 38 per cent., this artery lies in a plane anterior to the common duct at the level of the head of the pancreas.

(b) In 20 per cent., either the main artery or a branch (Fig. 5) crosses in front of the common duct and may be injured during supraduodenal cholecystectomy.

ANOMALIES IN THE MODE OF UNION OF THE CYSTIC AND HEPATIC DUCTS

The first publication on the various types in the modes of

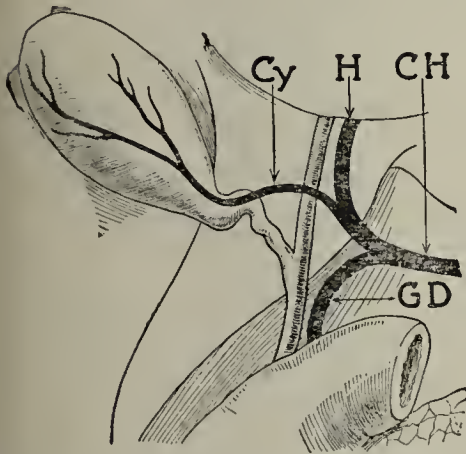


Fig. 4.—Normal angular mode of union of the cystic and hepatic ducts to form the common duct. The cystic artery (Cy) arises from the right hepatic artery (RH) in the normal manner, but crosses the anterior surface of the hepatic duct. Note triangle formed by cystic artery with hepatic and cystic ducts. CH and GD, as in Figures 2 and 3.

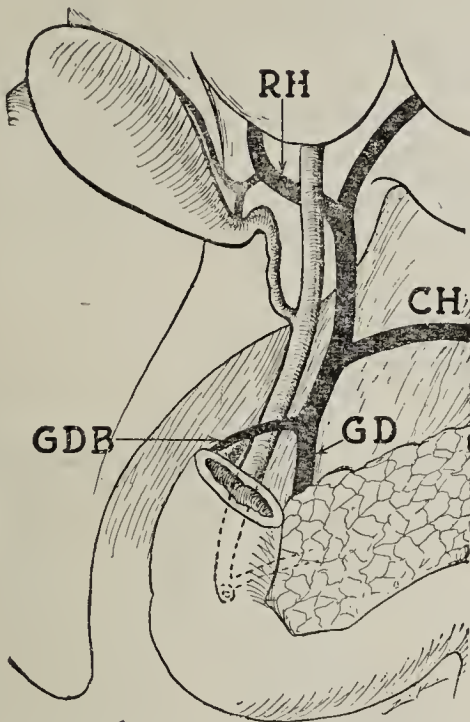


Fig. 5.—Most frequent mode of origin of the cystic artery and also of an anomalous branch of the gastroduodenal artery crossing the common duct. The cystic artery usually arises from the right hepatic artery (RH) shortly after the latter passes behind the hepatic duct. Note branch (GD B) of gastroduodenal artery (GD) crossing common duct near its lower end. CH, as in Figures 2, 3 and 4.

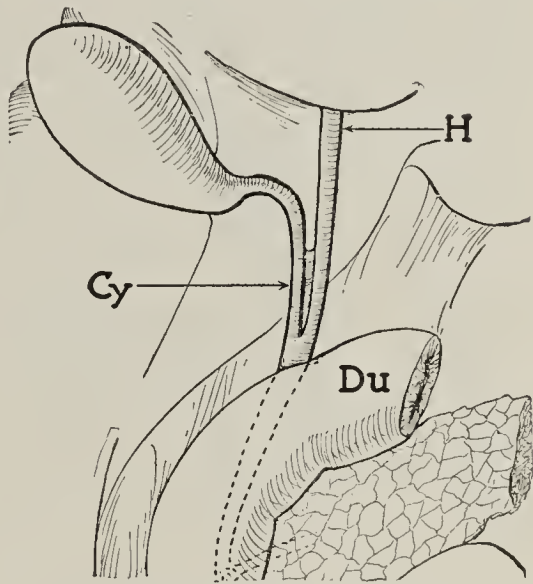


Fig. 6.—Short parallel type of mode of union of the cystic and hepatic ducts. The cystic duct (Cy) runs parallel to the hepatic duct (H) either to the upper border of the duodenum or to the upper border of the pancreas. The two ducts are firmly bound together by fibrous tissue.

union of the cystic and hepatic ducts, and the relative frequency of each type, is that of Ruge in 1908.

Before giving the results of Ruge's observations and those of Kunze and Descomps and of my own work, it is necessary to explain certain terms. By normal angular mode of union, or Type 1, we refer to the acute angle (Fig. 4) formed by the cystic with the hepatic ducts when they unite to form the common duct. This type, up to the time of the publication of Ruge's paper, was thought to be the only form of mode of union of the two ducts. Type 2, or parallel mode of union, refers to those cases in which the cystic runs parallel to the hepatic duct for a variable distance, the two ducts being held together by a more or less firm connective tissue septum. If the two ducts run parallel for only a short distance, as, 2.5 cm., it is called the "short parallel" type, while if they take a parallel course for a longer distance, as, 5 cm. or more, the term "long parallel" type is applied. In my own observations I have used the term "short parallel" for those cases (Fig. 6) in which the two ducts run parallel to the upper border of the duodenum, and "long parallel" for the cases (Fig. 7) in which the two ducts run parallel until they unite a short distance above the

ampulla, that is, within the head of the pancreas. The third of the chief divisions of modes of union is called the "spiral type." Here the cystic duct winds either around the front (Fig. 8) or the posterior surface of the hepatic duct (Fig. 9) before entering it to form the common duct. Thus the cystic duct can describe either a quarter, half, three-quarters or complete spiral around the hepatic duct.

Both of these two variations—the parallel and the spiral type—are, as we shall see, of the utmost importance from a surgical standpoint. Kunze failed in his thirty-nine cases to find any variations of the spiral type.

I became interested in the subject of anomalies of the blood vessels and bile ducts after a severe hemorrhage occurred from an anomaly of the cystic artery during a cholecystectomy, and decided to study the relative frequency at least of the modes of union in a larger number of individuals than any previous investigator. I have observed the various modes of

union of the cystic and hepatic ducts in 100 necropsies, the material for which I obtained through the cooperation of the Pathological Department of the Cook County Hospital. My results can be best understood when compared with those of Ruge, Kunze and Des-

FREQUENCY OF MODES OF UNION OF CYSTIC AND HEPATIC DUCTS

	Normal Angular		Parallel		Spiral	
	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
Ruge (43 cases)	14	33	12	29	16	38
Kunze (39 cases)	20	51	19	49	..	..
Descomps (50 cases)	40	80	6	12	4	8
Eisendrath (100 cases)	75	75	17	17	8	8

comps in the accompanying table. It is necessary, however, to call attention to the fact that my own statistics were the result of 100 observations, while those of the others were considerably smaller, namely, Ruge 43, Kunze 39 and Descomps 50; hence my own percentages are of more value as to relative frequency of the various types of anomalies.

A study of this table reveals the fact that the observations of Descomps and my own agree very closely. I feel confident that the spiral type does not occur as often as Ruge asserts, and that Kunze must have

overlooked some examples of this type if he did not find any. Our own specimens were prepared by injecting a 15 per cent. bismuth paste while warm through the fundus of the gallbladder and causing it to distend the cystic, main hepatic and common ducts so that dissection could be more readily carried out.

Roentgen-ray plates were also made of the modes of union, a far more accurate method than any previous observer had employed.

One of our specimens showed a condition of great surgical interest that has not been described elsewhere. In this individual the ducts from the right and left lobes of the liver did not unite until some distance beyond the hilum. The cystic duct was found lying (Fig. 10) in the fork between the right and left hepatic ducts and entered the anterior surface of the common hepatic duct to form the common duct.

I did not study the anomalies of the blood vessels because this subject had been thoroughly covered by Rio Branco and Descomps. We did, however, encounter many of the anomalies described by

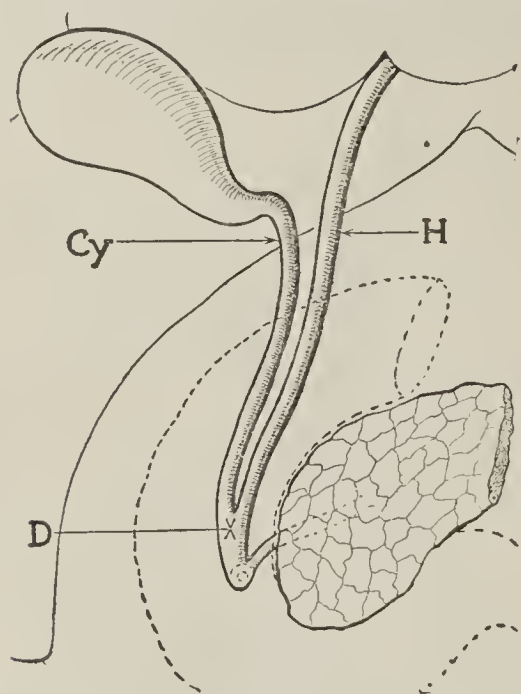


Fig. 7.—Long parallel type of mode of union of cystic and hepatic ducts. In this type the hepatic (H) and cystic (Cy) ducts run parallel to within a short distance of the ampulla of Vater. The common duct (D) varies in length from half an inch to an inch, lying usually within the head of the pancreas.

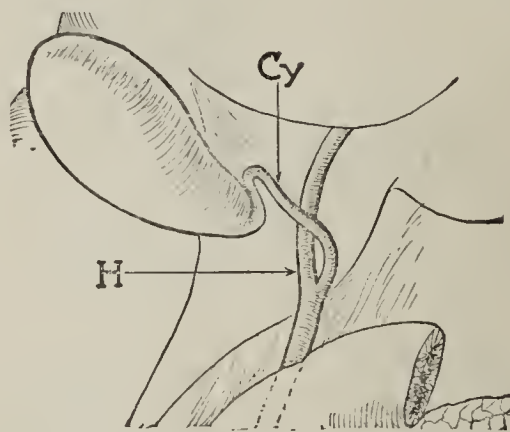


Fig. 8.—Anterior spiral type of cystic duct. The cystic duct (Cy) crosses the anterior surface of the hepatic duct (H) and then enters its left surface to form the common duct.

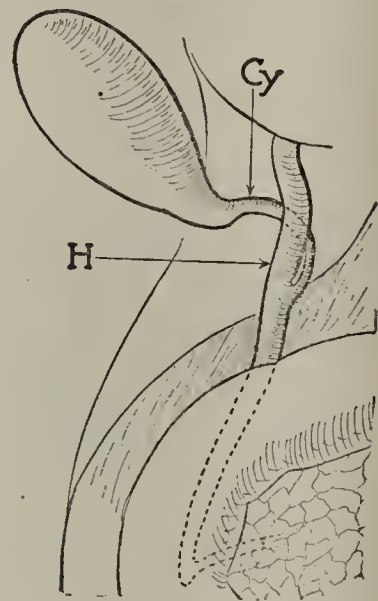


Fig. 9.—Posterior spiral type of cystic duct. The cystic duct (Cy) passes behind the hepatic duct (H) and enters its left surface to form the common duct.

them as being of importance in biliary surgery (Figs. 2, 3, 4 and 5).

Of what interest are these anomalies of the bile ducts and blood vessels to the surgeon? I am firmly convinced that a knowledge of their existence and the ability to recognize them during operations will prevent the majority of the accidents that have been reported. No doubt there are many other instances of unexpected severe bleeding and injuries of the ducts that have escaped publicity.

CONCLUSIONS

Anomalies of the blood vessels and mode of union of the cystic and hepatic ducts are of importance to the surgeon because the following conditions may occur:

1. *Blood Vessel Anomalies.*—(a) When the right hepatic artery runs close to the cystic duct and neck of the gallbladder as in Figure 3, or when the hepatic artery arches far to the right of the main hepatic duct, a segment of the wall of the right hepatic artery may be torn off during cholecystectomy.

(b) When the right hepatic artery (Fig. 2) or the cystic artery (Fig. 4) crosses the front of the main

hepatic duct, they may be torn during removal of calculi from the cystic or hepatic ducts. The same is true when the main trunk of the gastroduodenal artery or a large branch crosses the lower end of the common duct (Fig. 5).

(c) When the cystic artery arises from the gastroduodenal (Fig. 1), it can be easily overlooked and severe hemorrhage occur. When two cystic arteries are present, one of them can be divided unless the possibility of such an anomaly is thought of.

2. *Bile Duct Anomalies.*—(a) The short parallel type (Fig. 6) is chiefly of interest because such a cystic duct is firmly adherent to the hepatic duct, and rough manipulation may tear off a portion of the wall of the adjacent hepatic duct. The short parallel type was found in eleven of 100 bodies.

(b) The long parallel type (Fig. 7) is of interest for the reason just given and in addition thereto for two others: first, a calculus lying in such a long duct may compress the hepatic duct and give rise to obstructive symptoms like those of a calculus in the hepatic or common duct, and second, our experimental work⁶ has shown that a duct may dilate

and form a new gallbladder and be the cause of a recurrence of symptoms. The long parallel type was found in six of 100 bodies.

(c) The spiral types (Figs. 8 and 9) are of interest, first, because a calculus lying in them may compress the hepatic or common duct and simulate the presence of calculi in these ducts; secondly, too strong traction of the gallbladder during cholecystectomy may tear off such a spiral duct and the torn proximal end will be difficult to identify; finally, if we wish to remove calculi from such a spiral duct or wish to excise the duct itself, we must bear in mind that the duct lies in the closest proximity to the hepatic duct throughout its course. I have found the anterior spiral type in five and the posterior spiral type in three of 100 bodies.

(d) The common duct is extremely short in both the short and long parallel types, especially in the latter, varying in length from 1 to 2.5 cm. The common duct varies greatly both in length and caliber in normal individuals.

30 North Michigan Avenue.

6. Eisendrath, D. N., and Dunlavy, H. C.: The Fate of the Cystic Duct after Cholecystectomy: An Experimental Study, Surg., Gynec. and Obst., 1918, 26, 110.

ABSTRACT OF DISCUSSION

DR. WILLIAM D. HAGGARD, Nashville, Tenn.: We are encountering so many pathologic conditions in the gallbladder and ducts that it behooves us to be on our guard for these abnormalities. We ought to be very careful of the common duct itself, because it can be injured so easily, and sometimes you can hardly explain how. In one case we had a rather small gallbladder and we took a little bulging to be the ampulla, of which Dr. Eisendrath spoke. It was opened accidentally and bile and stones escaped. It was so large that it appeared to be the gallbladder. I should not have believed such a condition possible. In the meantime the gallbladder had been amputated and the duct cut loose to the liver. Fortunately, after removing the obstruction at the ampulla of Vater, we were able to unite it to the cut divisions of the two hepatic branches.

DR. E. E. MONTGOMERY, Philadelphia: I had one experience in which a patient had undergone a cholecystectomy, and subsequently a calculus of some size formed in the remnant of the cystic duct. Such an occurrence emphasizes what we have heard as to the importance of the removal of the cystic duct flush with the common duct, thus preventing the existence of a stagnation of the flow.

DR. J. A. ATTRIDGE, Port Huron, Mich.: I had a case in which I could not find any gallbladder. The patient had symptoms of obstruction and I found two stones in what I presumed to be the common duct. We were able to remove them, but we could find no evidence whatsoever of the gallbladder. In looking up the literature at my command I find only three such cases reported.

DR. DANIEL N. EISENDRATH, Chicago: A stone in a cystic duct lying parallel to the hepatic duct can compress the common duct and cause symptoms simulating those of obstruction to the common duct. This is mentioned in one of the cases of the same form of anomaly referred to by Kehr in his book. I could not take up in this paper the subject of abnormalities of the gallbladder. We did not encounter any of the unusual types of gallbladder mentioned in the discussion. There are statistics on the absence of the gallbladder, but the percentage of its occurrence I do not know. We have all sorts of abnormalities of the gallbladder and I encountered one not long ago which may be of interest to you. In this instance a diverticulum of the gallbladder projected from the main portion of the gallbladder and contained fifty-six stones. The accessory hepatic ducts emptied not in their normal manner into the main hepatic duct, but into the gallbladder itself, which is very unusual.

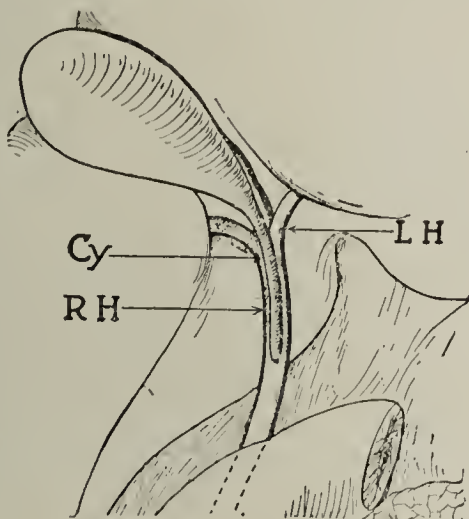


Fig. 10.—Unusual mode of union of cystic and hepatic ducts. Right (R H) and left (L H) hepatic ducts unite far beyond the liver, and the cystic artery passes through the fork between the two branches of the main hepatic duct. The cystic duct (Cy) enters the anterior surface of the common hepatic duct.

THE THERAPEUTICS OF TETANUS*

HERMANN B. GESSNER, M.D.

NEW ORLEANS

The measure of the value of therapeutic methods must necessarily be the clinical results. Too often conclusions relative to these results are hastily formed on the basis of a small number of cases. This is especially true of tetanus.

In order to form a just estimate of the relative value of the several methods of treatment of this disease in civil practice, I have studied 427 case reports from the records of the Charity Hospital of Louisiana located in New Orleans. From among these cases, recorded in the years from 1906 to 1918, I have eliminated twenty-five cases of tetanus neonatorum, believing that the several factors affecting these cases, such as birth trauma, nutrition and syphilis, would make it difficult for me to arrive at just conclusions regarding the special therapeutics of tetanus. Thirty-four cases were eliminated because of incomplete data or because the diagnosis seemed not sufficiently well established. Thus 368 case reports were available, a number which seemed sufficient to justify comparisons of some value as between rival methods of cure.

As a preliminary to the detailed study of these cases, I have thought it of interest to compare the mortality

TABLE 1.—MORTALITY BY DECADES

Period	Discharged	Died	Total	Mortality, per Cent.
1840-1849 (incomplete).....	5	11	16	68.7
1850-1859.....	17	70	87	80.4
1860-1869.....	14	43	57	75.4
1870-1879.....	17	58	75	77.3
1880-1889.....	13	68	81	83.9
1890-1899.....	33	117	150	78.0
1900-1909.....	54	119	173	68.7
1910-1917 (7 years).....	105	229	334	68.5
Mortality before and after introduction of serum:				
1840-1889.....	66	250	316	79.1
1890-1917.....	192	465	657	70.7

by decades, going back to the earliest records available. These records, as shown by Table 1, give a mortality of 68.7 per cent. in the decade from 1840 to 1849, varying up and down through a maximum of 83.9 per cent. in the period from 1880 to 1889, then coming steadily down to 68.5 per cent. in the period from 1910 to 1917, the current period. Comparing decades, we find the gross undifferentiated mortality about the same now as it was seventy years ago.

Comparing the period before the introduction of antitoxic serum with that subsequent to this epoch-making innovation, we find that the period from 1840 to 1889 gives a mortality of 79.1 per cent., and from 1890 to 1917 a mortality of 70.7 per cent. It should be mentioned here that throughout this paper all patients discharged have been contrasted with all patients that died, without considering that some of those discharged afterward died. This fact tends to make the mortality less than it would be if these cases were eliminated. The reduction in mortality from 79.1 per cent. to 70.7 per cent., while not insignificant, is small compared with that in the other diseases, such as diphtheria and meningitis, in which antitoxic serum is employed. We must admit that we have progressed but little in the treatment of this disease and that strenuous efforts

Effect of Habit in the Choice of Food.—Established habits in the choice of food are not very readily changed. When a new dietary is adopted in opposition to the dictates of appetite and pursued under protest, an unconscious reduction of intake may be expected. Some loss of weight may follow, but equilibrium at a new level will ordinarily be established. Few of us have discerned the simple principle to which Lusk has lately called attention; that we can be large people, maintained by large rations, or much smaller people with a much lighter requirement. Whether the reduction is to be desired or not depends on the original condition. For a considerable fraction of the adult population weight reduction is calculated to add to the expectations of life.—Percy G. Stiles, *Health News*.

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

must be made to correct our errors and lessen the heavy mortality rate.

PROPHYLAXIS IN THREE HUNDRED AND SIXTY-EIGHT CASES

Taking up the question of prophylaxis, in our 368 authentic cases of tetanus reported during a period of twelve years, we find twelve patients, each of whom received a preventive dose of serum, of whom four died—a mortality of 33⅓ per cent. Of these twelve cases, two should have had the dose repeated because of continued suppuration in wounds originally liable to tetanus infection. In one of them, suppuration in an arm-stump continued forty-four days before onset; in another there was metatarsal necrosis, following a gunshot wound, for seventy-two days before onset. Experience has shown that in patients presenting likelihood of tetanus infection the preventive dose should be repeated after ten days if suppuration continues. This precaution is very generally neglected by surgeons in the charity hospital. Continuing the analysis of the cases of twelve patients who developed tetanus notwithstanding a preventive dose of antitoxin, we find that four received this dose from five to eight days after the injury, three recovering and one dying.

It is the duty of the surgeon to inquire whether patients suffering from accidental injury and coming under his care after first aid has been given, have received antitetanic serum. Its prompt administration, even after the lapse of several days, may avert the disease or diminish its severity. Elimination of the six cases mentioned leaves six unexplained cases of tetanus following preventive doses in the course of twelve years, or one case for every two years. Though serum did not prevent tetanus in these twelve cases, it appears to have lessened the intensity of the disease, as the mortality for the series was 33⅓ per cent.

TABLE 2.—COMPARATIVE MORTALITY IN CASES OF TETANUS UNDER DIFFERENT METHODS OF TREATMENT

Method of Treatment	Adults			Children			Total	
	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.	Cases	Mortality, per Cent.
Serum subcutaneously given..	43	33	76.7	51	33	64.7	94	70.2
Serum introduced into the muscles, nerves, veins, sub-arachnoid space	37	28	75.6	16	8	50.0	53	67.9
No serum given; treatment by sedatives, excluding chlorbutanol.....	54	38	70.3	55	40	72.7	109	71.5
No serum given; treatment by sedatives, including chlorbutanol.....	52	36	69.2	40	25	62.5	92	66.3
Magnesium sulphate introduced subcutaneously or into subarachnoid space....	11	8	72.7	9	6	66.6	20	70.0
Totals	197	143	72.5	171	112	65.4	368	69.2

Assuming that all the patients returned to the charity hospital for treatment, and taking into consideration the large number of punctured, lacerated, crushed and gunshot wounds treated annually in the accident service (133,102 cases of all kinds treated in the accident service during the period from 1906 to 1917), it seems clear that the preventive use of antitetanic serum has fully established its claim to recognition. This experience leads us to urge that a campaign of education be initiated among the less well informed classes of our population, in order that the mortality from this

preventable disease may be reduced to the vanishing point. Too often the injured of these classes content themselves with the use of bacon fat, turpentine and cockroach poultices for punctured wounds when a preventive dose of serum would insure safety and prevent the pain, disability and loss of life consequent on the neglect of this precaution. It may be well, before I leave this phase of the subject, to refer to the question of anaphylaxis and of primary hypersensitiveness to serum. I have never known a death to result from either cause. In all patients exposed to tetanus infection the serum should be given, regardless of the remote danger from animal proteins.

EFFECTS OF VARIOUS METHODS OF TREATMENT

We now come to a study of the comparative mortality under different methods of treatment, as shown in Table 2. From this table it will be seen that the

TABLE 3.—COMPARATIVE MORTALITY OF CASES OF TETANUS UNDER VARIOUS TOTAL DOSES OF SERUM

Dose	Adults			Children			Total		
	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.
Less than 5,000 units....	33	26	78.7	54	36	66.6	87	62	71.2
Between 5,000 and 10,000 units	24	20	83.3	10	4	40.0	34	24	70.6
Over 10,000 units.....	17	11	64.7	6	2	33.3	23	13	56.5

mortality rate for children was markedly lower than that for adults, except when the treatment was by sedatives, excluding chlorbutanol, being here 72.7 for children as compared with 70.3 for adults. Cases treated without serum by sedatives, including chlorbutanol, were compared with those treated without serum by sedatives, excluding chlorbutanol because of the claims made for this drug. As a matter of fact, the chlorbutanol cases gave the lowest joint (adult and children) mortality (66.3 per cent.), slightly lower than that for serum given otherwise than subcutaneously. Our results from serum given otherwise than subcutaneously, a method highly praised by Ashhurst of Philadelphia, have in the mass proved disappointing, though individual casts have shown striking results. For children (24 cases) it gave the lowest mortality (50 per cent.).

EFFECTS OF TREATMENT ACCORDING TO DOSAGE

Thinking that the disappointing results from serum, whether given hypodermically or introduced into veins, muscles, nerves and subarachnoid space, might be due to the small quantity employed, I have tabulated the cases according to the quantity administered, as shown in Table 3.

The figures showed a definite improvement with the increase of the doses, with the sole exception of those for the adults receiving between 5,000 and 10,000 units. In the children especially the drop from 66.6 to 40 per cent. and to 33.3 per cent., as the dose went up, was striking. As the large doses were those given otherwise than subcutaneously, it is a question whether the size of the dose or the method of administration is to be credited with the better results. It is interesting to note that one adult patient in a fatal case received in nine days 192,875 units, given otherwise than subcutaneously.

As a matter of interest, the mortality for varying periods of incubation and for the varying duration of illness before the patients' admittance to the hospital was analyzed. The accepted idea that the mortality varies inversely with the length of the period of incubation was supported by our analysis (Table 4). Seventy-five cases with an incubation period of less than seven days had a mortality of 82.6 per cent. Ninety-six cases with an incubation period of more than seven days had 59.3 per cent. mortality. Yet one patient with forty-four days of incubation died and one with three days recovered.

One might have thought that patients treated in a hospital shortly after the onset of symptoms would give a smaller mortality rate than those remaining ill outside for some days before treatment was instituted. Our figures, as set forth in Table 4, show that ninety patients, ill for less than two days before admittance, had a mortality rate of 75.9 per cent.; that forty-three patients, ill from two to seven days, had 58.1 per cent., and that thirteen patients, ill for more than seven days, had 38.4 per cent. Possibly the reduced mortality after

TABLE 4.—COMPARATIVE MORTALITY OF CASES OF TETANUS ACCORDING TO (A) PERIOD OF INCUBATION, AND (B) DURATION OF ILLNESS BEFORE ADMITTANCE TO HOSPITAL

	Adults			Children			Total		
	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.	Cases	Deaths	Mortality, per Cent.
A: Duration of Incubation:									
Under seven days.....	67	56	83.5	8	6	75.0	75	62	82.6
Over seven days.....	86	51	59.3	10	6	60.0	96	57	59.3
B: Duration of Illness:									
Under two days.....	90	68	75.5	14	11	78.5	104	79	75.9
Two to seven days.....	39	24	61.5	4	1	25.0	43	25	58.1
Over seven days.....	12	5	41.6	1	0	0.0	13	5	38.4

several days was due to the elimination of the worse, fulminating patients, who died within two or three days.

MINOR FACTORS IN TREATMENT

Another element in the treatment of tetanus, which does not appear from these figures, lies in the personal equation of the attending surgeon and nurses. These patients require a detailed care for nutrition, skin cleansing, bowels, etc., which is very laborious. They need the greatest degree of quietness and gentleness. Too often their cases are looked on as necessarily fatal, and, as unwelcome guests, they are screened off not only from view but also from active attention. These cases should be concentrated in the hands of attendants sanguine of obtaining good results by hard work and anxious to lessen the mortality of this dread disease.

CONCLUSIONS

1. All victims of accidental injury of a punctured, lacerated, crushed or gunshot character, especially when associated with foreign bodies or with exposure to street, garden or stable contamination, should receive 1,500 units of antitetanic serum at the first treatment.
2. All patients of this type coming secondarily under observation should receive the serum, though several days may have elapsed.

3. If in this class of cases suppuration continues, the administration of the serum should be repeated at intervals of ten days, as we have reason to believe that its protective influence does not last beyond this time.

4. Patients coming under treatment for tetanus should be isolated in quiet, comfortable rooms, under the care of surgeons and nurses interested in their treatment and confident of improving on past results by devoted attention.

5. Treatment should be by large doses of serum, of not less than 10,000 units to the dose. Administration by the intravenous, intraneural, intramuscular and subarachnoid methods should be more extensively employed for the purpose of bringing out their value more thoroughly.

6. Food and water, skin cleansing, the care of the bowels and the use of sedatives to calm anxiety and relieve pain must all receive the closest attention.

ABSTRACT OF DISCUSSION

DR. SAMUEL J. MELTZER, New York: I am going to demonstrate three groups of lantern slides. The first group shows the rapid favorable action of magnesium sulphate on tetanus. The first picture of this group shows the animal in extreme tetanus with trismus and opisthotonos. In the second picture you see the same animal without opisthotonos and trismus, and the general tetanus is greatly diminished. You see the buret from which the animal received an intravenous injection of magnesium sulphate. In the third slide all manifestations of tetanus are gone; the animal received more of the magnesium solution. The cannula from the jugular vein was now removed. In the fourth picture you see the animal lying on its abdomen, the head slightly raised, in a normal position on the floor. Fifteen minutes later the animal was running about in the laboratory in a natural condition.

In the second group of slides I wish to demonstrate the danger of an overdose of magnesium and the resuscitation from it. In the first slide you see the animal with trismus and moderate tetanus. In the second slide the animal is completely relaxed and in a dying condition; there were no respirations and the pulse was extremely feeble. The animal received now an intravenous injection of calcium chlorid. In the third slide you see the same animal two minutes later, standing up in a normal fashion.

In the third group the favorable effect of subcutaneous injections of magnesium is illustrated. Four animals received simultaneously similar lethal doses of magnesium. Two were kept as controls; the other two received daily subcutaneous injections of magnesium sulphate. The first picture shows six days later the two control dogs; one in extreme tetanus and the other dead. The second picture shows the treated animals; they are relaxed, lying on their abdomen, their heads slightly erect, in a normal fashion. I wish to emphasize that the use of magnesium sulphate does not exclude the simultaneous treatment by serum.

Permit me to add a few words regarding the use of statistics. If they should have any value they must be analyzed with great care. With regard to magnesium in tetanus, let me quote two illustrations. One instance occurred in the progressive clinic from which Dr. Gessner hails. An advanced case of tetanus received an intraspinal injection of magnesium. Next day the patient died with pulmonary edema. The conclusion was drawn that magnesium is liable to cause pulmonary edema. Now, pulmonary edema is a frequent complication of tetanus. In thirty-two necropsies of untreated cases of tetanus, Frank found severe pulmonary complications, including edema, in twenty-six. Another striking illustration are the statistics from the English committee. Their thirty cases include the administration of Epsom salts by the mouth and by the rectum, and contains not a single case which was treated by magnesium in a proper manner. On the other hand, Pribam, in October, 1916, reviewed 148 articles from the Teutonic literature. He says that at present magnesium

sulphate is the best palliative remedy we possess for the treatment of tetanus.

DR. ALBERT J. OCHSNER, Chicago: The fact that Dr. Gessner, with his opportunity for observing the enormous material that his hospital presents, is giving attention to this subject, means that within a few years we will have practical results that will be worth while. So far as the use of antitoxin is concerned, I have become more and more convinced from our experience that it is the very large dose that gives the patient a chance. This has lately been confirmed by a very large number of observations in connection with the Italian army. During the campaigns of 1914 and 1915 in France, Professor Tezzoni discovered that there was a varying incidence. The lowest incidence was about 0.5 per cent., the highest from 2 to 2.5 per cent. (I think these figures are too conservative.) These figures were unsatisfactory to Professor Tezzoni. Most, if not all, of the wounded had received a prophylactic dose of tetanus antitoxin. He suspected that a larger prophylactic dose might result in greater efficiency of the treatment. Accordingly, he instituted a series of experiments on animals in his own laboratory at Bologna. These experiments developed the fact that about ten times what had been previously regarded as a maximum prophylactic dose could be administered with safety.

Immediately he made this announcement to the surgeons of the Italian army and thereby established a new standard of treatment. His method of administration was through four avenues: subcutaneously, intravenously, intermuscularly and intraspinally.

He then instituted a personal inspection of the Italian wounded. He observed 40,000 gravely wounded soldiers, all of whom had received the heroic prophylactic dose. In this group eleven cases of tetanus developed. Four patients died. Three lay in No Man's Land one, two and three days, respectively, before receiving the prophylactic dose; the history of the fourth case was not available; hence but one fatal case out of the 40,000 cases remains unaccounted for.

The 40,000 Italians each received ten times the usual dose of 1,500 units which Dr. Gessner has given. During the last few years we have applied this principle in our clinic.

DR. W. ESTELL LEE, Philadelphia: In view of Dr. Meltzer's speaking of the lack of value of statistics, it may seem presumptuous of me to quote statistics. I think, however, it would be very unfortunate for medical men, particularly those who may have to deal with war wounds, to have any doubt cast on the value of the prophylactic use of antitetanic serum. The experience is a personal one, the factors are constant because it was the same hospital, the same nurses, the same surgeons. The French wounded, 250, were received at this hospital after the battle of the Marne. Over 60 per cent. of them had clinical symptoms of tetanus and no antitoxin. From shortly after the battle of the Marne until after the battle of the Champagne over 4,000 wounded were received. In none of them were the wounds excised, as is now done, and unfortunately in most of them the wounds were not even incised, and no antiseptic solutions were used of any kind. In that 4,000 received during the administration of the antitetanic serum, only twelve cases of tetanus developed in those we cared for. A little more striking was the first series that came shortly after the introduction of the use of antitetanic serum. Five hundred cases came during a period of three months from the first attack at Verdun to the battle of the Champagne. In these 500 only one developed clinical symptoms of tetanus while in our care. Our faith in the antitetanic serum as a prophylactic measure had become so fixed that we immediately tried to find the Poste de Secours from which he came. Each man received had his previous medical treatment on his card. This man had a record of a hypodermic, and we assumed and he told us that that hypodermic was one of antitetanic serum. After investigation we had a reply from this medical officer saying that what he had given was morphin and not antitetanic serum. Any one who has seen the wounded who have not received antitetanic serum and those who have, can have no doubt of its value, and I feel that it would be a great mistake for us to expect to receive by excision of wounds or the use of antiseptics the protection against this dread complication that the serum has given.

DR. C. J. HOLMAN, Mankato, Minn.: I would like to add a few words as to what has been said in reference to the use of magnesium sulphate, as suggested by Dr. Meltzer and explained by him. I have had an opportunity to treat about a dozen cases of tetanus. My first case was one of suppurative appendicitis. By the aid of magnesium sulphate and the antitetanic serum, the man is still living. The next patient I saw had a crushing injury to the hand. She was brought into the hospital on the fourth or fifth day and died after the third injection of magnesium sulphate. She probably would have died sooner than that without the magnesium sulphate. I did not attribute her death to the magnesium sulphate. In another case of crushing injury to the hand, the patient recovered in about three weeks. He was brought to the hospital on about the seventh or eighth day. A man who had let the hand fall into the knives of a corn shredder also made a good convalescence. He was given magnesium sulphate and also the antitetanic serum. The dose was, I remember it, 10 minims of a 25 per cent. solution for a person weighing about 150 pounds. The dose was increased so that it was given in large enough amounts to control the spasm, to release the spasm and make the patient comfortable. Another man had a wound of the knee produced by the kick of a gun. Of course, he contracted tetanus from his soiled clothing. The symptoms began about the tenth day. Magnesium sulphate, intraspinally, controlled the spasms and made him fairly comfortable, though he died about ten days later.

DR. CLARK D. BROOKS, Detroit: The reason the mortality has been high is simply that the prophylactic dose is not given early. I always give a prophylactic dose in compound fractures, punctured or lacerated wounds. Our surgical intern does not wait for directions from us; he gives the patient a prophylactic dose of antitetanic serum. The intern is instructed that if the patient sustained an injury several days before he gets 20,000 units. That is the reason we are getting a lower mortality. We also use magnesium sulphate intravenously and intraspinally. As far as we can see it does not matter. We will not lower mortality until we give our patient prophylactic serum. Every day that the patient has the wound and is untreated the higher the mortality. He should have 5,000 to 10,000 units every second day, and 50,000 units is not too large to give a patient as soon as you see him when he has tetanus four or five days. We give as high as 100,000. I have not seen bad results from large doses, but have seen bad results from small doses.

DR. H. B. GESSNER, New Orleans: What I meant to bring out in my paper was, first, the importance of prophylaxis, and second, the fact that we do not know positively the best way to treat tetanus. The idea of my paper was suggested to me by a colleague in the hospital. He knew I was interested in tetanus; he stopped me and asked me how to treat a case. I told him I did not know; then determined to look up our results with the different methods.

I have to admit the truth of what Dr. Meltzer says in regard to the question of statistics. It is easy to go astray in using them. However, I believe, when you have a large number of cases it is possible to draw conclusions. Referring to the magnesium treatment, I have had two consecutive cases of tetanus recover under magnesium sulphate given hypodermically. On the other hand, I recall a little colored boy who punctured his foot on a nail on Monday; Friday he had symptoms of tetanus; on Saturday he came into my hands. I gave him serum intravenously, intramuscularly, intraneurally and into the subarachnoid space. Within three days he was much better, and within a week he made a good recovery. Every one can recall cases of recovery from tetanus under individual methods of treatment. The question is, What method offers the best prospect of cure? In seeking the answer to this question, I believe, after all, we must depend on a large mass of statistics, taking stock and finding out where we stand.

Regarding pulmonary edema, it is a fact that there is some relation between tetanus and lesions of the lungs. I can recall cases in which the patients died of pneumonia. In conclusion, let me say that I am encouraged to try magnesium sulphate more persistently than before.

THE ACTIVE CONSTITUENT OF THE
THYROIDCHEMICAL GROUPS THAT ARE RESPONSIBLE FOR
ITS PHYSIOLOGIC ACTIVITY*

E. C. KENDALL, PH.D.

ROCHESTER, MINN.

Since Baumann,¹ in 1896, discovered that iodine is a normal constituent of the thyroid gland, it has been obvious that the isolation in pure crystalline form of the compound containing iodine was necessary before we could know the function of the gland and the relation of iodine to this function.

There are many mechanical difficulties involved in the isolation of the iodine compound. It occurs at best in one part in 4,000, and during many months of the year the amount present is not more than one part in 10,000 of fresh glands. For the completion of this work, eight years of practically continuous investigation and more than 2 tons of thyroid glands have been used. Some 20 gm. of the active constituent in pure crystalline form have been separated. The investigation, besides involving the separation of this substance, has also included the determination of its chemical formula both empiric and structural, together with its synthesis, and the investigation of its physiologic action as well as the treatment of clinical conditions. The ultimate analysis of the compound is: C, 22.74; H, 1.72; O, 8.21; N, 2.38; I, 65.10. Its structural formula is shown in Figure 1.

The physiologic investigation of this substance has demonstrated that in pure crystalline form it will increase the energy output of the animal organism. In emphasizing this fact I am using Plummer's explanation for the function of the substance. Heretofore the activity of the thyroid has been studied and expressed mainly in clinical terms. Instead of saying that this iodine compound will relieve the symptoms of myxedema, that it will produce hyperthyroidism, that it has this or that effect on the kymograph, that it affects the pulse rate, blood pressure, nitrogen metabolism, etc., I shall state its action in a definitely measurable quantity: One third of 1 mg. of this substance increases the basal metabolic rate of an individual weighing approximately 150 pounds, 1 per cent. If the basal metabolic rate of an individual of this weight is 30 per cent. below normal, the administration of 10 mg. will raise the metabolic rate to normal; and if it is 21 per cent. below normal, the administration of 7 mg. will raise it to normal. The administration of greater amounts of the substance will increase the basal metabolic rate to a figure just as high as is compatible with life.

Plummer's definition for the function of the thyroid is that it determines the amount of energy that any

given cell within the body can produce on stimulation either from within or without. It determines the quantum of energy that it is possible for any given cell to produce. When this is emphasized and the problem is faced in this light, the question of the function of the thyroid assumes an entirely new aspect.

The moment the metabolic rate increases, fundamental changes are produced; for instance, the pulse rate increases, the pulse pressure must increase, the rate of blood flow must increase, and if pushed long enough the body sugar, fat and proteins will be used up in greater amount than normal, meaning an increase in the carbon dioxide output and oxygen consumption, and an increase in nitrogen elimination. Symptoms due to subnormal activity of tissues will be relieved; in other words, the condition of myxedema will disappear. If the metabolic rate is carried high enough, so high that it approaches that found in hyperthyroidism, then the symptoms of hyperthyroidism will appear. All this has been demonstrated in a very large number of cases at the Mayo Clinic, so that not only has Plummer² shown that this substance is physiologically active, but he has expressed with mathematical exactness the function of the gland, as well as the normal physiology involved when the secretion of the thyroid functionates. This addition

to our knowledge of physiology is incomparably greater than merely the knowledge that a certain substance isolated from the thyroid happens to possess demonstrable physiologic activity. Plummer's conclusions are based on his own observations, made in thousands of cases of goiter, and on his knowledge of physiology. It is possible that these conclusions could not have been satisfactorily

proved from existing data; but by the use of this substance as a tool, his hypothesis has been entirely substantiated, and now the function of the thyroid can be expressed as a physiologic process and not in terms of anatomic changes and clinical syndromes.

It was of great interest, therefore, to determine the chemical nature of this iodine-containing compound so fundamentally involved in normal physiology. Analysis has shown that it contains an indol group with the iodines undoubtedly attached to the benzene ring, and that on the carbon atom adjacent to the imino group of the indol ring there is an oxygen atom. For reasons given hereinafter, it appeared desirable to emphasize the presence of the oxy-indol nucleus and it appeared equally desirable not to emphasize the presence of iodine. The substance was, therefore, named "thyro-oxy-indol," which has been shortened to "thyroxin" for everyday reference to the substance. At first we attempted to show that the activity of thyroxin was due to the oxygen condensing with the amino group of an amino-acid, and the carboxyl group of the amino-acid reacting with the imino group of thyroxin. It has been shown, however, that this does not occur; but that the physi-

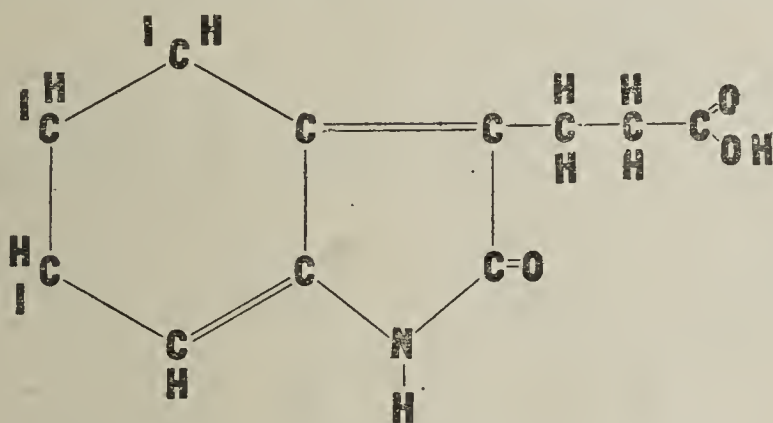


Fig. 1.—The structural formula of the active constituent of the thyroid.

* From the Mayo Foundation.

* Read before the Section on Pharmacology and Therapeutics at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Baumann, E.: Ueber das normale Vorkommen von Jod im Tierkörper, *Ztschr. f. physiol. Chem.*, 1895-1896, **21**, 319-330; *ibid.* 1896-1897, **22**, 1-17.

2. Plummer, H. S.: The Thyroid Hormone, and Its Relation to Metabolism, presented before the Association of American Physicians, May 6, 1918, Atlantic City.

ologic activity of the substance is produced by the CO-NH groups has been demonstrated as follows:

The injection of pure thyroxin is followed by a very definite and marked physiologic response. When the hydrogen on the imino has been replaced with acetyl, the substance loses its physiologic activity and the injection of the substance is without demonstrable effect. Investigation of the acetyl showed that in alkaline solution the indol form of the compound no longer exists, but that there is hydrolysis of the CO and NH groups resulting in the opening of the ring and the formation of COOH and NH₂ (Fig. 2).

Further investigation showed that thyroxin behaves in the same way, and that it exists within the body, not in the closed ring form, such as is present in indol, but in the form COOH NH₂. The ability of the indol ring to open in this manner furnishes the first concrete conception of how the substance behaves chemically within the body. The fact that both thyroxin and the acetyl derivative exist in open form suggests that the reason for the inactivity of the acetyl is interference with the chemical reactions associated with the NH₂ group of thyroxin. One is at once struck with the fact that the open and closed forms of thyroxin bear to each other the same relation as does creatin to creatinin, and that the same relation exists between amino-acids and the form in which amino-acids are united in protein. Establishing these active groups emphasizes the importance of the chemical nucleus CO NH and COOH NH₂ within the body, which appears to be a necessary structure for the carrying out of chemical changes leading to the production of energy.

Patients with complete atrophy of the thyroid have basal metabolic rates approximately 40 per cent. below normal. It has been shown that administration of thyroxin alone can bring back and maintain the normal metabolic rate in these persons. But in complete atrophy of the thyroid, the complete or nearly complete absence of thyroxin may be assumed. The question arises as to what maintains energy output from 100 per cent. below normal, which would be death, up to 40 per cent. below normal, the point to which basal metabolism sinks in the absence of thyroxin. May it not be the other chemical substances in the body possessing the same grouping that occurs in thyroxin? These are amino-acids and proteins, creatin and creatinin, and a few other less well known compounds. It seems probable that on the administration of thyroxin a reaction that has been carried on within the body by other compounds is merely increased in rate, but that there is no other difference or disturbance of the reactions that have been going on.

In regard to the relation of iodine to the activity of thyroxin, the presence of iodine in the compound must exert some influence, and it seems not improbable that the presence of iodine renders the active groups more reactive. In the absence of iodine it would take a greater working pressure to bring about the reaction.

The substitution of hydrogen, chlorine or bromine for the iodine would undoubtedly be followed by an alteration in the degree of reactivity of the substance, but

its gross chemical nature and properties would not be altered thereby. That the iodine breaks off from the molecule and is used as iodine per se for any purpose seems absolutely impossible because Plummer has shown that this substance functions for as long as from fifteen to twenty-one days after being administered, and that it acts as a true catalyst, being used over and over, hour after hour, without destruction except at a very slow rate. It is finally removed from the body either by actual destruction or by slow loss in an undestroyed form. Our knowledge of other catalytic agents shows that poisoning of catalysts is common if not universal, so that its slow destruction is to be expected.

The exact chemical reactions involved when this substance functions are still unknown, but that the substance possesses the formula as shown above is established by the ultimate chemical analysis of its derivatives. That the active groups present in thyroxin are a necessary mechanism for the production of energy within the body seems highly probable, and it is of great interest and significance that there exists a close analogy between this substance, whose exact effect on metabolism we know, and other substances, creatin, creatinin, amino-acids and proteins, which are also intimately associated with reactions occurring within the animal organism. Are these substances also concerned in the maintenance of the basal metabolic rate?³

ABSTRACT OF DISCUSSION

DR. GEORGE N. JACK, Buffalo: I would like to ask Dr. Kendall why sometimes there is a development of thyroid trouble while taking iodine? I have three such cases. Two patients recovered on stopping the iodine; none of the three has a permanent goiter.

DR. V. A. LAPENTA, Indianapolis: There are only two things that I do not understand clearly: I believe Dr. Kendall wishes to convey the idea that the iodine content of the molecule is not responsible at all for its physiologic action, and that a compound, iodine-free, without changing the structural formulas of the active groups or the position of the COOH group is just as active as if the iodine was present. This somewhat alters our clinical knowledge of iodine relative to thyroid function. We cannot explain the severe exaggeration of symptoms in exophthalmic goiter on the administration of iodides and the beneficial effects of iodine in myxedema even without thyroid extract. Clinicians have observed this for many years.

DR. WALTER A. BASTEDO, New York: I have been much interested in Dr. Kendall's finding that iodine is only secondary in the structure of the active substance; because, as we all know, animals are found from time to time without any iodine in the thyroid, and yet they are not diseased animals. It

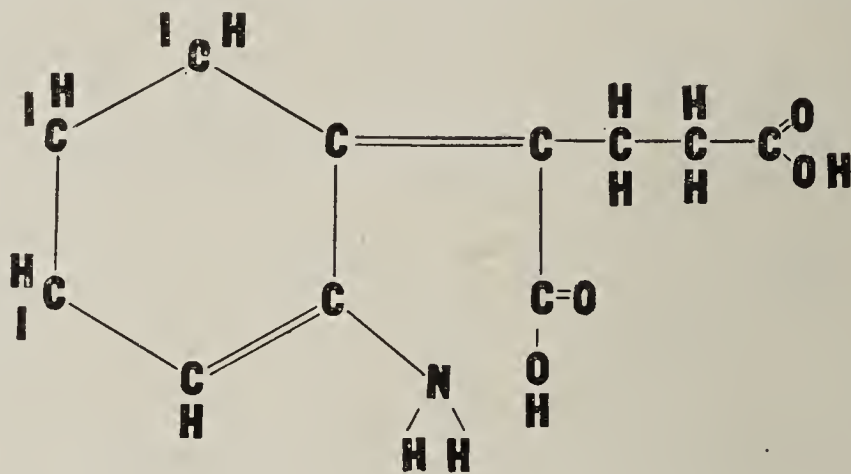


Fig. 2.—The open ring form of thyroxine as it exists in the body.

3. In addition to the articles already cited, the following, by the author, will be found of interest:

A Method of Decomposition of the Protein of the Thyroid with a Description of Certain Constituents, *Jour. Biol. Chem.*, 1915, **20**, 500-509.

The Isolation in Crystalline Form of the Compound Containing Iodine Which Occurs in the Thyroid: Its Chemical Nature and Physiological Activity, *THE JOURNAL A. M. A.*, June 19, 1915, pp. 2042-2043; *Tr. Assn. Am. Phys.*, 1915.

Studies of the Active Constituent, in Crystalline Form, of the Thyroid, *Tr. Assn. Am. Phys.*, 1916, **31**, 134-145.

Recent Advances in Our Knowledge of the Active Constituent in the Thyroid: Its Chemical Nature and Function, *Boston Med. and Surg. Jour.*, 1916, **175**, 557-562.

The Thyroid Hormone, *Mayo Clinic Collected Papers*, 1917, **9**, 209-336.

has been very difficult to explain how sheep and other animals lived and were healthy without iodine in the thyroid. It is quite probable, then, that in those cases something else takes the place of iodine in the compound; and that would show that iodine is only an incident in the makeup of the molecule and is not essential.

DR. E. C. KENDALL, Rochester, Minn.: The relation between the administration of iodine and thyroid trouble assumes two distinct conditions: One is the relief of goiter by the administration of iodine, and the second is the production of hyperthyroid symptoms by the administration of iodine. In the first condition, the gland is enlarged because it is stimulated, due to the insufficient amount of its active constituent available for the body. Administration of iodine, in this condition, allows the gland to manufacture its active constituent; the stimulus on the gland is, therefore, removed and the size diminished, possibly restoring it to normal. If encapsulated adenoma or a cystic condition is present, a mechanical factor enters which does not permit the gland to return to normal size.

The administration of thyroxine in large amounts produces typical hyperthyroid symptoms. It would, therefore, be expected that the administration of iodine in such amounts as to produce an excessive outpouring of thyroxine, would result in hyperthyroid symptoms. Besides these symptoms, due to the active constituent of the thyroid, there is still another condition, known as "iodinism," which is a distinctly different trouble.

Very small amounts of iodine given to an exophthalmic goiter patient sometimes produces clinical improvement, but it is not a curative measure. The relation between iodine and clinical symptoms is very difficult to explain, but it seems probable that the determination of the functioning groups in the active constituent of the thyroid will throw much light on the subject. It is possible to explain the toxic symptoms produced by the hyperplastic thyroid by assuming that an excess of its secretion is being formed. This can be disproved by the fact that the amount of iodine in the gland is lower than normal, which probably is not entirely explained by the immediate pouring out of the substance from the gland, although this may, in part, be the explanation. Another explanation is that the gland produces thyroxine without the iodine attached. The body would thus be supplied with possibly an enormous quantity of the functioning part of thyroxine, which could theoretically produce the effects that are known.

Iodine in myxedema depends entirely on the amount of active thyroid substance which is present. Myxedema may be due to a partial failure of the gland to maintain a normal supply of thyroxine, or to complete atrophy of the gland. In the first place, the administration of iodine would possibly enable the thyroid substance which is present to make sufficient thyroxine to relieve the symptoms. In the second condition no amount of iodine would avail because the gland, being completely atrophied, could not manufacture any of the active constituent.

In regard to the animals that have iodine-free thyroids, it seems probable that these fall into the same condition as in myxedema in which the gland is completely atrophied and the metabolic rate is below normal. In time this causes a clinical condition which is marked by edema and other well known signs and symptoms. However, the human being or the animal does not die. It is, therefore, apparent that something in the body can maintain the metabolic rate, at least up to 40 per cent. below normal. Reasoning from the analogy of the active groups in thyroxine, the question arises whether it is not creatine, amino acids and proteins in general that have this power.

The administration of corpus luteum for the relief of exophthalmic goiter has been tried. I am not in a position to discuss its merits, but I am certain that it is not a specific cure.

Syphilis.—The danger of syphilis to the community or individual is increased in proportion to the inadequacy of the treatment received by those suffering with the disease.—Vedder.

THE USE OF DICHLORAMIN-T IN THE PREVENTION AND CONTROL OF SURGICAL INFECTION *

WALTER ESTELL LEE, M.D.

Captain, M. C., U. S. Army.

AND

WILLIAM H. FURNESS, M.D.

Captain, M. C., U. S. Army.

PHILADELPHIA

The attempts of surgeons, during the early months of the present war, to close gunshot wounds at the time of the primary operation were uniformly followed by disastrous results. Virulent infections of gas gangrene, streptococci, pneumococci, and other pathogenic organisms had invariably followed primary closure and it was therefore ordered that all gunshot wounds should be left open. This decision, of course, ordained that practically every gunshot wound was to become an infected wound.

At the present time surgeons of the allied armies are closing their wounds, when mechanically possible, at the time of the primary operation as a matter of routine, just as they would civilian wounds, and are obtaining primary union without infection in from 85 to 90 per cent. of the cases so treated.

After four years, military surgeons are now agreed that the most important factors in the prevention of infection in traumatic military wounds are: (1) Surgical treatment at the earliest possible moment; (2) the removal of all foreign bodies; (3) the complete removal of devitalized tissues; (4) the application of such a germicide as will not delay the time of the closure of the wound by the method of its application, and (5) the earliest possible closure of the wound when the foregoing procedures have been practiced.

When it is not possible to prevent infection by such measures, another problem is presented, namely, the control of infection. Here again the same principles should be followed: early operation, and removal of foreign bodies and dead and devitalized tissues; but, in our experience, the additional use of a germicide will be a definite aid in the control of these infections.

DISINFECTION METHODS REVOLUTIONIZED BY CHLORIN

Voluminous reports of results obtained in the treatment of gunshot wounds with the use of many germicidal agents appeared in 1915 and 1916, and still continue to appear. On careful analysis, it will be found that only in those cases in which the surgeon has practiced early operation, within three hours after the patient is wounded, and has effected the aseptic surgical removal of foreign bodies and dead tissues do the results in any way approach those reported by Carrel, Dehelly, Depage, Tuffier and Chutro, who, in addition to these surgical procedures, use Dakin's hypochlorite solution.

The experience of the surgeons of the American Ambulance during the last two and a half years is entirely in accord with that of the majority of surgeons who have served in the present war, namely, that chlorin preparations have proved superior to all

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

other germicidal agents. It is really revolutionary from the laboratory point of view that chlorin should be found to be applicable in any form for the treatment of infected wounds, for chlorin is a general disinfectant, and as such, it is to be expected that it should be a general protoplasmic poison, fully as destructive to tissues as to bacteria. It is an agent which destroys everything with which it comes in contact, unless very carefully controlled. Before Dakin developed his unique method of control, decidedly unfortunate results followed attempts to use such standard preparations as Javel water and Labarraque's solutions.

It is now Dakin's belief that the germicidal action of all chlorin preparations depends on substances resulting from the chemical reactions between the chlorin and the proteins of the tissues and exudates in infected wounds, which substances are known as chloramins.

These chloramins, unlike chlorin, are not destructive to the tissues and may be used in solutions as strong as 10 per cent. Thus with the chloramins, it is not necessary to employ the very weak concentrations which require the frequent applications, most essential when chlorin solutions are used.

At the Boston meeting of the American Surgical Association in June, 1917, Commander Robert G. LeConte, U. S. N. R., presented a preliminary report on "The use of dichloramine-T in the treatment of infections and infected wounds" which was based on experimental and clinical work started in December, 1916, at the Pennsylvania Hospital. In September, 1917, Major Edward Martin, M. R. C., was detailed to investigate the clinical value of dichloramin-T in the treatment of surgical infection, and Lieut. Paul A. Lewis, U. S. N. R., Capt. William F. Furness and Capt. Walter E. Lee were assigned to assist him.

The concluding paragraph of our first report on dichloramin-T expressed the attitude with which this investigation was undertaken. "One should not depend on a chemical agent to perform, in the prevention or treatment of suppuration in traumatic wounds, that which can and should be done quickly and thoroughly by mechanical means. Neither chemistry nor bacteriology can or should be expected to replace the mechanics of surgery. At best, these chemical germicides can react only on the bacteria with which they actually come in contact, which means a very superficial process. Therefore, at the primary operation all foci of infection, foreign bodies and dead and devitalized tissues must be removed, when possible, by surgical procedures and adequate drainage, dependent if indicated, should be provided."

PROPERTIES OF A SUCCESSFUL DISINFECTANT

Dichloramin-T has been found to be a germicide which possesses to an unusual degree the properties that make it possible to meet the conditions which Dunham has demonstrated govern the success of disinfection. Those properties are contact, time and mass—the mass of germicide. The irritation which accompanies the application of most germicides, limiting their use and governing their permissible concentrations, is negligible with dichloramin-T. Dichloramin-T can be used in solutions as strong as 10 per cent., the germicidal mass of such a concentration being forty times that of a 0.5 per cent. solution of hypochlorite. Because of the peculiar

stability of this germicide in oil solutions and its unusual speed of disinfection, the required time of contact with the infecting organisms is readily maintained. Under average conditions its germicidal activity lasts about eighteen hours, in contrast to the thirty to sixty minutes of Dakin's hypochlorite solution. Dunham has found that its speed is eight times that of Dakin's hypochlorite, 800 times that of a 1:1,000 solution of mercuric chlorid and at least 2,800 times that of a 2 per cent. solution of phenol (carbolic acid). These tests were made in a uniform medium of blood serum and muscle extract.

Contact is essentially a mechanical problem, for the surgeon can place no dependence on the power of penetration of any known germicide. The development of a mechanical method to obtain, in traumatic and in infected wounds, the all-important contact between this agent and the infecting organisms has been the object of this investigation. At the present time, records have been obtained from 19,040 completed cases in civil surgical practice which have been treated with this agent. The patients in these cases have been treated in the Pennsylvania, the University of Pennsylvania, Germantown, Children's and Bryn Mawr Hospitals, and in the accident services of the Midvale Steel Works and the Remington Arms Company. Dr. Robert P. Cummings and Dr. George B. Sickel directed the work at the latter places.

CONCLUSIONS

After fifteen months' work, we have come to the following conclusion:

1. The use of dichloramin-T has definitely improved the results we have been able to obtain in the primary closure of traumatic wounds of the soft tissues, bones and joints.

2. In the treatment of superficial accessible surgical infections, the use of dichloramin-T has uniformly given us better results than any other germicide we have employed, and the method of its application is simpler and the dressings are more economical than with any of the other chlorin agents.

3. The best results with dichloramin-T can be obtained only when actual chemical contact of the germicide with the infecting organisms is maintained. To maintain such contact in superficial surgical infections is a simple matter and in the first few months of the work a satisfactory technic for this class of wounds was developed. In deep and inaccessible infections, the problem is more difficult and the greater part of these fifteen months has been devoted to this aspect.

4. Our confidence in the germicidal value of dichloramin-T has so developed that when it does not control a surgical infection we believe that the chemical contact has not been maintained, the mass of the germicide employed has not been sufficient, or adequate surgical treatment has not been given.

5. The striking detoxicating effect of the chlorin group of germicides, which has become common knowledge through the general use of Dakin's hypochlorite solution, is just as satisfactorily exhibited with dichloramin-T.

ABSTRACT OF DISCUSSION

DR. EDWARD H. OCHSNER, Chicago: The treatment of wounds and infections has interested surgeons from time immemorial. In the pre-Listerian days there were two great schools in the treatment of surgical infections—one of the

GOITER IN PREGNANCY*

LEIGH F. WATSON, M.D.

CHICAGO

schools favored ointments and the other water dressings. After Lister did his work, phenol became the great fad of the day. It was used in lotions and in nebulae, until not only the patients, but the surgeons developed smoky urine and chronic nephritis. It was discarded, often even in those conditions where it would have been of great benefit. Then came the bichlorid fad. This went through the same round of overexploitation and discard. Chronologically speaking, hydrogen peroxid came next and had the same experience, then came Wright's vaccine; last year we had eusol; today we have dichloramin-T. Every one of the methods I have mentioned is valuable. Each is valuable in certain conditions, but not one of them, not even dichloramin-T, is valuable in all forms of infection. Bacteriologists have found that in order to grow at its best, every micro-organism must have a very definite nutritive medium. They have discovered that by adding a little of this or that substance, a medium which is ideal for a certain micro-organism will become totally unsuitable for it. The clinician of large experience has made exactly the same observation in the dressing room. He has discovered a specific for nearly every pathogenic organism and the thing to do now is not to try to cure all infections by one remedy, but to use the specifics that are already discovered and make every effort to find specifics in the cases where this has not already been accomplished. This will put the treatment of septic infections on a secure scientific basis.

DR. W. ESTELL LEE, Philadelphia: I want to thank Dr. Ochsner for his timely warning against too much dependence being placed on antiseptics in the prevention and control of infection. He has clearly emphasized the position we have taken in the problem of surgical infection. It should not be forgotten that infection and suppuration in human tissues depend on many factors other than that of the bacterial content. Military surgeons are placing less faith in antiseptics and are realizing the absolute necessity for ideal surgery. The end results following adequate surgical procedures in the treatment of infections and infected wounds are always better when an antiseptic is used in the proper way, but no antiseptic can be substituted for the necessary surgical procedures. The history of the treatment of surgical infection which Dr. Ochsner has outlined makes fascinating reading. The biography of Sir Lord Lister, by his nephew Godlee, covers this in an exhaustive manner and is well worth reading. The search for specific germicides for specific organisms of suppuration has engaged many workers during these years, but with the exceptions of quinin and arsphenamin there have been no satisfactory results. And these specifics are not for bacteria.

Hypochlorite, hyclorite and similar chlorin solutions contain active chlorin, which, when it comes in contact with the protein of suppurating wounds, rapidly combines with it and forms substances known as chloramins. These chloramins are probably the real germicidal agents acting when chlorin solutions are used. Because of the irritating properties of active chlorin when uncombined with protein, as on the skin surrounding wounds, such solutions can only be used in very weak dilutions. The chloramins are practically nonirritating. It is possible to make the chloramins synthetically and thus use germicidal masses forty times that generated in wounds when the usual weak solutions of active chlorin are introduced into wounds to make chloramins.

Book on Disease Prevention and Care of Sick.—The United States Public Health Service has just issued a book on the "Prevention of Disease and Care of the Sick" with a supplement on "First Aid to the Injured" which, according to the preface, is "for the use of the layman in order that he may know what measures he should take to protect himself from disease and what he should do in case of illness." This book discusses prevention and treatment of disease, emergency measures in accidental injuries, the sanitation of buildings, camps and vessels, transmission of disease by insects, rats, vermin, and the destruction of these and other harmful forms of animal life, personal hygiene and diet. The book is intended chiefly for the use of laymen when medical attention is not obtainable.

Exophthalmic goiter in pregnancy is rare, owing to the restraining influence the disease exerts on conception. Halliday-Croom¹ reports only one case in 15,000 dispensary patients, while in his private practice he found twelve cases, causing him to believe that this complication is more prevalent among the upper classes. Bonnaire² found two cases in 30,000 dispensary patients. Seitz³ in 1913 was able to collect 112 cases from his own material, literature and circular letters. Additional cases have been reported by Gellhorn,⁴ Ward,⁵ Markoe,⁶ Crotti,⁷ Davis,⁸ Porter,⁹ Stowe¹⁰ and others.

I want to report seven cases of toxic goiter with exophthalmos and nine cases of toxic nonexophthalmic goiter occurring during pregnancy, seen during the past five years.

I believe that occasionally patients with goiter of brief duration ascribe their increase in symptoms at pregnancy to the pregnancy itself, while in reality the symptoms are due to a beginning hyperthyroidism. There is no doubt that some of these patients are treated for neurasthenia, hysteria, palpitation of the heart, and gastro-intestinal and nervous disorders. Many physicians do not regard goiter seriously unless it is accompanied by marked exophthalmos. At any rate, we should be more on the alert for this condition and many questionable cases should receive more painstaking diagnosis and more continued observation. One of the best means we have of furthering the study of this obscure subject is by reporting and discussing the few cases we see. I believe the subject may be most conveniently considered under the following headings: 1. Experimental Studies, 2. Clinical Observations, 3. Treatment, 4. Case Reports.

EXPERIMENTAL STUDIES

While it is true that animals lack the characteristic symptoms associated with thyroid hyperplasia in the human, the similarity of the structure of the gland makes it possible to carry out certain studies which obviously cannot be done on man.

Interest in this subject was stimulated twenty-two years ago by Halsted,¹¹ who reported that partially thyroidectomized dogs showed evidence of athyreosis as time of parturition approached, but the condition disappeared soon after delivery. The pups born of these dogs showed thyroids many times the normal size. Carlson¹² found, from an extensive study of newly born pups of mothers with colloid goiter, that the pups' thyroids were identical with those of pups born of mothers with normal thyroids; on the other hand, pups from mothers with active thyroid hyperplasia had thyroids larger than the normal, in direct proportion to the degree of hyperplasia in the mother.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Halliday-Croom, quoted by Crotti: *Thyroid and Thymus*, 1918.
2. Bonnaire, quoted by Cro: *Thyroid and Thymus*, 1918.
3. Seitz: *Deutsch. Gesellsch. für Gynäk.*, Halle, May, 1913.
4. Gellhorn, G.: *Am. Jour. Obstetrics*, 1913, **68**, 1132.
5. Ward, G. G., Jr.: *Surg. Gynec. and Obst.*, 1909, **9**, 617.
6. Markoe, J. W.: *Bull. Lying-In Hosp.*, June, 1912-1913, **9**, 96.
7. Crotti, A.: *Thyroid and Thymus*, 1918.
8. Davis, E. P.: *Bull. Lying-In Hosp.*, 1912-1913, **8**, 176.
9. Porter, M. F.: *Am. Jour. Obst.*, 1911, **14**, 781.
10. Stowe, H. M.: *Am. Jour. Obst.*, 1909, **60**, 223.
11. Halsted, W. S.: *Bull. Johns Hopkins Hosp.*, 1896, **1**, 399.
12. Carlson, A. J.: *Am. Jour. Physiol.*, 1914, **33**, 95.

The same was true of kittens. Carlson remarks that while the above observations were made in a locality where goiter is endemic among dogs, the proportion being perhaps 90 per cent., no mother with a normal thyroid gave birth to a goitrous pup.

Hoskins¹³ fed thyroid to pregnant guinea-pigs and found the newborn had abnormally small thyroids. Beibtreu¹⁴ also fed thyroid to pregnant guinea-pigs and found that it caused frequent abortion, death and absorption of the fetus.

Some years ago the sheep in northern Wisconsin and Michigan developed goiter and the lambs became cretins. On substituting sea salt with a high iodine content for the local salt, the goiter disappeared and healthy lambs were again raised. Smith¹⁵ made a study of fetal athyreosis, which is prevalent among pigs in certain sections of the Northwest, causing them to be born hairless and dead or in a dying condition, and concluded that an iodine deficiency existed during the latter part of gestation, he apparently proved his point by feeding the mothers iodine during pregnancy and producing healthy pigs.

Tatum and Mills,¹⁶ working with rabbits, guinea-pigs, cats and pigs, found that if the animals were kept in a cold box for one week or longer, their thyroids showed lessened colloid and taller epithelial cells, that is, increased activity. On the other hand, animals kept for the same length of time in a warm room at 30 to 32 C. showed increased colloid and flattened epithelium, indicating decreased activity. Further studies of the seasonal variation of the thyroid of pregnant and nonpregnant wild animals is now in progress.

Marine¹⁷ has shown that the iodine content is highest in normal and colloid thyroids, and lowest in marked hyperplastic or exophthalmic thyroids. The adult thyroid contains more iodine than any other organ in the body. In the fetal thyroid, iodine is present in very small amounts and may rarely be absent. In pregnancy the iodine content of the thyroid diminishes as the time of parturition approaches unless the mother is fed iodine, which increases it in both the maternal and fetal thyroid. One of the most valuable discoveries of recent years is that of Kendall,¹⁸ who has isolated from the thyroid an active hormone, thyroxine, which contains the active principle of the thyroid gland.

CLINICAL OBSERVATIONS

It is the opinion that physiologic enlargement of the thyroid gland during pregnancy is greater and more frequently observed in patients living in goitrous localities than in those patients living in sections where goiter is less prevalent. However, from a very limited number of cases, I believe it occurs more frequently in nongoitrous communities than is generally supposed.

Doege¹⁹ observed a noticeable enlargement of the thyroid gland at pregnancy in 8 per cent. of the patients living in the Great Lakes region. In 60 per cent. of these patients the symptoms were aggravated by pregnancy. Von Graff,²⁰ also working in a goiter district, observed goiter beginning in pregnancy in 9 per cent. of 654 cases. Markoe and Wing examined 1,586 preg-

nant women in a nongoitrous locality and found that in 6 per cent. the beginning of goiter could be traced to pregnancy. They observed that goiter occurred in a majority in the first pregnancy, and that the symptoms usually diminished after confinement, and were less severe with succeeding pregnancies. When goiter occurred among multiparas, it appeared on an average at the fifth pregnancy.

Ward shares the view of Lang,²¹ who suggested that if the thyroid does not enlarge during pregnancy the patient is likely to develop nephritis and albuminuria. Von Graff found that eclamptic patients had less thyroid enlargement than normal patients.

The subjective thyroid disturbances are usually most pronounced during the first two or four months of pregnancy. After the fifth month, subjective improvement usually occurs or the symptoms increase and hyperplasia develops with or without exophthalmos. The patient with increasing symptoms of hyperthyroidism is liable to have hemorrhages and abort.

TREATMENT

If we bear in mind the pathologic changes that accompany hyperplastic or exophthalmic goiter, it is obvious that treatment which stops short of destroying a portion of the enlarged and hyperactive gland, will at times fail to afford relief from the acute symptoms, and will also fail to prevent recurrence when the hyperplastic although quiescent goiter is subjected to any unusual strain such as pregnancy, parturition, grief, worry, infection, etc. This is well shown in the accompanying case reports.

It is generally agreed that any operation on the thyroid during pregnancy is attended by more danger than when performed on the nonpregnant patient, and for this reason a majority of surgeons are opposed to thyroid operations during pregnancy unless the goiter causes serious difficulty in breathing.

I have secured good results with quinin and urea injections made directly into the gland, to produce localized aseptic necrosis of a portion of the hyperplastic thyroid. The procedure is without the danger to mother and child that attends partial thyroidectomy. Obstetricians, surgeons and internists agree that any procedure for the treatment of goiter must be based on a period of rest, with medical, dietetic and hygienic measures suited to the needs of the individual patient.

Organotherapy has an established place in the treatment of goiter in pregnancy associated with neurasthenia or deficient thyroid function. When a woman shows thyroid insufficiency or kidney disturbance or has a history of having had these conditions, with the beginning of a pregnancy she should receive thyroid continuously throughout gestation in doses suited to her requirements. It should not be stopped before parturition even though symptomatic improvement occurs. Culbertson²² believes that the relationship between the ovary and thyroid is complementary. If there is evidence of ovarian deficiency, corpora lutea or the whole gland extract should be given.

In the presence of hyperthyroidism, if the symptoms steadily become worse in spite of conservative measures, it may be necessary to empty the uterus to afford relief to the mother. The danger of eclampsia occurring is increased at this time, and it may appear without the presence of albuminuria or casts. The ammonia

13. Hoskins, R. G.: *Am. Jour. Physiol.*, 1910, **26**, 426.

14. Beibtreu *Deutsch. med. Wchnschr.*, 1910, **33**, 15.

15. Smith, G. E.: *Jour. Biol. Chem.*, 1917, **29**, 215.

16. Tatum, A. L., and Mills, C. A.: Personal communication to the author.

17. Marine, D.: *Surg., Gynec. and Obst.*, 1917, **25**, 272.

18. Kendall, E. C.: Personal communication to the author.

19. Doege, K. W.: *Wisconsin Med. Jour.*, 1915-1916, **14**, 49.

20. Von Graff: *Deutsch. Gesellsch. f. Gynäk.*, May, 1913.

21. Lang: *Jahresb. f. Gynäk. und Geburtsh.*, 1898-1899.

22. Culbertson, C.: *Surg., Gynec. and Obst.*, 1916, **23**, 667.

nitrogen is the best index of impending eclampsia, and while a normal amount is about 5 per cent., when it reaches 15 per cent. or more, the uterus should be emptied without delay unless the ammonia nitrogen can be reduced. If the ammonia nitrogen test is not available, the blood pressure should be watched closely throughout pregnancy.

Cesarean section is the treatment of choice. The high abdominal incision of Markoe and Davis is very satisfactory. Gellhorn advocates vaginal section under spinal anesthesia. Webster²³ uses local anesthesia for abdominal section.

Obstetricians generally agree that the induction of labor in these cases is seldom indicated because it is too slow and uncertain and more dangerous than cesarean section.

REPORT OF CASES

Time permits only brief mention of the case reports. I believe the following to be of more than usual interest:

CASE 1.—Mrs. E. B., aged 27, during her first pregnancy in 1909, developed exophthalmic goiter not relieved by parturition. A year later, the right lobe of the thyroid was removed. Because of her poor general condition, the surgeon did not operate on the enlarged left lobe. Relief lasted for six months, when all the symptoms gradually recurred. Another surgeon believed her symptoms due to the appendix, and performed appendectomy without relief. She again became pregnant in 1911, and gave birth to a poorly developed, nervous child. Her symptoms increased and she was treated from time to time for hysteria, neurasthenia and epilepsy. I saw her first in March, 1914, when she presented well marked symptoms of exophthalmic goiter. In addition to the usual medical treatment, she received a number of injections of quinin and urea into the enlarged left lobe. Her improvement was slow but steady, and within a year her symptoms and goiter had disappeared. There was no recurrence, May, 1918.

CASE 2.—Mrs. W. B., aged 29, noticed a small goiter with symptoms during her first pregnancy in 1913. Her condition did not improve after parturition. She became pregnant again in July, 1916, and because of increasing symptoms, consulted me in October, when she presented well defined symptoms of exophthalmic goiter, with increasing pressure symptoms from the growing tumor. The usual medical measures were advised and quinin and urea injections were given into the thyroid. Symptomatic relief was prompt, and the goiter disappeared before parturition, when she gave birth to a healthy, robust child. In May, 1918, this patient writes that she is in good health, with no evidence of her former symptoms or tumor.

CASE 3.—Mrs. W. K., aged 35, had a normal first pregnancy in 1909. During her second pregnancy, in 1911, a small goiter was noticed with increasing symptoms as parturition approached. The symptoms were slightly lessened by delivery, and were aggravated by a third pregnancy in 1914, and a fourth in 1915. I first saw this patient in January, 1917, when she presented advanced exophthalmic goiter with marked dilatation of the heart, and weighed 91 pounds. Besides the usual medical treatment, she was given injections of quinin and urea into the thyroid gland. After the second month the goiter diminished, in three months the general symptoms began to improve, the exophthalmos lessened and she had gained 9 pounds in weight. Six months later the goiter had disappeared, the general health was good and she weighed 124 pounds. In May, 1918, she wrote that she did most of her housework the previous year, that the exophthalmos had disappeared, and that she weighed 130 pounds.

CASE 4.—Mrs. C., aged 35, had one healthy child 2 years old. When I first saw this patient in January, 1915, she was four months pregnant and gave a history of exophthalmic

goiter beginning two months before. Prompt improvement followed quinin and urea injections in conjunction with the regular medical treatment. She went to term and had a normal delivery, with no return of the goiter or symptoms up to May, 1918.

CONCLUSIONS

1. Preexisting goiter, either simple or toxic in type, is usually aggravated by pregnancy.

2. It is believed that the symptoms and growth of hyperplastic goiter in pregnancy can usually be controlled by quinin and urea injections into a portion of the thyroid gland.

3. Should symptoms progress in spite of conservative measures, a rapid delivery is indicated. If the child is viable, cesarean section should be done.

4. Operation on the thyroid is indicated to relieve pressure symptoms of solid goiters. Cystic goiter may be promptly relieved by quinin and urea injections.

5. Pregnant women with subthyroid conditions should receive iodids or thyroid throughout gestation.

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ABSTRACT OF DISCUSSION

DR. JAMES W. MARKOE, New York: In reviewing my records I find that in 1,586 cases of pregnancy there were 132 goiters, only eight of which were toxic or hyperthyroid diseases. In twenty-eight years 100,000 obstetric cases have been under my observation, and there was only one case of operative interference for thyroid complication. This was a rather interesting case because it was the woman's ninth child and my brother had previously removed the right lobe of the thyroid. When the woman came into the hospital she was choking to death from the pressure on her trachea. She had no true hyperthyroidism. I therefore removed part of the left lobe, relieving the symptoms, and she made a good recovery. I am not so sure that pregnancy increases the symptoms of simple thyroid. That, I think, depends largely on the hygienic surroundings and the treatment given these patients. My plan has been to put them immediately in the open air, feed them well, endeavoring to keep them in the best of health. Notwithstanding, all the cases we have had, I do not think the number sufficient to come to a definite opinion concerning treatment.

The use of quinin and urea is similar to the use of boiling water employed by Charles Mayo and others and to the use of phenol and boiling water employed by Ochsner. The result of these injections is a marked edema in the tissues, sometimes with fatal issue. I think this result has occurred in one or two cases. Although Dr. Watson has reported some splendid results, I think we must sound a note of warning not to inject any of these substances at random. We may have complication of acute edema with sudden death. I have never seen a case of hyperthyroidism calling for interference during pregnancy. While cesarean section might be done, it seems to me that unless a case has not been observed until entering the hospital, general hygienic treatment and general treatment of the goiter might possibly so improve the patient's condition that operative measures could be prevented. In a case in very serious condition, even the shock of the cesarean section, and there is a shock in cesarean section, might cause death, just as might the disease. I would urge that more careful observation be given cases of pregnancy and better records kept so that more valuable statistics may be secured. There must be thousands and thousands of cases of goiter in pregnancy, in which careful observation would add greatly to our knowledge and to the benefit of the patient.

DR. C. H. MAYO, Rochester, Minn.: This is an interesting subject to all of us who deal with pregnant women, and to those of us who deal with the thyroid from the clinical standpoint. If iodine is supplied to the thyroid the gland becomes reduced since it does not have to do so much work. It seems to me that if pregnant women who have goiters could get iodine the thyroid would convert it into the thyroidal iodine that is needed in the body. I have seen patients with exophthalmic

23. Webster, J. C.: Surg., Gynec. and Obst., 1913, 17, 294.

goiter run through three pregnancies, and they were very much better during the pregnancy period than they had been preceding it. Some such patients are worse during the pregnancy period. I do not care to operate on the pregnant woman with goiter. If possible, she should be tided through pregnancy. In many instances, after the birth of a child, the goiter will disappear almost wholly. Some time ago I watched the work of Dr. Crile, who injected into the tissues about the operative field quinin and urea to block the innervation. It struck me that there was not so much in the blocking, but that if the infiltration did block, why should we not inject the gland itself and create the edema within its own capsule, as in cloudy swelling of the kidney, that would check off the secretions and the ability to take the blood supply. I began making these injections about three years ago, and have reported some cases. The action is about the same as in the injection of boiling water, though much less severe. I have had three patients with exophthalmic goiter die from the injection of hot water. They were treated in their beds to prevent shock; the water was probably not hot enough to coagulate albumen, and possibly more easily enabled the gland to throw off the hormones of secretion. I used the quinin and the urea to make a block within the substance of the gland itself, and not so much as a destroying agent. Many of these cases are necessary for a determination of the best treatment. I am inclined to believe that the tendency is toward improvement, and that in only the bad cases should any form of surgery be done during pregnancy.

DR. LEIGH F. WATSON, Chicago: No deaths or alarming symptoms have followed the injections. There are several reasons why massive injections should never be given. I inject only 5 or 10 minims of the solution at a time, repeating the treatments at one to three day intervals.

THE PREVENTION OF GAS PAINS

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During the last decades, rapid progress has been made in all fields of modern medicine. Many a tradition based on the experiences of the fathers had to fall before the logic and research of modern investigators. Nevertheless, there is a tendency to put tradition above new ideas because the valuable experiences of the earlier observers have apparently proved efficacious for one or another period of medicine. Furthermore, the medical student, who has received in his early training didactic teaching which offers many medical traditions in the form of strict rules, becomes so deeply impressed that it seems to him that medical sacrilege is committed if the teachings of his school days are attacked. The modern history of medicine tells of many hard struggles in which medical traditions were attacked for long periods before they were finally abandoned.

One of the best examples of this is the old custom of purging and dieting, in other words, "carefully preparing" patients before operations. The underlying idea of this habit developed in the dark ages of medicine. Alvarez,¹ in a review of the history pertaining to this subject, traces the development of the custom of purging back to the days when humoral pathology dominated the minds of all medical men. Humoral pathology fell, but the custom of purging before operations remained and became an iron-clad rule in surgery.

Voices of protest have been raised from time to time, but apparently without result. No attempt has been made to collect all of these protests because many are buried in articles pertaining to other subjects and consequently are hard to uncover. Among the more recent observers on the clinical side of this question, Harris² in 1905 warned against purging in acute abdominal infection, but neglected to speak about purging in general. Walker,³ in 1906, reported that he had not used purgation in his preoperative preparation for more than two years, and that he was convinced that his patients suffered less with tympany, and recovered more quickly. Moore⁴ reminds us that ordinarily we would rather not operate on a person weakened by diarrhea; we would rather build him up first. He also reports favorable results in the disuse of preoperative catharsis. Quain,⁵ in 1912, commented on the less stormy convalescence of patients who had not been purged. Those of his patients who had been carefully prepared developed the worst cases of meteorism in spite of most careful handling of the viscera. He had been using the new technic for one year and was delighted with his results. In 1914, Crile⁶ warned against starving and purging before operation, because it interfered with the normal tone of the intestine. About this time Bloodgood⁷ stated that since he had stopped giving cathartics within forty-eight hours before the operation, he had had less trouble with intestinal paresis and distention.

EVIDENCE FROM EMERGENCY OPERATIONS

Further proof of the harmfulness and needlessness of "intestinal preparation" can be obtained from the experience of surgeons with emergency operations. Nobody will deny that the woman with an acute appendicitis, a tubal pregnancy or a cesarean section will usually recover from the operation with little abdominal distress besides that occasioned by the wounds. On the other hand, the "carefully prepared" patient who has been operated on for chronic appendicitis or who undergoes an exploratory laparotomy will often be troubled with most distressing gas pains and distention. In spite of all these observations, preoperative purging is still being practiced by many who simply follow tradition. The old argument that a non-prepared bowel does not pack off well in a laparotomy is, I think, faulty, if we remember with what ease the bowel can be packed off in emergency cases. I still recall those distressing hours during my early internship when we attempted to keep the distended and well purged bowel from rising into the incision. Those who have had occasion to do experimental work in animals (never purged) will also remember that the bowel never tends to escape from their abdomens. Some surgeons purge so that the bowels may be empty in case peritonitis should follow. Fortunately, post-operative peritonitis is rare, and if purging interferes with gas absorption, as shown by experimental evidence, such a bowel, deficient in its power of gas absorption, will present an increased danger, since peritonitis of itself tends to produce tympany.

2. Harris, M. L.: Dangers from Indiscriminate Use of Cathartics in Acute Intestinal Conditions, *THE JOURNAL A. M. A.*, Feb. 25, 1905, p. 622.

3. Walker, Edwin: *Am. Jour. Obst.*, 1906, **54**, 722.

4. Moore, J. E.: *Surg., Gynec. and Obst.*, 1908, **6**, 281.

5. Quain, E. P.: Some Observations on Catharsis, *THE JOURNAL A. M. A.*, July 6, 1912, p. 27.

6. Crile, G. W., cited in *Conservation of Energy, Therapeutics*, *THE JOURNAL A. M. A.*, Jan. 10, 1914, p. 129.

7. Bloodgood, J. C.: *Prog. Med.*, December, 1913, p. 216.

1. Alvarez, W. C.: *Surg. Gynec. and Obst.*, to be published.

As long as only clinical objections had been raised, the idea of abandoning purging before operation did not find ready ears among the surgeons. It is true that of late there has been a decided tendency to moderate the purging. If we may judge, however, from recent books and articles on surgery, the custom of purging seems to have as strong a footing as it ever had in didactic teaching. Further proof had to come from the laboratory to support and confirm our clinical observations.

RESULTS OF EXPERIMENTS ON ANIMALS

It has now been shown by experiments on animals that preoperative catharsis is harmful rather than beneficial. Alvarez and Taylor⁸ purged a number of rabbits and then compared the behavior of excised segments from these animals with that of segments from normal animals. They found that purged animals are apathetic and sick-looking, that the excised segments of small intestine of these animals showed a rapid fatigue, and that they were less sensitive to drugs applied locally. They found further that the majority of purged animals showed increased intestinal gas and often a congestion of the mesenteric circulation. Most important of all, there was an upset in the gradient of muscular forces from duodenum to ileum—that gradient which Alvarez⁹ has shown to be so essential to the even progress of food and gas toward the anus.

This work is in agreement with that of other laboratory workers who have studied the problems of flatulence. Schmidt¹⁰ pointed out in 1909 that congestion of the abdominal circulation leads to the collection of gas in the intestine. The same was observed by Kan Kato,¹¹ who proved that clamping of the portal vein prevents the absorption of carbon dioxid from the intestine. This bears out the theory that disturbances in the portal circulation, such as are caused by cirrhosis or cardiac disease, will interfere with the gas absorption. Schierbeck¹² in 1893 and Woodyatt and Graham¹³ in 1912 carried this problem still further and found that the blood not only fails to carry the gas away but may even exhale some into the bowel. That gas absorption takes place in man is proved by rectal ether anesthesia, introduced by Pirogoff¹⁴ in 1847 and used in this country first by Cunningham and Lahey¹⁵ in 1905. Kader¹⁶ tied off loops of dog's intestine and returned them to the abdomen for several hours. He found it made very little difference whether or not he washed these loops out with salt solution or filled them with intestinal contents from adjoining loops. Very little gas was found in either case. When, however, the mesenteric circulation was interfered with, especially on its venous side, an enormous accumulation of gas occurred. The congestion of the bowel after purgation has been observed also in men at the time of operation.

COMPARISON OF PURGED AND NONPURGED PATIENTS

The essential thing now is to get careful reports on the preoperative courses of a large unselected series of purged and nonpurged patients.

The first stimulus in making personal observations in this field was received in 1915 in the Women's Clinic of the University of California Medical School. I was able, then, to compare a number of unselected cases, in which some of the patients had been carefully prepared with castor oil and enemas while the others had received a cleansing enema shortly before the operation. The differences in the postoperative courses were striking. The patients who had no preparation except the enema were usually comfortable unless their operations had been very severe, while the others were often troubled with more or less severe tympany and distress, which taxed all the therapeutic ingenuity of the resident staff. At that time, it was also the custom to give the rectal drip to every patient, usually black coffee and physiologic sodium chlorid solution, half and half. It did not occur to any of us that the rectal drip might contribute very much to the discomfort of the patients, until one day it was noticed that some patients vomited a dark brown fluid which later proved to be coffee. On observing carefully, I gained the impression that the unpurged patients were not only freer from gas pains but would not develop sufficient reverse peristalsis to vomit the enema. During the next two years, the rectal drip was practically abandoned, but castor oil was still given to about two thirds of the patients, with the results previously recorded.

Since joining the staff of the Women's Clinic of the Leland Stanford Junior University, I have carefully recorded the severity of the pains experienced by the patients after a hundred major operations. In most of these cases, the peritoneum was opened and a great variety of pelvic work done. The first fifty were prepared in the old way, that is, 1 ounce of castor oil was given the night before the operation and a liquid diet was prescribed with no breakfast and an enema of soap suds early in the morning at about 6 o'clock. The next fifty patients received no purgation. The results are shown in the accompanying table.

INCIDENCE OF PAINS IN ONE HUNDRED MAJOR OPERATIONS

	With Purging		Without Purging	
	Number of Cases	Per Cent.	Number of Cases	Per Cent.
Severe gas pains.....	11	22	1	2
Mild gas pains.....	15	30	2	4
"Cramps".....	11	22	14	28
No gas pains.....	13	26	33	66
Totals	50	100	50	100

The second fifty received an enema the night before the operation and early in the morning. General diet was given the night before the operation, if the operation was to be in the morning, and also a light breakfast if the patient was to be operated on in the afternoon.

It should be noted that the types of operation, as well as the operators, were about the same in the first fifty as in the second. In fact, there were a good many more operations in the second fifty in which the viscera had to be handled more roughly on account of adhesions. There were also a greater number of complete hysterectomies with vaginal drainage in the second fifty. Consequently, even if the number of cases observed is small, the results seem very definite.

8. Alvarez, W. C., and Taylor, F. B.: Changes in Rhythmicity, Irritability and Tone in the Purged Intestine, Jour. Pharmacol. and Exper. Therap., 1917, **10**, 365.

9. Alvarez, W. C.: The Motor Functions of the Intestine from a New Point of View, THE JOURNAL A. M. A., July 31, 1915, p. 388.

10. Schmidt, Adolf: Klinik der Darmkrankheiten, 1913, pp. 219, 440.

11. Kato, Kan: Int. Beitr. z. Path. u. Therap. d. Ernährgst, 1910, **1**, 315.

12. Schierbeck, N. P.: Skand. Arch. f. Physiol., 1893-1894, **5**, 1.

13. Woodyatt, H. J., and Graham, E. A.: Tr. Chicago Path. Soc., 1912, **8**, 354.

14. Pirogoff, N. I.: Recherches pratiques et physiologiques sur l'etherization, St. Petersburg, 1847.

15. Cunningham, J. H., and Lahey, F. H.: Boston Med. and Surg. Jour., 1905, **152**, 450.

16. Kader, B.: Deutsch. Ztschr. f. Chir., 1891, **33**, 57.

It is sometimes hard to diagnose mild gas pains, and quite often only the suggestion of the term will make a patient complain. Nurses, also, will call anything gas pains that is associated with pains in the abdomen after operation. As long as there is no sign of even mild tympany, I have not felt myself justified to speak of gas pains but rather term them "cramps." These cramps are said to be relieved often by a rectal tube and therefore "must be gas pains," but I have found that they are also relieved by anything that will bring back a smooth downward peristalsis, as for instance by a glycerin suppository or an enema which does not bring flatus, and above all, by food. The empty bowel seems to contract violently in certain segments; and since the stimulus for a rhythmic downward motion, that is, food, is missing, peristalsis seems to churn back and forth in certain segments, producing "cramp-like" pains, which some of our patients likened to the sensation following the administration of compound cathartic pills. Estimating the number of patients with "cramps," I have, perhaps, been very liberal, as I may have called "cramps" what in reality was pain in the operative field, which by coincidence disappeared after the patient had partaken of solid food. Handling of the viscera undoubtedly predisposes to gas pains. In the second half of the cases observed all the patients that had gas pains had dense adhesions, which had to be broken up. They also had vaginal drainage, and I recall that as soon as the drain was removed, gas pains ceased at once in a few of the patients.

As far as the bowel at operation is concerned, none of us had any difficulty in packing off. I myself believe that the nonpurged bowel always appears normally pale and well collapsed, while the purged bowel has a slight distention and a dusky hue. I would emphasize particularly that the large bowel was sufficiently cleansed by the enema alone. No difficulty was encountered on that score. At the present time, preoperative purging has been stricken from the ward rules. Our patients seem to be better off, and much work and worry in treating gas pains has been eliminated.

GAS PAINS IN HERNIA

While the foregoing observations were being made, we found that the hernia patients were often bothered with severe gas pains. At my suggestion, Dr. John F. Cowan stopped the giving of castor oil to these patients before operation. A few were still given a mild laxative forty-eight hours before operation. With the permission of the members of the general surgical staff, I observed twenty-six laparotomies, including fifteen herniotomies and six appendectomies. Here again the results were very promising. Among the hernias there was not one case of severe gas pains. There was only one case of mild distention and practically no cramps, while in all the appendectomies the patients had been free from any abdominal distress. I have not counted in the patients who received the mild laxative, as they would spoil the argument. Dr. Emmet Rixford told me lately that he has made quite similar observations in his long practice, and that he also believes purging is not beneficial, and as far as technic is concerned, it can be dispensed with. He still feels that it is good practice to clear the bowel four or five days before operation with a mild laxative in order to remove any possible impacted fecal material.

It is not within the scope of this paper to discuss the treatment of gas pains. It may be said, though, that all treatment should tend to restore normal peristalsis. The best stimulus for this is food, and the earlier it is given, the better for the comfort of the patient. In many patients, especially those that have not been purged, the bowel will perform its function normally as soon as solid material finds its way into the bowel, and quite often even mild laxatives may be dispensed with.

The watchword of modern medicine is "prophylaxis." We have applied it to the operating room by developing asepsis to its highest degree. Do not let us stop there, but consider prophylaxis also for the postoperative condition of our patients. Let us eliminate untimely purging, one of the biggest factors in producing gas pains.

SUMMARY

1. Clinical and experimental observations strongly suggest that preoperative purging is a strong factor in the producing of gas pains.

2. At operation the strongly purged bowel is more difficult to handle than the unpurged bowel on account of congestion and distention.

3. An enema will clear the lower bowel sufficiently for any operative work.

4. Patients who have not been purged are comparatively free from gas pains.

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MOISTURE IN THE AIR SPACES OF THE LUNGS AND OXYGEN THERAPY*

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While on duty at a casualty clearing station in Flanders in the summer of 1917, I observed several respiratory phenomena associated with foam in the air passages which conferred an entirely new significance on the presence of moisture in the bronchial tree.

The patients who exhibited these symptoms were men who inhaled phosgen and chlorin. These patients had, essentially, a large amount of plasma poured into the air spaces of the lungs, which was not secondary to incompetence of the left ventricle. It was a severe primary edema of the lungs unassociated with myocardial incompetence.

One of the things that impressed me was the disproportion between cyanosis and air hunger. The evidence of cyanosis was very much more pronounced than was air hunger in most of the patients.

Another very striking experience was the manner in which patients were relieved of cyanosis by the inhalation of oxygen, and the fact that the relief of cyanosis was not attended with any change in the volume or rate of respiration; and subjectively the patients were not made more comfortable from the inhalation of oxygen.

If a gassed patient, whose bronchial tract is filled with foam and who has cyanosis, breathes pure oxygen, he is relieved of cyanosis, but the relief does not come promptly. It is unlike relief from cyanosis which has been caused by laryngeal obstruction. When a

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patient suffering from cyanosis due to laryngeal obstruction has the obstruction relieved, cyanosis disappears within a few seconds and the patient is instantly made comfortable. The gassed patient was not relieved of cyanosis until after he breathed pure oxygen for from three to five minutes. The patients could not tell when they were breathing oxygen and when they were breathing atmospheric air. In fact they preferred to be relieved of having a mask over their faces, although this method gave them the greatest relief from anoxemia. Evidently the psychic effect of the obstructing mask contributed to their discomfort and they begged to be relieved of it. They preferred to have the stream of oxygen conducted into their respiratory tract by way of a soft rubber tube inserted in the nostril, although by this method I did not see a single case in which cyanosis was diminished. It is quite apparent that cyanosis and air hunger did not develop apace with each other and that anoxemia could be relieved without giving any relief for air hunger. The problem that requires an explanation is how anoxemia and air hunger are largely dissociated when the patient is breathing atmospheric air, and why only cyanosis is favorably affected when the patient breathes pure oxygen.

It has been suggested the dissociation is due to the film of moisture which intervenes between the ventilating air and respiratory membrane. Carbon dioxid is twenty-five times as soluble in water as oxygen, and consequently the escape of carbon dioxid from the blood is much better fulfilled than the absorption of oxygen. Carbon dioxid can escape from the blood, but oxygen is absorbed in much smaller amounts. This explanation obviously will not satisfy the clinical experience. If, according to the predicate on which this theory is advanced, the patient is suffering from anoxemia and has an adequate escape from carbon dioxid acidosis, then the abrogation of anoxemia should give the patient perfect comfort. There is another point about this theory which is not consistent with the facts. Plasma in the bronchial tree and respiratory units does not lie as a film of moisture but occupies the air space as foam. At the end of an expiration, the entire air space of the lung from the nares to the respiratory membrane is occupied by foam. The total volume of this foam must amount to at least 1,200 c.c. and during inspiration all the contained foam is aspirated into the air spaces and will be unequally distributed throughout the respiratory units. Some units will be filled with foam, and no doubt many units will contain no foam whatever. This foam is alveolar air foam and when it has acquired the same partial pressure of carbon dioxid as the affluent blood to the lung, all escape of carbon dioxid from the blood into the unit occupied by foam will be impossible. When a respiratory unit is full of alveolar air foam, the only area for escape of carbon dioxid will be the cross section of bronchi which supply any portion of the lungs thus affected.

The fact that the circulating blood in the lung of a normal person at rest is able to contribute 20 c.c. of carbon dioxid to the ventilating air during each respiratory cycle is due to the large area of the respiratory membrane.

The following experiment illustrates the significance of the area of the cross section of a communicating path between two fields of different partial pressures of a gas.

Two 3-liter bottles were furnished with a connecting tube which was 20 cm. long and had a diameter of 1.5 cm. One bottle contained 19.5 per cent. of carbon dioxid and the other bottle contained 0.1 per cent. carbon dioxid. Both were at barometric pressure. The communication between the two bottles was established and specimens of air were taken from each bottle by employing a device which enabled us to remove specimens of air from each bottle without disturbing the barometric pressure.

The results summarized in Table 1 give the comparative concentration of carbon dioxid in each bottle at a given time.

TABLE 1.—COMPARISON OF AIR SPECIMENS IN CARBON DIOXID CONTENT

Time	Percentage Carbon Dioxid in A	Percentage Carbon Dioxid in B
11.35	0.1	19.5
11.45	1.25	18.2
11.55	3.25	17.0
12.55	3.75	15.3
1.25	4.85	13.9
2.40	6.20	11.4

The same experiment was then repeated by using a connecting passage of the same length as in the first experiment but with a lumen of 5 cm. The results obtained are set forth in Table 2.

TABLE 2.—COMPARISON OF SAME SPECIMENS AS IN TABLE 1, WITH LUMEN OF 5 CM.

Time	Percentage Carbon Dioxid in A	Percentage Carbon Dioxid in B
11.30	13.7	1.2
11.40	7.3	7.0
12.00	6.4	6.4
12.20	6.4	6.3

This simple experiment is given merely to cite the fallacy in thinking of partial pressure as synonymous with barometric pressure. It also enables one to visualize the significance of communicating areas in establishing equilibrium of partial pressure between two gas fields of different concentrations.

VENTILATION OF PULMONARY BLOOD

If a respiratory unit is filled with alveolar air foam, then the area for the evolution of carbon dioxid is manifestly cut down from the large area of the respiratory membrane to the cross section of its bronchiole, and if at the end of an expiration the entire air space of the lung is filled with foam, the only area for the escape of carbon dioxid is the cross section of the trachea. It seems perfectly clear that any portion of the respiratory membrane which is covered by alveolar air foam will be deprived of its normal respiratory function, both for the escape of carbon dioxid and the absorption of oxygen. If at the end of a deep inspiration there is an unequal distribution of foam throughout the air spaces, different portions of the pulmonary blood will be ventilated in different degrees. If the patient takes a deep inspiration of 2,000 c.c., he will then have superventilation of some of the air spaces, and consequently, superventilation of the blood in these respiratory units, but the air spaces occupied by foam will be eliminated from the respiratory function. Consequently, we shall have admixtures of varying degrees of venous and arterial blood going to the left auricle. From the superventilated unit there will be contributed an effluent blood with saturated oxyhemoglobin and a partial pressure of carbon dioxid less than normal. From the foam units there will be contributed a blood with a high carbon dioxid content and a low oxygen content. The total effluent blood

from the lung under such circumstances will then contain an increase of carbon dioxid partial pressure and a low oxygen content. The superventilated units compensate in some measure for the want of ventilation in the foam units, so far as the partial pressure of carbon dioxid is concerned, but they cannot compensate for anoxemic blood which comes from the foam units and this I conceive to be the source of the disparity between anoxemia and air hunger in gas poisoning.

Now what will happen if the patient breathes pure oxygen? When pure oxygen is breathed, it will require several minutes before the alveolar air foam will have been changed to oxygen foam, and when the oxygen foam is once formed, what will have been accomplished for respiration? The foam units will have their entire respiratory membrane exposed to oxygen foam, and thus the area for the absorption of oxygen will have been many times increased. What has been accomplished for the ebullition of carbon dioxid? That will remain the same as when the patient is breathing atmospheric air and leaves the carbon dioxid content of effluent blood of the lung unchanged; but anoxemia will have been disposed of. This I conceive to be the explanation for the clinical fact that, after the inhalation of pure oxygen for a period of from three to five minutes, the patient regains a normal color but retains the same respiratory discomfort. This idea of the admixture of unrespired blood with the effluent stream has been ignored in clinical practice, yet we have an abundance of evidence that it occurs in congenital heart disease, occlusion of a single bronchus, lung consolidations, and moisture in the bronchial tree.

A child with an open ventricular septum and an open ductus botalli will be cyanotic, but has no air hunger when at rest. If he is given pure oxygen to breathe, the cyanosis remains unchanged. For under such circumstances the unrespired blood does not come in contact with the respiratory membrane. If the child exercises, cyanosis, as well as partial pressure of carbon dioxid in the aortic blood, will rapidly increase. Consequently with exercise, cyanosis and air hunger increase in equal paces.

If such a patient is instructed, while quietly sitting, to employ forced breathing for three minutes, cyanosis will diminish. But under these circumstances, ventilation of the lung and oxygenation of the blood and minute volume flow of blood through the lung will all be greatly increased. Thus when, in morbus caeruleus, ventilation is increased disproportionately to the increase in gaseous metabolism, anoxemia lessens and the carbon dioxid partial pressure in the blood will have greatly diminished. In morbus caeruleus we have an admixture of superventilated blood, in which there is a low partial pressure of carbon dioxid and a normal oxygen content, with another stream of blood which has a high carbon dioxid and a subnormal oxygen content. Consequently, there will be a disproportion between cyanosis and air hunger.

It is perfectly clear that in any disease in which unrespired blood is contributed to the aortic stream, the partial pressure of carbon dioxid and oxygen of the alveolar air cannot be accepted as the measure of the partial pressure of carbon dioxid and oxygen in the aortic blood. Gas analyses of alveolar air are applicable to the circulating blood only when every portion of the respiratory membrane exposed to ven-

tilating air has also a normal exposure to circulating blood. Furthermore, in every part of the lung from which blood is contributed to the aortic stream, there must also be a normal exposure of the respiratory membrane to ventilating air. If these two conditions are not fulfilled, then interpretations from gas analyses of respired air will be erroneous.

CYANOSIS IN LOBAR PNEUMONIA

In lobar pneumonia there is always a certain amount of cyanosis. It is a common thing to see a patient with lobar pneumonia who has pronounced cyanosis and although the patient has moderate hyperpnea, he will deny any sensation of air hunger when he is questioned on the point. If blood flow through the pulmonary vessels of the consolidated lung is maintained, then the effluent blood from the consolidated lung must be venous blood. The superventilation of the uninvolved portion of the lung will compensate for the increased carbon dioxid contributed to the aortic stream from the consolidated lobe, but superventilation of the uninvolved parts of the lung will not compensate for the anoxemia which is contributed from the hepatized lung. In this mechanism we see an explanation for cyanosis without air hunger in lobar pneumonia. The cyanosis is due to anoxemia and not to methemoglobin, for when the shed blood is exposed to atmospheric air, it immediately takes on the normal color of shed blood. The anoxemia is not in any way associated with the infection. It is due purely to the admixture of unventilated blood with the aortic stream. When pneumonia terminates in crisis, cyanosis persists, and finally disappears just as the exudate is absorbed and ventilation of the affected lung is resumed.

The alveolar air of a pneumonia patient cannot be taken as an expression of the gaseous content of the aortic blood. One need only to estimate the carbon dioxid and oxygen content of the alveolar air of a pneumonia patient to be convinced of the fallacy. The patient will be cyanotic but in spite of this the partial pressure of oxygen in the alveolar air will be higher than in a normal person and the carbon dioxid partial pressure will be lower than normal.

During the past winter I have had many opportunities to test out lobar pneumonias. All the patients had cyanosis and the cyanosis was proportionate to the area of the lung which was involved, and was not at all associated with cardiac incompetence.

For instance, if one lung is hepatized and the other lung contains no moisture, the patient will have pronounced cyanosis with superventilation, but he will not admit that he has air hunger. If such a patient is given pure oxygen to breathe, cyanosis is unaffected. But if the patient has one lobe hepatized and an abundance of moisture in the remaining portions of the lung, then the inhalation of pure oxygen will partly diminish the cyanosis, but the experience of air hunger is unmodified. I think this accounts for the different views on the subject of oxygen therapy in pneumonia. A patient who is cyanotic from both lung consolidation and moisture in the air spaces will benefit from the inhalation of oxygen so far as anoxemia derived from the edematous lung is concerned, but he will not benefit by anoxemia so far as the consolidated lung is concerned.

A further proof of the origin of cyanosis in pneumonia lies in the fact that occasionally we see a patient in whom cyanosis is very pronounced and then ceases

without change in the exudate. Thus I have in mind two patients, one of whom was seen by Dr. R. G. Pearce and one by myself. Each had one entire lung consolidated, with normal heart and normal blood flow, so far as could be determined by physical examination, and no signs of moisture in uninvolved portions of the lungs. Then within twenty-four hours cyanosis ceased, although there was not the slightest evidence of improvement in the infection or improvement in consolidation of the lung. The only explanation I have for such a phenomenon is that during the course of the pneumonia the blood flow through the pulmonary vessels of the consolidated lung was greatly diminished at the time when cyanosis ceased.

The patient seen by Dr. Pearce died the day after the cyanosis disappeared, and the other patient under my observation, at Lakeside Hospital, made a good recovery.

Thus far there has been presented no direct evidence on which we can estimate the blood flow through the pulmonary vessels of a hepatized lung. It seems very reasonable to believe the blood flow through a hepatized lung is diminished by the loss of respiratory extension and retraction even when the pulmonary veins and arteries are patent. The anoxemia of lobar pneumonia and the fact this anoxemia is uninfluenced by the patient's breathing pure oxygen is very satisfactory evidence of the fact that an unrespired blood flow through the consolidated lung is the source of anoxemia. And the fact that anoxemia may cease or grow less during a period when fever, hepatization and the cardiac output are unchanged seems to be converse proof of the correctness of the theory.

It is a common experience to find patients with pleurisy with effusion sufficiently large completely to eliminate the lung of the affected side from respiratory function, and yet the patient may not have the slightest trace of cyanosis. In the compressed lung there is not only a want of ventilation but there is also a great diminution in the minute volume of blood going through the pulmonary circulation of the compressed lung. Consequently, there is little or no unrespired blood contributed to the aortic stream. This view will explain the want of cyanosis in many chronic tubercular diseases of the lung, and will also explain the presence of cyanosis in acute miliary tuberculosis.

In the chronic tubercular lung the ischemic process and the progress of infiltration go hand in hand. Consequently as a portion of the lung is eliminated from the respiratory function, its pulmonary circulation is encroached on, therefore such an involved portion of the lung will not contribute unrespired blood to the aortic stream. But acute miliary tuberculosis is accompanied by an abundance of moisture in the air spaces which will contribute unrespired blood to the aortic stream.

TWO CASES OF CARDIAC INCOMPETENCE

In former years we conceived air hunger and cyanosis accompanying incompetence of the left heart to depend on the diminished minute volume of blood passing through the lung. But since the rôle of moisture in the air spaces has assumed greater importance in our estimates of air hunger and cyanosis, I have had the opportunity of testing two cases of cardiac incompetence associated with pulmonary edema.

A patient had chronic cardiovascular and renal disease with great dilatation of the heart and of the jugular veins, a large and sensitive liver, and general anasarca. The patient had intense air hunger and was coughing up great quantities of

bloody foam. He was given pure oxygen to breathe by means of a mask connected with a rebreathing device, so that he breathed pure oxygen through a bag of oxygen which was inserted into the circuit. The carbon dioxide was removed from the expired air by a canister of soda lime which was introduced into the circuit. Breathing through this closed system for about three minutes was sufficient to change the patient's color from pronounced cyanosis to a normal pink color, but the patient experienced the same air hunger and the volume and rate of respiration were unmodified.

Another patient was brought into Lakeside Hospital suffering from a head injury. The patient was in coma. He had a dilated heart and a great abundance of foam in his bronchial tree. This patient was made to breathe pure oxygen through a closed system and the same thing happened as in the patient above described. The pulmonary edema and the volume and rate of respiration were all unmodified. But after inhaling pure oxygen for about three minutes the patient regained a perfectly normal color, which he retained for a period of about four hours, during which time he breathed pure oxygen through the closed system. At the end of that time he died from cardiac failure, and although he had cardiac dilatation, a filiform pulse and extreme pulmonary edema, he had no cyanosis when he breathed pure oxygen.

We have here exactly the same mechanism as was cited in cases of gas poisoning. The alveolar air foam was changed to oxygen foam. This compensates for the anoxemia that existed when atmospheric air was breathed, but it did not compensate for the increase in the partial pressure of carbon dioxide in the aortic blood.

A THIRD CASE

Another experience illustrates the diagnostic service of this point of view.

A man, aged 19, was known to have stenosis and insufficiency of the aortic valve with hypertrophy and dilatation of the left ventricle. Four days before entering Lakeside Hospital he had an initial chill, followed by fever. Cough and bloody sputum developed on the following day. Coarse and fine moist râles were heard over all of both lung areas. On the day previous to his admission to the hospital so severe a cyanosis developed that the attending physician and the family were alarmed. The patient was deeply cyanotic, but he did not suffer from air hunger. Hyperpnea, however, was pronounced.

Chest examination revealed an abundance of moisture throughout all the air spaces of both lungs, but there was nowhere marked dulness or any areas of bronchial breathing. The right auricle was not dilated. The cardiac signs revealed a marked enlargement of the left ventricle and a moderate enlargement of the right ventricle, with auscultatory and pulse indications of stenosis and insufficiency of the aortic valve.

On microscopic examination the sputum proved to consist of blood and plasma. The number of white cells had about the same proportion to the red cells found in normal blood. The sputum, in fact, consisted of transudated plasma with a large admixture of red cells.

The patient breathed pure oxygen through a closed system for rebreathing and after about three minutes all cyanosis disappeared without any change in the rate or amplitude of respiration. The fluoroscope was then used and this showed no area of infiltration in either lung and confirmed the dimensions of the several heart chambers as determined previously by percussion and palpation.

Three days after admission to the hospital the temperature was normal, the râles and cyanosis disappeared and the patient's heart and pulse continued to show the same physical signs as on admission.

This case was regarded as an instance of the disease described by Woillez. Had there been any hepatization of the lung, anoxemia would not have completely ceased with the breathing of pure oxygen.

MOISTURE IN CYANOSIS

Moisture may play an important part in the development of cyanosis in patients who have bronchitis, emphysema, and bronchiolar spasm. In the past we have underestimated the rôle of moisture in the production of anoxemia.

A young man who had bronchitis, with an abundance of moisture in his air spaces, had pronounced cyanosis of the lips and fingers. There was only a moderate hyperpnea. It did not amount to air hunger. There were no demonstrable areas of consolidation in the lung. The volume of the lung was very little increased, not enough, indeed, so that the pleural sinuses were filled with the lung. The patient's heart and vascular system showed no evidences of any circulatory impairment.

He breathed oxygen through the closed system and after he had inhaled it for about three minutes, all traces of cyanosis disappeared. But he breathed with exactly the same rate and volume as when he was breathing atmospheric air, and he could not detect any difference between his subjective experience when he was breathing oxygen and his experience when he was breathing air. This I conceive to be very important in estimating the functional disability in patients suffering from cardiorespiratory disease.

I am sure that in the past we have ignored the rôle of moisture in the air spaces and we have quite ignored the contribution of unrespired blood to the aortic stream. Nor has there been any attempt to point out the mechanism of this contribution in diseases of the heart and of the lung.

If, for instance, a patient with bronchitis and emphysema has cyanosis, and it can be demonstrated by inhalation of pure oxygen that the patient's anoxemia has its origin in moisture in the air spaces, then the indication for a change to a dry climate is perfectly clear. If his cyanosis is unmodified by inhalation of pure oxygen, then I think it is quite clear that the presence of moisture in the air spaces does not contribute to cyanosis and a dry climate will not improve his cyanosis.

The very simplest way in which unrespired blood can be caused to flow into the aortic stream is to stop a bronchus.

CYANOSIS INTERPRETED BY AN EXPERIMENT

About two years ago Dr. Pearce and I made a very simple experiment on a dog. A tampon of lamb's wool with a string attached was pushed down through a tracheal opening into the bronchus leading to the right lobe of the lung. This of course eliminated the right lobe from air ventilation but did not arrest the flow of blood through the pulmonary vessels. So far as the appearance of the buccal mucosa and the tongue of the animal was concerned, we could see no change in color. But during the time the tampon was in the right bronchus, blood was drawn from the femoral artery and put in test tubes under analine oil so the blood was not exposed to air. It was apparent during the period when the bronchus was blocked that the blood had a much darker color than when the bronchus was free. This was done repeatedly by withdrawing the tampon and replacing it, but at each time when the tampon was in place the aortic blood took on a venous hue. Whether the entire right bronchus or only the bronchus leading to the lower right lobe was occluded in each one of these trials was not determined, but from observations on the respiratory movement of the

lobes, we believe the lower right lobe only was eliminated from ventilation in most of our trials.

In either event it is a very simple method of demonstrating how a certain proportion of unrespired blood going to the left auricle will produce cyanosis. In our clinical experience we usually see only the phenomena for which we have an interpretation. What we cannot interpret we fail to see. As our interpretation of cyanosis is improved and enlarged, cyanosis will be much more frequently recognized in clinical experiences.

In the study of respiratory phenomena of cardiorespiratory disease, the rôle of moisture must be carefully interpreted. If we employ analyses of alveolar air for interpreting the partial pressure of oxygen and carbon dioxide in the circulating blood, such interpretations must predicate a uniform tonometric function of the entire respiratory area.

If areas of the respiratory membrane are eliminated from the respiratory function and other portions are normally functioning then it is obvious that the respired air cannot be employed to interpret the partial pressure of carbon dioxide and oxygen in the blood. When the entire respiratory membrane is normally functioning, then such interpretations are justifiable. But the moment the rôle of moisture in air spaces comes into play, or the air spaces of the lung are filled with an exudate, without any change in the flow of blood through the pulmonary vessels to the affected part, there will be unrespired blood contributed to the aortic stream, and analysis of respired air will give wholly unreliable interpretations of blood gases.

SUMMARY

The significance of the foregoing observations lies in the recognition of dissociation between anoxemia and increased carbon dioxide content of the blood.

The carbon dioxide and the oxygen content of respired air are measures of transpiration between blood and alveolar air only when the entire minute volume of blood passing through the pulmonary circulation is exposed to a respiratory membrane which has a uniform exposure to the ventilating air of the lungs. Normal subjects and patients with stenosis of the trachea or larynx will conform to these premises. So may patients who have respiratory symptoms from disturbed responses or altered control of respiratory rate and rhythm from the central or peripheral nerve supply to the lungs. But the moment the process of ventilation or blood flow is modified so that the uniformity of transpiration in the entire lung between the circulating blood and ventilating air is disturbed, then analyses of respired air cannot be employed to interpret the carbon dioxide and oxygen content of the blood.

ABSTRACT OF DISCUSSION

DR. ARTHUR D. HIRSCHFELDER, Minneapolis: I would like to ask Dr. Hoover whether sodium bicarbonate would be of value in such cases, at least in some of the border-line cases?

DR. CHARLES F. HOOVER, Cleveland: It is the same with all irritant gases; all the acids produce exactly the same thing. What is your idea of the alkali?

DR. HIRSCHFELDER: You could take care of a certain amount of the carbon dioxide excreted from the kidneys by continuous intravenous infusion of sodium bicarbonate. It seems to me there might be some border-line cases in which that might turn the tide.

DR. CHARLES F. HOOVER, Cleveland: I doubt if you could do very much in the way of luring it off in the form of a carbon through the kidneys. There are not any border-line cases.

EXTENDING THE CARE OF PREGNANCY*

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The question of prenatal care, or in other words, the supervision of pregnancy in the interest of mother and child, is attracting a great deal of attention. Have we any new measures to report? Has the laboratory or the clinician recently brought to light novel methods of therapy or prophylaxis? As a matter of fact, very little has been added to what has been known for years about the care of pregnancy.

Yet some groups of women in this country are benefiting by good prenatal care and their mortality rate and that of their infants is being lowered, while the greater number suffer from inadequate care and the mortality statistics show the humiliating results.

For twenty years the death rate from childbirth for women in America has not decreased.¹ Meanwhile, many formidable diseases have yielded to medical science and claim fewer and fewer victims. Tuberculosis, typhoid, diarrheal diseases of infancy and diphtheria all show lower death rates, the latter a reduction of 50 per cent. It may be justly said that more new measures have been brought forward for the treatment of these diseases. Nevertheless, the means already at our command, if we employed them generally, could reduce this mortality of mother and child. Among sixteen enlightened nations we rank fourteenth. Only Switzerland and Spain come lower on the list. Sweden has a death rate of less than half of ours.

REGULATION OF MIDWIVES

For some reason, women in America receive bad obstetric care. Yet physicians attend the confinements in America more generally than in the European countries. This is not a country where the midwife flourishes. In the larger cities, where there are extensive foreign populations, there are many midwives. In New York, for example, they still attend about one third of the confinements. However, you do not hear so much in New York about the midwife menace as you did formerly. We still have the midwives, but they are no longer such a menace. Jacob Sobel, chief of baby welfare, New York Department of Health, says of the midwives:²

The fact is that in comparison with our medical confrères, the midwives are listed on the credit side of the ledger as this relates to the percentage of deaths from puerperal sepsis, from stillbirths, deaths during the first week of life and cases of ophthalmia neonatorum.

This has not always been so. But the midwife has been regulated and closely watched. She has been taught just how far she must go and when she must call for medical assistance. Moreover, in what she is permitted to do, there are certain measures she must take, on penalty of losing her license. In other words, she is policed. The doctor is permitted to learn the right and wrong in obstetric practice, but he is policed only by his own conscience.

In America, where the practice of midwifery is in the hands of the medical profession, the doctor must bear the stigma of the bad record. It is the doctor who must institute the measures that will raise the standard of this branch of practice.

PRACTICAL GAINS FROM PRENATAL CARE

It has been shown that prenatal care will diminish maternal mortality and morbidity, and will lessen the number of infant deaths in the first month of life, and the number of stillbirths.

The Committee for the Reduction of Infant Mortality of the New York Milk Commission, in about 3,000 cases which were closely supervised during pregnancy, report a 69 per cent. decrease in maternal mortality, a 28 per cent. decrease in deaths of infants under 1 month, and a 22 per cent. decrease in stillbirths.³ Davis,⁴ Lobenstine,⁵ Emmons,⁶ and many others show favorable results.

The women are willing to be supervised. At the John E. Berwind Free Maternity Clinic, we stamp on each applicant's card the dates on which she is to return for the prenatal clinic. If she does not come, we send a nurse for her. But most of the patients are responsive and there is already an attendance of from 150 to 200 a month at the prenatal clinic. Throughout the country wherever investigation of this subject has been undertaken, it has been found that the pregnant women eagerly welcome prenatal care. If this care of pregnancy will improve conditions, and the patients, when enlightened, are anxious to have this care, it is our duty to provide it.

STANDARDS OF PRENATAL CARE

We must first arrive at a standard of what we consider satisfactory care. Dr. J. Whitridge Williams has prepared for the Children's Bureau of the Department of Labor, the following fair standard of medical prenatal care:⁷

1. A general physical examination including an examination of heart, lungs, abdomen.
2. Measurement of the pelvis in a first pregnancy to determine whether there is any deformity which is likely to interfere with birth.
3. Continued supervision by the physician at least through the last five months of pregnancy.
4. Monthly examinations of the urine, at least during the last five months.

The Maternity Service Association of New York, comprising practically all the Maternity Hospitals of Manhattan, has accepted as the minimum of prenatal care substantially the same standard, specifying also a blood pressure estimation at each visit and a Wassermann test in every suspicious case.

But more than 70 per cent. of the women of New York are cared for by private physicians or midwives and are not included in the benefits of this newly created standard.

RURAL AND URBAN CARE OF PREGNANCY

The Children's Bureau of the Department of Labor has made a study of obstetrics in the rural districts.⁸

3. Report of an Experiment in Prenatal Care, 1912-1916, New York Milk Commission, 105 East Twenty-Second Street, New York.

4. Davis, M. M.: Relations of Prenatal and Postnatal Work, Boston Med. and Surg. Jour., 1917, **17**, 264.

5. Lobenstine, R. W.: Development of Prenatal Care in the Borough of Manhattan, Am. Jour. Obst., 1917, **76**, 392.

6. Emmons, A. B.: Prenatal care, Am. Jour. Obst., 1917, **76**, 401.

7. Rural Child Welfare, Series 1, U. S. Dept. of Labor, Bureau publication 26, p. 28.

8. Meigs, Grace L.: Rural Obstetrics, U. S. Dept. of Labor, Washington, D. C.

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Meigs, Grace L.: Maternal Mortality from All Conditions Connected with Childbirth; U. S. Dept. of Labor, Children's Bureau, Bureau Publication 19, p. 17.

2. Sobel, J.: Supervision of Expectant Mothers, New York Med. Jour., 1918, **107**, 108.

In one district in a prosperous community, forty-eight of the fifty mothers interviewed had been attended by a physician at their last confinement. Only seven of the fifty mothers had had any prenatal care by a physician, one visit being paid in each case; and only three had had urinalysis.

In another section, a plantation district in the South, of fifty women interviewed, twenty-six were white and twenty-four colored. Only ten white mothers were attended at their last labor by a physician. Fifteen white mothers and all twenty-four colored women were attended by colored midwives. These midwives were not licensed, trained or supervised.

In some of the larger cities, well organized movements are now under way for the better care of pregnancy. Maternity centers are being established by various agencies, through which prenatal care is provided for the women without prejudice to the physicians, midwives or hospitals who may be chosen to attend them in the coming confinement. The various health boards have joined in this work. In the borough of Manhattan, a zoning system has been arranged so that each hospital limits its service to an area in its immediate neighborhood, making it easy for the patients to come to the clinics for consultation and examination or for the prenatal nurses to visit them. In Zone 7 an intensive study is being made through the efforts of several organizations and a house to house canvass for pregnancies is made to secure complete early registration. It is evident that certain women are to be favored by better supervision.

Our purpose must be to extend the care of pregnancy to all classes of women in the cities, towns, villages and rural districts. Some progress has been made by certain townships through local visiting nurses' organizations, mothers' meetings and other useful agencies. At the most, however, we can say only that a little progress has been made here and there.

A NATIONAL PROBLEM

The problem is complex. Moreover, it is immediate. At the present time, we are painfully awake to the necessity of conservation of life. Over 15,000 women are lost in the United States each year in childbirth. Many more lose their future efficiency from the same cause through invalidism. Of all the deadly diseases only tuberculosis claims more victims among women of child-bearing age. It would seem that this is a national problem.

We find the statement made by the most earnest of the investigators of this subject that it would be impossible to extend intensive supervision of pregnancy throughout the land on account of the cost. But why reckon the cost? There is, if we consider the loss of mothers, the stillbirths and the deaths of infants under 1 month, a probable salvage of 75,000 lives annually. Every woman confined in the United States could have one week's trained nursing at a cost of \$60,000,000. We are in an atmosphere of war costs and have been educated to colossal expenditures. We are no longer staggered at an outlay of \$6,000,000,000 for heavy artillery.

This matter of reducing obstetric mortality is properly a war measure. Obviously I do not propose the furnishing of a nurse to every confinement patient at government expense, but have quoted the cost for comparison with other war expenses.

Sooner or later, we shall have a national board of health and a medical cabinet officer. Let the government begin with a national commission to conserve motherhood. Let this commission be empowered not only to study the question and to organize cooperation among existing agencies, but to spend money in creating a system of rural nursing. Let it create and train a body of government nurses. Let it establish if it sees fit, prematernity hospitals for the reception of patients requiring close supervision and too remotely placed to obtain it. Let it furnish the money necessary to extend the work of organizations working along the same lines in the cities and towns. I shall not attempt in this brief paper to sketch a plan for the details of this work. But great as is its scope, it is not too large a problem for the resources of this nation, nor for the genius of the medical profession. This society should take the initiative and its members are the best qualified to plan the work and to carry it out. Undertaken as a measure to economize life in this crisis of sacrifices for self-preservation, it will survive to ease the trials of womanhood when, once free from our torments, we may feel again the purpose of making life beautiful.

THE PHYSICIAN'S GAIN

The physician as an individual will lose none of his dignity nor his benefits if women receive this additional care of pregnancy and parturition. On the contrary, the importance of obstetric care will be realized, as education on this subject is spread. He will be called on to give more of his time and he will be paid for it. As the knowledge grows that the attendance of pregnancy and labor and the guarding of young infant life is a great and important scientific function, the market will be created for good obstetric care and the practice of midwifery will be worth while. Doctors will no longer take cases reluctantly for reasons of policy, realizing as they take them, that if they give all the attention the subject demands, they are donating two thirds of their services and being paid for one third. Also, according to economic laws, when the demand is created for higher efficiency, and more careful service, the supply of good midwifery will be forthcoming. A national measure for the supervision of pregnancy will create the demand. This society should not delay in taking the steps to inaugurate this movement. It is inevitable that when our country comes to count its losses and searches for places at which to save, this great gap from which so many lives are leaking will not be overlooked. We should be the first to recognize and repair it.

Let the American Medical Association ask for a national commission to promote the care of childbirth as a war measure, with appropriations of money commensurate with the importance of the work according to the standard of other war measures.

Then let the United States, through the efficiency of the medical profession, take its place as leader among the nations in the care of childbirth. We are fighting to make America a safe place in which to live. Let us make it a safe place in which to be born.

ABSTRACT OF DISCUSSION

DR. WILMER KRUSEN, Philadelphia: In Philadelphia we are trying to convince the municipal authorities of the necessity of appropriating money for the Division of Child Hygiene which has the supervision of prenatal work. When, however, we listened to the broad program presented by Dr.

Hill we see that the question is not one of municipal, county or state, but really an international problem, because Dr. Hill wants to remove from the United States the stigma of being the fourteenth on the list in regard to the mortality of the mother and bring us up to the first place. The necessary information and influence to inspire our government to this action must be found in the 144,000 or more members of the medical profession, many of whom are members of the Association. No work is more important. It is just as important to conserve the life of the mother as that of the newborn child. The Children's Bureau of Philadelphia is seeking to save at least 100,000 of the 300,000 children who die before the sixth year.

Dr. J. H. CARTERS, Detroit: We can accomplish this work in various ways. We now teach better obstetrics than we have in the past. We are requiring that students actually attend cases of confinement, and they are learning the details of the management of the work. In the college with which I am connected we require the student to attend twelve cases and to keep an accurate record of the details. The midwife does not seem to have a large number of infant mortalities. This, however, is only apparent, and it must be remembered that in a serious case the midwife calls in a physician. He has to sign the death certificate and gets the blame. It is a matter of education of the public. We must agitate the question until boards of health and nurses educate the people so that every woman may know that when she is pregnant (although the process is a physiologic one), it may become a very serious surgical case and that she should consult a doctor. Of course, to educate the people necessitates the help of boards of health, nurses and investigators of all kinds. The suggestion made by Dr. Hill of having the United States take hold of the matter seems eminently proper. If the United States can afford many thousands of dollars to take care of hogs it certainly can afford hundreds of thousands to take care of women and children. We should use our influence with our congressmen. If we do this we can probably get Congress to do something for the health of the pregnant women. Much could be done, as Dr. Hill has said, with a health officer a member of the cabinet. From him this work would radiate throughout the country and we should have in every district a health officer instructing the people in the matter of health.

Dr. IRVING F. STEIN, Chicago: In Chicago we are doing much the same work as that described by Dr. Hill. At the Michael Reese Hospital we have a prenatal clinic in which we have seen as many as seventy-eight women in one morning. The clinic meets twice a week. The blood pressure and urinalysis is taken at every visit. The first visit comprises a complete physical examination, including observations of the thyroid, the teeth, the breasts, the heart, the limbs for varices, etc. We try to educate the women in the care of their teeth and in the wearing of abdominal supports. If they wear corsets, we show them how to wear them properly. The incidence of eclampsia has been markedly reduced since the inauguration of the clinic. The pathologic cases are recognized early, are sent into the maternity for observation and consultation, and cared for before they become "neglected cases."

Dr. IRA L. HILL, New York: In my reference to the midwives I brought the matter up not to praise them but to show how much their work had progressed since they were under supervision. Regarding the investigations being made in Washington by the Department of Labor through the Children's Bureau, it is interesting to know that the greatest inspiration for any one who has had occasion to do any work in the study of prenatal statistics comes from that bureau, and that the two hundred and some odd thousand dollars which they have had for this work represents a tax of a third of a cent a year for all the inhabitants. Our government, therefore, could probably afford to spend considerably more and still not be working any injustice to the people.

Experimentation.—It is too often overlooked that for century after century Nature has been pitilessly performing her crude and cruel experiments and killing millions of human beings every year.—W. W. Keen.

A NEW PRINCIPLE IN THE SURGICAL TREATMENT OF BRAIN TUMORS*

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Craniotomy for brain tumor, with or without focal symptoms, not infrequently fails to disclose the neoplasm. The evidence of increased intracranial pressure will be manifest by various degrees of brain bulging, by a flattening out of the convolutions, by obliteration of the sulci and by diminished or absent brain pulsation. Inspection, palpation, and exploration by incision or aspirating needle all fail to locate or reveal the cause. The tumor may be so deep within the brain substances or at such a stage of development as to be inaccessible. The lesion may be an infiltrating glioma, which cannot be macroscopically differentiated from the normal brain, or the craniotomy may not have been formed at the proper site. The wound is closed, temporary benefit is conferred by the decompression, and in time the patient dies.

Definite localizing information may develop after decompression in cases in which focal symptoms have been absent. In these cases, patients have been not infrequently reoperated on and the brain tumors successfully enucleated. The cases with focal symptoms before operation, and those without, which do not develop localizing data after negative exploration, are considered hopeless and the patients are permitted to die. The necropsy shows the tumor, or no further investigation is made. My discussion is limited to this latter type, the "hopeless" case, which deserves further consideration and should not be given up, for the tumor may and can be removed at times, as illustrated in the following case from the University Hospital.

REPORT OF CASE

CASE 11427.—E. L. B., a man, aged 29 years, was admitted to the neurologic service of Dr. A. S. Hamilton, July 2, 1917, on the application diagnosis of cerebral syphilis, complaining of excruciating headache, impaired vision, spastic paralysis of the left arm and leg, and general weakness. He had had several attacks of unconsciousness lasting from one to two hours. There was slight incontinence of the bowel and the bladder. The administration of potassium iodid and mercury had been followed by improvement of symptoms. The blood and spinal fluid Wassermann reactions were negative. Bilateral papilledema were present, more pronounced in the right eye ground. He had several typical jacksonian seizures while in the neurologic service, the attacks beginning in the left foot and extending up the body, involving the leg, the arm and the face. The diagnosis of cerebral neoplasm in the right Rolandic area was made, and the case was transferred to the surgical service.

July 24, 1917, a large osteoplastic flap opening was made over the right motor area of the brain. When the dura was opened the brain began to bulge. The intracranial pressure was extreme, the cortical vessels were engorged, and the surface of the brain became smooth and flat, the sulci and convolutions being flattened out and obliterated. Inspection, palpation and exploration with Cushing's aspiration needle failed to disclose the neoplasm. Aspiration of the lateral ventricle was performed. The cerebral pressure was so great that the bone trap door had to be removed to effect a closure. The case was considered as being a deep-seated lesion or an

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infiltrating and irremovable glioma. In other words, the case was in the "hopeless class" described before.

The patient was definitely improved by the decompression and asserted that his unbearable headache had gone the same day of the operation. The acuity of vision improved, as did the choked disks. The wound healed per primum. Bulging of the brain under the scalp was present.

There gradually developed an accumulation of cerebrospinal fluid and a cystoid degeneration of the scar forming a cystic mass the size of a fist. This mass transmitted light and sunshine like a hydrocele, was soft, fluctuating and painless. Aspiration of the fluid was considered. Four months had now elapsed since the exploratory operation.

In studying the case I began to develop the idea that even though it had been impossible to locate and to remove the tumor at the previous operation, change and growth might have taken place in the interim, such as to make the neoplasm now accessible. A deeply seated growth might have come to the surface, or nearer to the surface, and now be removable.

Nov. 16, 1917, the patient was reoperated on. An incision was made through the old scar, the fluid was evacuated and the flap elevated. When the brain was uncovered, a thin, blue-walled cyst of the size of a goose egg was disclosed. Under the most gentle manipulation the cyst ruptured. On further examination the cyst was found to be embedded in a definite tumor mass and the lesion was evidently one of cystic development in a glioma or sarcoma, the latter neoplasms being prone to cystic degeneration. The overlying cortex was incised to facilitate removal. During this incision the anesthesiologist remarked that the left side of the face twitched. There was a definite line of demarcation between the tumor and the surrounding brain. By the most careful manipulation with the index finger, working to a depth of its length, and with the assistance of a teaspoon, the tumor, the size of an orange, was freed and delivered. The remaining cavity was gently packed with a hot cotton wad to control oozing, and several cerebral vessels were ligated. On removal of the hemostatic pack the brain gradually filled in the cavity and at the same time of closure the cavity had become practically obliterated. The patient made an uneventful recovery.

On the second day the movements of the arm were definitely improved over the preoperative condition. The mentality improved and in several weeks the patient was up and walking with perfect control of his sphincters.

IMPORTANCE OF THE CASE

A deep-seated tumor had evidently developed, and by the assistance of the cystic degeneration had come to the surface during the interval between the two operations. The decompression may have had a favorable influence in causing the growth to point and to be in a degree spontaneously extruded.

This case establishes a precedent, and illustrates a principle which, if followed, will in some cases prolong and in others save lives from the class which have been given a chance and then considered "hopeless." It turns defeat into victory. The practice in the foregoing hopeless cases should be reoperation at a favorable time, which will vary in different cases. The patients should not be given up. Without reoperation, the patient has been given only half a chance.

The medical profession as a whole is too pessimistic in its attitude toward neurologic surgery. Practically every field of successful modern surgery has had to pass through its trying and discouraging period of unsatisfactory results. This has been particularly true of the brain. Neurologic surgery is emerging from its dark age and is becoming a comparatively safe practice in the hands of the specially trained.

When we consider that the inevitable fate of the brain tumor patient is death, which becomes a kind relief from indescribable physical and mental suffering including blindness, the single successful removal of such a growth with complete restoration to the normal

is a reward and satisfaction that cannot be measured.

I have performed thirty-six craniotomies with two operative mortalities. The first was a tumor of the cerebellum, the patient being somnolent and so far moribund that he died twenty-four hours after an uncomplicated suboccipital decompression. The second died from a large, deeply seated, irremovable cerebral tumor. Bilateral decompression was performed but was insufficient to relieve the medullary compression. There were two cases of postoperative pneumonia, which would ordinarily be considered "post ether" and attributed incorrectly to the anesthetic, had not the one followed a local anesthesia decompression.

ADVANTAGES OF DECOMPRESSION

The following views and principles of practice are based on the work of a number of neurologic surgeons and on the writer's personal experience. Every patient with a brain tumor is entitled to a chance and at least to a decompression. Any degree of papilledema calls for an immediate decompression, the operation being imperative and emergent. Organization obtains very early and when optic atrophy has once begun, it may be impossible even to halt its progress. Decompression after atrophy is "locking the barn after the horse is gone." With choked disks present, decompression may be just as imperative to save sight with a positive Wassermann reaction as with a negative. The decompression should be large enough actually to relieve the intracranial pressure, otherwise its performance is worse than useless. It should measure 5 by 7 cm. at least. I perform the Cushing subtemporal muscle-splitting operation for cerebral growths and suboccipital decompression for tumors below the tentorium. The subtemporal operation may be performed under local anesthesia when indicated. The dura is always opened, preferably by flap formation, a marginal cuff being left to cover the decompression circumference.

Decompression alone brings great relief for the insufferable headache, saves the vision and at times even in case of irremovable growths, restores the patient for a long period of usefulness. It is nearly unbelievable, after decompression or large osteoplastic flap operation, to have patients say, immediately on coming out from under the anesthetic, or on the day following, that their excruciating headache is gone and that they are comfortable.

A preliminary subtemporal decompression is performed in nearly all cerebral growths on the side opposite the suspected lesion. This makes the ultimate decompression in irremovable growths bilateral and symmetrical. The onesided bulging at times causes undue tension on the brain stem and interference with brain function due to the distortion. The relief afforded from intracranial pressure makes the second operation for removal safe and less hemorrhagic, and permits a more frequent return of the osteoplastic trap door. Aspiration of the ventricles frequently relieves the pressure and is a routine procedure in extreme pressure.

The problem is that of dealing with a brain under such pressure that the vital centers in the medulla are on the verge of paralysis with the death of the patient as a consequence. Any additional compression on the already overcrowded medullary centers as caused by the passage of the Gigli saw between the trephine openings may be just sufficient to be the "last straw" and cause death. The preliminary decompression guards against this occurrence.

From a week to ten days after the preliminary decompression, an osteoplastic trap-door opening is made over the diagnosed site of the tumor. A large, generous opening is of the greatest importance, so that, no matter what condition may be found, it may be adequately dealt with. Lesions have been missed by being just outside a small exposed area of the brain. Patients do not die from having large osteoplastic flaps, properly formed, but they do from small ones. The intracranial pressure previously described is relieved by a large exposure. On the introduction of the finger and instruments into the brain substance for the removal of the tumor, room is provided for the expansion and bulging of the brain and the overcrowded vital, medullary centers are again saved from paralysis. In other words, fatal medullary compression is avoided. This, in my opinion, is one of the most important factors in the successful removal of brain tumors, yet it is not adequately appreciated.

During the anesthetization of the patient in brain tumor operations, cessation of respiration is of rather common occurrence, being due to the increased pressure on the already crowded medullary respiratory centers by the congestion of the brain caused by the ether. Clinical observation and animal experimentation have established the fact that respiration stops under cerebral compression long before cessation of heartbeat, and that the cardiac function can be kept up for long periods by artificial respiration.

MITIGATION OF SHOCK

Another factor responsible for death in brain operations is shock. Shock in general surgery is in great measure synonymous with hemorrhage. The excessive loss of blood indirectly produces shock. Hemorrhage is under the control of the operator and the greatest attention to hemostasis is essential to success. Horsley's bone wax and the wooden peg are employed for osseous hemorrhage and Cushing's cotton compresses and the ligature for cerebral.

In my experience, the Haidenheim hemostatic suture has proved more satisfactory than the Cushing tourniquet or Makka's clips for the control of bleeding from the scalp.

Injudicious handling of the brain and the infliction of compression and concussion directly produce shock. The greatest care and gentleness is to be exercised. Rapidity of operating is to be avoided. I believe that direct shock of the latter type is as much subject to the law of dosage and concentration as is strychnin and like toxic drugs. A weak solution administered over a period of time will be tolerated, while a concentrated dose will kill. Too speedy operating in neurologic surgery is equivalent to the inflicting of a concentrated dose of shock. This is in direct contradiction to the regular statement of textbooks which all laud rapid removal of the tumor. This I believe to be absolutely incorrect.

As illustrative of the technic of diminishing shock, in removing a glioma the size of a goose egg from the upper right motor region in a patient at the Abbott Hospital, after incising the cortex, I consumed about ten minutes or more in practically watching and gently assisting the spontaneous extrusion of the neoplasm. The case resembled an unassisted obstetric delivery. Forceps might have been applied, but were not. Here likewise the tumor was spontaneously delivered by the intracerebral pressure.

The osteoplastic trap door is cut with a broad bevel so that a solid replacement may be effected and firm sutures and snug bandaging be free from exerting pressure on the underlying brain. In irremovable brain tumors, it is desirable to rongeur away a large portion of the base of the hinge area of the bone flap. This provides for generous decompression, and by the return of the beveled margin, the undisturbed muscles over the decompressed area control herniation of the brain.

I believe that technic should be simple and that the trephine, Gigli saw, and bone-biting forceps, which always work, inflict less insult and are better and safer than electrically driven circular saws, drills and burs, which are supposed to lock when through the skull, and which in reality do not always do so. As a hand-sewed shoe is superior to a machine-made one, so is a hand performed operation superior to one performed by machine.

CONCLUSIONS

Brain tumor cases following negative craniotomy are not necessarily hopeless. A deep-seated, inaccessible lesion may develop in time, come to or near the surface, and so become removable. The decompression may have a favorable influence in causing the growth to point, and to be in a degree spontaneously extruded. Such a case given a single exploration has had only half a chance. Reoperation may turn defeat into victory.

Shock is the principal cause of operative deaths in neurologic surgery. Direct shock is subject to the laws of concentration and dosage. Rapid operating is equivalent to the infliction of a concentrated dose of shock and is to be avoided.

Indirect shock is synonymous with hemorrhage and is within the control of the operator.

Large decompressions and operative field exposures relieve and avoid medullary compression and are essential to success.

In the hands of the specially trained and experienced the operative mortality in neurologic surgery compares favorably with that in other branches of surgery. Without surgical intervention, the inevitable fate of the patient afflicted with a brain tumor is death. Surgery alone can save sight, alleviate indescribable physical and mental suffering, prolong life and at times establish a cure.

ABSTRACT OF DISCUSSION

DR. L. L. McARTHUR, Chicago: This has been a recognized procedure for many years. Ten years ago I saw Victor Horsley remove for the second time at the third operation, a tumor of the brain which had recurred in loco, by repeating the elevation of the flap and by simple enucleation with the finger. At the first operation the tumor was not localizable, but it presented at the second operation. Localization of brain tumors is the great difficulty. He demonstrated how easy it was to be mistaken as to the location of brain tumors on the basis of symptoms. By putting a needle into the dentate nucleus of the cerebellum of a monkey he could get a lateral deviation of both eyes to the right, which symptom has been taken to indicate a cerebellar tumor. He put the same needle an inch higher up in the posterior occipital lobe and demonstrated that the same phenomenon obtained. He moved it forward to the motor area, and there again over a third place, widely removed, he produced a typical deviation of the eyes to the right so that the difficulty of localization is still a bugbear. The statement the author makes that the localization sometimes becomes evident after a decompression is an important one. Its importance is

emphasized more promptly by the more simple procedure of making a callosal leak in the roof of the lateral ventricle on the side on which the neurologists believe the tumor to be. By doing so the roof of this ventricle leaks. It leaks outward instead of inward, and relief of the tension and decompression is obtained with the least possible mutilation. Then the focal symptoms may develop which will enable the surgeons to make the operative procedure, which is recommended by the author. The patient should have, then, the opportunity for the tumor to be crowded by the intracranial pressure toward the lines of least resistance, and should again be explored when the time has sufficiently elapsed to enable him to do so. Not infrequently it is possible in these frightfully deformed cases which follow these lateral osteoplastic flaps to remove a tumor which had deformed the patient until he is an object of repugnance, by making just such an exploration. The procedure and the recommendations of the author are to be recommended.

DR. ARTHUR C. STRACHAUER, Minneapolis: It is the regular practice, or so frequently so, after a negative exploration, to permit these patients to die. Last winter I saw a case in which a negative subtemporal decompression had been performed. The patient died with a large cyst, which undoubtedly would have been amenable to treatment. There is nothing new about reoperating in cases where nothing was found, then have localizing symptoms develop, operate and remove the tumor. That has been a recognized practice for many years. It is common to operate these cases a second, third and even a fourth time. But it is the cases in which nothing has been found by the evidence of intracerebral pressure, that I particularly wanted to call attention to, and in which following decompression no further symptoms of localizing value developed. These patients should not be permitted to die, because there is a possibility of removing a neoplasm.

UTERINE INERTIA

SUMMARY OF A SERIES OF CASES*

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The classification and analysis of cases of uterine inertia are somewhat difficult because the term uterine inertia is indicative of a more or less intangible condition. Inertia of a laboring uterus cannot be established on a time basis, since there are a great many factors which make it a relative rather than an absolute entity. For instance, a primipara delivering herself of an average sized infant, and a multipara giving birth to a small baby after her uterine muscle tone has been impaired by a number of pregnancies closely following each other, might both consume the same length of time in accomplishing a different amount of work. This normal period of time for the first woman to be in labor would be abnormal for the second woman, and it could be said of the latter that she had inertia because her pains were of poor quality in regard to length and strength.

It is not known exactly why a woman falls into labor at the end of about 280 days of pregnancy. It might just as well have been normal, so far as the welfare of the fetus is concerned, for a pregnancy to consume eleven or twelve lunar months instead of ten. As it is, we can only say that when the fetus is mature, namely, at the end of ten lunar months, labor usually begins. If the stimulus to its induction is normal and the uterine muscle tone is good, labor will go on actively and progressively. On the other hand, some cases in which labor has been artificially induced by

means of bags and bougies, as well as many in which labor is instituted by premature rupture of the membranes, exhibit uterine inertia of varying degrees.

PRIMARY AND SECONDARY INERTIA

The propriety of classifying uterine inertia as primary or secondary is extremely doubtful. In fact, true uterine inertia is practically always primary, since it is due to some inherent fault in uterine muscle tone, or at least to a lack of normal stimulus to its contractile power. In making the distinction between so-called primary and secondary inertia, it should be pointed out that the term inertia is defined as "an incapability of matter to change its state whether that be one of rest or motion," or a "sluggishness," or "an indisposition to exertion." This may be secondary to some constitutional debility of the patient such as pulmonary tuberculosis, or to an early rupture of the membranes, or over distention of the uterus from either hydramnios, twins, or frequent pregnancies, and in this respect the term secondary might be permissible. That is not, however, the significance given it by common usage. Inertia, arising early in labor from causes like these, is commonly called primary, while the term secondary inertia has come to convey the idea of a sluggishness arising later in the course of a labor, in which the pains had been normal up to that point. We are told, for instance, that neglected labor in contracted pelvis or with malpositions develops into secondary inertia, whereas I maintain that this is not uterine inertia, but rather uterine exhaustion.

It will be said that this is splitting hairs, and that, if the uterine contractions are ineffective, because the uterus is inert or exhausted, as the case may be, the conditions which obtain are identical and the general treatment is similar in both cases. This is not quite correct, however, because the distinction between inertia and exhaustion has a definite bearing on both the treatment and the prognosis in the two instances.

DISTINCTION BETWEEN INERTIA AND EXHAUSTION

The origin of the two conditions is not identical, for inertia is due to an inherent fault while exhaustion follows a long continued effort against an obstacle. Prophylactic treatment is obviously different. In the true inertia there is comparatively little to be done by way of prevention, whereas one should anticipate or do away with such obstacles to labor as contracted pelvis or occiput posterior and face presentations, to mention a few examples. In this series I have purposely avoided discussing cases of uterine exhaustion since this is a question for treatment directed at the underlying cause of the exhaustion.

True inertia is first noticed in the first stage of labor. With unruptured membranes a prolongation of the first stage is not often serious and usually the patient may be carried on indefinitely by such means as narcotics, or the mild stimulation of hot enemas, strychnin, quinin, etc., according to the needs of the case.

Individuals who are below par physically, whether from wrong living or some debilitating illness or some actual physical defect, are liable to be nervous and intolerant when brought face to face with any stress or strain, and the same condition which is a cause of this may readily be a factor in the occurrence of uterine inertia. Such a person stands the nagging and delay of a sluggish uterus very badly, and will often have exceed-

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ingly poor contractions of the uterus, but will make a great demonstration, demanding that something be done at once to relieve her, regardless of the consequences. She will be utterly unreasonable and hysterical, so that her family soon joins in her importuning. This very thing makes inertia a serious complication unless the attending physician is absolutely sure of his ground, and after taking matters into his own hands in a decisive fashion, refuses to be led into any such procedure as rupturing the membranes and applying forceps through an incompletely dilated cervix in an ill-advised attempt to clear the atmosphere.

The unfavorable effects of inertia which may supervene in the first stage, even though the membranes are unruptured, are protraction of this stage of labor with exhaustion of the patient from prolonged though not necessarily excessive pain, loss of sleep with its tendency toward lowering the resistance against puerperal psychosis, and possibly even fetal distress.

In case the membranes are ruptured, however, a condition exists which may readily become most serious. So-called dry labors are known even to the laity as difficult and likely to be troublesome.

In my series of seventy-six cases, twenty-one, or 26 per cent., seemed to be due to the fact that the membranes had ruptured before the labor pains began, thus inducing the labor before the muscle of the uterus was especially irritable and prepared to contract vigorously. It is true that such labors may be protracted by the lack of the hydrostatic action on the cervix of an intact amniotic sack, but these cases have been classified under the heading of inertia, not on a time basis, but rather by the character of the pains themselves. In addition to this, it will be remembered that many patients with early rupture of the membranes have strong labor pains and fairly rapid deliveries, and again that inertia often occurs with unruptured membranes, so that I still contend that inertia is a distinct condition in itself.

There is great likelihood that interference will become imperative when the membranes have been ruptured for some time, on account of elevation of the temperature or pulse rate of the mother, or such signs of fetal distress as a rapid, or irregular, or very slow fetal heartbeat, with or without the passage of meconium, as the case may be. This necessity for active interference is to be feared because it involves the whole question of cervical incision and laceration, damaging pressure from forceps, postpartum hemorrhage and the liability to infection from the extensive manipulations necessary at a time when there is lowered resistance.

If a patient can be carried on into the second stage of labor, whether the membranes be ruptured or not, untoward symptoms may be met with comparative ease, but the protraction of labor may have been such a temptation to make frequent vaginal examinations that the patient may have been dangerously exposed to this source of infection, though everything else was favorable. Rectal instead of vaginal examination of the patient is especially to be recommended in cases of inertia.

Early forceps delivery may be advisable even though serious symptoms have not appeared, since it is proper to assume that an inertia of the first stage predicates a similar condition in the second stage. In the meantime, the patient may have become so tired from prolongation of the first stage that she will not

be able to bring her abdominal muscles into play for the expulsive effort required in this stage.

An analysis of the cases with which I have had to deal shows several interesting features. Twenty-one, or 27.6 per cent., of my cases of inertia followed rupture of the membranes before labor began, while in three cases, the membranes ruptured within a short time after the beginning of the pains. Inertia occurred in three patients whom I observed in their first delivery and again in their second. The oldest primiparas were 39 years of age and the youngest 19 years, while the average age in primiparas was 27.9 years. The oldest multipara was 42, the youngest 20, and the average age in this class was 31 years. There was one primiparous woman under 20; there were thirty-one between 20 and 30, and sixteen past 30 years of age; there were seven multiparas between 20 and 30, and eight past 30, one being 42 years old. A total of fifty-eight were primiparous and seventeen were multiparous while the parity of one is not recorded. Of the multiparas, nine were in their second labor, one in the third, two in the fourth, two in the sixth, one in the seventh, one in the eighth, and one in the eleventh.

The era of the morphin-scopolamin or "twilight sleep," was rich in cases of inertia, although I can give no exact figures on this, the reason being that in some of the cases, the administration of morphin and scopolamin for the purpose of obtaining the condition of "twilight sleep" apparently resulted in inertia, while in many cases these drugs were given for their narcotic effect when inertia existed and sleep was necessary. My records are therefore incomplete in this respect.

INTERFERENCE IN THE FIRST AND SECOND STAGES

Twelve cases required interference in the first stage of labor, while forty-one cases went into the second stage before it became necessary to end the labor operatively, and twenty-three patients delivered themselves spontaneously, a percentage of 15.7, 53.9, and 30.2 respectively. The longest first stage of labor in a primipara was 174 hours, the shortest seven hours and the average time was 38.3 hours, while among multiparas, the longest first stage was ninety-six hours, the shortest, eight hours, and the average, 34.3 hours.

So far as the second stage is concerned, it is difficult to give comparative figures because certain of the patients had practically no second stage, interference having been undertaken in the first stage or at the outset of the second stage. The longest second stage was eight and one-half hours in a primipara and four and one-half hours in a multipara. To state that a patient was allowed to continue eight and one-half hours in the second stage may seem surprising until it is explained that there was some progress, although slow, throughout this time and no untoward symptoms developed, while at the same time the patient was being sharply watched.

Interference during the first stage consisted in Dührssen's multiple incisions of the cervix, followed by forceps delivery eight times, vaginal cesarean section once, version of Braxton Hicks later completed by extraction once, craniotomy on a dead child once, and the introduction of a bougie once.

It will be noted that abdominal cesarean section has not been found necessary, and indeed is not considered safe after the patient has been long in labor, especially

if the membranes are ruptured, unless the extraperitoneal type is used. I have not used the cervical bags in any of these cases, but I am convinced, after making this review, that there are times when they might be of great value, although when interference becomes necessary it is usually urgent. Forceps were required in the second stage forty-one times, and sixteen out of all patients, or 21 per cent., developed postpartum hemorrhage of more or less serious degree.

Interference became necessary six times in the first stage and twice in the second, on account of exhaustion of the mother as evidenced by a rise in pulse to 110 or more and a temperature of 100.5 or more, and once in the first stage on account of a mitral stenosis combined with evidence of distress on the part of the infant. It was undertaken twice in the first stage and ten times in the second stage for fetal distress. In the second stage, interference was necessary seventeen times on account of undue prolongation of the stage without progress, twice because of posterior occipital positions, and twice for heart lesions of the mother.

There were no maternal deaths, but five infants were born dead or so deeply asphyxiated that they could not be resuscitated. One of these dead infants was macerated. Two babies died within the first few days of life with symptoms of intracranial hemorrhage.

CAUSES OF INERTIA IN VARIOUS CASES

The inertia was apparently due to premature or early rupture of the membranes in twenty-four cases, to artificial induction of labor in two cases, to physical debility from heart lesions in two cases, to syphilis in one and to tuberculosis in one case. A twin pregnancy was responsible once, while multiparity seemed to be the factor in a few indefinite cases. Four cases exhibited occipitoposterior positions of the head.

The morbidity of these cases has not been worked out, but seven patients showed a seriously febrile puerperium although all recovered. In one case of this group, the patient had been examined innumerable times by a midwife and another case followed several attempts at forceps delivery outside the hospital. One case followed a manual removal of the placenta for hemorrhage in the third stage.

Puerperal psychosis occurred in two patients with subsequent recovery in both instances.

In six cases there was retention of the placenta, three of these being due to an hour-glass contraction of the uterus, of which latter condition one case followed a dose of pituitary extract in second stage.

DANGER OF PITUITARY SOLUTION

Incidentally it might be said that I find very little use in my work for pituitary solution during any stage of labor. Needless to say, it has no place in the first stage, and after having three cases of hour-glass contraction of the uterus with retained placenta as a result of its administration in the second stage, I found that its safest period of use is after the expulsion of the placenta for the purpose of controlling uterine relaxation and hemorrhage. In this respect, it may be compared to ergot, which formerly enjoyed great popularity in the first and second stages of labor and finally came to be used only after the placental stage. Midwives continued to use it until they found that they had a more powerful agent in pituitary solution and now no self-respecting midwife would be without it, while ergot is almost forgotten.

CONCLUSIONS

1. The distinction between uterine inertia and uterine exhaustion is sharp, since the contractions of the uterus in the former condition are inherently ineffective while in the latter condition their force has been spent against some obstacle.

2. According to this distinction, based on etiology, it is incorrect to call the former condition primary inertia and the latter secondary inertia.

3. Differentiation between inertia and exhaustion is important from the standpoint of treatment, that of the former being more or less expectant while that of the latter should be prophylactic and directed against the obstacle to delivery.

4. True inertia begins in the first stage of labor. If the membranes are unruptured, the treatment consists in the use of mild uterine stimulants alternating with periods of rest induced by narcotics, until the second stage is reached, when active interference may be undertaken if necessary. If the membranes are ruptured, interference may become imperative on account of elevation of temperature, or pulse of the mother, or alarming changes in the fetal heart rate. This interference includes Dürrssen's multiple incisions of the cervix and vaginal cesarean section, both followed by forceps delivery, or the use of cervical bags.

5. Interference in second stage is not as serious as in first stage and consists principally in delivery by forceps.

6. Frequent vaginal examinations are to be avoided and rectal examinations should be their substitute.

7. Premature rupture of the amniotic sack is a common cause of inertia in a patient otherwise well and strong, whereas constitutional defects, overdistention of the uterus by twins, hydramnios and frequent pregnancies are also important etiologic factors in producing this condition.

8. Retention of the placenta with or without hour-glass contraction of the uterus is a common result of inertia extending into third stage, and hemorrhage is likely to occur during and after the placental stage.

ABSTRACT OF DISCUSSION

DR. RUDOLPH W. HOLMES, Chicago: I was going to take issue with Dr. Titus for not approving of the classification of primary and secondary inertia. Secondary inertia is unquestionably due to exhaustion. Primary is clearly founded on no anatomic fact; it may be due to faulty innervation. No man, so far as I know, has ever discovered whether the uterus is normally or abnormally innervated. The great fundamental factor is that primary inertia is extremely rare and that it is due to faulty innervation, and faulty musculature. It is not the fault of the uterus but of the contributive factors present; the inertia, so-called, is the effect, not the cause, of prolonged labor. The first consideration is malposition. Every textbook and every authority tells you that each and every one of the malpositions means that labor is ushered in with abnormally weak contractions. You see it so characteristically in the breech, transverse, brow, etc. The second consideration is the contracted and flat pelvis with faulty adaptability of the head or presenting part to the brim and the labor begins with violent pain. The third type concerns the soft parts. The fibers of the lower segment prolapse and cause abnormal contractions at the onset of labor. These three conditions mean that there is an interference with the girdle of contact, that the presenting part cannot come down. The result is that the contractions continue until they settle the presenting part and the irritability is aroused. A woman may go a week with such weak con-

contractions, when labor will be terminated suddenly. It is too often forgotten that the girdle of contact is the key to the situation. Rupture of the membrane before labor is of no consequence. The important element is the cause of the condition. The three important factors are, therefore, malposition, minor pelvic contraction, failure of adaptability of the presenting part to the brim. The weak contractions continue until irritability is aroused and labor is then rapid. Too often the obstetrician does not look at the case of inertia from the point of view of the real cause. In the case of minor pelvic contraction the woman who has weak contractions in the early part of labor should be allowed to rest and should be given bromids, if necessary. In time her uterus will be aroused into activity. Pituitary solution has no place in this stage of labor. Primary atony is of so little consequence that operative interference is rarely indicated. In secondary atony due to exhaustion or to obstruction cesarean section might have to be done.

DR. PAUL TITUS, Pittsburgh: I would simply emphasize the point that there is no distinction between primary and secondary inertia. All have seen cases starting off with good pains but developing into sluggishness due to exhaustion and not to an "inherent indisposition to exertion" or inertia. The difference between these conditions is not of vital importance, except, as I wanted to bring out, that there is a difference in treatment depending on the underlying cause. If we consider malposition a cause of inertia as Dr. Holmes has suggested, why is not all inertia secondary? I do not agree with the idea that rupture of the membranes is always due to failure of engagement of the presenting part. Dr. Holmes has stated that labor was prolonged because the uterus was not ready. That is precisely the point I was driving at. In case of early rupture of the membranes the uterus is not ready, and as a result of this very fact that it was not ready when the labor was prematurely induced by rupture of the membranes, it exhibited an inertia.

TRAUMATIC LESION OF POSTERIOR ROOTS OF THE LUMBOSACRAL PLEXUS

REPORT OF CASE *

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Since the restoration of injured nerves is chiefly dependent on the seat of the lesion, I report this case in order to refresh our knowledge regarding the different locations in which these neurons are subject to injury and to record the rather unusual location of the lesion. While evulsion of the cervical roots is not uncommon, traumatic root lesions of the lumbosacral plexus, with the exception of the case reported by Chiray and Clarag,¹ have not, to my knowledge, appeared in the literature.

Recently the discussions of Dejerine and Sicard² concerning sciatica brought forth a crop of reports from various observers, pointing out that sciatica is a disease of the intradural or extradural portion of the lumbar and sacral roots. However, radicular inflammation and compressions must not be confused with trauma of the roots. Just as the injuries of the peripheral nerves do not form a part of the various forms of neuritis, so must traumatism of the roots be separated from all forms of radiculitis. In neuritis and radiculitis the degeneration is secondary to an inflammatory process, while in the section of a nerve or root the degeneration is primary, the spontaneous

reunion of the divided nerve-ends being prevented by the mechanical obstruction of the subjacent tissue.

REPORT OF CASE

History.—K. K., a man, aged 47, came under my observation, Nov. 11, 1917, at the Central Free Dispensary of Rush Medical College. He was a Greek laborer, gave no history of a tainted heredity, was not an alcoholic, never had any serious ailment, and denied venereal infection.

For about a year and a half he had had pain of a continuous character in the left hip, and for the past three months, in addition to the nagging ache, he had had exacerbations of intense neuralgic attacks over the left iliac region, accompanied by numbness in the lower extremity, which was most pronounced over its external surface.

He stated that he fell off a ladder, May 28, 1916, at a height of ten or twelve rounds, landing on the left side of the buttock and striking the cement floor with the left side of his back at the level of the sacrum, the lumbar region and the posterolateral side of the ilium. On regaining his senses he lay for a time helplessly on the floor suffering intense pain at the point of injury. He was confined to bed for three months and treated for fracture of the left hip. After he began to walk he had persistent pain in the left hip, and about five months later he was again taken to the hospital, operated on for hernia, and confined to bed for about six weeks. On his resuming the use of the limb, especially when walking or straining, the dull, nagging pain returned, which periodically forced him to rest completely for a couple of weeks at a time. Besides the continuous, dull ache there appeared at irregular intervals paroxysms of neuralgic pain which at times woke him at night from his sleep. Sept. 6, 1917, about sixteen months after the accident, he applied at Rush Medical College for treatment.

Examination.—On walking and standing, the patient favored the left limb and was limping with the toes directed outward. In a recumbent position he could not lie flat on his back longer than about a minute without experiencing marked pain on the left side of the back of the pelvis.

The lower part of the left gluteal region was slightly flatter than the right. Measurements did not elicit any palpable difference in the size of the two limbs. The movements of the toes, ankles, knees and hip were performed fairly well, but the general power of the limb was less than in the right extremity. No reaction to degeneration could be detected in any part of the limb. The reflexes were practically normal. The Lasègue sign was present, but the pain was chiefly at the hip. Pressure over the left side of the iliac crest gave intense pain, but no tenderness over the vertebrae.

The lateral surface of the extremity was completely anesthetic. The anesthetic area was limited above by the boundary line where the sensory distribution supplied by the twelfth dorsal and first lumbar roots meet, known as the Head sacrofemoral zone. Sensation to prick, temperature, touch, compass points and pressure was present, but in a diminished degree at the middle and inner part of the limb, at the inner two thirds of the gluteal region, and on the plantar and dorsal surfaces of the great toe, on the second toe and on the inner half of the middle toe and over the corresponding parts of the foot. The only parts in which the sensations were practically normal were around the anal region, scrotum and root of the penis.

The complete examination of the patient did not show any other clinical phenomena. The laboratory findings of the blood and spinal fluid were negative.

COMMENT

A review of this case presents some diagnostic difficulty. In the class of cases in which injury is the etiologic factor, traumatic neurosis is one of the affections that must always be taken into consideration in differential diagnosis. The extensive sensory disturbance, in contrast to the meagerness of muscular atrophy and paralysis, taints this case with this psychic

* Read before the Chicago Medical Society, March 27, 1918.

1. Chiray and Clarag: *Rev. neurol.*, 1912, **20**, 296-298.

2. Dejerine and Sicard: *Rev. neurol.*, 1912, **20**, 288-295.

disorder. However, the approximation of the anesthetic area to anatomic boundary lines, the persistent adherence of the sensory disturbance to the anatomic distribution (which was found on repeated control examinations), the absence of the psychogenic behavior and the subsequent onset of the neuralgic paroxysms, which must be interpreted as an expression of nerve irritation, removes this case from the neurosis class and places it in the category of traumatic nerve lesions.

In traumatic, as in other nerve lesions, the chief difficulty rests not in the detection of the lesion but in the determination of its seat. In order to locate the seat of lesions of the peripheral neurons, it is most essential to be familiar with the nervous distribution of radicular origin, in contradistinction to that originating in the plexus. Therefore, I will briefly review the nervous anatomy at issue. It will be recalled that the lumbosacral plexus is formed by the anterior primary divisions of the lumbar and sacral nerves. These, like the other spinal nerves, arise from the spinal cord by two roots—a dorsal and a ventral—which extend downward within the dural sac for quite a distance, forming the cauda equina, and then penetrate the membrane. Near the point of exit from the foramina the two roots unite and pass into the outer world as a mixed nerve, which latter then divides into the anterior and posterior primary division. It is important to remember that the posterior primary division does not enter into the formation of any of the plexuses, but extends adjacent to the vertebrae and supplies the skin and muscles of the back and gives sensation to the upper two thirds of the gluteal region. On the other hand, the anterior primary division of the lumbar and sacral nerves forms the lumbar, the sacral and the pudendal plexuses, and supplies the lower portion of the gluteal region and the lower extremities with motion and sensation.

Now, to utilize this anatomic architecture for localization of the lesion, it is best to divide the roots into three portions; (1) the intradural: the portion where the motor and sensory roots are still separated; (2) the extradural: the united portion of the anterior and posterior roots which extends from the distal end of the posterior ganglions to the point of divergence of these two primary branches, and (3) the truncal: the portion of the anterior division which extends from the point of separation of the ventral and dorsal division to the point of formation of the lumbosacral plexus.

It can readily be seen that this change in the anatomic construction presents different topographic outlines in the sensory and motor disturbances in each of these three portions. For instance, in lesions of the truncal portion there will be motor and sensory paralysis of muscles and skin innervated by the lumbosacral

plexus, while in lesions of the extradural portion, the motor and sensory functions derived from the nerves of the posterior primary division will also be impaired or lost; and again, in tears of the intradural portion the sensation and motion may be affected independently of each other.

In the case before us the predominant feature is that of sensory disturbance. In order to avoid citation of extensive description of the well known sensory zones, I present here the Seifert charts, which show the sensory distribution of radicular origin, and the charts by Spaltholz, which define the boundaries of sensory disturbance in peripheral nerve lesions. On the Spaltholz charts it can be seen, for instance, in section of the lateral cutaneous branch of the first lumbar nerve that the band of anesthesia is limited to the lateral surface of the thigh, or to the hip alone if the iliohypogastric happens to be the injured nerve. On Seifert's charts the lesions of the first lumbar are accompanied by a longitudinal strip of anesthesia of

the lateral surface of both hip and thigh extending up to Head's sacral-femoral zone. Again, in traumatism of the truncal portion of the sacral plexus, where the small sciatic is involved, the Spaltholz chart shows that only the lower half of the buttock presents sensory disturbance. On the other hand, Seifert's charts point out that in lesions of the roots forming the sacral plexus the upper half of the gluteal region will also be anesthetic. This will suffice to show that by listing the cutaneous areas disturbed in their sensation and then determining their nerve supply, a diagnosis can be arrived at with fair accuracy in the majority of cases.

Now to return to our case, we can readily exclude an injury to the nerves in their course along the extremity itself because this patient suffered no injury in any part of the limb; furthermore, because the predominant sensory disturbance extended over the whole extremity, and again, for the reason that the dissociation of the various modes of sensation, which characterizes peripheral nerve lesions, was absent. In injuries of the peripheral sensory nerves the disturbance of the epicritic sensations extends over a larger area than that of the protopathic sensations, and the deep sensation remains intact. In our case the deep sensation was impaired, and the epicritic and protopathic sensations overlapped each other.

Taking into consideration the site of the injury, one is led to localize the lesion in the lumbosacral plexus. But on applying the anatomic construction reviewed above, it is found that the disturbance of the nervous function in our case does not conform with such diagnosis. Traumatic plexus lesions are accompanied by a degenerative type of atrophy affecting definite muscles or groups of muscles. Our case presented no atrophy nor paralysis of any particular group of

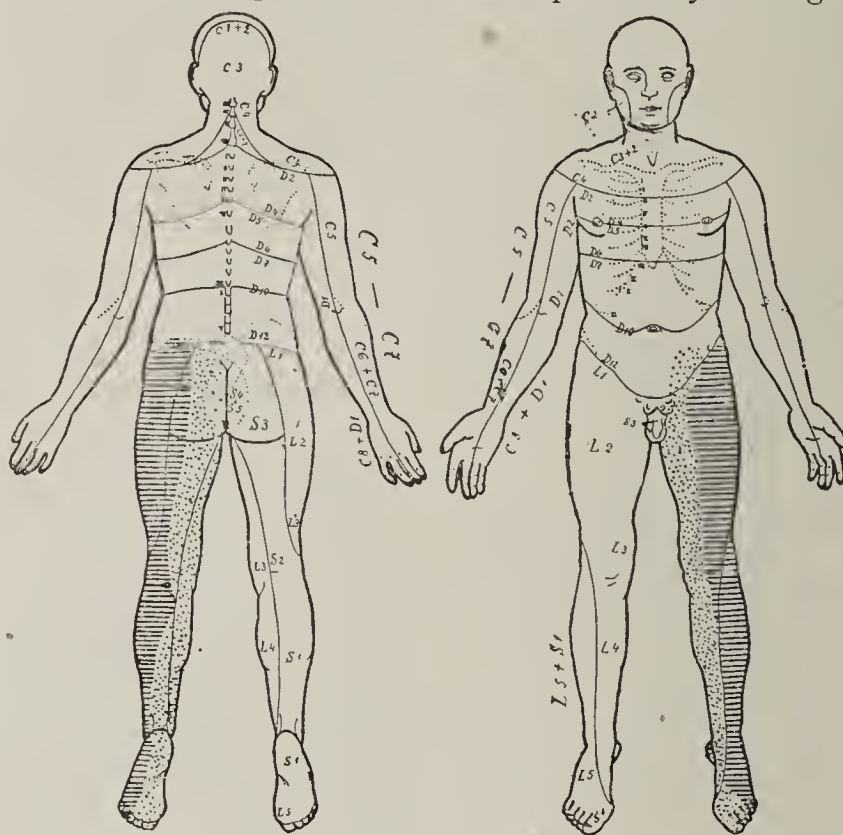


Fig. 1.—Seifert charts: horizontal lines, area of anesthesia; dots, area of hypesthesia.

muscles, nor any reaction to degeneration. The general weakness and the slight reduction in the circumference of the whole limb—a so-called atrophy en masse—was very likely due to disuse, since the patient suffered considerable pain and favored the affected left limb.

Again, the striking feature is that the lesion was practically limited to the sensory fibers, which is contrary to clinical experience in lesions of the plexus. For instance, one cannot picture an injury which would tear only the sensory and not the motor fibers of the great sciatic nerve at a point within the pelvis, where they still intermingle with the important motor fibers of the sciatic band. Again, the disturbance of sensation involves the upper half of the gluteal region, which, as the charts indicate, is supplied by the posterior primary division of the lumbar and sacral nerves.

These facts rule against a clean-cut injury of the lumbosacral plexus, and force the localization of the lesion in the intradural portion of the posterior roots. In this portion, called by Dejerine intradural murienne, in which the dorsal and ventral roots run to and from the spinal cord independently of each other, the functions of these two physiologically different roots usually become jointly affected; but it is possible that either the posterior or anterior root may be torn alone, leaving its associate partly or wholly intact.

To summarize, the area of anesthesia indicated by horizontal lines on Seifert's charts is supplied by posterior roots L 1, L 2, L 3, L 5 and S 1. These were probably completely torn at their entrance into the cord. The area of hypesthesia shown by dots on the same charts is supplied by posterior roots L 4, S 2, S 3, S 4 and S 5. Very likely these have been only partly injured. In the anal region the impairment of sensation was only very slight, so that S 4 and S 5 must have been practically normal.

In traumatic nerve lesions one should not base the diagnosis with absolute certainty on physiologic findings. This was forcibly pointed out by Frazier and Skillern,³ who reported a case diagnosed by most competent men as a traumatic brachial plexus, which, on laminectomy, proved to be an intradural evulsion of the lower three cervical roots.

In intradural root tears the prospect of repair is hopeless. In our case, however, the diagnosis being at best hypothetical, it was thought that an exploration of the plexus together with a laminectomy at the lumbosacral region would bring to view the exact nature and location of the injury and possibly reveal reparable nerve bands, which on end-to-end suture or on auto-fascial tubulization might bring about regeneration of some of the nerves, saving the patient endless pain and restoring the limb to at least partially normal function. Unfortunately, the patient would not consent to further operative interference.

25 East Washington Street.

3. Frazier, C. H., and Skillern, P. G., Jr.: Supraclavicular Subcutaneous Lesions of the Brachial Plexus not Associated with Skeletal Injuries, *THE JOURNAL A. M. A.*, Dec. 16, 1911, p. 1957.

Military Medicine and Surgery

CODING PHYSICAL EXAMINATIONS OF DRAFTED MEN FOR STATISTICS

METHOD USED BY THE SURGEON-GENERAL OF
THE ARMY

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It is the purpose of this article to give the physicians making the examinations for the local boards an outline of how the work is accomplished and the difficulty encountered at times in interpreting the contents of the record.

As the work is of such magnitude, coming from all parts of the country and practically at some time or other, from every physician, uniformity in reporting the results of the physical examinations is impossible.

Mistakes, such as occur in all statistical work of this kind, will occur; but the factor of error, compared with the total and general results attained, will be negligible.

When the work is completed, the Surgeon-General of the Army will have an invaluable collection of data, not only from the general military standpoint, but of value to every section of the country, from the largest city down to the smallest village. Realizing this, it has been the primary object of the department, of which Lieut. Col. Albert G. Love, M. C., N. A., is in charge, to attain a reliable result with the least possible error. The work, when finished, will be so complete that any local board in the country will be able to identify the men that were finally accepted or rejected for military service, and, if rejected, their

names and the cause for their rejection. Statistics will be available from the tabulation of these examinations that could in no other way be compiled, and when the "reconstruction" takes place it will not only include the making over of those injured or disabled in fighting for their country, but also those who were rejected by the local or mobilization boards as physically unfit for military service.

Although the occupation of the drafted man is not coded at present, it will be done in the near future, and then the relationship of his occupation to any existing defect or disease can be determined. Statistics of occupational disease are very incomplete at present, for many men with a beginning or advanced disease resulting from their occupation pass unnoticed or away from previous medical observation.

The chief difficulty in coding the physical examinations of the drafted men has been the interpretation of vague diagnoses written on the selective draft forms by the examining physician, illegible writing, or an incomplete diagnosis or examination. In numerous

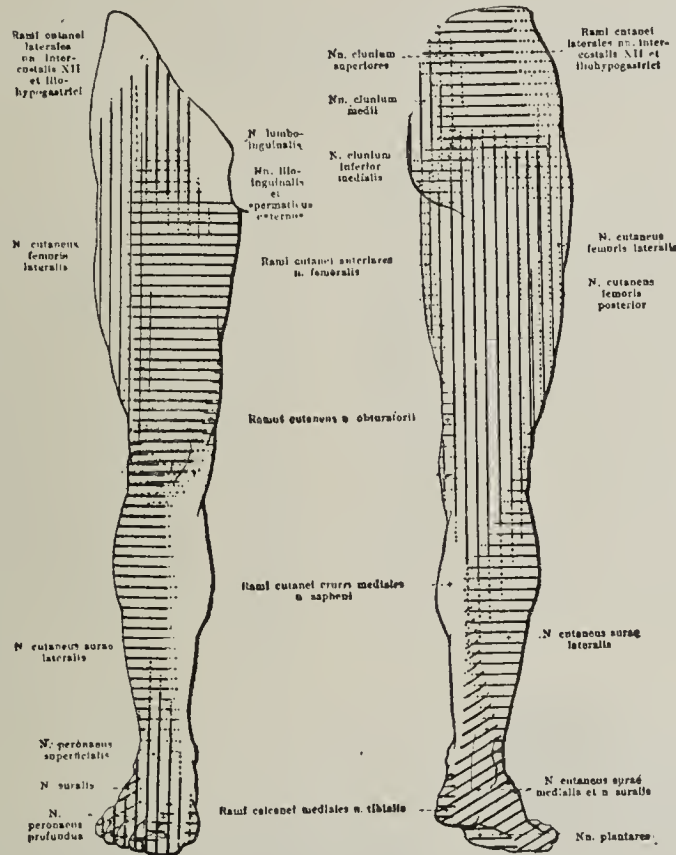


Fig. 2.—Spaltholz charts.

cases, symptoms are given when a diagnosis should be made. Frequently the local board fails to give its name or fails to designate the state in which it is located. Since "Form 1010, P. M. G. O." has been used for the physical examinations, better and more complete reports have been received.

After the reports of the draft examinations had been secured, the greatest difficulty encountered was

the sorting takes place the cards are carried by a card-conveying belt and deposited into boxes, from which the cards are removed by hand. This machine sorts at the speed of 250 cards a minute with absolute accuracy.

The sorted cards are finally run through electric tabulating machines (Fig. 4) for separate counting of any item or set of items of information concerning the physical examination of the men drafted for military service. This machine counts the cards at the rate of 150 a minute and permits the totaling of from two to five independent sets of data at one time.

No.	Board		Sr. No.		Occup.		Nat.		Age		Ht.		Wt.		C. In.		Ex.		L. P. A. B. M. B.		Phy. Def.		Mo.		Yr.		Name		12	
	No.		No.		No.		No.		No.		No.		No.		No.		No.		No.		No.		No.		No.		No.		No.	
17183	Occup.		000		000		000		000		000		000		000		000		000		000		000		000		000		000	
	Occup.		111		111		111		111		111		111		111		111		111		111		111		111		111		111	
	Nat.		222		222		222		222		222		222		222		222		222		222		222		222		222		222	
	Age		333		333		333		333		333		333		333		333		333		333		333		333		333		333	
	Ht.		444		444		444		444		444		444		444		444		444		444		444		444		444		444	
	Wt.		555		555		555		555		555		555		555		555		555		555		555		555		555		555	
	C. In.		666		666		666		666		666		666		666		666		666		666		666		666		666		666	
	Ex.		777		777		777		777		777		777		777		777		777		777		777		777		777		777	
	L. P. A. B. M. B.		888		888		888		888		888		888		888		888		888		888		888		888		888		888	
	Phy. Def.		999		999		999		999		999		999		999		999		999		999		999		999		999		999	

Fig. 1.—Statistical card: Code numbers corresponding to diseases and physical defects are written in the blank spaces at the top and left border. Each space has a corresponding column or group of columns of figures from 0 to 9, which are punched out according to the code numbers, so that the card may be used in the sorting and tabulating machine.

the preparation of the data for statistics. Tabulation by hand of several millions of records would be too laborious, slow and more or less inaccurate. This difficulty was solved by the adoption of a method of mechanical tabulation, the essential feature of which consists in the transfer to a special card (Fig. 1) of the recorded data, first by written code numbers and later by means of punch holes. The punch holes are always located with a definite relation to each other and to the general dimensions of the card.

The card used for this work is of a special design and measures $7\frac{3}{8}$ by $3\frac{1}{4}$ inches. It contains blank spaces at the top and along the left border for recording all the data that pertain to the physical examination of the drafted men. The remaining part is divided into columns containing numerals ranging in series from 0 to 9. The numerals are of sufficient number in each column to correspond with any code number that is possible to appear in its corresponding space above and along the left border of the card.

After the data are written in code on the cards, these are placed into key punch machines (Fig. 2) and the figures punched according to the data recorded. This machine is operated similarly to a typewriter, with only twelve keys, and prepares the cards for the sorting and tabulating machines by means of punch holes. This work is done by girls, especially skilled as punch operators. An average operator is able to punch from 1,800 to 2,200 cards a day. Each card is verified after being punched to discover any mistakes that have been made in the punching. These perforated cards form the basis of all future analysis of the information that the cards carry.

They are next run through electric sorting machines (Fig. 3), the sort being made by a needle which is set, according to the type of sort desired, to come in contact with the perforations of any single column of figures. Only one item can be sorted at a time. As

the sorting takes place the cards are carried by a card-conveying belt and deposited into boxes, from which the cards are removed by hand. This machine sorts at the speed of 250 cards a minute with absolute accuracy. The sorted cards are finally run through electric tabulating machines (Fig. 4) for separate counting of any item or set of items of information concerning the physical examination of the men drafted for military service. This machine counts the cards at the rate of 150 a minute and permits the totaling of from two to five independent sets of data at one time.

CODE BOOK

Work was started on the selective draft examinations, March 26, 1918, and as the same clerks are used who code the "sick and wounded" reports of the Army, little instruction was necessary for them except in a general way regarding the various diseases and malformations that were to be regarded as defects, and the relative order of their importance. A code book containing a list of the common diseases and defects of the body was compiled in the latter part of 1917 by a committee of specialists in the various branches of medicine and surgery. This book, compiled especially for coding the "sick and wounded" reports of the Army, is also used, with a few additions, for this work. There are more than 900 diseases and defects listed, each having a separate code number. As the physical defect space on the punch card provides for only three numbers, the list of diseases and defects must necessarily be less than 1,000, or 999. Numbers between 932 and 999 were reserved for allotment to diseases or defects not found in the list. Only when an unlisted disease or defect appeared in the physical examination and was thought to be of importance and likely to appear frequently in future exam-

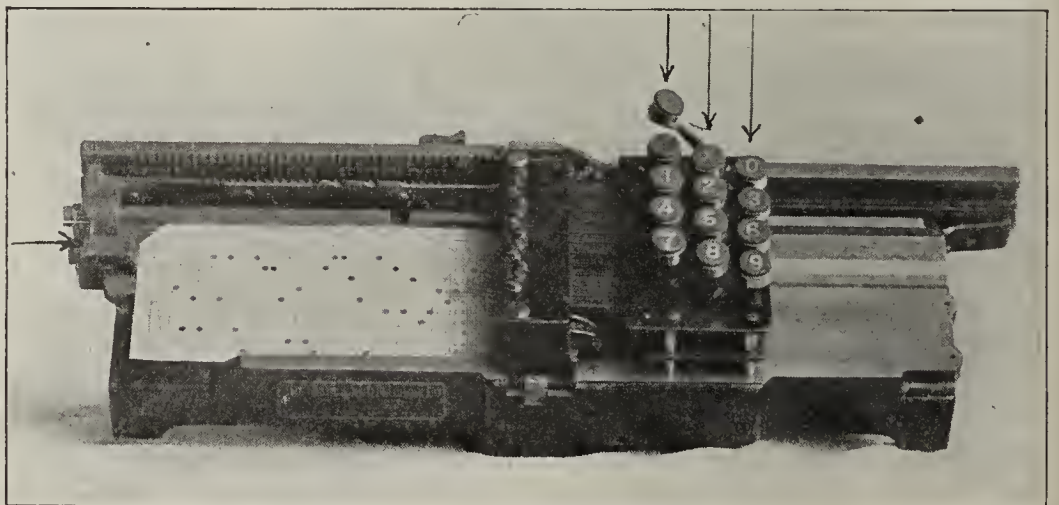


Fig. 2.—Key punch machine: The card is inserted into the carrying arm of the machine (indicated by arrow at left). The punch operator uses the keyboard (indicated by arrows at top), reading the code numbers from the left border and top of the card while she punches. As each figure is punched, the machine automatically carries the card to the left and in position for punching the succeeding figures.

inations was it given a number and added to the code book.

DATA RECORDED

At the top and to the left of the card (Figs. 5 and 6) the name of the local board is written, and to the right the man's name. At present the name is written only when the man is rejected as physically unfit for service. Along the left border of the card is written

the identification number that he received on arriving at the camp, and also there are spaces for the code number of his occupation, nativity, age and board number. Information for these spaces will be requested on the new physical examination form now being

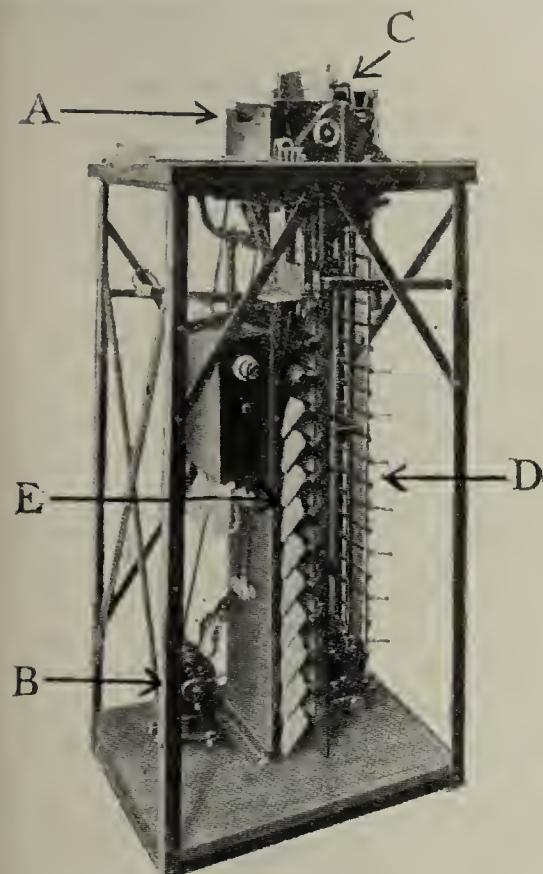


Fig. 3.—Sorting machine: Cards are set on the metal platform (A); the motor (B) causes the cards to be automatically fed into the machine by a "feeder" (C). As the punch holes of a single column of figures come in contact with an electric needle, the cards are sorted and carried by a card-conveying belt (D) into the collecting boxes (E). Each box is numbered to correspond with the series of figures that appear on the punch card.

burgh, No. 17, etc. If not followed by a number, it is considered to be a small town or a country district, such as Fairfield, N. C.; Dyersburg, Tenn.; Lewisburg, W. Va.; Morristown, Pa.; Smithport, Pa., etc. The next four spaces are for the weight, height, chest inspiration and expiration. No code numbers are used for these, but the data are inserted in the spaces as recorded on the examination forms. As practically all of the men of the present draft age are between 100 and 200 pounds in weight, only the last two figures are used; thus, for a man weighing 175 pounds, only the 75 is recorded. If he weighs less than a hundred pounds, then "R" is placed in front of the figures; thus, a man weighing 95 pounds would be coded as R 95.

Later when the card is sent to the punch room the "R" space on the card (not shown) would be punched as well as the numbers. If he weighs 200 pounds or over, then "X" is placed in front of the figures; thus 215 pounds would be coded X 15. The punching of the card would be the same as was described before except that X would be punched in place of the R.

In height, weight and chest measurements where the fraction is less than one-half inch or pound, only the whole number is coded; when the fraction is one-half or more the next whole number is used. Owing to a typographical error on the punch card, the chest inspiration and expiration spaces are reversed from the order with which they appear on the physical examination form. This arrangement, however, is dis-

regarded, and the data are inserted as they appear on the form.

In recording physical defect, the major or most important defect or disease said to exist by the mobilization board is taken; if the man is not examined by the mobilization board, the major defect or disease that is said to exist by the advisory board is taken. If the man is examined only by the local board, then the data are taken from their examination.

In order to show on the punch card whether the man has been accepted or rejected by the local, advisory and mobilization boards, the following classification is used, each having a single code number: accepted with defect for operation; recommend acceptance with defect for operation; man not examined; physically qualified with one defect; physically qualified with two defects; physically qualified for special or limited service with one defect; physically qualified for special or limited service with two defects; physically qualified for special or limited service with three defects; physically disqualified with one defect; physically disqualified with two defects; physically disqualified with three defects.

When a man is accepted for service with no defect, "X" is used in the physical defect space. If he has a disease or defect, the code number corresponding to that disease or defect is used in place of the "X." When more than one defect is present, all are counted, but only the major or more important one is coded. The defects and diseases most commonly found in the physical examination of the men have been arranged in their order of importance from a military standpoint. Hernia, which is considered an absolute cause for rejection, or for "acceptance with defect for operation," has been placed at the top of the list. Next in order of importance have been placed syphilis, gonorrhea, valvular heart disease, tuberculosis, all degrees of flatfoot, defective vision, defective hearing, defective teeth, overweight, underweight, malunion of fracture, loss of one or more fingers, etc. The foregoing

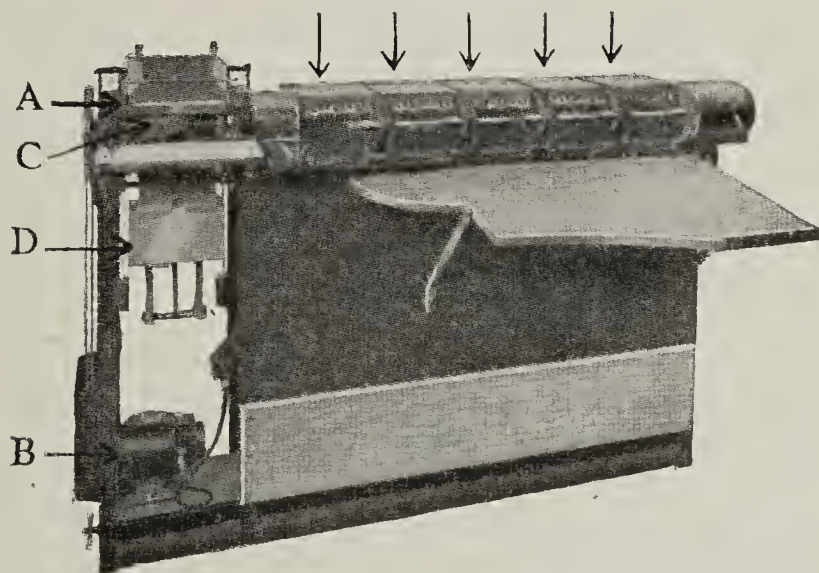


Fig. 4.—Tabulating machine: Cards are placed on the metal platform (A); the motor (B) causes the cards to be automatically fed into the machine by a "feeder." As the punch holes come in contact with numerous electric needles (C), the number depending on the amount of information desired, the items or set of items are counted. The cards are collected in a "stacker" (D) under the machine. The dials (indicated by vertical arrows) show the desired totals.

list, however, is used not as an absolute standard in all cases, but only as a general working outline.

When determining the major defect, among defects stated, their severity and the effect military service would have on them are taken into consideration. In the case of a man with first degree flatfoot with no symptoms and marked defective vision, the preference

would be given to the defect of vision; but if he had third degree flatfoot, with or without symptoms, and vision of 20/40 or 20/70, then the flatfoot would be considered the major defect.

In the general examination of the body, scars of the head and face are coded as a defect only when "extensive," "painful" or "with marked cicatricial con-

The common deformities of the nose, as a deviated septum, nasal spurs or hypertrophied turbinates, being common defects and ones that can in all probability be corrected, if necessary, are not considered for the statistics. Hypertrophied tonsils, because they play such an important part as a source of various infections of the body, are considered defects; but when associated with other defects, as varicocele, venereal disease or flatfoot, the latter are given the preference.

In coding defects of the heart, "functional," "systolic," "accidental" or "cardio-respiratory" murmurs are not considered. When a definite disease of the heart is said to exist, as mitral stenosis or regurgitation, aortic stenosis or regurgitation, or stated as "organic murmurs," it is coded as a defect and ranks next to hernia and venereal disease in order of importance. Cardiac hypertrophy or dilatation, whether slight or marked, is always considered a defect. Tachycardia is considered only when characterized as "constant," "persistent," or by any other term that shows it to be of a permanent character and not from nervousness as a result of the physical examination.

In considering defects of the lungs, "râles," "dulness over lungs," "bronchial breathing," "rough breathing," etc., are not taken as defects. If the man is rejected or discharged from the Army for any of these physical signs, it is considered a defect. If any of the physical signs are found to fit in with any previous illness or with other parts of the examination, such as underweight, poor physical development, persistent cough, hemotysis, etc., then the symptoms for which the man

Board		Boston # 3										Stetson Clyde M.										12		
No.	Cl No.	Sr No.	State	R.C	Wt.	Ht	C. In.	C. Ex	Name	L. In	L. Ex	Wt	Ht	C. In.	C. Ex	Mo	Yr	Thy	Def	Mo	Yr	Thy	Def	
		2794	x	21	x	1	38	68	32	36	1	0	8	961	3	18	11		x					
17133 6 5 2 9	Occup	0 0 0	0 0	0 0	0 0 0	●	0 0 0 0 0 0 0	●	0 0 0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	0 0	10 20
		1 1 1	Nat	1 1	1 1 1	1	1 1 1 1 1 1 1	1	1 1 1 1 1	1	●	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 1	1 21
	Nat	2 2 2	2 2	2 2	2 2 2	●	2 2 2 2 2 2 2	2	2 2 2 2 2	2	2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 2	2 22
	Age	3 3 3	3 3	3 3	3 3 3	3	3 3 3 3 3 3 3	3	3 3 3 3 3	3	3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 3	3 22
		4 4 4	4 4	4 4	4 4 4	4	4 4 4 4 4 4 4	4	4 4 4 4 4	4	4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 4	4 24
		5 5 5	5 5	5 5	5 5 5	5	5 5 5 5 5 5 5	5	5 5 5 5 5	5	5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 5	5 25
		6 6 6	6 6	6 6	6 6 6	6	6 6 6 6 6 6 6	6	6 6 6 6 6	6	6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 6	6 26
		7 7 7	7 7	7 7	7 7 7	7	7 7 7 7 7 7 7	7	7 7 7 7 7	7	7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 7	7 17
	8 8 8	8 8	8 8	8 8 8	8	8 8 8 8 8 8 8	8	8 8 8 8 8	8	8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 8	8 18
	9 9 9	9 9	9 9	9 9 9	9	9 9 9 9 9 9 9	9	9 9 9 9 9	9	9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 9	9 19	

WAR DEPT
P.S. DIVISION
BUREAU OF ENROLLMENT OFFICE

Fig. 5.—Interpretation of the statistical card: The man is from Boston, Board 3. His name is Clyde M. Stetson, his serial number 2794 and his identification number 1685529. Boston is in (21) Massachusetts and is (1) a city. His weight is 138 pounds, height 68 inches, chest inspiration 35 inches, and chest expiration 32. The local board (1) "accepted him for military service with no defect"; he was (O) "not examined" by the advisory board, while the mobilization board (8) "rejected him with two defects," the major one being defective teeth. He was examined in March, 1918. His physical examination report was coded by Clerk 11.

traction." A man giving a "history of a fractured skull" would not be considered as having a defect unless it was stated on the examination report to be a "depressed fracture" or one with symptoms of "convulsions," "mental deteriorations," etc.

Goiter, except exophthalmic goiter, is considered a minor defect.

The various deformities of the chest, as "funnel," "asymmetry," "pigeon," "flat" or similar terms, are not coded as defects unless the degree of deformity is stated to be "marked," "severe" or of such a degree as to interfere with standing erect, drilling, etc.

Relaxed inguinal rings are considered a defect; but when associated with such defects as syphilis, flatfoot, tuberculosis, gonorrhea or valvular heart disease, the preference is given to the latter defects; when associated with hypertrophied tonsils, varicose veins, various deformities of the hand or foot, etc., then the preference is given to the relaxed rings.

Scars of the abdomen and extremities from operations or burns are not coded unless "extensive," "painful" or "with marked cicatricial contraction." If an abdominal scar is associated with a "weak abdominal wall," then it is considered a defect. Curvature of the spine is considered only when "marked" or "severe." Ankylosis of the joints, either fibrous or bony, is always coded as a defect. Old fractures of the extremities are not coded unless a "deformity" is present from malunion, or "ankylosis," or "loss of motion" is said to exist. A finger amputated at the distal phalanx is not considered a defect. If amputated at the second phalanx or proximally, it is coded as the loss of a whole finger. Varicose veins are considered only when "marked" or "painful" or "with symptoms."

17133

Board		Sacramento # 2										Name										12		
No.	Cl. No.	Sr. No.	State	R. C.	Wt.	Ht.	C. In.	C. Ex.	L. In.	L. Ex.	P. In.	P. Ex.	Mo.	Yr.	Thy.	Def.	Mo.	Yr.	Thy.	Def.	Mo.	Yr.	Thy.	Def.
	A	249	x 05	x 1	52	65	34	37	10	2	326	2	18	40	x									
1	Occup	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000	000
1	374	Occup.	Nat.	Ag.	Bd. No.	Man. Number					(1)	Ser. No.		State	R. C.	Wt.	Ht.	C. In.	C. Ex.	L. In.	L. Ex.	P. In.	P. Ex.	Thy. Def.
4	Nat.	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111	111
8	70	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222	222
5	4	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333	333
8	4	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444	444
9	07	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555	555
9	9	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666	666
	7	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777	777
	8	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888	888
	9	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999	999

WAR DEPT. SURVEILLANCE & OFFICE
PINS EXAMINATION
25
25

Fig. 6.—Interpretation of the statistical card containing the additional information that will be requested on the new physical examination form: The man is from Sacramento Board 2. His name is not written on the card as he was accepted for military service. He is in Class A, his serial number 249, and his identification number 1148389. His occupation is (374) bookkeeping; he was born in (70) England; his age is (4) 24, and the local board that examined him is No. 079. Sacramento is in (05) California, and is (1) a city. His weight is 152 pounds, height 65 inches, chest inspiration 37 inches and chest expiration 34. The local board (1) "accepted him for military service with no defect"; he was (0) "not examined" by the advisory board, while the mobilization board (2) "accepted him with one defect," the defect being (326) gonorrhea. He was examined in February, 1918. His physical examination report was coded by Clerk 40.

was rejected or discharged are coded as near as possible as a definite disease. Asthma, tuberculosis and similar diseases are always considered major defects.

Diseases of the genito-urinary organs, as syphilis and gonorrhea, are always considered major defects and rank next to hernia in order of importance. Varicocele is not considered a defect unless it is said to be "marked," "large" or "with symptoms." Hydrocele is

always coded as a defect. Atrophy of the testicle is not considered, but defects such as monorchism, cryptorchidism or hypospadias are always coded.

Hemorrhoids are considered only when "external," "large," "bleeding" or "painful." Small epithelial or skin tags are not coded. Fistula in ano is always a defect.

All degrees of flatfoot are coded as defects. Hallux valgus is considered a defect, but overriding toes are not unless they are of such severity as to be a cause for rejection, and pronated feet only when "marked" or "severe." Weak, flaccid and spastic feet or similar conditions of the feet whose function can be restored by treatment are not considered.

The next two spaces on the card are for the month and year of the examination, no code number being used; but the number of the month and the last two figures of the year are written in their respective spaces. The last space on the card is for the code number of the clerk who transfers the information from the physical examination form to the card.

VALUE OF THE NEURO-OTOLOGIC TESTS IN THE ARMY FROM A DIAGNOSTIC STANDPOINT

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Captain, M. R. C., U. S. Army

CAMP KEARNEY, LINDA VISTA, CALIF.

A great deal of literature has appeared concerning the Bárány tests in the examination of aviators, while very little has been said about their value in other departments of Army medical work. Perhaps the main reason for this is the newness of the subject and the requirement of a greater knowledge of neurology than is usually considered necessary in otologic practice.

However this may be, there are many borderline cases among the men already in the service to whom the tests and a correct interpretation of them are highly applicable if we maintain the same standard for ear work that we have established for the other branches of medicine.

In the Army, all cases of visual disturbance are carefully investigated by the ophthalmologist, and every case of deafness is referred to the otologist; but when it comes to disturbance of the vestibular apparatus, it does not seem to be so well known that vertigo comes purely from some interference with a special sense organ governing the manifestation of dizziness, and that a careful examination is often necessary in order to determine the source of the trouble.

Owing to the anatomic relation of the vestibular end-organ to the organ of hearing in the labyrinth, and the common nerve trunk for the two senses, as well as a close central relation, the otologist falls heir to the newly acquired methods of examination. Consequently he must be able to interpret (or help interpret) the variations. Here cooperation of the otologist and neurologist will almost invariably lead to a correct diagnosis; at least they can determine whether the trouble is functional or organic. The soldier who complains of dizziness or of dizzy spells is entitled to just as much consideration as the one who complains of poor vision or deafness.

Many theretofore unrecognized cases of vestibular disease have been observed in the cantonments by those familiar with the symptoms. Some of these men have been treated for chronic stomach disease, nervousness and various other troubles. Some are kept for weeks under observation, while others are classed as malingerers or hysteriacs. The majority of them are absolutely useless as soldiers, they cannot train well, and when most needed they will be unable to carry out their part. Yet not all men troubled with dizziness necessarily have vestibular disease. However, the significance of the symptom is so marked that one should never overlook the possibility of a lesion in the structures constituting the vestibular apparatus.

The peripheral nerve ending may be involved by any disease common to the middle and internal ear. The nerve trunk is subject to various disturbances, and, when we consider the extensive ramification of the vestibular fibers in the spinal cord, the medulla, the cerebellum and the cerebral cortex, as well as the vestibular relation to all the cranial nerve nuclei, we can appreciate the opportunities for intracranial involvement. Some one has well said, "The vestibular apparatus is the brain sentinel."

Through the various connections with the cranial nerve nuclei, reflex irritation may occur and produce dizziness, as is frequently encountered in refraction work, nasal examinations, acute indigestion, etc.; while toxemia from any source, as chronic indigestion, chemical absorption, infections and constitutional diseases, may account for other cases. Here the prognosis depends on eliminating the cause of the irritation.

I shall not attempt to discuss the tests in this article; they are comprehensive, practical and an invaluable aid to neuro-otologic diagnosis. The excellent work by the Philadelphia school along this line cannot be too highly commended. The article by Isaac H. Jones¹ should be read carefully by all who do not appreciate the importance of the vestibular manifestations in the practice of medicine.

The value of the neuro-otologic tests in making the diagnosis of multiple sclerosis of the cerebellar type is illustrated by the case of a soldier who was under observation in one of the cantonments for several weeks.

C. D. P., aged 24, stenographer, referred for examination of the vestibular apparatus, for six years prior to enlistment had been treated for stomach trouble and had had an operation for appendicitis without relief.

Auditory findings were absolutely normal.

Vestibular tests revealed voluntary nystagmus when looking to either side and past pointing 4 inches above with the left finger horizontal test (shoulder). Romberg's sign was positive. Coordination was poor.

Turning tests revealed a poor grade of nystagmus and but little or no vertigo. There was no falling. There was no past pointing with the right hand. The patient past pointed 6 inches to the right with the left hand when turned to the right or left.

Caloric tests of the right ear revealed slight nystagmus from the vertical canal after one minute; no vertigo; a shade better nystagmus from the horizontal canal. Caloric tests of the left ear revealed no nystagmus nor vertigo from vertical canal after three minutes' irrigation; slight reaction from horizontal canal. There was no falling. The patient past pointed the same as in the turning test, namely, right hand, no past pointing; left hand, 6 inches to the right.

1. Jones, I. H.: The Practical Uses of Recent Work on the Internal Ear, *THE JOURNAL A. M. A.*, March 17, 1917, p. 829.

A peripheral lesion can be eliminated, as the nystagmus was fair from the horizontal canals, the left hand always past pointed to the right, and the auditory reactions were normal. The past pointing and falling reactions indicate a lesion at the crossing of the superior cerebellar peduncles and involvement of the left cerebellar cortex, while the nystagmus reveals a pons lesion involving the vertical canal fibers. All this suggests multiple foci.

On further investigation the patient gave a history of yellow fever at the age of 10, measles at 15, and typhoid at 16. At 18 he had left facial paralysis and difficulty in swallowing and breathing, with partial recovery. Later he had dizziness and stomach trouble, and was operated on for chronic appendicitis. Two years later he was able to resume his studies, but was not well. He is now unable to continue his work as a stenographer on account of dizziness and stomach trouble.

The patient was of fairly healthy appearance. There was an intention tremor of the hands, and weakness of the mimic muscles of the left side of the face. There was no plantar nor abdominal reflex. On the left shoulder and the abdomen there were semianesthetic spots. The patellar reflex was overactive; there was slight spasticity. The corneal reflex was subnormal. There was loss of taste over the left half and posterior right third of the tongue. The patient was very nervous.

All laboratory reports were negative, including roentgenoscopy after test meals.

The manifestations indicated a slowly progressive lesion of weak destructive quality, involving chiefly the region indicated by the Bárány tests. Careful consideration of a detailed history justified the diagnosis of multiple sclerosis.

CONCLUSIONS

1. A more general use of the tests is indicated when dizziness is encountered.
2. A closer cooperation of the otologist with the neurologist is necessary in this work.

TREATMENT OF FACIAL ERYSIPELAS AT CAMP CODY, N. M.

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AND

ROLLIN T. WOODYATT, M.D. (CHICAGO)

Major, M. R. C., U. S. Army; Chief of the Medical Service,
Base Hospital

CAMP CODY, DEMING, N. M.

Between Nov. 6, 1917, and May 15, 1918, 104 cases of erysipelas were treated at the base hospital at Camp Cody. Most of these began on the face. The disease followed drainage of the mastoid in seven cases, abscess of the scalp in three cases, demonstrable ulcer in the nose in three cases, hordeolum in one case, and burns of the face in one case. The remaining ninety cases were called "idiopathic." On certain occasions an influx of such cases was noted after a period of high winds and dust storms, such as characterize this place and favor the development of inflammations of the mucous membranes of the head generally.

Although only one patient died as the result of erysipelas, the disease was responsible for a total of 2,497 hospital days, making it a matter of some importance to determine the best method of management and establishing it as a routine.

TREATMENT

Most of the methods known to the profession have been tested, including a sensitized streptococcus vaccine prepared here from the mastoid cases by Captain

Lamb, chief of the laboratory service. Until about March 1, 1918, none of the methods tried showed any marked superiority over certain others; but at this time, Lieutenant Avata began a systematic employment of the method of collodion circumscription, first described in 1892 by Niehans. The results have been striking. Before March 1, the cases treated by all other methods averaged 8.1 days of fever and 30.4 days in hospital. (The patients were discharged when redness, swelling and desquamation were all gone.) All patients treated after March 1 by collodion circumscription averaged 3.5 days of fever and 15 days in hospital, a cut of 50 per cent. in the number of days spent in hospital by the average case of erysipelas.



Fig. 1.—Erysipelas beginning about the right eye. The disease having extended to the bridge of the nose, the collodion line is made to include the nose and both eyes.

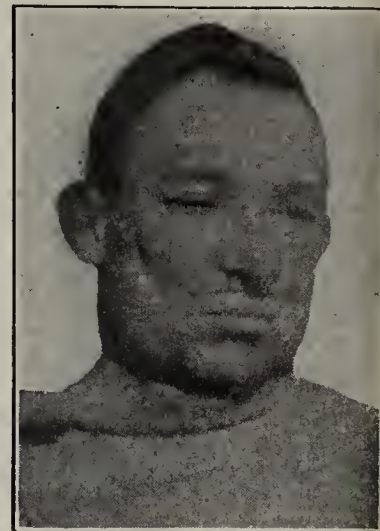


Fig. 2.—A case similar to that shown in Figure 1, front view.

The method is not a new one, but it would appear that it is not so commonly used as it might be to advantage, and that frequently it is not carried out in such a way as to give the full results of which it is capable. The following details of the method as used at Camp Cody, by Lieutenant Avata, are, therefore, recorded.

Collodion, U. S. P. (nonflexible), is painted with a cotton swab or brush to form a stripe half an inch wide and from half an inch to an inch in advance of the line of induration, in such a way that the diseased area is completely circumscribed. The collodion stripe is painted over repeatedly until, when dry, it makes a deeply constricted furrow not broken or imperfect at any point. On the following days the collodion line is inspected for breaks, cracks or inadequate constriction at any point; if found, these are repaired by further coats of collodion. When enough collodion is used to produce a continuous and sufficiently deep (from half to three quarters of an inch) linear constriction of the skin, the erysipelatosus induration advances to the collodion, but not beyond it. The collodion is left in place until the temperature and swelling have wholly subsided. If there is a break in the collodion line or if the skin constriction is too shallow, the disease may pass through or under it. Presumably a successful result depends on a complete constriction of the lymphatics of the skin through which the infection travels.

Some ingenuity may be exercised in laying out the line on which the collodion is applied when dealing with erysipelas involving different parts and expanses of the face, head, neck, etc. In cases beginning about the ear it has been found feasible to clip the hair

and encircle the ear; with unilateral involvements of the cheek or face which have already approached one eye but have not involved the nose, the line may be drawn up the nose between the eyes and around the lesion, leaving one eye within the circumscribed area, but saving the other, etc., as in the accompanying illustrations.

Within the circumscribed area the inflamed skin swells intensely, at first appearances more intensely than in noncircumscribed cases; but this is mainly an appearance due to the contrast between the swollen area and the line of depression caused by the collodion, as may be noted in the illustrations. Patients have not complained more of discomfort or the sensation of tightness, when so treated, than those not circumscribed. On the contrary, the control patients complained that they were not given the benefit of circumscription. The latter do not become so toxic as those in which the disease is permitted to involve wide areas of skin (Table 2).

TABLE 1.—COMPARATIVE RESULTS OF THE TREATMENT

Total cases from Nov. 6, 1917, to May 15, 1918.....	104
Cases treated by collodion circumscription.....	23
Cases treated by all other methods.....	81
Collodion Cases	
Average stay in hospital	15 days
Average febrile period	3.5 days
Average maximum temperature	103 F.
Incidence of complications	0.0 per cent.
All Others	
Average stay in hospital	30.4 days
Average febrile period	8.1 days
Average maximum temperature	104.5 F.
Incidence of complications	15.3 per cent.

The collodion treatment is supplemented by the continuous application of cold compresses wet with a saturated solution of magnesium sulphate and by general measures, such as are rational in any febrile condition.

RESULTS

Of the twenty-three erysipelas patients treated by collodion circumscription, all but one entered the hospital after Feb. 1, 1918, whereas most of the others

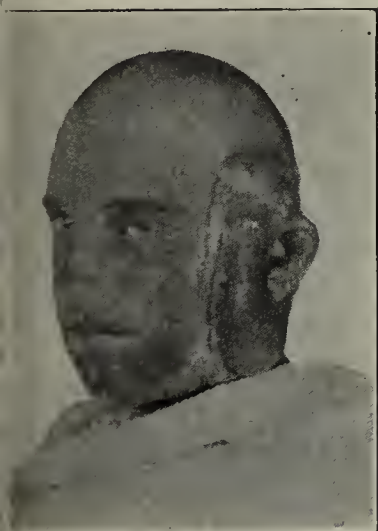


Fig. 3.—Circumaural erysipelas; intense swelling, stopping abruptly at collodion line.



Fig. 4.—Method of sparing one eye when the disease has not yet involved the bridge of the nose.

were admitted before that date and after Nov. 6, 1917. The question could be raised, therefore, as to whether the marked improvement in results was influenced by other factors besides the treatment, as for instance, a natural decline in the virulence of the infecting organism, an increased resistance on the part of the seasoned troops, differing practices with reference to the date of release, etc. After the middle of April, to control this point, circumscription was employed only in alternate cases, while the controls were treated simply with cold compresses of saturated magnesium sulphate solution. The results are given in Table 2.

TABLE 2.—RESULTS IN FOUR CASES TREATED WITH AND FOUR WITHOUT COLLODION CIRCUMSCRIPTION

	Case No.	In Hospital, Days.	Febrile, Days.	Highest Temperature.	Highest White Blood Count.	Complications.
Circumscription Cases.	1	12	3	102.0		None
	2	20	3	104.4		None
	3	21	5	101.4	16,000	None
	4	22	2	99.4	8,000	None
	Average	18.75	3.25	101.8	12,000	None
Controls	1	33	7	104.6	.....	Abscess
	2	34	8	104.0	.....	Abscess
	3	16*	11	104.0	23,000	None
	4	22	14	105.4	22,000	None
	Average	26.25	10	104.5	22,500	40%

*This patient had erysipelas six days before admission to the hospital.

CONCLUSION

The method of treating erysipelas by collodion circumscription as described above has led to a marked reduction in the time spent in hospital by such patients. It also markedly shortens the length and the height of the fever curve, lessens the toxic symptoms generally, and in facial erysipelas reduces the frequency of abscess formation almost to nothing, since abscess seldom occurs with erysipelas confined to the face. No comparable results having been obtained by any other method, the collodion circumscription method has been established as a routine.

OCULOMOTOR REACTION TO LABYRINTH STIMULATION

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The testing of thousands of young men for the aviation service will give a wonderful stimulus and interest to the question of the physiology of the semi-circular canals and their reactions. In the consideration of this subject there is one method of approach which has not been used, and yet which seems to me to present a promising field for investigation. I mean a consideration in a more careful way of the actual anatomic position of the canals, and their physiologic relations to the movements of the head on the body. A comparison of these planes and directions, as well as of the motion of the head with the different conjugate movements of the eyes, is also interesting. To simplify matters, this subject should be considered mainly with the position of the body vertical and immobile.

The movements of the head and eyes and the position of the canals will be considered in three planes, horizontal, longitudinal and transverse. The last two positions, that is, the longitudinal and the transverse, are generally termed in anatomic descriptions of the skull as sagittal and frontal, but I have chosen longitudinal and transverse as being more descriptive of these positions and directions of movement. These positions can be better understood if the skull is considered in the status of the living subject standing upright, with the head erect. An exact vertical anterior posterior median section of the skull would now represent a basic longitudinal plane and any longitudinal plane would be a plane parallel to this section. The term sagittal is used by anatomists instead of the term longitudinal for this direction.

A vertical section made across the skull at right angles to the foregoing would form the basic direction for transverse planes and any plane parallel to such

section would be a transverse plane. This direction is called by the anatomists frontal.

A horizontal section at right angles to both the foregoing would represent the basis for the horizontal direction and any plane parallel to this would be horizontal. This direction is also termed horizontal by the anatomists.

A consideration of the movements of the head in these three different directions will now be made. A movement of the head in a longitudinal (sagittal) plane is a nodding movement. So also is a raising or lowering of the head, or a throwing it back. This will take place mainly by a rocking of the skull on the condyles of the occipital bone resting on the atlas, that is, at the occipito-atlas articulation, and the radius of action is around a pole passing through this articulation. A movement of the head in a transverse frontal plane is a wagging of the head from side to side. This includes the occipito-atlas, the atlas-axis, and the upper cervical articulations, and the radius of action is around a pole situated lower than the center of motion of the longitudinal movement. The horizontal movements are those of turning the face from one side to the other. These movements take place by the turning of the atlas around the odontoid process of the axis. The radius of action in these movements is around a pole which is represented by an extension upward of the odontoid process of the axis. It is interesting also to note that the radius of rotation for the horizontal and the longitudinal canals is about the same—that is, about $11\frac{1}{2}$ inches—also that the center of rotation of the longitudinal (superior) canals is higher than the center of rotation of the transverse (inferior) canals.

MOVEMENTS OF THE EYES

A brief consideration of the mechanics of the motion of the eyes is necessary. No movement of the eyes is participated in by any two muscles alone. In other words, there is no single action of any muscle of the eyes without others also taking part in it. The simplest conjugate movement is that in a horizontal direction with the internus on one side and the externus on the other taking the principal part. At certain parts of this excursion, however, the superior and inferior recti play a prominent part. The raising of the eyes is not purely an action of the superior recti, but there is also a decided action of the inferior obliques. In the act of looking down, the inferior recti are aided by the superior obliques. Rotary movements are not accomplished by concomitant action of the muscles in the obliques only, but aid is given by the recti. Motion of the eyes calls for a constant state of tonic contraction of all the ocular muscles. This tight rein produces the absolutely smooth and well regulated movement of the eyes. This smooth transfer of power from one direction to another is, perhaps, aided by the fact that the axis of the two orbits are not parallel and that no muscle acts alone for any one direction of movement.

The movements of the eyes then in a longitudinal (sagittal) plane are represented by a raising and lowering of the eyes, and the muscles mainly involved are the superior and inferior recti. The movements of the eyes in a transverse frontal plane are torsion of the eyes, and the muscles mainly involved are the obliques. The movements of the eyes in a horizontal plane are the turning of the eyes to right or left and the muscles mainly used are the internal and external recti.

At this point it is desirable to consider nystagmus in its relation to the conjugate movements of the eyes mentioned in the foregoing. Nystagmus due to cerebellar or internal ear origin used to be called conjugate deviation and is a conjugate movement of the eyes. Horizontal nystagmus is carried on by the internal and external recti, vertical nystagmus mainly by the superior and inferior recti and rotary nystagmus by the obliques.

POSITION OF THE CANALS

The position of the canals will bear careful study and the proper placing is absolutely essential if the reflexes resulting from their stimulation are to be intelligently interpreted. A study of the canals will show that while none of them lie in the exact direction of the planes of the skull, they may each be said to lie nearly in one particular plane. There is no difficulty about the horizontal canals though they are not absolutely in a horizontal plane and the head must be inclined forward from 20 to 30 degrees before they lie in a horizontal plane. The vertical canals, however, require more careful consideration and should be studied, when possible, with the temporal bone still attached to the skull and not disarticulated; however, if it is disarticulated, great care must be taken that it be held in its proper relative position to the rest of the skull. In studying a temporal bone, there is a uniform tendency to place the pars squamosa in a longitudinal plane, whereas it should be held at an angle of about 20 degrees with this plane. This change in the angle throws the posterior canal more nearly into a transverse plane. Again it is true, as Gray says, that the posterior vertical canal is parallel with the posterior surface of the temporal bone, but the portion of the posterior surface which is parallel to this canal is a facet which is several degrees more nearly in a transverse plane than the remainder of this surface. These two factors being taken into consideration, the posterior vertical canal, instead of being in a plane forming an angle of 45 degrees with a longitudinal plane, is found to be only about 25 degrees from being in a transverse plane and the anterior canal is about 25 degrees from being in a longitudinal plane. All the bones at my disposal, while limited in number, bear out these relative positions and I am sure they will be still further substantiated by the measurements of large collections.

From this study, therefore, the anterior vertical canal should be called the longitudinal (sagittal), but is called almost universally the frontal (transverse). The posterior vertical should be the transverse (frontal) but it is called almost universally the sagittal. The conception that the posterior canal on the one side is in a plane with the anterior canal on the other side (Crum Brown) is wrong and the arguments as to the action of the canals based on this premise must be wrong. The two posterior canals lie more nearly in transverse planes and the two anterior canals lie more nearly in longitudinal planes or nearly parallel. That they are not exactly in these planes is admitted. Neither are the horizontal canals in the horizontal plane, but they are sufficiently near so that they are the canals stimulated by rotation in a horizontal plane. So will the anterior canals be stimulated when the longitudinal planes are made horizontal. This cannot be done in the ordinary turning chair, as it is impossible to lay the head sufficiently over on the shoulder. The posterior canals may be placed horizontally or in

the plane of rotation either by placing the head down, as in the falling test of the aviation examination, or by throwing the head well back.

Neuman,¹ in his lectures in this country in 1910, in explaining the rotation tests, describes the two horizontal canals as acting simultaneously, and when the head is flexed either forward or backward, the two superior canals are acting simultaneously. He ignored the posterior canals, taking the ground that although they may be excited by rotation with the head down on either shoulder, it is impossible to determine from which ampulla the center is stimulated, as both are occupying the same relative position. It will be noticed he holds the vertical canals to be in opposite planes to the positions claimed in this paper: Bárány's mnemonic sign also does not give the true position of the canals. Furthermore, it is extremely difficult, if not impossible, to place the hands in the true planes of the canals.

Alexander² states:

The semicircular canals, the ampulla and the nerve end places are named according to their position in the cranium. Thus, there are the frontal (anterior superior) the horizontal (medio external) and the sagittal (posterior inferior) canals.

Ballenger³ quotes Flourens as follows:

If turned while the head is inclined 90 degrees forward or backward, the anterior vertical pair of canals functionate, causing a rotary nystagmus.

On the other hand Gruber,⁴ quoting Retzus, speaks of the anterior superior or sagittal and the posterior (frontal), but later he quotes Crum Brown:

The plane of the anterior canal of one ear is almost parallel with the plane of the posterior canal of the other ear.

From the foregoing descriptions of the movements of the head, the conjugate ocular movements including nystagmus and the positions of the semicircular canals, we are in a position to correlate the three showing how all harmonize.

HARMONY OF THE VARIOUS MOVEMENTS

The horizontal movements of the eyes are those controlled by the internal and external recti, which, unlike the other extrinsic muscles of the eye, have in this plane an action less opposed and unhampered by the contraction or tone of the remaining ocular muscles. The horizontal canal is similarly unhampered. It has its independent opening into the utricle and is shorter and wider than the other canals. By far the greater movements of turning the head and body are in a horizontal plane and provision seems to be made that both the labyrinth and the ocular motor apparatus shall be least interfered with in this plane. The horizontal movements of the head, the horizontal canals, and the internal and external recti (horizontal nystagmus) therefore bear a close relationship.

The vertical movement of the head is in a longitudinal plane. The canals lying more nearly in this plane of motion are the anterior superior, which receive more direct action when the head is thrown backward or forward (nodding).

The vertical movement of the eyes is mainly the action of the superior and inferior recti. The corresponding motion of the head is nearly in the plane

of the superior vertical canals and mainly stimulates these canals in a longitudinal plane. The vertical movements of the head (nodding), the superior canal and the superior and inferior recti (vertical nystagmus) therefore bear a close relationship.

The rotary movements of the eyes and rotary nystagmus are the result of mixed action, but mainly that of the obliques. The corresponding motion of the head is the movement from shoulder to shoulder or in the transverse plane, and placed most nearly in this plane are the posterior canals. The relationship of the posterior canals therefore is with the oblique muscles (rotary nystagmus) and with the movements of the head in a transverse plane.

The eye reactions to the turning tests bear out this conception of the planes of the canals and their relations to the movements of the ocular muscles. The chair rotates in a horizontal plane and the different planes of the head in order to receive their maximum stimulation, must first be placed in the horizontal plane. Stimulation of the horizontal canals by horizontal rotation produces a horizontal nystagmus, which is almost an action of the interni and externi.

If it were possible to produce rotation with the head on one side at right angles to the vertical position, we should produce a rotation of the longitudinal plane, which in this position of the head becomes horizontal. The canals in this plane are the superior and are the ones most affected by the rotation of the chair. The stimulation from rotation with the head in this position produces a vertical nystagmus or an action of the superior and inferior recti, which are the muscles acting in the same plane as the superior canals. It is practically impossible to place the head on one side for a rotation test unless some contrivance such as a turning table is used, and as the position is not exact, the reaction is mixed.

Rotation with the head down produces a rotation of the transverse plane, as in this position the transverse planes of the head are made horizontal and the planes are affected by the rotation of the chair. The stimulation from rotation with the head in this position is to the inferior canals mainly and the reaction produced is rotary nystagmus, which is an action mainly of the superior and inferior obliques.

The fact that three different planes of the canals do not exactly coincide with the horizontal, longitudinal, and transverse planes of the head will mean generally that in most motions of the head there is a combined stimulation. This corresponds with the combined action of the different muscles in the movements in the eyes and the two seeming irregularities probably make for smooth and even mobility.

CONCLUSION

There is a direct relationship between stimulation of the following canals and the action of the following muscles: the superior canals and the superior and inferior recti; the horizontal canals and the internal and external recti, and the inferior canals and the obliques. Also, the horizontal canals are stimulated by the movements of the head nearly in a horizontal plane, the superior in a longitudinal plane, and the inferior in a transverse plane.

The erroneous conception of the positions of these canals should be corrected and they should be called horizontal, longitudinal, and transverse respectively.

Base Hospital No. 69.

1. Phillips: Diseases of the Nose and Throat, Ed. 4, p. 312.
2. Alexander: Diseases of the Ear. Pfaundler and Schlossman: The Diseases of Children, 6.
3. Ballenger: Diseases of the Ear, Nose and Throat, Ed. 3, p. 630.
4. Gruber: Diseases of the Ear, p. 189.

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INTESTINAL AMEBAS

The bacteria no longer form the sole topic of interest to the student of diseases of microbiotic origin. The amebas have lately claimed their share of attention. The genus *Endameba*, which includes parasitic species of amebas, was established nearly forty years ago by Joseph Leidy,¹ who, in 1879, took for its type species *Endameba blattae*, a parasitic ameba of the cockroach. The discovery of the existence of a true amebic dysentery in man has given the impetus latterly to extensive researches in this field. It early became evident that not all amebas harbored in the alimentary tract are pathogenic. The differential diagnosis has been greatly complicated by the uncertainties of classifying these organisms, owing in part to the lack of knowledge of their complete life cycle and to the difficulties inherent in studying the morphology of such simple cells; hence there has been a succession of names introduced into the literature of this chapter of protozoology, only to be corrected or excluded from year to year. The classification submitted by Craig² to the Pan-American Scientific Congress early in 1916 has already become amended in various particulars.

According to a recent report³ to the Medical Research Committee in Great Britain, it is now becoming generally recognized that there are three different amebas which may be present in the human bowel—the harmless *Endameba coli* and "*Endameba*" *nana*, and the pathogenic *E. histolytica* responsible for human dysentery. Dobell and Jepps⁴ have lately asserted that the latter is a collective species, comprising a number of distinct races, strains or pure lines, distinguishable from one another by the size of the cysts that they produce. The existence of at least five such is already claimed. There is no evidence that the different races differ in their geographic

distribution or in any character except size. Furthermore, these races remain constant in character within a given host, and the dimensions of the cysts are not determined by the action of the host on the parasite. In the judgment of the British protozoologists, it is practically important to recognize and distinguish the diverse races of endamebas, since in human feces the cysts are found with all diameters in a range in which noxious and innocuous forms overlap each other.

To the species of intestinal amebas just discussed Jepps and Dobell⁵ have recently added a new one, deserving the dignity of a new generic name, *Diendameba fragilis*. It is a very small organism having as its most characteristic feature a duplicate nucleate system which has suggested its designation and is sufficient to distinguish it from the other species. The extreme frailness of the individuals makes it difficult to examine them in undegenerated forms except in very fresh stools, and preferably on a warm stage. No cysts or stages resembling them have ever been found; hence the difficulty of ascertaining or understanding the mode of transmission from host to host. The food of this ameba appears to consist entirely of small bacteria and yeasts living in the intestinal contents. The indications at present, which need to be substantiated by better evidence, are that it lives in the colon. There is no reason, as yet at least, to believe that *Diendameba* is a pathogenic organism.

TRAUMA AND SHOCK

Students of the ever recurring problem of shock have repeatedly pointed out seemingly irreconcilable differences between the phenomena observed by the physiologist in his laboratory manifestations and the human cases of trauma and shock that come to the attention of the surgeon. The latter observes shock as a sequence of trauma and severe pain, whereas the experimental investigator has all too often seemed to be unable to provoke the symptoms by these agencies. Wiggers⁶ has pointed out, however, that in addition to the condition of low arterial pressure and an impaired peripheral circulation which the laboratory workers look on as the characteristic of shock, there is strong evidence of a clinical, experimental and even morphologic sort that functional or physical damage to the central nervous system forms an important feature likewise. Hence, says Wiggers, in regarding the shock-producing power of trauma applied peripherally, it is necessary to consider not only whether the blood pressure may be reduced to a low level in this way, but also whether demonstrable functional changes in the central nervous system take place. In other words, to the criterion of circulatory failure with its consequent impaired blood

1. Leidy, Joseph: On Amoeba Blattae, Proc. Acad. Nat. Sc., Philadelphia, 1879, **31**, 204.

2. Craig, C. F.: The Classification of the Parasitic Amebae of Man, Proc. Second Pan-American Scientific Cong., 1917, **10**, 536.

3. Dobell, C., and Jepps, Margaret W.: On the Three Common Intestinal Entamoebae of Man, and Their Differential Diagnosis, Brit. Med. Jour., 1917, **1**, 607.

4. Dobell, C., and Jepps, Margaret W.: A Study of the Diverse Races of Entamoeba Histolytica Distinguishable from One Another by the Dimensions of Their Cysts, Parasitology, 1918, **10**, 320.

5. Jepps, Margaret W., and Dobell, C.: Dientamoeba Fragilis, n. g., n. sp., a New Intestinal Amoeba from Man, Parasitology, 1918, **10**, 352.

6. Wiggers, C. J.: Shock and Circulatory Failure Following Trauma, Am. Jour. Physiol., 1918, **46**, 314.

supply to the tissues and its low blood pressure must be added the determination of the existence of a functional nervous impairment represented by apathy, reduced or abolished sensibility, and loss of reflexes.

In experiments conducted at the Cornell University Medical College in New York City, Wiggers has now demonstrated that a state of shock involving the central nervous system can be produced experimentally by trauma. It may or may not be fatal. Prolonged sensory stimulation, in contrast with severe tissue injury, may cause a temporary depression of the functions of the central nervous system, but in itself does not lead to permanent changes or death. It must not be assumed that such symptoms of shock may occur without circulatory involvement; for whenever "central nervous system shock" develops as a result of trauma it is always accompanied by distinct circulatory changes in the nature of a prolonged low peripheral resistance. The mean arterial pressure may be maintained by other factors; hence it no longer is a reliable index of the circulation. This explains why the existence of the impaired blood flow has heretofore sometimes been overlooked.

The initial stage of the circulatory disturbance is in all cases apparently represented by a reduced peripheral resistance. When the termination is fatal, the effective venous pressure falls early. At the resultant low level the cardiac discharge is accordingly reduced, so that complete circulatory failure ensues. The important fact to bear in mind is that a serious involvement of the circulation may be impending before the familiar dangerously low arterial pressure manifests itself. This is what the newer methods of hemodynamics have succeeded in revealing.

INDUSTRIAL FATIGUE

Real efficiency, not the efficiency that comes from destroying one's competitors or undermining them by intrigue, but the wholesome kind of efficiency that is signalized by a maximal continuous output of high quality, is today demanded by the world more than ever before. Many factors influence human working powers, and the scientific analysis and evolution of these factors can hardly be said to have gone beyond the initial stage. It is even now clearly seen, however, that one very important handicap to the attainment of efficiency is the production of excessive fatigue by excessive work. A paper recently prepared by the Divisional Committee on Industrial Fatigue for the use of manufacturers in the present emergency embodies a series of clear statements of the ways in which industrial fatigue interferes with maximal output and of the best known methods for reducing fatigue.¹

Many administrators, writers and other sedentary workers have long since learned for themselves the lesson that the overtaxed mind, the jaded imagination, cannot be driven advantageously beyond a certain point. Mental fatigue is one of the well-recognized barriers to mental efficiency. Long hours do not connote a satisfactory productive activity of the mind; often they connote the reverse. It may, however, come as a surprise to some manufacturers to learn that when industrial output can be measured, a lessening of the hours of labor is sometimes actually accompanied by an increased production. In the instance of an English munition factory cited in the paper referred to, when the average weekly hours of men sizing fuse bodies were reduced from 58.2 to 51.2, the total output was increased 21 per cent. A certain granite-cutting company found that "the same man under identically the same conditions accomplished more of the same kind of work when he was working nine hours than he did when he was working ten hours. And again when the hours were reduced to eight hours, this same man accomplished still more in an eight-hour day than he did in a nine-hour day, or a considerable amount more than he did when the day was ten hours long."

Among the ways of reducing fatigue suggested in the report are the introduction of recess periods, the proper supervision of ventilation and other sanitary conditions within factories, the avoidance just as far as possible of overtime and Sunday work, the adjustment of speed to individual capacity, and the introduction of occasional variety into the work of those engaged in the often monotonous machine processes. The results achieved by the application of such methods have frequently been surprisingly satisfactory, and encourage their extension and trial on a wide scale. As a practical hint the committee is careful to point out the necessity of using objective methods of measuring and detecting fatigue. Not every man who thinks he is fatigued is really so. It does not follow that because many workers accomplish more in eight hours than in ten, they would accomplish more in two hours than in eight. The committee also touches on the psychologic factors involved, and more might well have been said on this point. The good spirit of the worker, his friendly attitude toward his employer, is a particularly important stimulus to output. The old copybook adage that willing hands make light work is as true as it ever was. The immediate and marvelous success of the reorganized Shipping Board testifies to the value of good will as a factor in industry. Fatigue is somehow lessened or its coming retarded wherever work is carried on in a spirit of eager cooperation and enthusiasm.

It may be remarked, finally, that possibly military as well as manufacturing establishments may find some suggestions of value in the consideration of the factors and significance of industrial fatigue. Apparent speed-

1. How Industrial Fatigue May Be Reduced, Pub. Health Rep., 1918, 33, 1347.

ing up by long hours and excessive muscular work may in some cases lead to a delay in reaching the end desired. The admirable results already attained in our training camps by recognition of many of these factors of fatigue are well known. The new recruit is not inured to fatigue work rapidly by becoming fatigued too much or too frequently.

POISONING IN PAINTERS

The war, which has served to speed up to an enormous extent all of the fundamental industries, has also served thereby to direct greater attention to the dangers incident to many of the vocations. Human initiative and man power have become tremendously valuable forces which no government can afford to neglect when every iota must be conserved and utilized to meet the great emergencies of the time. The investigation of occupational diseases has accordingly assumed importance in far greater measure than appeared to be the case in the more easy-going days before the world conflict. Some of the hazards that beset the industrial worker are rendered conspicuous by the obvious character of the harm that is done. Injuries by frequent accidents, mutilations from machinery mismanagement, and physical deterioration from extreme exposures or excessive fatigue belong in such categories. But there are more subtle dangers that injure the individual in insidious and unsuspected ways. To discover these is the task of modern occupational hygiene.

An excellent illustration of what this branch of preventive medicine can accomplish is afforded by Harris¹ in a study of poisoning in painters. It has a peculiar import from the fact that frequently those already affected do not suspect the existence of symptoms of harm; still others do not seek medical aid until they have had a breakdown; and not infrequently the origin of the complaints of the afflicted fails to be identified as due to industrial conditions. In New York, Harris found a rate of prevalence of 40 per cent. of active cases of lead poisoning in examinations of more than 400 painters at the Occupational Clinic of the Health Bureau's Division of Industrial Hygiene. All of these showed definite clinical signs of plumbism, and half of the affected group were found to have lead in the urine—a significant sign—in addition to the more purely clinical evidence. The heaviest incidence of saturnism was among those who had been painters ten years or more. The action of lead is slow in asserting itself, but according to Harris less than half who have passed the age of 40 as painters escape the disease.

Of the various safeguards proposed to reduce the danger of the painter's work none rank above personal

hygiene. Workers ought to be made more familiar with the hazards that lead, turpentine and benzine entail. They should be educated to make more than a perfunctory exercise of washing the face, hands, mouth and beard, particularly before eating. Facilities for cleanliness should be more available. Meanwhile, Harris¹ believes, compensation for occupational diseases, and for occupational lead poisoning in particular, will do more to safeguard the health and lives of workers than any other single legal or hygienic measure. Nevertheless we cannot absolve the individual from his share of personal responsibility acquired by an intelligent recognition of the character of his occupation.

CALCIUM AND FAT UTILIZATION IN INFANCY

The ardent controversy as to the mode of absorption of fats from the alimentary tract has been settled. Although it would be difficult to demonstrate that no portion of ingested fat passes unaltered through the intestinal epithelium, there is no ground for believing in the older theory of absorption, which postulates the transit of the fat in emulsified form. On the contrary, there is reason to conclude that fats are chemically split in the gastro-intestinal canal into fatty acids and glycerol. The fatty acids react readily with bases to form soaps. The alkali soaps of sodium and potassium are somewhat soluble, whereas those of calcium and magnesium tend to be insoluble. Consequently, soaps of calcium are not infrequently found in the stools, particularly in the case of infants.

These are familiar facts of elementary physiologic chemistry. The deductions drawn from them have not always been as logical as the facts might demand. The appearance of soaps in the feces has been interpreted as an indication of the faulty digestion of fats. As a rule, this group of nutrients has thereupon been excluded from the diet or greatly reduced in quantity. Not infrequently, good results have followed the reduction of the fat content of milk in cases of infants exhibiting soap in the stools. Among these are the cases of so-called "fat intolerance."

A group of investigators¹ at the Boston Floating Hospital Laboratories and the Pediatric Department of the Harvard Medical School have directed attention, in cases which have generally been considered to show abnormalities in their utilization of fats, to the calcium factor in the diet rather than to the fatty acid component. They point out that a modification of cow's milk which gives a food containing the desired amounts of fat, sugar and protein does not modify or rearrange the inorganic constituents of the milk. The Boston pediatricians remind us that cow's milk is

1. Harris, L. I.: A Clinical Study of the Frequency of Lead, Turpentine and Benzine Poisoning in Four Hundred Painters, *Arch. Int. Med.*, August, 1918, p. 129.

1. Bosworth, A. W.; Bowditch, H. I., and Giblin, Louise A.: Studies of Infant Feeding, X, The Digestion and Absorption of Fats, I, Calcium in Its Relation to the Absorption of Fatty Acids, *Am. Jour. Dis. Child.*, June, 1918, p. 397.

nature's food for the offspring of the cow, contains inorganic constituents in sufficient amounts to supply the demands of the rapid growth and development of this animal, and is especially rich in calcium and phosphoric acid, substances which the young of the cow use to develop rapidly growing bone tissue, but which the infant uses very sparingly. When fed to infants in the proportions found in cow's milk or modified cow's milk, these substances are greatly in excess of the amounts required to supply the demands of the infant, and hence are eliminated either in the urine or in the feces.

The assertion that many of the troubles encountered with bottle-fed infants receiving cow's milk must be attributed to the ill effects chargeable to the calcium in it is believed to be substantiated by experience with novel methods of modifying cow's milk. According to Bosworth, Bowditch and Giblin, it is possible to "reconstruct" the latter so as to remove much of the calcium. By the use of this reconstructed milk, very favorable results are said to have been obtained in suitable cases thus far encountered. In some classified as "fat intolerance" and "infantile atrophy," improvement has resulted from its use. We shall await the promised directions for the preparation of the feeding mixtures from cow's milk with their resultant lower content of calcium—products which are reported to offer little or no interference to the utilization of fat in cases otherwise difficult to manage dietetically without breast milk.

The Boston investigators present a further aspect of the relation of calcium to absorption by reminding us that although cow's milk has a high content of this element, the calcium metabolism of bottle-fed infants, as measured by the calcium eliminated in the urine, is seldom greater, and often less, than that found in breast-fed infants, most of the calcium being eliminated in the feces as insoluble calcium phosphate and calcium soaps. While this mode, they add, of eliminating the excess of calcium present in cow's milk is in one way a protection to the infant, in that it prevents the calcium from entering the body fluids and tissues in organic combination, subsequently to set up a toxic condition, it may, on the other hand, bring about marked nutritional disturbance. Before any profoundly divergent deductions are drawn, however, we must bear in mind that animal experiments have demonstrated beyond question that growth can proceed very satisfactorily even when inorganic salts of lime and phosphoric acid form the sole sources of these elements in the diet.

Furthermore, Holt, Courtney and Fales² of the Babies' Hospital in New York have challenged some of the contentions of the Boston pediatricians. They deny that there need be a serious loss of fat (other-

wise than through diarrhea) when the usual simple dilutions of cow's milk are fed, whether the stools are formed or semiformed and soapy. They present evidence that a high calcium content of the intake does not necessarily cause a large fat loss in the feces. But what seems most important is the not inconsiderable risk which may attend a great reduction of the calcium in the food. We believe that prudence warrants the warning of Holt and his collaborators:

Unless the harm caused by a fairly high calcium intake can be quite definitely demonstrated, it would seem safer to allow an excess of calcium in the intake rather than to run any risk of providing less calcium than is needed for the normal growth of the bones. A number of cases of so-called intestinal infantilism have come under our observation. The most significant fact in the history of these cases is the extremely low intake of calcium in their previous feeding. The large calcium requirement of children with a tendency to rickets hardly needs mentioning in this connection. The calcium in breast milk, though smaller in quantity, may be more available than that of cow's milk; however, it is well known that many cases of rickets and tetany occur in children fed too long exclusively on breast milk.

Current Comment

THE STUDENTS' ARMY TRAINING CORPS

The Students' Army Training Corps, to which reference has already been made in *THE JOURNAL*,¹ has now become an actuality. Units have been established at a large number of colleges and universities. A statement issued by the Committee on Education and Special Training of the War Department urges that every young man who has been planning to go to college this fall should enter the institution of his choice, matriculate and enter as a regular student. Of course, he will have registered on September 12, as required of all other men of draft age, but this will not prevent his enlisting in the Students' Army Training Corps, into which he will be inducted about October 1. By this voluntary induction the student becomes a soldier in the United States Army; he will be placed in uniform, be subject to military discipline, and will be given the pay of a private. The government also pays his tuition, housing and subsistence. Each college is provided with officers, uniforms, rifles and such other equipment as may be necessary, and essential teachers will be retained so far as is possible. The student soldiers will be given military instruction under officers of the Army and will be kept under observation and test to determine their qualifications as officer candidates and technical experts, such as engineers, chemists and physicians. After a certain period, men will be selected according to their accomplishments and assigned to military duty. A student may be assigned to an officers' training camp, to a noncommissioned officers' school, to a school for further intensive work in a specified line, or to a vocational training section of the corps for technical training of military value, or he may be transferred to a canton-

2. Holt, L. E.; Courtney, Angelia M., and Fales, Helen L.: Is the Amount of Calcium Usually Given in Dilutions of Cow's Milk Injurious to Infants? *Am. Jour. Dis. Child.*, July, 1918, p. 52.

1. Medical Education and the War, Current Comment, *THE JOURNAL A. M. A.*, Aug. 17, 1918, p. 568.

ment for duty with troops as a private. It is planned to have similar sortings and reassignments of men made at periodic intervals, probably at the end of each quarter, as the requirements of the service may demand. Students will not ordinarily be permitted to remain in the college units after the majority of their fellow citizens of like age have been called to military service. Exception to this rule will be made as the needs of the service require it in the case of technical and scientific students, who will be assigned for longer periods of study in specified lines. The technical students referred to are those taking courses in medicine, engineering and chemistry. A schedule of military work has been outlined, but this is not intended to preclude effective academic work. It will vary to some extent in accordance with the type of academic instruction taken; for example, it will be less in a medical school than in a college of liberal arts. Meanwhile, medical students in the Medical Enlisted Reserve Corps are to be called to active duty in the Students' Army Training Corps and be placed on the same basis as regards uniforms, tuition, board and housing. It is clear that premedical students are eligible for enlistment in the Students' Army Training Corps, but what disposition will be made of them is not yet clearly stated. They will be expected to remain at their studies, however, until called into active service.

THE METABOLISM OF GROWING BOYS

The large appetites of boys and girls have been observed by many a parent; but men of science have usually failed until recently to grasp the true physiologic significance of this desire for food. The real explanation has been furnished by the calorimetric observations of Du Bois¹ on the effect of age on heat production in man. He showed, as has been recorded more than once in *THE JOURNAL*, that the basal metabolism in boys of 12 is 25 per cent. higher than for an adult of the same height and weight, or 50 calories per square meter of body surface—the conventional unit of such measurements. Indeed, metabolism is in general relatively high in childhood, falling rapidly in adolescence, and then decreasing slowly during the rest of life. It is interesting and fortunate from a scientific standpoint that Du Bois has been able to repeat the measurements of the basal metabolism at a later period in the same subjects—Boy Scouts—whom he originally examined some time before puberty. The statistics obtained, in conjunction with Olmstead and Barr,² represent the results applicable after a period of two years. All of the boys, some of whom were then exhibiting signs of puberty, showed a marked decrease in metabolism. The fall incident to their adolescence is represented by the new figure, 44 calories per hour per square meter of body surface, as the average for the ages of 14 to 15 years. This is a decrease of 13 per cent. for the seven cases studied. The metabolism

is, however, still 11 per cent. above the average for adult men between the ages of 20 and 40 years. Women show a metabolism that is 7 per cent. lower than that of men, or 37 calories per hour per square meter of surface. As an indication of the pronounced influence of youth on the transformation of energy in the body, Du Bois and his collaborators have actually demonstrated that the metabolism in the same boys during the twelfth year was actually greater in calories produced than during the fourteenth year, although the boys showed a gain in weight of between 35 and 50 per cent. Lusk³ has expressed the situation in another way: The basal metabolism of an average boy of 13 years of age weighing 80 pounds and of a height of 4 feet, 10 inches may be calculated as 1,525 calories a day. This is the same as that of a man 25 years old, weighing 126 pounds and 5 feet, 2 inches tall. All of this means that a growing boy of 12 or 13 may need as much food as his father.

THE ESTIMATION OF HEMOGLOBIN

Any one who is familiar with the technic of hemoglobin estimation in the blood must recognize the empiric character of most commonly used procedures. The results obtained by the usual colorimetric readings are generally expressed in terms of percentages of the "normal," as if the latter were a fixed and readily defined standard that is obviously constant and dependable. How far from the facts such a conclusion is was clearly pointed out in 1916 by Williamson.⁴ His elaborate investigation, in which the blood hemoglobin of many persons of widely varying age was accurately determined by the spectrophotometric method, brought out clearly the importance of the age factor. The amount of hemoglobin of normal persons varies so greatly at different periods of life that in determining whether a given blood contains more or less of the pigment than normal it is demonstrated to be imperative to consider the age. The variations follow a well defined curve, according to Williamson's experience, being greatest in the period preceding the sixteenth year. Between the ages of 16 and 60 there is a marked difference between the two sexes, this difference growing less after the sixtieth year. For example, the average content of hemoglobin, in grams per hundred c.c. of blood, range from 23 at birth to less than 13 at the age of 2 years, and to approximately 16 after puberty. Recently Appleton,⁵ working at the Hooper Foundation for Medical Research, San Francisco, and the Lying-In Hospital, New York, has applied accurate methods in the examination of the blood of 103 children less than 2 years of age. His data likewise show the early rapid decrease and later more gradual decrease as found by previous authors. The variations in children of the same age are noticeable in the early days of life. Thus, if we take as 100 per

1. Du Bois, E. F.: Clinical Calorimetry, Paper 12, The Metabolism of Boys Twelve and Thirteen Years Old Compared with the Metabolism at Other Ages, *Arch. Int. Med.*, June, 1916, p. 887.

2. Olmstead, W. H.; Barr, D. P., and Du Bois, E. F.: Clinical Calorimetry, Paper 27, Metabolism of Boys Twelve and Fourteen Years Old, *Arch. Int. Med.*, May, 1918, p. 621.

3. Lusk, Graham: Food in War Time, 1918, p. 29.

4. Williamson, C. S.: Influence of Age and Sex on Hemoglobin: A Spectrophotometric Analysis of Nine Hundred and Nineteen Cases, *Arch. Int. Med.*, October, 1916, p. 505.

5. Appleton, V. B.: Determination of Hemoglobin During Infancy by the Palmer and Van Slyke Methods, *Jour. Biol. Chem.*, 1918, 34, 369.

cent. the average for normal adults, the figures for the children range from 164 per cent. on the first day after birth to 85 per cent. by the end of from 11 to 23 months. These data from normal children, says Appleton, taken with those of previous authors, emphasize the necessity of interpreting hemoglobin determinations in infants with the values normal for the age of the subject, rather than those normal for an adult, as standard. Similarly in older persons the variations of normal values with age and sex must be kept in mind when accurate information in this field is a prime factor.

Medical Mobilization and the War

Surgeon-General Goes Overseas

Major-General William C. Gorgas, Surgeon-General, U. S. Army, arrived safely in France, September 8.

Work Rushed on Marine Hospitals

To hasten the construction of six new marine hospitals the President, September 5, temporarily suspended the provisions of the eight-hour law. The new hospitals will be located at Boston, Baltimore, Detroit, New Orleans, San Francisco and Savannah.

Personnel of the Medical Department

For the week ending Sept. 6, 1918, the personnel of the Medical Department of the Army included:

MEDICAL CORPS: 933, including 1 major-general, 63 colonels, 112 lieutenant-colonels, 295 majors and 462 lieutenants.

MEDICAL RESERVE CORPS: 23,672, including 1 colonel, 8 lieutenant-colonels, 1,586 majors, 7,221 captains and 14,856 lieutenants. On active duty: 23,590, including 1 colonel, 8 lieutenant-colonels, 1,582 majors, 7,187 captains and 14,812 lieutenants.

MEDICAL CORPS, NATIONAL GUARD: 1,193, including 22 lieutenant-colonels, 263 majors, 257 captains and 651 lieutenants.

MEDICAL CORPS, NATIONAL ARMY: 372, including 6 brigadier-generals, 94 colonels, 261 lieutenant-colonels, 9 majors, and 2 captains.

THE DISCHARGES to date are:

Causes	M.C.N.A.	Number M.R.C.	M.C.N.G.
Physical disability	0	777	56
Inaptitude	0	286	22
Other branches of the service	3	647	76
Resignations	0	208	35
Domestic troubles	0	62	1
Needed by community	1	49	0
Deaths	1	104	7
Dismissals	0	18	4
Duty completed	0	3	0
No reason given	0	15	1
	5	2,169	202

COMMUNICABLE DISEASES IN THE UNITED STATES ARMY

The Section of Communicable Diseases, Division of Sanitation, U. S. Army Medical Department, publishes a report¹ of a study made of the status of health matters in our Army by Col. Victor C. Vaughan and Capt. George T. Palmer. The study covered a period of six months, from Sept. 29, 1917, to March 29, 1918, dealing for the most part with thirteen National Guard camps and sixteen National Army cantonments, which represent over 70 per cent. of the troops in this country during the period in question.

The death rate per thousand was 9.1 per cent. higher than that of New York, St. Louis, Pittsburgh or Chicago, but was exceeded by the death rate of New Orleans; the final analysis, however, of all the data obtained by the investigators showed conclusively that this death rate is not the result of conditions inherent in the camps and cantonments but of the personal equation, if one may use the term in this connection. The death rate in many of the camps and cantonments was considerably lower than that of the cities mentioned, less than half, demonstrating that camp life may be made as safe as that in some of our cities in which health is best guarded, and, indeed, may show a lower death rate in the corresponding age group. It is worthy of note that the death rate of the camps compared favorably with the death

rate of the city or state or region from which the troops stationed in these camps were drawn.

Some of the reasons given for the wide variation in the death rates in the different camps are: 1. Some of the camps have acted as filters through which many troops have passed, leaving their most unfit on the filter. Those camps which may be designated as closed camps and which have been least employed as filters are the healthiest camps. 2. Under similar conditions the negro is more susceptible to the acute respiratory diseases than the Northern white man. Southern whites are more susceptible to pneumonia than Northern whites. In Southern camps, hookworm disease and chronic malarial infection increase susceptibility to the acute respiratory diseases. The investigation showed very conclusively that there is no reason for believing that either morbidity or mortality in any camp has been due to faulty sanitation. All camps are kept clean, and have unquestioned water supplies, satisfactory garbage and sewage removal, etc. The insani- tary camp of 1898 does not exist today in the United States Army.

The principal cause of death has been pneumonia, 61.5 per cent. Only 16 per cent. of all deaths have been due to other diseases (excluding 7 per cent. due to injury) than pneumonia, meningitis, measles, scarlet fever, diphtheria and tuberculosis. Only 0.14 per cent. of all deaths were due to typhoid and paratyphoid fever, showing the great value of prophylactic inoculation against these diseases. The tuberculosis death rate was 1.7 per cent.; measles, 1.1 per cent.; scarlet fever, 0.75 per cent.; diphtheria, 0.46 per cent.; meningitis, 12 per cent. Measles, pneumonia, meningitis and scarlet fever have existed in epidemic form in a number of camps. Measles has been by far the most prevalent of the four; scarlet fever has been of minor consequence. Mumps, bronchitis and influenza have likewise been widespread, and, although not fatal in themselves, have frequently been fore- runners of pneumonia.

Reviewing their study of the situation, the authors feel that the greatest single factor in the prevalence of disease in certain camps and their absence in others has been the natural susceptibility of the men. Venereal disease is excessive. Insufficient attention is paid to the character and quality of food consumed; these men have not learned that diseases are transmitted by germs most of which gain access to the body through the mouth and nose. Spitting is promiscuous. Then, there have been those aggravating factors, such as exposure, fatigue, lack of warm clothing, cold quarters by day, and cold quarters and insufficient bedding by night.

The remedy? First and foremost it seems necessary to graduate the introduction of civilians into Army life. The change has been too abrupt. Men should be called first to a semiactive reserve army. Here they should get drill and the essentials of sanitation and self-care by lecture and by demonstration. After this the transfer should be made to camp, where a man's entire time is given over to military training. Before entering camp, men should be examined for incipient disease. The suspects should be watched after separation and before their dispatch to camp. Once estab- lished in camp, transfer from camp to camp should be pre- ceded by a thorough examination and removal of those who show signs of illness. These precautions, together with care in the proper mixture of work and rest, judicious selection in the quality and balancing of the food ration, the adequate protection of the man against cold and exposure, his protec- tion against the sick through effective quarantine measures, and discretion in the use of the physical hardening process should moderate to a large degree the experiences of the past winter.

Sick and Wounded

Bulletin 44, dated July 26, 1918, concerning the sick and wounded brought from England or France prescribes:

(a) Sick and wounded being brought from France or England to U. S. will be brought in Navy hospital ships or transports, whichever may be most suitable and available, except in special cases where trans- portation by commercial lines may be authorized.

(b) The Army will be in charge of embarkation and debarkation of all Army patients.

(c) The Navy will be charged with care of these patients while on board ships of the Navy acting as transports or otherwise. At request of Navy the Army will render such assistance in personnel and material as may be necessary.

(d) The Commanding General of American Expeditionary Force will decide what class of patients and numbers of each he desires returned to U. S. He will ascertain actual number of each class that can be accommodated on each vessel from senior naval surgeon through com- manding officer of that vessel and will not exceed that number.

¹ Jour. Lab. and Clin. Med., 1918, 3, 635.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES FOR THE WEEK ENDING AUGUST 30, 1918*
(Compiled from Telegraphic Reports Received in the Office of the Surgeon-General)

1. ANNUAL ADMISSION RATE PER 1,000 (disease only):

	This Week Last Week	
All Troops	909.6	933.8
Divisional Camps	1,123.48	1,193.6
Cantonments	990.9	930.3
Departmental and Other Troops	698.2	786.6

2. NONEFFECTIVE RATE PER 1,000 ON DAY OF REPORT:

All Troops	37.44	36.25
Divisional Camps	46.14	41.93
Cantonments	40.15	37.77
Departmental and Other Troops	29.55	31.10

3. ANNUAL DEATH RATE PER 1,000 (disease only):

All Troops	3.35	2.96
Divisional Camps	5.49	2.53
Cantonments	3.07	3.56
Departmental and Other Troops	2.51	2.48

*Including Porto Rico.

CASES OF SPECIAL DISEASES REPORTED DURING THE WEEK ENDING AUG. 30, 1918

Camps	Pneumonia	Dysentery	Malaria	Venereal		Measles	Meningitis	Scarlet Fever	Deaths	Annual Admission Rate per 1,000 (Disease Only)	Noneffective per 1,000
				Total	New Infections						
Beauregard.....	4	..	5	96	2	10	..	..	0	1,808.4	84.18
Bowie.....	2	1	1	43	5	..	..	..	1	1,277.5	29.64
Cody.....	10	..	..	16	0	3	..	..	3	747.1	90.97
Fremont.....	30	..	..	72	20	4	..	..	10	602.7	37.92
Greene.....	..	..	..	80	3	..	..	..	0	920.5	37.99
Greenleaf.....	3	..	1	11	0	15	..	2	1	556.2	37.25
Hancock.....	2	..	6	151	20	..	..	..	1	1,416.0	36.75
Kearney.....	..	..	..	22	5	..	..	..	0	904.6	55.26
Logan.....	2	..	22	43	16	..	..	..	0	1,669.7	52.29
MacArthur.....	6	1	..	17	7	20	..	..	0	992.8	62.71
McClellan.....	8	..	2	64	1	24	..	..	1	1,162.7	47.23
Sevier.....	3	..	5	26	3	9	..	..	0	666.3	41.24
Shelby.....	17	3	11	72	9	75	1	..	5	1,476.5	52.00
Sheridan.....	2	..	1	268	19	18	..	..	0	1,824.3	48.56
Syracuse.....	..	..	..	130	0	1	..	..	0	1,333.6	67.90
Wadsworth.....	7	..	..	145	0	1	..	..	4	836.0	39.41
Wheeler.....	71	..	..	39	5	..	1	..	7	1,000.9	33.85
Custer.....	7	..	..	57	6	1	..	..	1	623.0	11.87
Devens.....	61	..	..	44	22	22	3	1	4	486.5	34.50
Dix.....	5	4	4	91	0	11	..	..	0	356.2	41.04
Dodge.....	8	..	..	208	3	38	..	..	1	1,361.8	74.14
Funston.....	8	..	..	59	2	56	..	..	1	1,740.7	32.18
Gordon.....	23	..	2	113	2	71	1	..	6	1,656.9	66.28
Grant.....	4	..	1	31	0	8	..	2	3	328.4	14.80
Humphreys.....	11	2	6	38	3	15	..	..	0	653.4	22.20
Jackson.....	..	3	7	869	3	16	1	..	2	1,747.2	45.86
J. E. Johnston.....	3	..	8	39	26	13	..	1	1	1,048.3	32.12
Las Casas.....	4	..	..	9	9	72	..	..	0	1,508.1	57.05
Lee.....	1	..	..	65	0	12	..	..	1	699.7	44.40
Lewis.....	23	..	..	104	4	5	..	..	0	876.4	43.50
Meade.....	9	1	..	446	4	12	2	..	3	919.9	20.59
Pike.....	17	..	20	56	1	54	1	..	9	823.4	49.35
Sherman.....	8	..	..	98	0	14	..	..	1	1,435.8	66.16
Taylor.....	7	..	..	99	5	43	..	..	3	819.9	33.05
Travis.....	9	2	2	121	5	..	..	..	5	1,445.2	46.46
Upton.....	1	..	..	163	12	6	..	1	3	731.0	41.56
N. E. Department..	..	..	..	25	5	4	..	..	0	613.9	22.04
Eastern Dept.	1	..	2	86	43	15	..	..	6	582.5	17.63
S. E. Department..	2	1	9	55	17	15	..	..	0	1,289.2	49.93
Central Dept.	1	..	..	62	0	2	..	2	0	901.1	22.36
Southern Dept.	1	4	6	94	34	2	1	2	12	657.5	30.96
Western Dept. ....	..	..	..	39	9	..	..	..	1	742.3	17.03
Aviation Camps...	5	..	10	127	0	18	1	..	11	783.6	29.23
Ports of Embarkation:											
Hoboken.....	14	4	6	321	60	37	1	..	0	839.4	49.20
Newport News....	23	4	21	95	9	12	1	..	1	758.3	56.97
Alcatraz.....	..	..	..	1	0	..	..	..	0	894.0	25.78
Leavenworth, D. B.	..	..	..	..	..	..	..	..	0	728.9	27.07
Columbus Bks.	2	..	..	3	0	..	..	..	0	543.2	39.69
Jefferson Bks. ....	..	..	2	60	1	3	..	..	1	1,816.7	115.49
Fort Logan.....	..	..	..	1	0	..	..	..	0	763.0	68.96
Fort McDowell....	..	..	..	10	4	..	..	..	0	1,042.3	73.49
Fort Slocum.....	..	..	1	11	0	1	..	..	1	794.7	51.82
Fort Thomas.....	..	..	..	3	0	1	..	..	0	656.3	41.57
West Point.....	..	..	..	2	0	..	..	..	0	1,004.8	10.73
Arsenals.....	4	..	1	9	5	5	1	..	1	556.2	18.99
Miscellaneous:											
Small Stations...	..	..	1	1	0	..	..	..	0	638.4	10.02
Gen'l Hospitals...	..	..	..	..	..	..	..	..	11		
Totals.....	429	30	163	5,010	404	764	15	11	122	909.6	37.44

ANNUAL RATE PER 1,000 FOR SPECIAL DISEASES

	All Troops in U. S., Week Ending Aug. 30, 1918	Departmental and Other Troops, Week Ending Aug. 30, 1918	Divisional Camps, Week Ending Aug. 30, 1918	Cantonments, Week Ending Aug. 30, 1918	Expeditionary Forces, Week Ending Aug. 30, 1918
Pneumonia.....	14.66	4.93	28.68	16.47	8.45
Dysentery.....	1.02	1.21	0.85	0.94	3.44
Malaria.....	5.57	5.49	9.27	3.94	1.22
Venereal.....	171.3	93.6	222.46	213.6	19.5
Paratyphoid.....	0.0	0.0	0.0	0.0	0.12
Typhoid.....	0.20	0.28	0.34	0.08	1.26
Measles.....	26.12	10.71	30.92	36.97	11.58
Meningitis.....	0.51	0.46	0.34	0.63	1.14
Scarlet fever.....	0.37	0.37	0.34	0.39	1.30

Physical Examination on Embarkation

General Order 72, dated Aug. 6, 1918, concerning physical examination on embarkation prescribes:

II.—1. When a command receives orders for overseas service, all officers and enlisted men will be given a careful physical examination by medical officers, in order to determine whether or not they are fitted for full military duty in the field. Officers and enlisted men found to be physically unfit for such service will be promptly transferred from the organization and will not accompany their organization to port of embarkation. As far as practicable this examination should be made by medical officers not attached to organization undergoing examination. Camp commanders are responsible for thoroughness of physical examinations of all troops leaving their camps. With a view to reducing number of individuals which must be eliminated on receipt of orders for overseas service, it is of utmost importance that men with defects which disable for duty overseas should be transferred to development battalions, or otherwise disposed of, as soon as defects are detected.

2. Similar action should be taken to eliminate physically unfit when enlisted men are transferred from one camp or station to another camp or station for duty.

3. In both above instances specific exceptions may be made in case of men who are being sent to a point where they are destined for special or limited military service only.

4. Nothing in above instructions shall be interpreted to modify existing instructions regarding examinations for and elimination of cases of infectious disease, "contacts," and men infested with vermin in organizations moving from one camp or station to another camp or station or to a port of embarkation.

5. In case men arrive at or are sent to join organizations at port of embarkation who, for any reason, have not been given physical examination referred to above to eliminate those physically unfit for field service overseas, the C. O. of organization containing such non-examined men will report fact to commanding general of port of embarkation, who will have rigid physical examination made for such men to determine their fitness for field service overseas.

6. All instructions given previously on subject of physical examinations and at variance with these instructions are hereby revoked.

COMMISSIONS ACCEPTED, U. S. NAVAL RESERVE FORCE

Previous lists published in THE JOURNAL, June 29, July 13, 20 and 27, August 3, 10 and 31, and September 7.

ALABAMA	KANSAS
Goshen-Kyzar, J. H.	Topeka—Weidling, W. H.
CALIFORNIA	MAINE
Los Angeles—Castle, C. H.	Portland—Leighton, A. P., Jr.
Dougall, J. P.	MASSACHUSETTS
Hutchinson, W. W.	Boston—Cotter, E. J.
Reeves, J. W.	Miniter, F. G.
San Diego—Thornton, A. J.	Cambridge—Feeley, W. C.
San Francisco—Hund, E. J.	Noonan, W. A.
COLORADO	Gardner—Jewett, E. P.
Boulder—Proffitt, R. V.	Holyoke—Brady, W. F.
CONNECTICUT	New Bedford—Foster, E. E.
Bridgeport—Zonn, S. I.	Sandwich—Currier, C. R.
DISTRICT OF COLUMBIA	MINNESOTA
Washington—Taylor, L. H.	Minneapolis—Eisenberg, D. E.
FLORIDA	MISSOURI
Tampa—Beyer, A. R.	St. Joseph—Ludwig, F.
GEORGIA	NEVADA
Richland—Pickett, C. E.	Reno—Dahl, W. Z.
ILLINOIS	Samuels, W. L.
Chicago—Healy, M. E.	NEW HAMPSHIRE
Hoodlett, J. J.	Rochester—Roberts, W. J.
Youngs, C. A.	NEW YORK
Glencoe—Athay, R. M.	Brockton—Brainard, F. J.
Springfield—Southwick, H. H.	New York—Dalton, W. A.
	Gillette, G. H.

OHIO

Columbus—Minthorn, H. A.

OREGON

Portland—Hare, W. B.

PENNSYLVANIA

Canton—Dann, A. E.
Harrisburg—Kilgore, F. D.
Philadelphia—Becker, J. B.
Hughes, F. L.
Mallon, E. A.
Shrom, R. E.

TEXAS

Dallas—Millwee, R. H.
Van Alstyne—Slaughter, J. M.

VERMONT

Wells River—Woodman, A. B.

VIRGINIA

Danville—Pritchett, C. B.
Norfolk—Spiegel, W.
Salem—Darden, J. C.

WASHINGTON

Chehalis—Johnson, W. R.
Ellensburg—Morris, M. J.
Seattle—Hoff, E.

WISCONSIN

Milwaukee—Leasum, C.

NORTH CAROLINA

Greensboro—Roberson, G. B.
Readsville—Abernethy, M. B.

OHIO

Ashville—Stout, J. O.
Cleveland—Garvin, J. A.
Shipley, M. H.
Dayton—Peters, A. O.
Lima—Herr, A. H.
Marion—Mouser, H. K.
New Madison—Kimmel, O. P.
Norwood—Eagon, S. E.
Parkman—Hceley, J. A.
Toledo—Hunter, I. E.
Urbana—Moore, D. H.

OKLAHOMA

Berlin—Clohesy, T. T.
Chickasha—Downey, D. S.
Cloudchief—Baker, B. W.
Tecumseh—Goodrich, E. E.

PENNSYLVANIA

Bristoria—Coen, J. A.
Freeport—Rogers, C. A.
Hepburnville—Waltz, A. D.
Joffre—Scott, W. L.
Kirkwood—Ferguson, T. R.
Mercer—Hopce, P. T.
Mount Lebanon—Palmer, C. L.
Philadelphia—Stubbs, F. G.
Pittsburgh—Ertzman, R. L.
McKee, C. E.
Ohlman, I. L.
Stuart, L. H.
Williamsport—Logue, J. G.

RHODE ISLAND

Providence—Coughlin, F. A.

SOUTH CAROLINA

Orangeburg—Shecut, L. C.

SOUTH DAKOTA

Aberdeen—Johnston, M. C.
Murphy, R. B. C.
Terry—Hodges, V. R.

TENNESSEE

Dukedom—Jones, D. L.
Nashville—Thorp, M.

TEXAS

Bronte—Blanton, A. G.
Cclina—Hailey, E. L.
Coleman—Lynch, T. P.
Dallas—Tomkies, J. S.
El Paso—Lamb, G. C.
Houston—Greer, A. E.
Jonesboro—Crawford, C. H.
San Antonio—Edwards, T. W.
Spur—Moore, W. R.
Sulphur Springs—Long, W. F.
Tahoka—McCoy, J. E.
Tyler—Smith, L. E.
Walde—Carroll, J. D.
Yoakum—Dufner, C. T.

UTAH

Magna—Musser, L. P.
Payson—Curtis, A. L.

VERMONT

Burlington—Courtney, J. W.

VIRGINIA

Clifton Forge—Wells, E. D.

WASHINGTON

Bellingham—Kirkpatrick, W. D.
Fallbridge—Bartean, F.
Seattle—Weichabrodt, I. A.

WEST VIRGINIA

Warwood—Abersold, G. W.

WISCONSIN

Abrams—Faulds, R. C.
Dotyville—McCabe, P. G.
Eau Claire—Seemann, W. O.
Janesville—Waufle, G. C.
Milwaukee—Gramling, H. J.
McCabe, H.
Oshkosh—Bickel, E. F.
Wausau—Thielke, G. A.

WYOMING

Lander—Cooper, A. H.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22 and 29, July 13, 20 and 27, August 3, 10, 17, 24 and 31, September 7.

ALABAMA

Gadsden—Bass, H. W.
Mobile—Schwarz, J.
Winthrop, G. J.
Montgomery—Burke, R. P.
Phill Campbell—Ford, L. H.

ARKANSAS

Center Ridge—Halbrook, J. F.
Little Rock—Overstreet, W. C.
Rogers, F. O.

CALIFORNIA

Brea—Charleston, V. C.
Hollister—O'Bannon, R. W.
Long Beach—Hamman, A. F.
Los Angeles—Baker, C. D.
Mulvehill, W. W.
Walters, C. M. C.
Modesto—Falk, E. V.
Montebello—Trehwella, J. S.
Pasadena—Murray, H. W.
Pomona—Swearingen, F. C.
San Francisco—Bruman, A. K.
Sunnyvale—Barry, R. K.
Taft—Galehouse, F. C.

COLORADO

Denver—Simon, S.
Fort Collins—Brownell, W. F.
Rifle—Smith, A. E.
Wellington—Gleason, R. L.

CONNECTICUT

Bridgeport—Maxwell, I. A.
New Haven—Burke, W. P.

FLORIDA

Gainesville—Roshorough, W. F.
Hollandale—Thomas, W. R.
Lee—Mickler, W. S.

GEORGIA

Greensboro—Adams, E. G.
LaGrange—Morgan, D. E.
Macon—Walker, D. D.
Milltown—Burch, R. N.
Rome—Chandler, J. L.
Statesboro—Mooney, A. J.

IDAHO

Peck—Lyle, J. M.

ILLINOIS

Barry—Beaver, C. E.
Chicago—Beers, B. R.
Calhoun, W. H.
Culver, H.
Devine, E. J.
Dowson, A. W.
Falls, F. H.
Lyons, P. D.
Ruhovits, W. H.
Stevenson, W. W.
Tooksville—Swinehart, B. O.
Dawson—Mayes, W. E. G.

INDIANA

Burlington—Quinn, C. E.
Boutanet—Newlin, E. O.
Fort Branch—Stephens, O. C.
Fort Wayne—Underwood, E. H.
Indianapolis—Habich, C.
Pettijohn, B. B.
Knox—Bell, H. L.
Lafayette—Swezey, H. N.
Peru—McDowell, M. A.
Gangier—Isaacs, H. H.

IOWA

Clayton—Fenton, W. J.
Shenandoah—Brush, M. O.
Croy—Prentice, G. L.

KANSAS

Coldwater—Ireland, E. M.
Emporia—Eckdall, F. A.

Sterling—Knowles, H. P.
Topeka—Allen, G. H.
Whitewater—Nossaman, A. H.

KENTUCKY

Elkton—Weathers, E. W.
Lexington—Busby, E. L.
Vallandingham, J. L.

MAINE

Deer Isle—Clark, R. W.
Foxcroft—Hall, C. C.

MASSACHUSETTS

Boston—Leary, A. J.
McCormack, J. S.
Sanborn, J. W.
Walker, W. W.
Cambridge—Chase, D. E.

MICHIGAN

Bay City—Urmston, P. R.
Penton Harbor—Burrell, H. J.
Detroit—Honhart, F. L.
Lindsay, W. L.
Lovering, W. J.
Robinson, W. H.
Young, G. R.

Fostoria—Johnson, O. G.
Freeseil—Spencer, C. M.
Grand Rapids—Brotherhood, J. S.
Iron River—Seely, M. S.
Port Huron—Kest, G. M.

MINNESOTA

Canby—Holmberg, L. J.
Duluth—Kuth, J. R.
Minneapolis—Benjamin, A. E.
St. Paul—Klein, H. N.

MISSISSIPPI

Moorhead—Hill, J. M.

MISSOURI

Cole Camp—Van Allen, J. P.
Excelsior Springs—Baird, J. E.
Joplin—Royer, D. J.
Kansas City—Outland, J. H.
Stadler, S. A.
Wyatt, T. E.
Kearney—Milligan, R. H.
Mexico—Harrison, J. F.
Jolley, J. F.
Poplar Bluff—Oxford, S. E.
Salisbury—Morey, O. T.
St. Louis—Rotter, J. C.

MONTANA

Billings—Thuerer, E. W.
Great Falls—Frizzell, R. R.

NEBRASKA

David City—Burdick, H. E.
Franklin—Smith, H. C.
Lincoln—Snipes, J. J.
Murray—Gilmore, G. H.

NEW HAMPSHIRE

Milton—Buckley, J. J.
Nashua—McLaughlin, P. J.

NEW JERSEY

Hoboken—Friedman, A.
Newark—Mikels, B. M.
Reich, A. L.

NEW YORK

Brooklyn—Fettes, D. S.
Law, D. E.
Wittenberg, J.
Buffalo—Arthurs, G. W.
Nairn, B. R.
Zielinski, W. E.
Lyons—Finigan, J. J.
New York—Mintz, M. E.
Rochester—Richman, R. D.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Shelby, Miss., base hospital, Lieut. R. P. BURKE, Montgomery.

Arizona

To Plattsburg Barracks, N. Y., from Camp Upton, Capt. L. P. KAULL, Jerome.

California

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Bowie, Lieut. O. W. BUTLER, Los Angeles.

To Camp Cody, N. M., base hospital, Capt. A. C. BRUMAN, San Francisco.

To Camp Crane, Pa., from Fort Oglethorpe, Capt. H. M. GRIFFITH, Pasadena.

To Camp Custer, Mich., from Southeastern Department, Major A. C. MAGEE, San Diego.

To Camp Dix, N. J., base hospital, from Hoboken, Capt. C. L. McCLISH, Los Angeles.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. J. EAVES, San Francisco.

To Camp Kearney, Calif., Lieut. T. J. NOLAN, San Francisco.

To Fort McDowell, Calif., from Camp Fremont, Major O. ANDERSON, Ocean Park.

To San Francisco, Calif., Letterman General Hospital, Capt. W. P. BURKE, Redlands.

Colorado

To Fort Riley for instruction, Lieut. R. F. SHELDON, Ouray.

Connecticut

To Camp Custer, Mich., Lieut. A. D. MARSH, Hampton; from Camp Sherman, Capt. J. E. HUTCHINSON, Hartford.

To Camp Wadsworth, S. C., base hospital, Lieut. S. R. SMITH, Bridgeport.

District of Columbia

To Camp Bowie, Texas, from Fort Oglethorpe, Lieut. A. F. ROCHE, Washington.

To Camp McClellan, Ala., Lieut. W. P. KIRBY, Washington.

To Walter Reed General Hospital, D. C., from the Surgeon General's Office, Col. E. R. SCHREINER.

To Washington, D. C., Surgeon-General's Office, from Walter Reed General Hospital, Col. W. F. TRUBY.

Florida

To Camp Joseph E. Johnston, Fla., from Fort Oglethorpe, Lieut. R. D. TOMPKINS, Jasper.

To Camp Shelby, Miss., base hospital, Capt. F. J. BOWEN, Jacksonville.

Georgia

To Camp Custer, Mich., Lieut. JOSEPH O. KINCAID, Atlanta.

To Camp Dix, N. J., base hospital, from Fort Oglethorpe, Capt. J. K. TRAIN, Savannah.

To Camp McClellan, Ala., Lieut. L. SMITH, Milltown. Base hospital, Lieut. W. M. FOLKS, Waycross.

To Newport News, Va., Capt. R. V. HARRIS, Savannah.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Devens, Mass., base hospital, Lieut. R. L. RHODES, Augusta.

Illinois

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. H. S. EDSON, Chicago.

To Camp Dodge, Iowa, base hospital Lieut. E. W. BODMAN, Winnetka; from Fort Riley, Lieut. E. A. CORCORAN, Chicago.

To Camp Grant, Ill., Capt. W. L. PENNIMAN, Normal; Lieut. J. C. QUITMEYER, Chicago.

To Camp Hancock, Ga., base hospital, Lieuts. O. E. CARSON, Alton; E. L. CAVENCE, Champaign.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Capt. C. H. ZOLLER, Litchfield.

To Fort Oglethorpe for instruction, Capt. H. JACKSON, Chicago.

To Newport News, Va., Lieut. L. H. MILLER, Panama.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Meade, Md., Lieut. W. D. RYAN, Philo.

Indiana

To Army Medical School for instruction, from Camp Jackson, Lieut. E. H. HARE, Indianapolis.

To Camp Custer, Mich., from Camp Sherman, Capt. P. C. TRAVER, South Bend.

To Camp Grant, Ill., Lieuts. L. N. GEISINGER, Auburn; H. V. BLOSSER, Fort Wayne.

To Camp Sevier, S. C., base hospital, Capt. R. G. HENDRICKS, Indianapolis.

To Camp Wadsworth, S. C., base hospital, Lieut. L. O. SHOLTY, Wabash.

To Camp Zachary Taylor, Ky., Lieut. W. F. DUNHAM, Kempton; from Camp Grant, Capt. J. R. DILLINGER, French Lick.

To Newport News, Va., Lieuts. C. HARICH, Indianapolis; W. A. OHMART, North Manchester; B. W. HARRIS, Uniondale.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Custer, Mich., base hospital, Lieut. R. C. OTTINGER, Indianapolis.

Iowa

To Camp Bowie, Texas, base hospital, Lieut. C. E. MAGOUN, Sioux City.

To Camp Custer, Mich., Lieut. J. W. FONDA, Council Bluffs.

To Camp Grant, Ill., Capt. C. R. ARMENTROUT, Keokuk; Lieut. F. R. MENAGH, Denison.

To Camp Pike, Ark., base hospital, Lieut. G. D. SCHOONMAKER, Philadelphia.

To Camp Shelby, Miss., base hospital, Capt. C. A. KATHERMAN, Sioux City.

To Fort Oglethorpe for instruction, Capt. C. W. MEHLOP, Dubuque.

To Fort Worth, Texas, Carruthers Field, as flight surgeon, from Mineola, Capt. O. J. BLESSIN, Postville.

To Hoboken, N. J., Lieut. G. GOULD, Iowa City.

The following order has been revoked: To Camp McClellan, Ala., from Eastern Department, Capt. S. A. O'BRIEN, Mason City.

Kansas

To Cambridge, Mass., Lieut. L. G. EASTMAN, Auburndale.

To Camp Bowie, Texas, base hospital, Lieut. R. S. PICKLER, Beloit.

To Fort Oglethorpe for instruction, Capt. E. D. ELBRIGHT, Wichita.

To Fort Riley, base hospital, Capt. F. J. WALKER, Wichita.

To Fort Sam Houston, Lieut. S. H. KELLAN, Cherryvale.

Kentucky

To Camp Gordon, Ga., base hospital, Lieut. D. T. ADAMS, Covington.

To Camp McClellan, Ala., Capt. G. W. THRELKELD, Prospect.

To Fort Oglethorpe for instruction, Capt. C. T. Wolfe, Louisville.

To Fort Snelling, Minn., from Army Medical School, Lieut. D. B. ROACH, Cadiz.

Maine

To Camp Upton, N. Y., Capt. A. H. DAMON, Limestone.

To Washington, D. C., for conference, and on completion to Camp Sherman, Ohio, to examine the command for nervous and mental diseases, from Camp Wadsworth, Major F. E. LESLIE, Andover.

Maryland

To Camp Upton, N. Y., Lieut. E. M. SULLIVAN, Westminster.

To Camp Zachary Taylor, Ky., base hospital, from Camp Meade, Capt. T. R. PAYNE, Corbett.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Upton, N. Y., Lieut. F. E. ROBERTS, Baltimore.

The following order has been revoked: To Camp Dodge, Iowa, base hospital, Lieut. J. K. ORMOND, Baltimore.

Massachusetts

To Camp Devens, Mass., base hospital, from Fort Oglethorpe, Major A. W. GEORGE, Boston.

To Camp Lee, Va., base hospital, Capt. A. M. DODGE, Boston.

To Camp Upton, N. Y., base hospital, Capt. W. G. DROUIN, Holyoke.

To Fort Oglethorpe, evacuation hospital, from Boston, Lieut. J. H. SHORTELL, Boston. For instruction, Lieut. T. F. WHEELDON, Boston.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Hancock, Ga., base hospital, Capt. F. W. GAY, Malden.

To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Lieut. E. H. GANLEY, Methuen.

The following order has been revoked: To Camp Dix, N. J., Lieut. W. F. BRADY, Holyoke.

Michigan

To Camp McClellan, Ala., base hospital, Lieut. W. N. SIMONS, Detroit.

To Camp Sherman, Ohio, base hospital, Lieut. M. S. SEELY, Iron River.

To Camp Wadsworth, S. C., from Camp Zachary Taylor, Lieut. A. J. RADZINSKI, Detroit.

To Fort Des Moines, Iowa, base hospital, Capt. W. K. REXFORD, Detroit; Lieut. D. H. McRAE, Detroit.

To Fort Oglethorpe, evacuation hospital, from Camp Zachary Taylor, Capt. J. A. ELLIOTT, Battle Creek.

Minnesota

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp A. A. Humphreys, Lieut. M. A. DESMOND, Glenwood.

To Camp Grant, Ill., Capt. E. L. HALL, Russell.

To Cincinnati, Ohio, from Fort Riley, Lieut. A. A. TOFTE, Pine City.

To Fort Oglethorpe, evacuation hospital, from Camp Sevier, Capt. B. A. KAMP, Albert Lea.

Mississippi

To Camp Custer, Mich., from Camp Sherman, Major R. C. ELMORE, Durant.

To Camp McClellan, Ala., Lieut. L. T. FERRELL, Hazelhurst.

To Newport News, Va., Lieut. J. S. GIBSON, Crystal Springs.

Missouri

To Camp Beauregard, La., base hospital, Lieut. J. P. JOLLEY, Mexico.

To Camp Bowie, Texas, base hospital, Lieut. J. R. LIONBERGER, St. Louis.

To Camp Custer, Mich., base hospital, from Fort Riley, Capt. H. S. ROWLETT, Maryville.

To Camp Pike, Ark., base hospital, Capt. J. W. MacDONALD, Clayton.

To Camp Shelby, Miss., base hospital, Lieut. G. C. LYTTLE, St. Louis.

To Fort Oglethorpe, evacuation hospital, from New York, Lieut. O. B. ZEINERT, St. Louis.

To Fort Worth, Texas, from Sacramento, Capt. N. W. SHARPE, St. Louis.

To Manhattan, Kan., State Agricultural College, to examine and give medical attention to drafted men, Capt. F. M. O'KELLEY, Sikeston.

To New Orleans, La., Tulane University, to examine and give medical attention to drafted men, from Fort Riley, Lieut. S. S. STEWART, St. Louis.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Pike, Capt. A. S. J. SMITH, St. Joseph.

To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Lieut. J. L. MARDER, St. Louis.

Montana

To Camp Kearney, Calif., from Camp Lewis, Capt. T. W. WELSH, Roundup.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Fort Sill, Lieut. J. J. TOBINSKI, Missoula.

Nebraska

To Camp Custer, Mich., from Camp Sherman, Capt. O. Martin, Omaha.

To Camp Meade, Md., as tuberculosis examiner, from Camp Sheridan, Lieut. E. O. WILSON, Madison.

To Fort Des Moines, Iowa, base hospital, Capt. J. R. BLACKMAN, Hastings.

To Fort Riley for instruction, Lieut. E. G. JOHNSON, Grand Island.

To Fort Sam Houston, Texas, Lieut. C. W. JEFFREY, Oceola.

To Washington, D. C., for instructions, from Fort Oglethorpe, Capt. L. CRUMMER, Omaha.

New Hampshire

To Camp Hancock, Ga., base hospital, Capt. L. H. COGSWELL, Warner.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp McClellan, Ala., base hospital, Lieut. G. S. FOSTER, Manchester.

New Jersey

To Camp Hancock, Ga., base hospital, from Camp Meade, Lieut. M. B. FINNERAN, Jersey City.

To Camp Wheeler, Ga., base hospital, Lieut. A. E. OLPP, West Hoboken.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. L. SHOEMAKER, Camden.

To Fort Oglethorpe for instruction, Lieut. J. C. HUGHES, Bayonne.

To Fort Worth, Texas, Taliaferro Field, as flight surgeon, from Mineola, Capt. A. C. ZEHNDER, Newark.

To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Lieut. G. E. HARHEN, Newark.

The following order has been revoked: To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Lieut. T. L. CALDRONEY, Paterson.

New York

To Camp Custer, Mich., from Camp Sherman, Capt. J. J. CORBETT, Syracuse.

To Camp Dix, N. J., base hospital, Capt. J. A. COX, Albany.

To Camp Greene, N. C., base hospital, Capt. E. W. KENNEDY, Rochester.

To Camp McClellan, Ala., Lieuts. E. M. TENCH, Buffalo; H. HERMAN, New York.

To Camp Sevier, S. C., base hospital, Lieut. L. D. ROCHE, New York.

To Cape May, N. J., Lieut. W. A. KRIEGER, Poughkeepsie.

To Fort Oglethorpe for consultation with commanding officer and the chief of the surgical service at U. S. Army General Hospital, and on completion to his proper station at Washington, Lieut.-Col. C. H. PECK, New York.

To Fort McPherson, Ga., from New Haven, Capt. R. E. PLUNKETT, Whitehall.

To Hampton, Va., Langley Field, as flight surgeon, from Arcadia, Fla., Capt. W. W. GILL, New York.

To Houston, Texas, Ellington Field, as assistant to flight surgeon, from Mineola, Capt. J. D. GULICK, Schenectady.

To Newport News, Va., Lieut. L. GOLDFARB, Brooklyn.

To Rockefeller Institute for instruction in the treatment of infected wounds and on completion to Camp Greene, N. C., base hospital, Capt. G. H. REICHERS, Brooklyn. On completion to Camp Lee, Va., base hospital, Capt. E. F. SIBLEY, Kingston. On completion to Camp Meade, Md., base hospital, Lieuts. M. BELLIN, Albany; C. V. O'BRIEN, Brooklyn.

The following order has been revoked: To Camp Greene, N. C., to examine the command for nervous and mental diseases, from Camp A. A. Humphreys, Capt. E. HOLLEY, Brooklyn.

North Carolina

To Camp McClellan, Ala., from Camp Lee, Lieut. H. W. TIDMARSH, Randleman.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Dix, N. J., base hospital, Capt. A. W. MOORE, Charlotte.

North Dakota

To Camp Dodge, Iowa, base hospital, Capt. T. O. E. MOELLER, Devils Lake.
To Fort Des Moines, Iowa, base hospital, Lieut. A. F. BRATRUD, Grand Forks.

Ohio

To Army Medical School for instruction, from Garden City, Lieut. D. H. MACDONALD, Cleveland.
To Camp Crane, Pa., from New York, Capt. F. J. BIDWELL, Toledo.
To Camp Custer, Mich., Lieuts. E. J. CURTISS, Lima; R. C. FARRIS, Porum.
To Camp Greene, N. C., base hospital, Lieut. C. G. DEW, Nelsonville.
To Camp Kelly, Texas, as assistant to flight surgeon, from Mineola, Capt. M. H. URNER, Cincinnati.
To Fort Oglethorpe, evacuation hospital, from Camp Sevier, Lieut. J. M. McGEORGE, Salem; from Camp Sheridan, Capt. L. C. COSGROVE, Swanton.
To Newport News, Va., Lieuts. H. B. CLOUD, Canton; G. F. BOWMAN, Toledo.
To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Capt. C. A. FALLER, Cincinnati.

Oklahoma

To Camp Abraham Eustis, Va., as assistant to camp surgeon, from Fort Oglethorpe, Lieut. S. B. BELLINGER, McAlester.
To Camp Shelby, Miss., from Camp Bowie, Capt. J. G. HARRIS, Muskogee.

Oregon

To Camp Kearney, Calif., from Fort Riley, Lieut. J. O. VAN WINKLE, Jefferson.

Pennsylvania

To Army Medical School for instruction, from Camp Wheeler, Lieut. B. F. FULTON, Pittsburgh; from Camp Zachary Taylor, Lieut. J. K. ANDERSON, Pittsburgh.
To Camp Custer, Mich., Lieut. H. M. KUEHNER, Philadelphia.
To Camp Gordon, base hospital, Lieut. J. W. BURKETT, Moon Run.
To Camp Greene, N. C., base hospital, Lieut. J. H. HATWELL, Philadelphia.
To Camp Hancock, Ga., base hospital, Lieut. D. BEVERIDGE, Washington.
To Camp McClellan, Ala., Capt. R. REESER, Columbia.
To Camp Upton, N. Y., Capt. A. W. SHERRILL, Pittsburgh; Lieuts. W. W. LIVINGSTON, Dunlo; E. WEISS, Johnsonburg.
To Fort Oglethorpe for instruction, Lieut. A. S. SICKMAN, Lock.
To Newport News, Va., Lieuts. R. S. ALSTON, Philadelphia; W. J. FETHEROLF, Steinsville.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Camp Greene, N. C., base hospital, Lieut. H. C. WALLACE, Pottsville. On completion to Camp Meade, Md., base hospital, Capt. G. B. MORELAND, Pittsburgh.
To Syracuse, N. Y., as tuberculosis examiner, from New Haven, Capt. C. M. MALONE, Shamokin.
To Williamsbridge, N. Y., from Camp Devens, Capt. J. S. MACKRELL, Pittsburgh; from Camp Dix, Capt. C. A. STILLWAGON, Pittsburgh.

Porto Rico

To Camp Las Casas, P. R., Lieut. E. L. C. PURCELL, Ponce; from Camp Meade, Lieut. J. H. FONT, Barranquitas.

South Dakota

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Camp Custer, Mich., base hospital, Capt. W. A. BATES, Northville.

Tennessee

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Capt. D. R. PICKENS, Nashville.
To Camp McClellan, Ala., Lieut. W. T. HARVELL, Arlington.
To Camp Pike, Ark., base hospital, Capt. P. DEWITT, Nashville; Lieut. O. F. WALKER, Memphis.
To Fort Oglethorpe, evacuation hospital, from Fort Screven, Capt. C. D. BLASSINGAME, Memphis.
To Newport News, Va., Lieut. I. N. HUDKINS, Bradford.
The following order has been revoked: To Camp Pike, Ark., from Fort Riley, Lieut. H. O. ANDERSON, Williamsport.

Texas

To Camp Beauregard, La., from Camp Cody, Capt. T. C. BROOKS, Bay City.
To Camp Bowie, Texas, base hospital, Lieut. T. C. GILBERT, Dallas.
To Camp Logan, Texas, as assistant to camp surgeon, from Camp Bowie, Lieut. H. B. SMITH, Dallas.
To Camp MacArthur, Texas, base hospital, Lieut. J. C. FALVEY, Numble.
To Camp Travis, Texas, base hospital, from Southern Department, Lieut. T. K. JONES, Henrietta.
To Fort Oglethorpe for instruction, Capt. G. D. GRIMES, Houston; F. D. FRIZZELL, Quanah.
To Newport News, Va., Lieut. A. J. TURNER, Beeville.

Utah

To Camp Bowie, Texas, base hospital, Capt. H. LYNCH, Salt Lake City.

Vermont

To Camp Custer, Mich., Lieut. E. J. CRAY, Brandon.
To Fort Schuyler, N. Y., from Camp Lee, Capt. W. E. LAZELL, Barre.
To Fort Totten, N. Y., from Rockefeller Institute, Capt. J. H. COLE, Bennington.

Virginia

To Camp Wheeler, Ga., base hospital, Capt. J. W. WHITE, Norfolk.
To Hoboken, N. J., evacuation hospital, Major B. L. HILLSMAN, Richmond.
To Newport News, Va., Lieut. J. L. WRIGHT, Keezletown.

Washington

To Camp Lewis, Wash., base hospital, Lieut. J. H. CRAMPTON, Spokane.

West Virginia

To Camp McClellan, Ala., Capt. W. W. KOINER, Sullivan.
To Fort Oglethorpe for instruction, Capt. J. D. SCHMIED, New Martinsville.

Wisconsin

To Boston, Mass., Harvard Graduate School of Medicine, for instruction in orthopedics, from Camp Devens, Lieut. H. E. BUNDY, Milwaukee.
To Camp Grant, Ill., Capt. R. C. FAULDS, Abrams; R. P. POTTER, Marshfield; Lieuts. F. P. MEIS, Gilman; E. H. TOWNSEND, Jr., New Lisbon; T. J. SHEEHY, Tomah.
To Camp Sherman, Ohio, base hospital, Lieut. W. J. WINNEMANN, Athens.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion to Fort Riley, base hospital, Lieut. H. C. MAURER, Beloit.
To Williamsbridge, N. Y., from Camp Dix, Lieut. T. C. H. ABELMANN, Watertown.

COMMISSIONS OFFERED AND ORDERED TO DUTY ON ACCEPTANCE

Alabama

To Fort Oglethorpe for instruction, Capt. J. H. EDMONSON, Birmingham; Lieut. L. M. WALKER, Plantersville.

Arizona

To Fort Riley for instruction, Lieut. E. J. GOTTHELF, Tucson.

Arkansas

To Fort Oglethorpe for instruction, Lieuts. O. HOWTON, Osceola; J. D. MITCHELL, Uniontown.
To Fort Riley for instruction, Lieuts. C. W. McLAIN, Gurdon; H. D. BOGART, Marianna.
To Washington, D. C., Elizabeth's Hospital, for instruction, Capt. R. F. DARNALL, Little Rock.

California

To Camp Fremont, Calif., base hospital, Lieut. J. MONTELCONE, Los Angeles.
To Fort Oglethorpe for instruction, Capt. H. L. PARISH, Oakland; F. W. BURNS, Pomona; G. L. MARION, San Francisco.
To Fort Riley for instruction, Capt. F. C. FERRY, Los Angeles; Lieuts. H. B. OSBORN, Fillmore; C. T. BULLARD, King City; W. C. DUNCAN, Los Angeles.

Colorado

To Fort Oglethorpe for instruction, Lieut. E. K. SHELTON, Antonio.
To Fort Riley for instruction, Capt. D. O. NORTON, Fort Collins; J. ATCHESON, Jr., Idaho Springs; Lieuts. W. K. HILLS, Colorado Springs; B. F. BLOTZ, Rocky Ford.

Connecticut

To Fort Oglethorpe for instruction, Major L. W. BACON, New Haven; Capt. C. I. PAGE, Litchfield; P. H. ROGERS, West Haven.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. E. H. BLAIR, Hartford.

Delaware

To Fort Oglethorpe for instruction, Capt. J. P. LOFLAND, Milford.

District of Columbia

To Camp Sherman, Ohio, base hospital, Lieut. T. A. POOLE, Washington.
To Fort Oglethorpe for instruction, Capt. P. E. LARKIN, Washington.

Georgia

To Fort Oglethorpe for instruction, Capt. T. R. AYCOCK, Monroe; J. T. KING, Quitman; Lieuts. G. T. HENDRY, Blackshear; W. HUTCHINS, Buford; M. MASHBURN, Cumming; W. M. GERTMAN, Hazlehurst; B. E. HORTON, McDonough; W. P. ALLEN, Woodbury.

Idaho

To Camp Kearney, Calif., to examine the command for nervous and mental diseases, Capt. C. R. LOWE, Boise City.
To Camp Lewis, Wash., for instruction, Capt. D. L. BLEVINS, Idaho Falls.
To Fort Riley for instruction, Lieut. C. K. HENKLE, Troy.

Illinois

To Camp Zachary Taylor, Ky., to examine the command for nervous and mental diseases, Lieuts. T. G. CHARLES, Beardstown; E. C. PRATT, Upper Alton.
To Fort Oglethorpe for instruction, Major J. L. PORTER, Chicago; Capt. A. F. BECHTOLD, Belleville; W. C. MITCHELL, Bradford; J. R. MacNAMARA, Chicago; A. F. KAESER, Highland; L. T. RHOADS, Lincoln; H. H. SHEETS, Oregon; A. G. GUMM, Paris; E. P. STAFF, Ramsey; Lieuts. J. P. LONG, Astoria; C. R. BRIGHAM, Brookville; L. C. MILLER, Champaign; J. A. KROPAK, Chicago; J. A. SULLIVAN, East St. Louis; P. T. DIAMOND, Evanston; J. B. ROBERTS, Kansas; C. L. CASEY, Kewanee; W. L. COTTINGHAM, Paxton; E. E. BOND, Stronghurst; H. C. HOUSER, Westfield.
To Fort Riley, Lieuts. P. F. SHAFFNER, Chicago. For instruction, Lieut. F. C. FINK, Pleasant Plains. To examine the command for nervous and mental diseases, Capt. G. W. BROCK, Atlanta.
To New Haven, Conn., U. S. Army General Hospital, Lieut. A. W. SCHMIDT, Chicago. Yale Army Laboratory School, for instruction, Lieuts. P. B. RABENNECK, Nashville; B. RUNNELS, Milledgeville; C. B. McCLURG, West Chicago.

Indiana

To Fort Oglethorpe for instruction, Capt. E. G. COVERDALE, Decatur; J. T. HAZEL, Freedom; F. M. HARTSOOK, Freeland Park; S. H. CARAWAY, S. O. LEAK, Indianapolis; A. T. CUSTER, Linton; J. L. GILBERT, Logansport; F. A. PRIEST, Marion; C. C. COLLINS, Roachdale; C. D. EHRMAN, Rockport; J. B. MAPLE, Shelburn; H. W. DALE, West Lebanon; Lieuts. R. W. BROOKIE, Converse; R. R. POLLOM, Darlington; F. J. McMICHAEL, Gary; J. F. CASPER, Jasper; N. L. MEDCALF, Lamar; W. F. CRAFT,

Linton; M. F. PARRISH, Monroe; H. W. TAYLOR, Rochester.
To New Haven, Conn., Yale Army Laboratory School, for instruction,
 Lieut. A. C. WILLIAMS, Reynolds.
To Walter Reed General Hospital, D. C., Capt. E. J. LENT, South Bend.

Iowa

To Fort Oglethorpe for instruction, Capts. S. E. LINCOLN, Des Moines; G. L. ATKINS, Superior; Lieuts. L. J. LINEHAN, Dubuque; H. P. MAHAN, Ellsworth; H. E. MIDDLETOWN, Lake City; W. A. HENNEGER, La Motte; W. E. CODY, Merrill; H. RISK, Oelwein.
To Fort Riley for instruction, Capts. A. C. RHINE, Hampton; J. G. RYAN, New Sharon; Lieuts. C. H. BURKE, Algona; M. E. DINGMAN, Urbana.

Kansas

To Fort Oglethorpe for instruction, Capts. O. C. BAIRD, S. STEELE, Chanute; C. D. BLAKE, Ellis; H. G. SHELLY, Mulvane; W. F. OSBURN, Parsons; W. H. CARTER, Lieut. A. E. GARDNER, Wichita.

To Fort Riley for instruction, Lieuts. C. J. MILLS, Lebo; G. D. RUTH, Moundridge; J. B. BLADES, Randall.

Kentucky

To Camp Jackson, S. C., base hospital, Major E. B. BRADLEY, Lexington.

To Fort Oglethorpe for instruction, Capts. O. H. SHIVELY, Campbellsville; E. B. PENDLETON, Hartford; F. W. HINKLE, Louisville; Lieuts. J. L. RUSSELL, Adairville; J. M. PREWITT, Covington; M. C. BAKER, Louisville.

To New Haven, Conn., U. S. Army General Hospital, Lieut. G. H. Wells, Glasgow.

Louisiana

To Fort Oglethorpe for instruction, Capt. A. H. GLADDEN, Monroe.

Maine

To Fort Oglethorpe for instruction, Capt. C. M. ROBINSON, Portland; Lieut. R. J. MORIN, Lewiston.

To New Haven, Conn., U. S. Army General Hospital, Lieut. E. B. FRISBEE, Bridgton.

Maryland

To Fort Oglethorpe for instruction, Capt. J. W. COLE, Lieut. J. A. SKLADOWSKY, Baltimore.

Massachusetts

To Edgewood Arsenal, Md., Lieut. W. F. MAHONEY, Westboro.
To Fort Oglethorpe for instruction, Major H. ROBB, Winchester; Capts. J. F. CALLAHAN, Brockton; D. L. MARTIN, Dorcheser; W. E. HUNT, Malden; E. W. BURT, Westport; W. G. CURTIS, Wollaston; Lieuts. N. K. FORHAM, Billerica; J. H. GOODING, Boston; R. E. ANDREWS, Cambridge; W. M. COLLINS, Lowell; E. W. SMITH, Newton; O. L. DASCOMBE, Waltham; H. W. TRASK, West Boylston; H. L. JACKSON, West Springfield; T. M. PROCTOR, Wrentham.

To Washington, D. C., St. Elizabeth's Hospital, for instruction, Capt. W. T. GARFIELD, Cambridge.

Michigan

To Fort Oglethorpe for instruction, Capts. I. S. MORRIS, J. ROSENTHAL, Detroit; W. H. FORCE, Ludington; G. A. HOLLIDAY, Traverse City; Lieuts. W. I. SEARLES, Ann Arbor; J. H. MULLER, Grand Rapids.

To New York, Neurological Institute, for instruction, Capt. R. C. STONE, Battle Creek.

Minnesota

To Camp Grant, Ill., base hospital, Capt. E. BOECKMANN, St. Paul.

To Fort Oglethorpe for instruction, Capt. A. E. COMSTOCK, St. Paul; Lieut. T. ZISKIN, Minneapolis.

To Fort Riley for instruction, Capt. E. JAMIESON, Walnut Grove; Lieut. F. S. MCKINNEY, Minneapolis.

Mississippi

To Fort Oglethorpe for instruction, Capt. C. E. SPENCER, Verona; Lieuts. F. P. TURNER, Cleveland.

Missouri

To Camp Sevier, S. C., base hospital, Capt. W. H. MINTON, St. Joseph.

To Fort Oglethorpe for instruction, Capts. T. G. ORR, Kansas City; J. A. HARTMANN, V. B. KIEFFER, H. B. MILLER, J. C. MURPHY, C. S. REHFELDT, St. Louis; H. G. SAVAGE, Warsaw; Lieuts. L. R. MONDAY, Richland; K. R. BARTUM, Sedalia; J. D. POE, St. Louis.

To Fort Riley for instruction, Capts. P. S. TATE, Farmington; R. G. LAMSON, Neosha; Lieuts. A. E. ALLDER, Cane Hill; W. R. SHAEFFER, Columbia; J. S. BOWERS, Granby; L. HURWITZ, Jenlin; B. O. HARTWELL, Maysville; C. H. ALLEN, Odessa; F. E. DEAL, Slater.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. W. J. HUNT, St. Joseph.

Montana

To Fort Riley, base hospital, Capt. E. M. PORTER, Great Falls. For instruction, Capt. J. H. RIFFEY, Hedgesville; Lieuts. W. A. HULBUSH, Geraldine; J. E. FUHRER, Ronan.

Nebraska

To Camp Gordon, Ga., base hospital, Lieut. J. S. LEISURE, Ingleside.
To Fort Oglethorpe for instruction, Capts. F. P. DORSEY, Hartington; W. T. CARSON, Hastings; H. C. SUMNEY, Omaha; Lieut. W. H. CRUTCHER, Lincoln.

To Fort Riley for instruction, Lieuts. A. E. BRIX, Lexington; J. C. FOLLMANN, G. J. KADAVY, Omaha.

New Jersey

To Camp Hancock, Ga., Lieut. C. B. KEENEY, Summit.
To Fort Oglethorpe for instruction, Lieuts. J. E. DUFFY, Ridgefield Park; H. T. RICHARDSON, Trenton.

New Mexico

To Fort Oglethorpe for instruction, Lieut. W. F. GLASIER, Carlsbad.
To Fort Riley for instruction, Capt. H. G. WILLSON, Gallup; Lieut. E. J. HUBBARD, Dexter.

New York

To Camp Devens, Mass., base hospital, Capt. E. D. RUDDEROW, New York.

To Camp Jackson, S. C., base hospital, Major G. R. BUTLER, Brooklyn.

To Camp Meade, Md., for instruction, Capt. E. LONG, New York.

To Fort Oglethorpe for instruction, Major B. F. KNAUSE, Brooklyn; Capts. H. W. GISSEL, J. LOGUE, Brooklyn; M. J. BURSTEIN, New York; Lieuts. S. Z. SELLECK, Bath; C. A. BREITLING, Brooklyn; E. P. FORRESTEL, Buffalo; R. H. MAYHEW, Canaseraga; J. L. KINNER, Elmira; V. J. JACOBSON, Mineola; C. E. FROATZ, M. M. HOLZMAN, H. M. KOMAROFF, H. MICHAELIS, H. J. SCHWARTZ, New York; C. OVERTON, White Plains.

To Fort Riley for instruction, Lieut. S. L. SCIBETTA, Buffalo.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. A. E. LEACH, Mount Morris; Lieut. P. MOE, Jr., Katonah.

North Carolina

To Camp Sheridan, Ala., base hospital, Lieut. M. R. GIBSON, Raleigh.

Ohio

To Ann Arbor, Mich., psychopathic hospital, for intensive training, Lieut. C. W. IRISH, Barberton.

To Camp Shelby, Miss., Capt. C. W. McGAVRAN, Columbia.

To Fort Oglethorpe for instruction, Capts. H. C. LUCK, Cleveland; G. E. WINN, Defiance; H. E. DWIRE, Nevada; H. PRIMM, Ravenna; C. A. BURRITT, O. HASENCAMP, Toledo; R. L. CAMERON, Youngstown; Lieuts. J. W. H. BEACH, Arlington; C. W. KIRKLAND, Bellaire; E. SHELDON, Bloomdale; C. L. McDONALD, Cleveland; F. F. DAVIS, East Liverpool; W. D. MAAG, Frankfort; E. A. BECHTEL, Montpelier; G. F. BARNETT, Painesville; O. C. HENDERSON, Portland; A. R. KENT, Springfield; J. I. DAVIS, Wilmington; J. S. LEWIS, Jr., Youngstown.

Oklahoma

To Fort Oglethorpe for instruction, Lieuts. B. DAVIS, Cushing; F. F. JONES, Pawhuska.

To Fort Riley for instruction, Capt. W. B. HUDSON, Yale; Lieuts. J. J. JOHNSON, Bragg; R. H. SHERRILL, Broken Bow; O. G. RACON, Davidson; F. R. DOLSON, Faxon; A. M. McMAHAN, Hillsdale; B. H. BURNETT, Hulen; C. A. HOWELL, Manitou; C. W. ARRENDELL, Ponca City; B. C. HARRIS, Sapulpa; S. S. MOHRMAN, Tulsa.

Oregon

To Fort Riley for instruction, Lieut. R. W. WALTON, Salem.

Pennsylvania

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training, Lieut. J. F. NORRIS, Somerset.

To Camp Hancock, Ga., Capt. W. C. MAXWELL, Pittsburgh.

To Camp Wadsworth, S. C., Capt. E. H. SLOAN, Ben Avon.

To Fort Oglethorpe for instruction, Capts. J. M. GELWIX, Chambersburg; W. B. DENSLOW, G. H. WALKER, C. W. WIRTS, Pittsburgh; Lieuts. J. FLEITAS, Chestnut Hill; W. W. HOBSON, Darmond; E. H. THOMPSON, Frankfort; J. L. ARNOLD, Harrisburg; M. H. KUDLICH, Hazleton; G. E. HALYAMA, Jeannette; R. J. SAGERSON, Johnstown; W. N. ARMSTRONG, Lock Haven; I. O. MAHR, Loganton; S. R. W. McCUNE, New Castle; W. D. BARRY, Philadelphia; J. HODGKISS, C. C. LANG, Pittsburgh; A. P. HYDE, Sharon; P. C. BOORD, Silver Creek.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieuts. E. O. DAY, Philadelphia; G. W. RAMSEY, Washington.

South Carolina

To Fort Oglethorpe for instruction, Capt. H. L. SHAW, Fountain Inn; Lieuts. G. C. STUART, Eastover; C. E. HOUSTON, Florence.

Tennessee

To Camp Zachary Taylor, Ky., base hospital, Lieut. J. B. BLUE, Memphis.

To Fort Oglethorpe for instruction, Capts. W. N. LYNN, Knoxville; W. S. CLACK, Rockwood; Lieuts. N. W. KELLY, Covington; P. E. MARSH, Kingsport; S. BURCHART, Memphis; B. N. WHITE, Murfreesboro; T. A. WHITFIELD, Nashville.

Texas

To Camp Cody, N. M., base hospital, Capt. E. H. IRVIN, El Paso.

To Fort Oglethorpe for instruction, Capts. F. M. HALE, Ballinger; C. E. DURHAM, Hico; G. HAMILTON, Houston; Lieuts. P. J. FUL-LINGIM, Decatur; B. F. CLUTTER, El Paso; J. W. E. H. BECK, Texarkana; E. SMITH, Waco.

To Fort Riley for instruction, Lieut. O. HUFF, Castell.

Utah

To Camp Cody, N. M., base hospital, Capt. E. DORLAND, Devils Slide.

To Camp Fremont, Calif., base hospital, Capt. E. S. BUDGE, Logan.

To Fort Oglethorpe for instruction, Lieut. C. J. NEILSON, Salt Lake City.

To Fort Riley for instruction, Lieut. N. J. REES, Nephi.

Vermont

To Fort Oglethorpe for instruction, Capt. J. S. KING, St. Albans; Lieuts. J. R. GRIMES, Montpelier; M. P. STANLEY, White River Junction.

Virginia

To Fort Oglethorpe for instruction, Lieuts. W. C. ADKERSON, J. W. DEVINE, Lynchburg; V. B. HIRST, Purcellville; J. BEAR, Richmond.

Washington

To Camp Lewis, Wash., base hospital, Lieut. C. S. PASCOE, Tacoma.

To Fort Oglethorpe for instruction, Capt. U. M. LAUMAN, Randle.

West Virginia

To Camp Hancock, Ga., Capt. L. T. VINSON, Huntington.

To Fort Oglethorpe for instruction, Lieut. L. J. LANICH, Kempton.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. D. H. HILL, Charleston.

Wisconsin

To Fort Oglethorpe for instruction, Capt. H. A. RICE, Gays Mills; Lieuts. G. T. HEGNER, Appleton; W. C. ROTH, Franksville; C. W. LOCKHART, Mellen.
To Fort Riley for instruction, Lieut. V. E. EKBLAD, Superior.

Wyoming

To Fort Oglethorpe for instruction, Capt. G. M. ANDERSON, Casper.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Laboratory of Hygiene.—One of the new features of the Public Health exhibit at the State Fair this year is that of the State Hygienic Laboratory, which is in charge of Martin Duprey.

Personal.—Mr. Joseph Purvis, superintendent of the West Suburban Oak Park Hospital, has been appointed hospital superintendent for the American Red Cross, and will be placed in charge of one of the base hospitals in France.

Illegal Practitioner Sentenced.—Mr. Leo Brodowitz, who was arrested by the Department of Registration and Education for practicing medicine without a license, was found guilty in the county court of St. Clair County and sentenced to be confined in the St. Clair County jail for six months. When he has served his sentence, he will be turned over to the authorities of Kane County.

Infantile Paralysis.—Three deaths have occurred at St. Charles from infantile paralysis, and all children under 16 years of age have been ordered to be quarantined in their homes.—The opening of the schools of Winnetka will be delayed one week on account of the presence of infantile paralysis in that suburb. Four cases have been reported in the territory surrounding Winnetka, during the last two months, with one death.

Typhoid Fever.—The threatened typhoid fever epidemic at Wheaton is believed to have been checked. The disease was traced to a woman, a typhoid carrier, on a dairy farm near Wheaton. Within two weeks sixteen cases of typhoid fever had developed in the city.—Typhoid fever is reported to be epidemic at Rock Island, Moline, Joliet and Jackson-ville. In one block in Joliet there have been seven cases of typhoid, traceable to the use of water from three wells which have now been condemned.

Chicago

Personal.—Drs. Leslie D. Dougherty and Benjamin Feltenstein, while proceeding in an ambulance to the relief of those injured in the recent bomb explosion at the Federal Building, were injured by a collision between the ambulance in which they were riding and a street car.—Col. Frank Billings sailed recently for duty overseas to study problems of reconstruction surgery. He will probably return after a few months to supervise the work of his division in this country.

INDIANA

Children's Clinic.—A children's clinic, under the auspices of the Child Welfare League, has been established at Fort Wayne, and is open each Wednesday morning, between 9 and 11 a. m. Furniture and supplies for this clinic have been donated by physicians, other individuals and firms of Fort Wayne.

Hospital Notes.—The Marion County Council has given assurance that an appropriation of \$100,000 will be made for additional buildings and improvements at the Marion County Tuberculosis Hospital.—The commissioner of Madison County has purchased the Beachler Farm, near Moss Island, to be utilized as a site for a tuberculosis hospital. The purchase price agreed on was \$92,000 for the tract of 9 acres.

Action on Venereal Diseases.—According to a new rule just adopted by the state board of health, persons afflicted with venereal diseases will not be permitted to travel from one place to another in Indiana unless they obtain a permit from the local health officer or from the state health commissioner. On arrival at their destination they must report to the health officer at that point and be subjected to proper supervision. The permission to move from one place to another will not be given unless circumstances are "urgent and legitimate."

Personal.—Dr. Herbert T. Wagner, Indianapolis, left, September 10, for foreign service with the American Red Cross. Dr. Amelia R. Keller, Indianapolis, has been appointed a member of the Board of Trustees of the Indiana Girls' School at Clermont.—Dr. William H. Foreman, Indianapolis, has been appointed resident medical director of the State Hospital, to succeed Dr. Guthrie H. Wisener, Indianapolis, who has resigned to enter the United States Public Health Service.—Dr. Theodore F. Wood, Angola, while handling a colt was thrown, and his hip was either dislocated or fractured.—Dr. Paul E. Bowers, Michigan City, has been appointed assistant surgeon of the California Soldiers' Home.—Dr. Uberto H. Merson, Anderson, has been appointed deputy health commissioner of Anderson, to succeed Dr. John C. Armington, Anderson, who has resigned to enter the military service.—Dr. Herman G. Morgan, secretary of the board of health, Indianapolis, has been appointed as acting assistant surgeon in the United States Public Health Service, to have charge of sanitary regulations at Fort Benjamin Harrison and vocational training camps in Indianapolis.—Dr. John K. Kingsbury, Indianapolis, is suffering with a severe injury to his eyes caused by the explosion of chemicals.

IOWA

Personal.—Dr. Charles M. Hazard has resigned as mayor of Arlington to enter the military service.—Dr. George P. Neal is said to have entered suit against the mayor and members of the city council, as members of the board of health, of Fort Madison, claiming \$4,178 as due to him for services rendered during a smallpox epidemic in the city two years before.—Lieut.-Col. David S. Fairchild, Clinton, has been appointed chief surgeon of the 42d or Rainbow Division, A. E. F.—Dr. Delos N. Reeve, Allison, is reported to be seriously ill and under treatment at the hospital at Waverly.

Infantile Paralysis.—On account of the prevalence of infantile paralysis at Wilton, the entire town has been placed in quarantine with orders to isolate every child under 16 years of age at its home. At present five cases of the disease have been reported.—Two cases of infantile paralysis are reported at Lattners.—The state board of health has received reports of three cases of infantile paralysis from Bellevue.—In all 110 cases of infantile paralysis have been reported thus far this year to the state board of health.—A second case of infantile paralysis in Sioux City was reported, August 14.

MARYLAND

Hospital for Curtis Bay.—As a result of the success of a campaign of only a week, funds have been secured for the erection of a hospital at Curtis Bay. Work on the institution will be started immediately. More than \$11,000 of the \$50,000 needed has been subscribed and two sites have been offered.

Personal.—Col. John M. T. Finney, Baltimore, who returned to this country early in August on a special mission, has again sailed for France to assume his duties as chief consultant surgeon of the American Expeditionary Forces in France.—Lieut. Charles A. Waters, M. C., U. S. A., who recently returned to this country after fourteen months' service with the Johns Hopkins Base Hospital in France, will leave shortly for Fort Oglethorpe, Ga., where he will be an instructor in the roentgen-ray division of that cantonment. He expects to return to France later.—Dr. Harry G. Johnson, superintendent of Sydenham Hospital, Baltimore, has resigned his position to enter military service.

MINNESOTA

Typhoid at State Hospital.—An outbreak of typhoid fever has occurred at the Rochester State Hospital for the Insane. Thirteen cases have thus far been reported, including twelve patients and one nurse. The 1,300 patients and all employees have been inoculated against typhoid.

Infantile Paralysis.—Infantile paralysis is said to be on the increase in Spring Grove, where 16 cases have already been reported.—The city health department of Minneapolis placed under quarantine three cases of poliomyelitis, August 28. It is believed the patients in each case contracted the disease outside of the city.

Protective Association Organized.—The physicians and dentists of Dodge County met at Dodge Center, August 16, and organized the Physicians and Dentists Protective Association of Dodge County. The purpose of the association is to shorten the terms of credit and for the mutual protection

against slow-paying patients. Dr. Carl L. Nelson is secretary of the association.

Teaching Fellowships.—The Medical School of the University of Minnesota is offering teaching fellowships for graduate work in internal medicine, surgery, obstetrics, pediatrics and ophthalmology and oto-laryngology. These fellowships cover a period of three years' study and lead to the Doctor's degree in Science or Philosophy. They are under stipends of \$500, \$750, and \$1,000 for each of the successive years.

State Society Meeting.—At the annual meeting of the Minnesota State Medical Association at Duluth, August 28 to 30, under the presidency of Dr. Arthur J. Gillette, St. Paul, Minneapolis was selected as the place of meeting for 1919, and Dr. George D. Head, Minneapolis, was elected president, and Dr. Earle R. Hare, Minneapolis, secretary, succeeding Dr. Thomas S. McDavitt, St. Paul, who has served for several years in this office.

Mothers Should Nurse Their Babies.—Considering the facts that the death rate of infants of less than one year is considerably more in infants artificially fed, and that the health and well-being of infants under one is dependent in a great measure on proper nursing at the breast, the state board of health and state board of control have jointly adopted resolutions providing that no patient shall be received by any person, or at any hospital or institution licensed by or under the supervision of either board on any basis other than that the mother shall nurse her own child as long as she shall remain under the care of the said person, hospital or institution, providing that when nursing by the mother is an impossibility for any physical reason, exception to the rule may be made by the boards, acting on proper medical advice.

MISSISSIPPI

Personal.—Dr. Willis Walley, Jackson, for four years sanitary inspector for Mississippi, has been appointed superintendent of the State Charity Hospital, Jackson, succeeding Dr. L. S. Rogers, who has resigned to become candidate for state treasurer.

Advisory Board Conference.—A conference of the Medical Advisory Boards of South Mississippi was held at Hattiesburg, August 31, to discuss methods of increasing the efficiency of the draft boards of the state, in order that the percentage of rejections at mobilization camps be reduced.

MISSOURI

Personal.—Dr. Milton P. Overholser, Harrisonville, who has been ill in St. Mary's Hospital, Kansas City, on account of septicemia, due to a carbuncle, is reported to be convalescent.—Dr. Alonzo L. Carpenter, Joplin, has been appointed coroner of Jasper County, succeeding Dr. Robert M. James, resigned to enter the military service.—Dr. Martin C. Woodruff, chief diagnostician of the health department of St. Louis, has been placed in charge of the field work of the Red Cross Medical Commission in Italy and will sail this month.—Dr. Charles R. Johnson, superintendent of the Leeds Hospital and physician-in-charge of the Contagious Disease Department at the Kansas City General Hospital, is said to have been removed from office by the health board, August 13.—Dr. Willis V. Smith, Kansas City, is said to have been arrested, charged with selling drug prescriptions to addicts.

NEBRASKA

Scarlet Fever.—The ban placed on public meetings in July, in Fairbury, on account of scarlet fever has been removed. Since the epidemic 350 houses have been quarantined, and six deaths from the disease have occurred.

Northwest Physicians Meet.—An adjourned session of the Northwest Nebraska Medical Society was held at Long Pine, August 16, at which the following officers were elected: President, Dr. Charles C. Root, Bassett; vice presidents, Dr. Hosea J. White, Ainsworth; secretary, Dr. James M. Tische, Wood Lake, and treasurer, Dr. Thomas J. Lawson, Long Pine. It was decided to eliminate the semiannual session, as so many of the members of the association are away on military service.

Personal.—Dr. Henry J. Lehnhoff, Lincoln, has been appointed a member of the advisory board of the state board of health to succeed Dr. Joseph J. Hompes, Lincoln, who has resigned to enter the military service.—Dr. L. B. Pilsbury, Lincoln, superintendent of the Nebraska State Hospital for Insane, Lincoln, has resigned to enter the military service, and has been succeeded by Dr. James D. Case, Lincoln, who

has been appointed acting superintendent.—Dr. Frank S. Marnell, Lincoln, assistant superintendent of the Nebraska State Hospital for Insane, Lincoln, has resigned to accept a position in the state hospital, Stockton, Calif.—Dr. Newell Jones, Omaha, has been appointed surgeon to the American Red Cross and will soon go to France with a hospital unit.

NEW YORK

New York City

Influenza on Liner Fatal.—A liner arriving at an Atlantic port was detained several hours owing to an outbreak of influenza. The vessel left France, August 24, and during its voyage had twenty-five cases of Spanish influenza on board, two of which proved fatal. Those showing symptoms of the disease were taken to a local hospital for further observation.

Special Course for Laboratory Assistants.—New York University and Bellevue Hospital Medical College, together with other medical schools throughout the country, began, September 3, a special three months' course in bacteriology to train laboratory assistants for immediate war service. These courses have been instituted at the request of Surgeon-General Gorgas, and have been arranged by Dr. William H. Park and Dr. Anna W. Williams.

Public Health Committee Advocates School Lunches.—The Public Health Committee of the New York Academy of Medicine has issued a statement on the value of school lunches which calls attention to the large percentage of undernourished children in our population and the reasons for this phenomenon. It has been proved in this city and elsewhere that in groups children will much more readily eat food to which they have not been accustomed. Peculiarities of taste and racial customs are readily overcome through the stimulation of group feeding, the children eating the new foods with relish. Herein lies the educational value of the so-called school lunches which in many cities of our country and in other countries have proved to be of genuine benefit to the children in a great variety of ways. The statement includes a demand that the plan of furnishing school lunches be extended, and that instead of being, as hitherto, a private philanthropy the city government should institute this important service with the opening of the new school year.

NORTH CAROLINA

Full-Time Health Officer.—Wayne County has recently arranged for the services of a full-time health officer. This is the tenth county in the state that has come into line.

Personal.—Dr. William T. Rainey, Salisbury, who has been under treatment in Baltimore for several weeks on account of injuries which he sustained in an automobile accident last spring, has returned, greatly improved in health.

Campaign for Orthopedic Hospital.—Citizens of Gastonia have recently inaugurated a campaign to secure an additional \$20,000 for the building of the North Carolina Orthopedic Hospital, a charter for which was granted at the last session of the legislature.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Frank C. Hammond, president of the County Medical Society, has been commissioned a major as medical aide to the governor, to succeed Dr. Edward P. Davis, who recently resigned.

Alcoholism Decreasing.—According to the monthly report of Dr. Joseph C. Doane, resident physician of the Philadelphia General Hospital, the number of patients in the hospital during the month of August reached 1,537, as compared with 2,200 in the corresponding month of last year. In the alcoholic wards, there were twelve patients, as compared with 175 for the month in 1917. During the entire summer there have been but two cases of delirium tremens, as compared with twelve last year.

Volunteers for Hospital Work.—A call to patriotic men and women to volunteer services and relieve a serious situation caused by the labor shortage has been made by the Pennsylvania Hospital. Not only has this hospital lost 75 per cent. of its medical and surgical staff for service overseas, but also employes have left other departments to obtain situations in plants turning out government work. Orderlies, porters, cleaners, kitchen help, firemen and others, necessary to the maintenance of hospital work, are all greatly needed.

Physicians to Aid Municipal Court.—A department of diagnosis under the direction of Dr. Charles B. Penrose will be used henceforth in the administration of justice in the Munic-

pal Court. Associated with Dr. Penrose will be Drs. Daniel McCarthy, Charles S. Potts, Seymour W. Ludlum, John C. Da Costa, Jr., Frank W. Swallow, John M. Baldy. Restoration of the "misfits of society" who come before the court is planned through the organization of the staff of consulting physicians who will visit the department of diagnosis and examine such patients. These cases will include child delinquency, abandonment of children, nonsupport, incorrigibility, street walking and crime. The new department will coordinate with the medical and psychologic work of the court.

VIRGINIA

Smallpox.—The smallpox epidemic in Leesburg and vicinity has been checked by radical measures. All churches and moving picture theaters are closed and all public gatherings prohibited.

Personal.—R. D. Caldwell has been appointed assistant bacteriologist of the Richmond Health Department, succeeding Miss Margaret McCluer, who recently resigned to take up special war work at Westhampton.—Dr. Peyton M. Chibester, Bethesda, Md., has been appointed acting medical inspector in the health department of Richmond, succeeding the late Dr. Lucien Lofton, Emporia, Va.—Dr. J. E. Hendrickson, Newport News, has been elected senior vice-commander of the Spanish-American War Veterans of Virginia.

WASHINGTON

Increase in Health Budget.—The health department of Spokane has asked for an appropriation of \$10,050.50 greater for 1919 than for 1918. The increase is due to the increased activities of the health department during the year.

Correction of Minor Defects.—Dr. James Carroll, Tacoma, has undertaken the work of preparing young men who have attempted to enter the military service, but through some physical defects have been rejected, so that they may be accepted for service.

Personal.—Major Horace J. Whitacre, M. C., U. S. Army, Tacoma, has been appointed director and chief of staff of the Evacuation Hospital Unit, now training at Camp McPherson, Ga., and will soon be sent to France.—Dr. William D. Kirkpatrick, Bellingham, will soon sail with a medical unit for Russia.—Dr. John S. McBride, city health commissioner of Seattle, has been commissioned Lieutenant-Commander, U. S. N. R. F., and directed to organize Naval Base Hospital No. 17. The chiefs of the section are as follows: Lieutenant-Commander, John S. McBride, director and chief of the surgical section; Lieut. George A. Dowling, Seattle, chief of the medical section; Lieut. Jay T. Dowling, Seattle, chief of the eye, ear, nose and throat section, and Dr. Jonathan E. Henry, Tacoma, chief of the laboratory division.

CANADA.

Resolution by Medical Association Against Alcohol.—At its recent meeting the Manitoba Medical Association entered a resolution in the minutes of the society that the restrictions placed on the sale and use of alcohol in that province had resulted in the moral, physical and economic betterment of the people.

Nurses to Affix R. N. to Names.—In the province of Ontario, Manitoba, Saskatchewan, and Alberta, nurses are now authorized by law to affix R. N. to their names, if they have graduated from authorized hospitals and have satisfied all the requirements of the respective laws made on the subject of registration of nurses.

Canadian Scale of Pensions.—The Canadian government established in October, 1917, a scale of pensions: Total disability, \$600; widows, \$480; parents, \$480; children, \$96; orphan children, \$192; special allowance for helplessness, not to exceed \$300; number of classes of disability, 20 and gratuity. There are twenty-two physicians on the pension board at Ottawa; and the average number of pensions issued totals 20 per day.

Clinic Conducted at London, Ont.—Dr. Thomas McCrae, head of the Jefferson College of Medicine, Philadelphia, recently conducted a clinic at the Western Ontario School of Medicine and Victoria Hospital, London, Ont.; 175 medical men from the western part of Ontario attended. The clinic demonstrated the newer methods of treatment of diseases of the heart, kidneys, joints, and blood. London plans to hold four clinics a year and will endeavor to bring to that center medical authorities of high international reputation.

Work of the Khaki University.—President Sir Robert Falconer of the University of Toronto is in England, engaged in

teaching in the Khaki University of Canada. This institution, which has been established in connection with the Canadian forces overseas, is designed for assisting those soldiers who wish to continue their studies in commercial subjects, agriculture, engineering and general education. Ninety-three libraries have been established in Army areas in England and France. The teaching is done entirely by voluntary instructors.

New Training Centers for Nurses Established.—The Victoria Order of Nurses have four training centers in Canada—Montreal, Ottawa, Toronto, and Vancouver, B.C. As there is a very great shortage of nurses in western Canada, it is proposed to establish various centers in the three western provinces of Manitoba, Saskatchewan and Alberta. Those entering the Order must be fully qualified nurses and must take the special six months' course of the organization, which consists in district work, school work, child welfare, social service and public health.

Vital Statistics of Winnipeg.—According to the semiannual report of Alexander J. Douglas, medical health officer of Winnipeg, the population of the city has begun to increase again after a decline during three years, brought about by the war. For 1918 the population is 183,600 as against 182,850 for 1917. There was a decline of over 17,000 in 1917 notwithstanding a surplus of births over deaths of nearly 4,000. For 1917 the natural increase was 3,718. Marriages also showed an increase from 1,158 in the first half of 1917 to 1,212 in the first half of 1918. The number of marriages had declined from 1913 to 1917. The death rate for the first half of 1917, as well as for 1918, was about 10.41 per thousand inhabitants.

GENERAL

Meeting Postponed.—The Ohio Valley Medical Association, which was scheduled to hold its twentieth annual meeting at Evansville, Ind., November 12 and 13, has decided to postpone the meeting indefinitely because of war conditions.

Bequests and Donations.—The following bequests and donations have recently been announced:

Lyons (N. Y.) Home for Crippled Children, \$2,500; Industrial Home for Crippled Children, \$2,500, and Homeopathic Hospital, New York City, \$5,000, by the will of Alphonse Alfred Galot.

Corning Hospital, Corning, N. Y., the principal of a trust fund amounting to several hundred dollars on the death of the beneficiary, by the will of Ethelade Bump.

Germantown Dispensary and Hospital for free beds in memory of Frederick J. Kimball, Eliza M. Needles and William M. Needles, \$15,000, by the will of Helen M. Hathaway Graffin.

American Red Cross, the estate of Charles S. Kahn, Evansville, Ind., valued at more than \$100,000.

Tri-State District Society.—The Tri-State District Medical Society of Illinois, Iowa and Wisconsin has been incorporated, with headquarters in Freeport, Ill. Drs. Karl F. Snyder and William B. Peck, Freeport, are trustees. At the recent meeting of the association at Madison, in addition to the officers elected at the quarterly meeting, the following officers were elected: Vice presidents, Drs. Henry G. Langworthy, Dubuque, Iowa; Charles R. Bardeen, Madison, Wis., and Walter B. Helm, Rockford, Ill., manager and director, Dr. William B. Peck, Freeport, Ill., and secretary-treasurer, Dr. Domer G. Smith, Freeport, Ill.

Meeting of Food Control Association.—At the twenty-second annual meeting of the Association of American Dairy, Food and Drug Officials, held recently in Chicago, new officers were elected and resolutions were adopted setting forth the unnecessary waste in collection and shipment of cream for manufacturing purposes, renewing their pledge to support and assist the United States Food Commissioner, endorsing the existing association of food manufacturers and advocating more complete organization of their forces, and admitting to membership on the joint committee on definition and standards only members who have no financial interest in dairy, food or drug products.

Regulations on the Use of Paper.—The Paper Division of the War Industries Board has for some time been securing data concerning newspapers and periodicals, especially relative to the amount of paper used. Now, in the interest of the economic use of paper, but primarily for the conservation of fuel, certain definite regulations have been made by this board governing the use of paper. One of the regulations provides for a maximum weight of paper used in periodicals. This maximum will make it necessary for THE JOURNAL to use slightly lighter paper. The reduction in weight will not be apparent to the casual reader. As THE JOURNAL has a considerable amount of paper on hand, the lighter stock will not be used for some weeks. The important regulations are

the following: (1) against continuing subscriptions after date of expiration; (2) against the sending out of complimentary copies; (3) against sending more than one copy to advertisers; (4) against sending sample copies to stimulate circulation or advertising, except under special permit; (5) against exchanging with other journals; (6) against selling at an exceptionally low or nominal subscription rate. It is suggested to publishers that they economize if possible "by cutting the number of pages, the curtailment of circulation, or in any other way publishers choose." Finally, each periodical is requested to reduce the total tonnage to what amounts to about 15 per cent. These various regulations will not affect THE JOURNAL seriously, except that the number of pages in each issue will have to be kept down to the minimum, and complimentary copies cannot be sent even to other medical journals in exchange.

FOREIGN

Election in Netherlands Cancer Research Society.—The address of the secretary of the Nederlandsch Kanker Instituut is Prof. J. J. van Loghem, Rokin 62, Amsterdam. Prof. J. Rotgans is president, and the directors include Drs. Delprat, de Josselin de Jong and Westerman, and Profs. B. J. Kouwer and Pekelharing.

Floods Exterminate Bilharzia.—The *Nederlandsch Tijdschrift* quotes the *Medical Journal of South Africa* to the effect that the recent inundations in southern Africa have had the unexpected result of apparently clearing out the bilharzia. The parasitologist, A. P. Fantham, was unable to find any specimens of bilharzia after the inundation had subsided, even in regions previously densely infested. The larvae of mosquitoes and flies were also swept away to a large extent.

Military Medical Journal.—The authorities in Italy have been publishing for over a year a medical-surgical review of French, English and American publications on medical and surgical subjects bearing on the war. It is distributed to every member of the profession that has been mobilized in Italy. The *Policlinico* comments on the fact that a new journal was founded for the purpose instead of adapting the *Giornale di Medicina Militare* which has been published for fifty years under the aegis of the war department.

Deaths in the Profession Abroad.—S. Talma, professor of internal medicine at the University of Utrecht, pioneer in the study of the collateral circulation with liver disease, and means to promote it by a simple operation; also in the study of gastric ulcers as a consequence of severing the vagus, aged 70.—G. Guarnieri, professor of pathology at the University of Pisa, known for his researches on smallpox.—Our Paris exchanges mention the death from "fulminating gripe" of Drs. J. Labouré of Amiens, and S. Burnier, the former a well known writer on his specialty, the ear and throat.

Children's Outings in the Netherlands.—The arrangements for providing city children with outings in the country—being given a home for two weeks or more in some country family—is assuming such proportions that a bulletin is now issued to supply information to all desiring it. It is sent to every one interested in receiving or placing the children, organizing local committees for the purpose, etc. It tells what the children should take with them, the food that should be given them, and other details, and stimulates families to aid in the work. Doctor Dekker, Statenlaan 70, 's-Gravenhage, is the moving spirit of the whole undertaking.

Health Insurance in Germany.—The *Nederlandsch Tijdschrift* quotes a German exchange to the effect that the Leipzig Ortskrankenkasse has raised the remuneration of its medical officials per insured (the *Pauschalsumme*), from 7.75 marks to 8.50. This is an increase of 11 per cent., and the organ of the insurance companies expresses surprise that the physicians are content with such a moderate raise, especially in Leipzig, the home of the Leipziger League. The *Tijdschrift* remarks parenthetically that the original 7.75 marks (a little less than \$2), is a trifle more than the corresponding remuneration in the Netherlands. In Berlin it is announced that all hitherto existing contracts are to be canceled Jan. 1, 1919.

The Profession in Germany After the War.—The representative annual gathering of the profession in Germany, the *Aerztetag*, held recently at Eisenach, discussed among other subjects the return home of physicians after the war. It was voted to appeal to the authorities to demobilize first the older physicians, the fathers of families, the married, and those who have been longest in the service; also that the

returning physicians should be given some military post of some kind in the locality where they lived before the war; that posts of assistants should be held open for returning physicians; that opportunity should be offered the medical men who have been working in the field to obtain post-graduate instruction free of charge; that crippled and invalided physicians should be looked out for; that instruments and vehicles which may be released by the demobilization should be offered for sale to physicians at moderate prices, without intervention of middlemen; that physicians also should be given the right to benefit from the war loan fund; that medical instruction and practice should be restricted for aliens, especially in watering places, and that placards should be distributed urging patients to return to their former physicians. According to the present plans of the government, only from 5 to 10 per cent. of the population will be left outside the compulsory sickness insurance system. The *Nederlandsch Tijdschrift* quotes further a German account of Struve's appeal to the Reichskanzler to provide ways and means to avert the dangers that threaten the members of the profession when the war closes. In sharp contrast to these dangers, he emphasized, stand the large incomes that the men who have stayed at home have been receiving. At Chemnitz, for instance, physicians who formerly made 4,000 to 9,000 marks a year, have been getting 9,000 to 16,000 marks. At Gera, the incomes of the insurance physicians have run up to 38,000 marks. The "insurance kings," however, are at Essen, where one has had an income of 61,500 marks, another of 50,000, several others approaching this, and twenty-four have had incomes between 20,000 and 29,040. The 175 physicians in the Essen district have been getting on an average from the insurance companies 12,000 marks (about \$3,000). In the Netherlands, our exchange remarks, the number of patients that the insurance physician can treat is limited by the regulations, but this is not the case in the above places, and the payment is by the individual service rendered.

The Council on Pharmacy and Chemistry and the Patriotic Medical League in Italy.—The Unione dei Medici Italiani per la Resistenza Nazionale was organized mainly to combat enemy propaganda, but it has enlarged its scope to include all kinds of welfare work for the country itself. Some of its activities were mentioned recently by THE JOURNAL. It publishes a small weekly to outline and insure concerted action. Recent issues have been devoted mainly to discussion of ways and means to promote the domestic production of drugs which have hitherto been imported. In the issue for July 7 the work of the Council on Pharmacy and Chemistry of the A. M. A. is described in detail, with translated reproductions of a number of the reports published by the Council in the Propaganda Department of THE JOURNAL. They are translated into Italian as also some of the pages of N. N. R. Among the reports cited are some on Ambrine, Radio-Rem and Pertussin. The description of the work of the Council is by Dr. V. Ronchetti, physician in chief of the Ospedale Maggiore of Milan. The question of supervision of pharmaceuticals is one of the leading topics being discussed by the league, and Ronchetti refers to the work of the Council on Pharmacy and Chemistry to show, as he says, what is being done in the United States in this line, "in a truly admirable, simple and practical manner."

He comments on the reports reproduced, saying, "No one can fail to see the great usefulness of such reports brought within reach of physicians in one of the most widely circulated journals. It is true that in Italy there already exist some institutions for official control of the production of chemicals and pharmaceuticals, but as they are, at present, they do not satisfy either the manufacturing chemists or the medical profession. . . . In reality our institutes fail to satisfy the producers because too often the visit of inspection to the factories and pharmacies is reduced to an empty bureaucratic formality, and the manufacturers do not feel effectually protected against the eventuality of disloyal competition. The institutes fail to satisfy the physicians because the deliberations, the verdicts, etc., which are issued from these supervising institutes never appear in widely circulated medical journals. There is never a trace of them in the medical journals commonly read. The practitioner learns to know the new pharmaceuticals only from the literature advertising them, sent out by the firm which produces them. Rarely indeed can he find serious, reliable articles referring to them in the accessible literature at his disposal. As to the certificates, often so numerous as to fill entire pamphlets—no one takes them seriously nowadays—not even the signature of a well known name. In fact, institutions grow old and outlive their usefulness, like human beings and, for this reason, an age limit is imposed by Nature if not by the laws.

When they reach this, the best they can aspire to is a jubilee celebration. Instead of repairing and propping up old tottering institutes, it is better to found new ones. This, it seems to me, for obvious reasons cannot be left to private initiative. It should not be a difficult matter to coordinate certain departments in different universities to form the nucleus for an *istituto di controllo* for medicinal products—an institution which would serve as a guarantee for the sick, as a guide for the manufacturing chemists in their production, and for physicians in their application of the products."

SOUTH AND CENTRAL AMERICA, MEXICO AND WEST INDIES

Buenos Aires Election.—The Sociedad de Obstetricia y Ginecologia recently elected its officers for the 1918-1920 term: president, Dr. T. J. Piccardo; vice president, Dr. J. C. L. Massini; secretary general, Dr. A. Frers, and recording secretary, Dr. F. R. Pasman.

Medical Bibliography of Argentina.—The classified titles of all medical works published by Argentine physicians during the years 1915, 1916 and 1917 is soon to be issued. It is proposed to publish similar volumes periodically to record the entire medical bibliography of the country. The work is in charge of Dr. M. A. Blanco, and the first volume, now on the press, opens with a historical sketch by Dr. J. Tumburus, librarian of the medical department of the university.

The Venezuela Academy of Medicine.—The retiring president of the Academia Nacional de Medicina, Dr. F. A. Riskey, founded a prize of 500 bolivars (\$100) to be awarded biennially for the most useful work on tuberculosis, based on personal studies and observations. In case no work is deemed worthy of the prize, the sum can be awarded to the physician who has distinguished himself by his efforts on behalf of the *union y cordialidad* of the medical corps. Lacking a candidate of this kind, the prize money can be applied for the library of the Academia. The Vargas prize for 1917 was awarded to Dr. J. R. Riskey for his work, "Bilharziosis Mansonii in Venezuela," and, for 1918, to Dr. E. Tejera for his work on "American Leishmaniosis in Venezuela." The officers elected for the coming two years are: president, Dr. D. Lobo; vice presidents, A. Ayala and J. D. Villegas Ruiz; perpetual secretary, Dr. L. Razetti who is also director of the *Gaceta Medica*, the official organ of the Academia, associated with Dr. A. Ayala as *secretario de redaccion*.

LONDON LETTER

LONDON, Aug. 13, 1918.

Medical Schools in the Armies in France

It is not generally realized how much education is going on in our armies in France—education not only in the art of war but in fitting men for careers in civil life. An important new departure has been made in the medical service by the provision of instruction in the work required in front line areas. Workers in these areas are put in touch with any knowledge gained at bases or elsewhere that can be useful to them. Gaps that exist in the military education of the large proportion of the existing medical officers are filled, and they are furnished with a wider view of the aims of military medicine than they can gain in their own military formation. The schools are not confined to the Royal Army Medical Corps but include colonials, Americans and Portuguese, combatants and noncombatants. Those who attend from the R. A. M. C. are drawn mainly from regimental medical officers and from field ambulances and sanitary sections, with a smaller proportion of officers belonging to casualty clearing stations. The pupils from combatant units are usually platoon officers, stretcher bearers and members of regimental sanitary squads, with a few men training as regimental chiropodists. In dealing with the combatant classes the chief aim is to make them conversant with the best ways of rendering first aid and to impress on them the value of sanitation and how it can be best secured. The special lectures for medical officers deal with new developments of the medicine and surgery of war. The commandant of the school is also commanding officer of the casualty clearing station in which the school does its work. The adjutant is on loan from a field ambulance, and the instructor is a surgical specialist lent by one of the less active clearing stations. Visiting lecturers who are specialists of various kinds also help. The subjects invariably taught are the application of the Thomas splint, with special reference to the

prevention of shock, the application of the rifle splint, the arrest of hemorrhage, the use of the triangular bandage, and the construction and use of field sanitary appliances. In addition, all ranks take part in physical exercises and ordinary drill, and all medical officers have riding lessons and attend demonstrations of useful ways of varying the use of the foodstuffs issued as rations. These subjects are mainly dealt with by practical classes. It is now the universal practice in the British army in France in all cases of fracture of the femur, in extensive flesh wounds of the thigh, in injuries to the knee joint and in severe fractures of the upper part of the tibia to secure immobilization before evacuation from an advanced dressing station or even a regimental aid post. For this purpose the Thomas splint is considered the best, except when a fracture of the femur is complicated by an unusually extensive wound in the buttock or upper part of the thigh that interferes with the fitting of the ring. The method of application taught includes attention to the value of warmth and absence of pain in the prevention of shock, and does not involve the removal of either clothes or boots or exposure of the wound until complete immobilization is achieved. It also assumes that the operator will have not more than two assistants, and possibly only one. The principle taught is that in applying the Thomas splint in an advanced dressing station no thought should be necessary but every action automatic. To secure this result the whole process has been worked out as a drill in which the various movements are indicated by numbers. [Compare Osgood, R. B.: The Transport Splints of the American Army, *THE JOURNAL*, Aug. 31, 1918, p. 734.—ED.] This covers everything from the initial warming of the patient by blankets and a Primus stove to fixing the splint to a suspension bar on the stretcher and placing hot-water bottles and blankets for the journey. A man who knows the drill well can carry it out efficiently in the dark. A first call team can put up a limb perfectly in two minutes forty-five seconds.

The Museum of the Royal College of Surgeons

The annual report on the Museum of the Royal College of Surgeons shows that much progress has been made with the war collection. The opening of this important collection, which should be visited by every American surgeon who comes to London, was described in a previous letter to *THE JOURNAL*. The number of specimens has increased from 1,500 to 2,700. There is a Canadian section prepared by members of the Canadian Army Medical Corps. A staff of experts, under Major F. Lessore, the distinguished sculptor, has been engaged at No. 16 Canadian Military Hospital making wax and plaster models, colored drawings and colored photographs of wounds and war deformities. It is hoped that Australian and New Zealand sections will be added, for all the dominions are contributing specimens with the view of building up army medical museums for their own countries. Canadian specimens have already been dispatched from the museum to Montreal. The Australian Medical Corps has given the museum staff assistance in dealing with specimens from Australian hospitals. To the general museum important additions, pathologic, teratologic and physiologic, have been made. Mr. Alban Doran has made considerable progress with a new descriptive catalogue of the surgical instruments in the possession of the college. The descriptive catalogues of the obstetric and gynecologic instruments in the museum, as well as of the surgical instruments which were the property of Lord Lister, have been completed, as also that of the instruments of John Hunter and other hunterian relics.

Fat Rations for Jews

The Ministry of Food has made arrangements for the provision of kosher margarin for Jews. Facilities will also be given to Jews who, for religious reasons, cannot use their lard coupons, to exchange these, on signing a form of declaration, for either half an additional butter-margarin ration or for a weekly ration of vegetable oil, the quantity of which will be announced later. The schemes of distribution for kosher margarin and for oil for Jews have been worked out after discussion with the representatives of the Jewish community. Kosher margarin is manufactured at all factories at present engaged in the production of margarin, but instead of containing 20 per cent. of animal fat, which is permitted in the standard margarin, it is made entirely of milk and vegetable products. A rabbi, or a rabbi's nominee, is always present at the process. He tests the milk that is used, and when he is satisfied that the margarin is properly kosher, he affixes his seal to the case or packet and it is issued to the trade.

The Expulsion of Enemy Members of the Royal Society

A special general meeting of the Royal Society has been called to consider the advisability of expelling enemy foreign members, and notice of the following motion to be submitted has been given by Sir George Beilby and Dr. M. O. Forster: "That, in view of the war's having continued during nearly four years without any indication that the scientific men of Germany are unsympathetic toward the abominable malpractices of their government and their fellow countrymen, and having regard to the representative character of the Royal Society among British scientific bodies, as recognized by the patronage of his majesty the king, the council forthwith takes steps necessary for removing all enemy aliens from the foreign membership of the society." Although Sir George Beilby and Dr. Forster are both members of the council, this resolution is apparently not put forward by the council officially. The notice convening the meeting states that the council had under consideration the question of expelling the enemy foreign members. They considered that, if possible, unity of action between the Allied nations should be secured, and in view of the fact that a conference between representatives of Allied academies will take place next October, they resolved to refer the question to that conference. In the meantime they desire to obtain the opinion of the fellows of the society on the subject for the guidance of their representatives at the conference, which has been called for the purpose of discussing the future of scientific work hitherto carried out by international organizations.

The Release of Medical Students from the Army for the Purpose of Study

A new army council instruction has been issued with regard to the release of medical students serving with the colors for the purpose of resuming their professional studies. A medical student now serving with the colors who at the time of his enlistment was engaged in medical studies and who (a) is in his third year or (b) at the time of enlistment had passed the whole of the professional examination in chemistry, physics and biology (or botany and zoology) for a medical degree or license is, if eligible and he so desires, to be transferred (regardless of his medical category) to the reserve, or discharged if ineligible for transfer to the reserve, for the purpose of resuming his studies with a view to obtaining a medical qualification. A third-year student is defined as one who had on or before enlistment completed two years of medical study, and who can within thirty-six months complete his professional curriculum and obtain his medical degree or license. A medical student desiring to be released from the colors must state the date on which he wishes to be released, and undertake to resume his studies with a view to qualifying. If a third-year medical student, he will be required to produce a certificate from the dean of his medical school showing (1) whether he has or has not passed his professional examination in anatomy and physiology; (2) that prior to enlistment he had satisfactorily pursued his professional studies during two years, and was then actively studying with a view to qualification, and (3) that he can qualify within thirty-six months. If not a third-year student, he must produce a certificate from his dean showing that prior to enlistment he had passed the whole of the first professional examination, and that at or immediately before enlistment he was actively pursuing medical studies and had been studying as a whole-time medical student for at least six months at a recognized medical school or college.

An American Unit for Palestine

The American Zionist Medical Unit arrived in this country and stopped in London to make final arrangements before leaving for Palestine. The party, which is in charge of Mr. Lewin Epstein, consists of forty-four persons, including fifteen physicians and dentists, twenty nurses, two sanitary specialists, and social workers and administrators. The equipment of the unit, more than 400 tons in weight, comprised a 100-bed hospital, roentgen-ray apparatus, drugs, instruments, ambulances, and clothes for the destitute (Jewish and non-Jewish) among whom it will work, and was shipped from New York direct to Egypt.

More Hospitals for Americans

To provide further hospital accommodation in this country for wounded Americans, the Army Council has arranged to take over the Southern and North-Eastern hospitals of the Metropolitan Asylums Board. The Portsmouth Corporation has agreed to hand over the local mental hospital.

Marriages

LIEUT. LAUREN GUY SHEETS, M. R. C., U. S. Army, Cleveland, on duty at the Mayo Clinic, Rochester, Minn., to Miss Coletta M. Greulich, also of Cleveland, at Rochester, July 13.

LIEUT. ERWIN E. MAYER, M. C., U. S. Army, Baltimore, on duty at Camp Meade, Md., to Miss Miriam Lustig, also of Baltimore, August 22.

CAPT. WALTER MANSFIELD SCOTT, M. R. C., U. S. Army, Alamogordo, N. M., to Miss Annie Georgina Dickson of El Paso, Texas, August 29.

LIEUT. HENRY MARKS GOODYEAR, M. R. C., U. S. Army, Morton, Ill., to Miss Gertrude Elliott of Streator, Ill., September 4.

MATTHEW NICHOLAS TENNIS, Dorchester, Boston, to Miss Clara Lois Rheno of Vineyard Haven, Mass., September 3.

JOHN I. MCGONIGLE to Miss Lizzie E. Marsh, both of Pueblo, Colo., in Washington, D. C., August 19.

CAPT. FREDERICK PAUL MOERSCH, M. R. C., U. S. Army, to Miss Agnes Dries, both of Minneapolis, July 15.

LIEUT. ROBERT PRESTON HENDERSON, JR., U. S. Navy, to Miss Gladys Willis, both of Tampa, Fla., August 24.

JOHN PATTERSON, Frankfort, Ky., to Miss Christine Marston of Owenton, Ky., August 18.

CHARLES HENRI LEONARD to Mrs. Helen Blakeslee Mann, both of Detroit, August 8.

Deaths

Daniel Worrell Jefferis, Chester, Pa.; University of Pennsylvania, Philadelphia, 1865; aged 76; a Fellow of the American Medical Association; first president of the Delaware County Medical Society, serving for more than ten years in that capacity; for three years mayor of Chester, president of the select council for several years, and for nearly a quarter of a century president of the Chester Board of Education; chief of the medical staff of the Chester Hospital; coroner of Delaware County; a veteran of the Civil War; died at his home, September 1, from heart disease.

William Francis Waugh, Chicago; Jefferson Medical College, 1871; aged 69; assistant surgeon, U. S. Navy, from 1873 to 1876; professor of principles and practice of medicine in the Medico-Chirurgical College of Philadelphia from 1880 to 1890, and in the Illinois College, Chicago, from 1894 to 1904; dean and professor of tropical medicine and therapeutics in Bennett Medical College, Chicago, from 1909 to 1913; author of several medical books; died in Chicago, September 5, from intestinal cancer.

Sidney Augustus Norton, Columbus, Ohio; Miami Medical College, Cincinnati, 1869 (Hon.); aged 83; a chemist of international repute; one of the five original members of the faculty of Ohio State University, Columbus, and emeritus professor of chemistry since 1895; author of a textbook chemistry, and a frequent contributor to chemical journals; died at his home, August 30.

Charles L. Healy, Oswego, N. Y.; Georgetown University, Washington, D. C., 1912; aged 29; a Fellow of the American Medical Association; formerly of the staff of the National Soldiers' Home, Dayton, Ohio; a member of the board of health of Oswego; died in the Oswego City Hospital, August 26, from heart disease.

William Lawton Thompson, New York City; Johns Hopkins University, Baltimore, 1904; aged 41; clinical assistant in orthopedic surgery in the Post-Graduate Hospital, and visiting physician to the Blytheville Home; died in the Post-Graduate Hospital, New York City, August 28, from nephritis.

Harry F. McKay, Portland, Ore.; Willamette University, Salem, Ore., 1895; aged 56; a member of the Oregon State Medical Association; since 1914 a member and president of the State Board of Medical Examiners; died at his home, near Lents Junction, Ore., August 23, from arteriosclerosis.

Joseph M. Topmoeller, Cincinnati; University of Munich, Bavaria, Germany, 1880; aged 63; a member of the Ohio State Medical Association, and Cincinnati Academy of Medicine; died at his home, August 26, from nervous prostration.

Alfred Rhinehart Coon, DeWitt, Mich.; University of Michigan, Homeopathic Medical School, Ann Arbor, 1912; aged 34; a member of the Michigan State Medical Society, and president of the Clinton County Medical Society in 1916; died at his home, August 22, after a surgical operation.

Alexander McL. Jeffrey, New York City; New York University, New York City, 1886; aged 58; a Fellow of the American Medical Association; a specialist on tuberculosis; died at his country home, near Croton Lake, Mount Kisco, N. Y., September 2, from cerebral hemorrhage.

Lieut. Joseph Faure Baldwin, M. R. C., U. S. Army, Tyler, Texas; Tulane University, New Orleans, 1915; aged 26; ex-intern at Touro Infirmary, New Orleans, who went to England in the fall of 1917, and was serving in a front line hospital; was killed, August 7.

Henry Granger Hanchett, Orlando, Fla.; New York Homeopathic Medical College, New York City, 1884; aged 65; for many years a resident of Brooklyn; one of the organizers of the American Guild of Organists; died in Siasconset, Mass., August 19.

Lieut. Franklin Henry Dornbusch, M. C., U. S. Army, Chicago; Loyola University, Chicago, 1915; aged 28; a Fellow of the American Medical Association; on duty at Camp Gordon, Atlanta, Ga.; died at that place, September 3, from nephritis.

Lieut. Charles Joseph Valentine Fries, U. S. N. R. F., Philadelphia; Hahnemann Medical College, Philadelphia, 1894; aged 54; who had been on duty at the Cape May (N. J.) Naval Station; died, August 30, from cerebral hemorrhage.

Rebecca Moore, Kennett Square, Pa.; Woman's Medical College of Pennsylvania, Philadelphia, 1883; aged 83; for many years a practitioner of Philadelphia; died in the Friends' Boarding House, Kennett Square, August 27.

Edward Wheeler Bryan, Corning, N. Y.; Homeopathic Hospital College, Cleveland, 1873; aged 85; former health officer of Corning; a member of the medical board of Corning Hospital; died at his home, August 24.

Lieut. Charles W. Wehr, M. C., U. S. Army, Kansas City, Mo.; Kansas City College of Medicine and Surgery, 1918; aged 30; while preparing to report for duty, was seized with pneumonia, and died about August 26.

Daniel Ferdinand Kindel, Cincinnati; Medical College of Ohio, Cincinnati, 1901; aged 40; a Fellow of the American Medical Association; died in the Good Samaritan Hospital, Cincinnati, September 1.

Joseph Wallace Calvert, Bloomington, Ill.; Cleveland Homeopathic Medical College, 1896; aged 52; a member of the Illinois State Medical Society; died at his home, August 16, from pneumonia.

Harvey E. McConnell, Chester, S. C.; University of Maryland, Baltimore, 1890; aged 52; a Fellow of the American Medical Association; died at his home, August 18, from pernicious anemia.

Russell Alexander Reid, Zelienople, Pa.; Jefferson Medical College, 1901; aged 40; at one time a Fellow of the American Medical Association; also a graduate in Pharmacy; died at his home, August 27.

Kossuth T. Crossen, Albany, Ohio; Starling Medical College, Columbus, Ohio, 1900; aged 40; captain of Company K, 102d U. S. Infantry; is reported to have been killed in battle in France, July 24.

James MacKellar, Hazleton, Pa.; Medico-Chirurgical College of Philadelphia, 1891; aged 54; a Fellow of the American Medical Association; died in a hospital in Philadelphia, August 31.

Chandler Holmes Smith, Jr., Madison, Fla.; College of Physicians and Surgeons in the City of New York, 1888; aged 55; died in Madison, August 17, after an automobile accident.

Aaron J. Mathews, Thomson, Ga.; Atlanta (Ga.) Medical College, 1890; aged 50; a member of the Medical Association of Georgia; also a druggist; died at his home, August 18.

Granville S. Wellons, Barnesville, Ohio; Medical College of Ohio, Cincinnati, 1863; aged 83; surgeon of U. S. Volunteers during the Civil War; died at his home, August 25.

Alfred McGill Belt, Roland Park, Baltimore; College of Physicians and Surgeons, Baltimore, 1881; aged 71; died at his home, August 24, from heart disease.

Franklin E. Robinson, West Newton, Mass.; Homeopathic Hospital College, Cleveland, 1876; aged 72; died at his home, August 10.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

BITRO-PHOSPHATE

Calcium Glycerophosphate at Sixteen Hundred Per Cent. Profit

Bitro-Phosphate is put on the market by the Arrow Chemical Co. of New York; it is recommended:

For neurasthenia, nervousness, irritability, depression, brain-fag, insomnia, debility, excessive thinness, general weakness, lack of physical energy and the usual ailments arising from nerve weakness and tissue wastage.

With the trade-package comes a leaflet discussing, in language that may be counted on to duly impress the unscientific mind with its profundity, "The Relation of Organic Phosphorus to the Human Machine." Numerous quotations from medical literature follow, all of which, so far as they have been checked, relate, in the original, to calcium glycerophosphate. Not that there is any hint in the advertising that this well-known drug is the preparation to which the quotations refer; the reader is left to infer that they refer to "Bitro-Phosphate."

Because of the number of inquiries that have been received, and the extensive advertising of "Bitro-Phosphate," the preparation was taken up for examination in the Association's Chemical Laboratory. The chemist's report follows:

CHEMIST'S REPORT

Bitro-Phosphate comes in the form of uncoated tablets weighing 0.355 Gm. each (about 5½ grains) and there are forty-two tablets in each package. The package sells for one dollar. The tablets, which had a somewhat bitterish saline taste and were odorless, slowly disintegrated in water but did not entirely dissolve. In dilute hydrochloric or dilute nitric acid the tablets dissolved readily with some effervescence. No chlorid, bromid, iodid, sulphate, phosphate, or hypophosphite could be detected by the ordinary tests. The solution in water or acid gave tests for calcium in abundance. The tablets on heating, gave off inflammable vapors and, when strongly heated, charred. The charred mass extracted with nitric acid gave the molybdate test for phosphate in abundance. This would indicate an organic phosphate. The U. S. P. tests for calcium glycerophosphate were applied to a solution of the tablet material in water and the tests were positive in every case. Six of these tablets when titrated by DuBois method are found to contain 1.9324 Gm. calcium glycerophosphate, or 0.322 Gm. (about 5 grains) per tablet.

The conclusion to be drawn from this examination is that Bitro-Phosphate is essentially a 5 grain tablet of calcium glycerophosphate.

Very simple! Calcium glycerophosphate can be purchased for \$2.35 per pound. One pound of calcium glycerophosphate would make over thirty-three bottles of five-grain "Bitro-Phosphate" tablets, forty-two tablets to the bottle; thirty-three bottles of Bitro-Phosphate sell for \$33.00! Does a profit of sixteen hundred per cent. come within the excess profit tax?

THE JOURNAL has discussed at different times the therapeutic value—or lack of value—of the glycerophosphates, and has shown the fallacy of the theory that organic phosphorus compounds are more readily assimilated than the inorganic phosphorus preparations. All that needs, further, to be said is that if the public wishes to take calcium glycerophosphate it may purchase it under its own name at a fraction of the price.

An interesting side-light on the Bitro-Phosphate business was disclosed when information regarding the Arrow Chemical Co. was sought. It seems that the Arrow Chemical Co. was started in January, 1917, by one Samuel Hugh McKean. In November, 1917, a certificate of trade-style was filed, showing that the present owner is one Elmer S. Prather, a brother-

in-law of McKean. The names of both Prather and McKean loom large in the Propaganda department's files. Prather, for some years, seems to have traveled about lecturing on "suggestive therapeutics," going under the name of "Knowles." Later he is said to have been connected with one McIntyre in operating a mail order concern known as the "Metropolitan Institute of Science," in New York, which had the following officers:

F. T. McIntyre, D.S.T., President.
Prof. Elmer E. Knowles, Vice-President and Treasurer.
J. Alfred Moore, M.D., Corresponding Physician.
S. H. McKean, Secretary.

This institution sold "courses" in "Hindoo Methods of Hypnotism" and "Telepathy," also a "Complete \$30 System of Personal Influence and Control, for \$5.00"—to say nothing of the "Hypnotic Ball System." Finally the postoffice department got around to the "Institute" and it went out of business. This was in 1906. In 1909, "Elmer E. Knowles" was "president" of the "Psycho Success Club," which was operated from 400 St. Nicholas Ave., New York. This was the "most powerful mental organization the world has ever known"—Prof. Knowles said so. Those who sent in \$1, or \$5, or \$10 (according to the ease with which the fool and his money were parted), for membership in this club, had to "pledge not to reveal the Mystic Formula or Harmony Key to any person who is not a member in good standing."

Those whose names got on the "Psycho Success Club" "sucker list," and who failed to "bite," received, after some months' time, a circular letter from the "Roxroy Studios," operated, not from New York, but from London, although the advertising was obviously for American consumption. Enclosed with the Roxroy letter, which by the way, offered an "extensive life reading" for a mere \$2, was an advertising leaflet of the "International Institute of Beauty Culture," of 2236, 8th Ave., New York. It should also be said that those who received the follow-up system of the "Psycho Success Club" also got advertisements from the "Economy Supply Co." of 203 St. Nicholas Ave., New York, as well as a list of "Mrs. Knowles' Home Remedies," that were put out by the "Imperial Products Co." of 205 St. Nicholas Ave., New York. Failing to be caught by any of these, there came a letter, simulating a personal communication, from the "Universal Mail Order Institute," 2232, 8th Ave., New York, signed "Hugh McKean, Proprietor." This offered a "complete course on 'How to Conduct a Mail-Order Business,' and in addition, the 'Twenty Money-Making Ways.'"

In 1912 Prather seems to have been running a "school of hypnotism" in London. At that time *London Truth* (which delights in exposing shams and humbugs) had this to say about the concern:

"Prather has recently come to London and opened a National Institute of Sciences in the Westminster Bridge Road, No. 258, over a tea shop. His expert figurehead rejoices in the name of Professor Elmer E. Knowles, and his advertisements announce that the National Institute has appropriated five thousand pounds towards a fund for the free distribution of the professor's new book, 'The Key to the Development of the Inner Forces.' . . . Prather makes a great to do about a Radio-Hypnotic Crystal, which cannot be so very active, since any one who calls at the National Institute can see two girls packing hundreds of them in boxes all day long just as if they were bits of glass, and seemingly none the worse for the experience. Prather charges twenty shillings for a six pound course of his instruction, with the crystal thrown in. . . . However, if any one really wants to be hypnotized either by advertisement or by post, a pound or two either way is of very small moment. It is not like being hypnotized on a platform where everybody sees what a fool the subject makes of himself."

Prather's activities seem to have been many and various. And apparently they have paid, for according to reports, he is estimated to be worth at least \$150,000. Briefly tabulating, then, the different businesses with which Prather seems to have been directly or indirectly connected, we have:

"Metropolitan Institute of Sciences," New York: Sold mail-order courses in "magnetic healing," hypnotism, etc.
"Psycho Success Club," New York: Sold mail-order courses in hypnotism, palmistry and clairvoyance.
"Professor Cairo," Portsmouth, England: An advertising astrologer.

"National Institute of Science," London, England: Sold mail-order courses in hypnotism.

"Professor Roxroy," London, England: Alleged to make character delineation from hand-writing.

"Clay Burton Vance," Paris, France: Sold horoscopes.

"Universal Mail Order Institute," New York: Alleged course of instruction in how to run a mail-order business; specifically in selling "Luxor Hair Tonic," which the "Institute" furnished.

"Economy Supply Co.," New York: Advertising "Luxor Hair Tonic."

"Imperial Products Co.," New York: Sold "Mrs. Knowles' Home Remedies."

"International Institute of Beauty Culture," New York: Professed to teach "beauty culture."

"Fremont Mfg. Co.," New York: Said to have manufactured phonographs.

"Arrow Chemical Co.," New York: Sells "Bitro-Phosphate" and other nostrums.

Correspondence

THE DRAFTING AS A PRIVATE OF A LOYAL PHYSICIAN OF FOREIGN BIRTH

To the Editor:—A friend of mine, a young graduate with a fine manhood and loyalty, with splendid medical and surgical training, but with a foreign birth, writes me from the Columbus Barracks:

Here I am, at last, in Uncle Sam's service, in a snugly fitting private's uniform. As you remember, I have been offering myself for service for the last year or more, in fact before the draft law was passed; and last month I went to Washington armed with my naturalization papers, protesting my loyalty, telling them that I was only 8 years old when I left my native country, and that I have lived in this country for the last sixteen years, was educated in its schools, trained in the spirit of its institutions, and that as I remembered our constitution, a naturalized citizen could aspire to any office but that of the President of the United States. I was turned down with the customary "Sorry, but can't help it." Last week I was drafted as a private. Oh, not that I mind to salute every sergeant and corporal that may condescend to look my way, but the queer fact that I was drafted while I offered myself fills me with some sort of sadness about the order of things. However, in these days we cannot and must not be at all particular and feel personal injustice as long as we are engaged in any capacity whatever in the grandest and holiest task that the world has ever been called on to perform—to punish a race which has broken loose from the moorings of civilization and humanity, a fit ally of the unspeakable Turk.

The philosophical and noble acquiescence of my friend, however, does not mitigate the flagrant inconsistency and injustice of his case, which is only an example of many hundreds. It is much above my comprehension. Hence, can a kindly soul tell me wherein the military advantage consists in drafting a physician and putting him into the trenches or in the medical service, but refusing a commission because of his foreign birth? If the life sacrifices of these men are acceptable and demanded, with what moral justification under the sun are they denied the consolation and the pride of their just honors?

A. H. KOUMJIAN, M.D., Detroit.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VOCATIONAL TRAINING FOR THE DISABLED

THE JOURNAL, August 3, page 399, contains an inquiry by H. A. A. as to schools where a crippled boy may receive vocational education. The American Red Cross Institute for Crippled and Disabled Men, 311 Fourth Avenue, New York, states that it was founded to help just such cases, as well as to make provision for the reeducation of disabled soldiers and sailors. There are classes in artificial limb making, mechanical drafting, monotype operating, oxyacetylene welding, jewelry making and motion picture operating. Training in these classes is given to disabled civilians free of charge. The institute, however, can furnish no boarding facilities to students, who must find accommodations in the city for themselves; therefore students are not urged to come from a distance for this training, although the institute gladly extends the opportunities it affords to all such as need them and are suitable for training.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

ILLINOIS: Chicago, Sept. 24-27. Mr. F. C. Dodds, Supt. of Registration, Springfield.

KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.

NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

NEW YORK: Albany, Buffalo, New York and Syracuse. Sept. 24-27. Mr. H. J. Hamilton, New York Dept. of Education, Albany.

OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Alabama July Examination

Dr. S. W. Welch, chairman, Alabama Board of Medical Examiners, reports the written examination held at Montgomery, July 9-12, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 21 candidates examined, 14 passed and 7 failed. Two candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Alabama (1918)	75, 79.4, 80.7, 80.9, 83.2, 83.4,	84.5,	87.
Emory University	(1917) 75;	(1918)	75.2
Northwestern University	(1902)	(1902)	87.5
Johns Hopkins University	(1918)	(1918)	86.6
Meharry Medical College	(1918)	(1918)	75
Vanderbilt University	(1917)	(1917)	76.3
FAILED			
University of Arkansas	(1918)	(1918)	62.9
Chattanooga Medical College	(1907)	(1907)	70.9
Meharry Medical College	(1917) 65.6; (1918) 65.6, 68.4, 69.3,	(1913)	68.6
Memphis Hospital Medical College	(1913)	(1913)	68.6
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Atlanta College of Physicians and Surgeons	(1911)	(1911)	Georgia
University of Tennessee	(1901)	(1901)	Tennessee

Arizona July Examination

Dr. Allen H. Williams, secretary of the Arizona Board of Medical Examiners, reports the oral and written examination held at Phoenix, July 2-3, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 11 candidates examined, 10 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Medical College of Alabama	(1905)	(1905)	84.9
Denver & Gross College of Medicine	(1903)	(1903)	83
Northwestern University	(1900) 94.3; (1911)	(1911)	81.3
University of Illinois	(1914)	(1914)	80.7
Johns Hopkins University	(1917)	(1917)	81.7
St. Louis University	(1916)	(1916)	94.7
Memphis Hospital Medical College	(1889)	(1889)	85
Vanderbilt University	(1915)	(1915)	79.8
School of Medicine and Pharmacy of Guadalajara	(1889)	(1889)	91
FAILED			
Hahnemann Med. College and Hospital of Chicago	(1882)	(1882)	44

One candidate, a 1918 graduate of Hahnemann Medical College of the Pacific, who formerly received an osteopathic license, received, on presentation of his medical degree, a license to practice medicine and surgery.

Colorado July Examination

Dr. David A. Strickler, secretary of the Colorado State Board of Medical Examiners, reports the written examination held at Denver, July 2, 1918. The examination covered 8 subjects and included 80 questions. An average of 75 per cent. was required to pass. Nineteen candidates, including 9 osteopaths, took the physician's and surgeon's examination, all of whom passed. Two candidates did not furnish satisfactory requirements; one candidate failed to take the examination; one candidate, an osteopath, was expelled for cheating, and one candidate withdrew his application. Ten candidates were licensed through reciprocity. One candidate received a license because of prolonged Indian service. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Colorado (1918)	79.1, 80.2, 81, 87.2, 87.4, 88.7, 90.5,	(1918)	84.9
Chicago College of Medicine and Surgery	(1917)	(1917)	81.6
Northwestern University	(1918)	(1918)	82.1
St. Louis University	(1918)	(1918)	
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Columbian University	(1893)	(1893)	Dist. Colum.
Rush Medical College	(1902)	(1902)	Iowa
Medical College of Fort Wayne	(1882)	(1882)	Illinois
Kansas Medical College	(1904)	(1904)	Michigan
University Medical College of K. C.	(1911)	(1911)	Kansas
University of Nebraska	(1907)	(1907)	Missouri
Jefferson Medical College	(1903)	(1903)	Nebraska
Medico-Chirurgical College of Philadelphia	(1905)	(1905)	Penna.

Book Notices

ALCOHOL: ITS ACTION ON THE HUMAN ORGANISM. Cloth. Price, 60 cents, net. New York: Longmans, Green & Co., 1918.

This little book represents a review of the present state of scientific knowledge on the action of alcohol on the human system. It has been prepared as a provisional basis for further research by an advisory committee appointed in November, 1916, by the Central Control Board (Liquor Traffic). The members of the committee were: Lord D'Abernon, G.C.M.G.; Sir George Newman, K.C.B., M.D.; Prof. A. R. Cushny, M.D., F.R.S.; H. H. Dale, M.D., F.R.S.; M. Greenwood, M.R.C.S.; W. McDougall, M.B., F.R.S.; F. W. Mott, M.D., F.R.S.; Prof. C. S. Sherrington, M.D., F.R.S., and W. C. Sullivan, M.D. Soon after it was appointed, the committee came to the conclusion that, as a starting point for further research, it was necessary to state as briefly as might be the present state of human knowledge on the action of alcohol. The book under review is the outcome of this decision. The conclusions presented are the unanimous judgment of the committee. In reaching them the authors, we are told, had no idea of taking sides with any existing opinions and have frankly admitted doubt when they felt unable, from the available evidence, to state definite conclusions. While the committee realizes the grave and widespread social evils that follow the excessive use of alcoholic beverages it has not allowed its physiologic findings in the present book to be influenced by social issues. The volume impresses one as being essentially sincere, impartial and cautious. While it is impossible in the brief limit of a review to give in full the conclusions of this committee, they may be thus summarized:

1. The main effects of alcohol, aside from those that follow its continued excessive use, are due to its action on the nervous system and, so far as any direct action is concerned, alcohol, when administered in moderate amounts at sufficient intervals and in diluted form, has no effect of any serious and practical account on the respiration, circulation, digestion or the muscular system.

2. The action of alcohol on the nervous system is essentially sedative and not stimulative—excepting possibly in its influence on the respiratory centers. Its assumed stimulative properties are illusory. They are, in fact, an effect of the narcotic influence of the drug which, by dulling the drinker's perception of unpleasant conditions and, by removing the control exercised by the higher nervous centers, renders him

less self-critical and makes him feel better and more efficient than he really is.

3. The objective effects of alcohol on the nervous system are to lower functional activity. A dose that produces no noticeable change in the skill of performing a simple act will impair the performance of an act demanding a more delicate coordination and control.

4. The narcotic effect of alcohol does not necessarily imply that it is valueless in all circumstances, for there is nothing intrinsically good about a stimulant or intrinsically bad about a narcotic. When an individual has to meet an emergency in which his highest powers of perception and judgment are needed, alcohol is not merely useless, it is positively and unequivocally detrimental. There are, however, emergencies in which the individual would be assisted by a relaxation, and here the sedative action of alcohol, at least so far as its immediate effect is concerned, may be advantageous. The committee thinks that possibly the value attributed to the rum ration given to those suffering the acute discomfort, cold and nervous strain inseparable from trench warfare may possibly be explained this way. It is also suggested that the reputation which alcohol has as a restorative in emergencies is probably not due to any direct stimulation of the nervous system or of the heart. Rather it is due to its sedative influence on the nerve centers, thus weakening the inhibition on the heart's action that follows in such cases and, by its narcotic influence on the higher levels of the brain, relieving pain and anxiety and increasing the general comfort.

5. Alcohol has food value and, unlike ordinary foodstuffs, does not require to undergo digestion before it can be taken up by the blood stream. The objections to its use as a food, however, except possibly in emergency conditions such as acute diseases where the assimilation of ordinary foods is more or less interfered with, are amply sufficient to condemn its use in health as a source of bodily energy. These objections are that it impairs the efficiency of the higher nerve functions and, unlike other foods, it is not stored in the body in altered form but remains as alcohol in the blood and organs until it is destroyed by combustion. As this oxidation process is gradual, the drug, if in sufficient amount, may seriously injure the tissues.

6. The use of alcohol to promote working efficiency is physiologically unsound, as the drug is not only useless or detrimental in its immediate effect, but in its ultimate result is also likely to be seriously injurious.

7. Believing that the majority of people who use alcohol take it, not because they imagine that it has any food value, but because its taste and immediate effects are agreeable, the committee is of the opinion that there are conditions under which the use of alcoholic beverages may be physiologically permissible. The question, of course, is dealt with wholly from the physiologic standpoint and does not take into consideration any of the problems of social evils, ethics or national economy. The committee holds that alcoholic liquors when so taken as to avoid the poison action of the drug may be considered physiologically harmless in the case of a large majority of normal adults. The precautions necessary to guard against the poison action are summed up practically in the propositions (a) that to avoid a continued action on the tissues, a sufficient interval should elapse between the times when alcohol is taken as will prevent the persistent presence of a deleterious amount of the drug in the body; (b) to prevent direct injury to the mucous membrane of the stomach, alcohol should not be taken in concentrated form and without food.

THE SERIOUSNESS OF VENEREAL DISEASE. By Sprague Carleton, M.D., F.A.C.S. Boards. Price, 50 cents. Pp. 67, with 26 illustrations. New York: Paul B. Hoeber, 1918.

This book consists of twenty-six illustrations showing the ravages of syphilis, with brief reports of from two to five lines concerning the history of each case. It closes with brief instructions for those having gonorrhea or syphilis. It was prepared primarily in a limited edition for the use of Base Hospital No. 48, with a view to use in prophylaxis education. This purpose it has no doubt served quite well.

Medicolegal

Against Joint Information for Unlawfully Practicing Medicine

(*Durston et al. v. State (Tex.)*, 200 S. W. R. 524)

The Court of Criminal Appeals of Texas reverses a judgment of conviction of the two defendants, Durston and another, who were charged with practicing medicine without complying with the requisites of the statute with reference to obtaining a license, because the information charged the offense jointly against both defendants, on which ground its legality was challenged. The court says that, so far as it has learned, the exact question has not been reviewed in Texas; but, following the authorities of several other states, the court is constrained to hold that it was error to refuse to quash the information. It is not criminal to practice medicine, but it is unlawful to do so for pay without obtaining a license. A license authorized is personal to the individual. His practicing without obtaining it is a personal default, not one that he can commit in connection with another, and the prosecution for the default cannot be sustained under a joint charge.

Malpractice in Statements with Regard to Removal of Appendix Not Proved

(*Rich v. King (Me.)*, 102 Atl. R. 704)

The Supreme Judicial Court of Maine orders a judgment to be entered for the defendant in this action for alleged malpractice in statements said to have been made by the defendant as to the removal of the plaintiff's appendix, and in not telling him that it had not been removed in an operation performed by the defendant at his hospital. The plaintiff alleged that he suffered much and was put to great expense by many attacks of pain in the abdomen during a period of some three years because he had been informed that his appendix had been removed, when in fact it had not been, for, with the understanding that the appendix had been removed, his physician could not determine the nature of his ailment, until finally another operation was performed. The declaration stated further that the plaintiff said it was the duty of the defendant to notify him that the appendix had not been removed; that the defendant did not so notify him; that it was an added duty of the defendant not to tell the plaintiff that he had removed the appendix from his body, when he had not removed it. But, as the court views it, the injuries alleged to have been suffered by the plaintiff seemed to be ascribed to an alleged express statement of the defendant that his appendix had been removed, when in fact it had not been removed, and was not based on the alleged omission to declare to him that the appendix had not been removed, and that it was still in his body.

The defendant, the court says, performed his operation in the presence of another physician. Both physicians said that a large abscess was found; that the intestine was so inflamed and the condition of the plaintiff so serious that extensive exploration was highly dangerous; that the appendix was not removed nor was any attempt made to remove it; and that pus was drained from the cavity of the abscess. The defendant stated that in the examination of the cavity of the abscess which he felt he could safely make he could not detect the presence of the appendix, and that, if he had, he should have removed it. Subsequent measures were such as provided for continued drainage and healing of the wound. The plaintiff admitted that no error was committed in what was done in the performance of the operation. Under the circumstances attending the operation, his statement that the defendant told him that the appendix had been removed was grossly improbable. The defendant was a surgeon of great skill and long experience. He had, then, no interest to state other than the truth. The plaintiff now has. But the plaintiff at the time he alleged the conversation occurred must have within twenty-four or forty-eight hours suffered surgical shock and the shock following the administration of ether, for which he

was a bad subject. His mind may have not comprehended clearly what took place and was said, and he may have unconsciously intermingled what the defendant or the other physician or others truthfully told him with conclusions of his own and figments of his own imagination.

Again, the plaintiff and his wife testified to the effect that some two or three days after the operation, when the defendant was present, the conversation turned to a game of baseball in which the defendant had taken part, and the plaintiff remarked that he played when at school, and the defendant said, "You can play on the no-appendix team now." Both the plaintiff and his wife admitted that the defendant spoke in a "joking way," and the wife stated that the conversation was not of a serious nature. The court is clearly of the opinion that the statement of the defendant made in the manner in which it was made and in a conversation of such character should not be considered sufficient evidence to sustain the grave charge made in the declaration.

The court is clearly of the opinion that no breach of duty on the part of the defendant by reason of any statement made to the effect that the appendix had been removed, as alleged, was supported by the evidence. Nor does the court find it necessary to make any findings of law as to the duty of a physician and surgeon in the premises, but has assumed, without declaring, the law to be as the plaintiff claimed.

Society Proceedings

COMING MEETINGS

- Am. Assn. of Obstetricians and Gynecologists, Detroit, Sept. 16-18.
American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Delaware State Medical Society, Wilmington, Oct. 8.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
Missouri Valley Medical Society, Omaha, Sept. 19-20.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

August, 1918, 156, No. 2

- 1 Recent Developments in Intestinal Bacteriology. A. I. Kendall, Chicago.—p. 157.
- 2 *Frequency of Protozoic Enterocolitis in Middle West; Clinical Manifestations, Diagnosis and Treatment. F. Smithies, Chicago.—p. 173.
- 3 *Effect of Stimuli from Lower Bowel on Rate of Emptying Stomach. F. W. White, Boston.—p. 184.
- 4 *Primary Carcinoma of Vermiform Appendix. S. P. Reimann, Philadelphia.—p. 190.
- 5 *Two Cases of Suprarenal Disease. O. T. Osborne, New Haven, Conn.—p. 202.
- 6 Magnesium Sulphate Solutions in Treatment of Spastic Contractions of Rectum and Sigmoid Colon. H. W. Soper, St. Louis.—p. 205.
- 7 *Sarcoma of Heart. I. Perlstein, Chicago.—p. 214.
- 8 Cholelithiasis: Disturbances of Cholesterol Metabolism as Factor in Gallstone Formation. M. A. Rothschild and A. O. Wilensky, New York.—p. 239.
- 9 Lingual Tonsil: Goiter, Glossodynia and Focal Infection. G. Sluder, St. Louis.—p. 248.
- 10 Surgical Treatment of War Wounds. C. L. Gibson, New York.—p. 252.
- 11 Cerebrospinal Fever. F. Marino, Camp Meade, Md.—p. 270.

3. Effect of Lower Bowel Stimuli on Emptying Stomach.—The roentgen-ray method was used by White to study the effect of stimuli from the lower bowel on the rate of emptying

of the stomach; the effect of mechanical filling and distention of the colon by enemata in men and cats; the effect of chemical irritation of the cecum in cats; the effect of diseases of the lower bowel in 120 cases of chronic colitis, tubercular ulceration and cancer of the colon, chronic and acute appendicitis and adhesions of the lower ileum and colon. His results all point the same way: (1) delay in emptying the stomach is the exception, not the rule, in lesions of the lower bowel; (2) a strong stimulus is needed from the lower bowel to slow the stomach, for it was found that the stomach emptied a barium meal within the normal time in some cases of ileal stasis of two or more days' duration, and in most cases with good sized twelve-hour residue in the ileum, also when the colon was distended with a large enema, also in most cases of chronic appendicitis and chronic inflammations and tumors of the colon.

Experiments on animals showed that when the colon was irritated by injections into the cecum variable results were obtained; intense irritation caused vomiting; less marked irritation caused either delay in emptying the stomach up to about twice the normal time or rapid emptying of the stomach and whole digestive tract; moderate or slight irritation had no effect. The results were not perfectly graded, evidently because of variable spasm. Marked delay in emptying the stomach is far more often the result of actual lesions about the pylorus than of reflexes from the bowel. Stomach symptoms in intestinal cases are not, as a rule, the result of slow emptying of the stomach.

4. Primary Carcinoma of Vermiform Appendix.—Three facts stand out very conspicuously in the study of the literature of this neoplasm. The condition has never been diagnosed clinically and a consideration of the symptoms which have been presented by the patients in whom the lesion has been found shows that nothing in any way suggestive of anything other than an ordinary acute or chronic appendicitis is presented. Second, the condition may give rise to extension and metastasis. Third, the condition may be present and yet not be evident on gross inspection either when the appendix is in situ or when it is in the pathologic laboratory. Reimann therefore believes that it follows that aside from symptoms which lead to its removal it should be removed whenever the abdomen is opened in its neighborhood, regardless of symptoms, for in many cases discovered no symptoms at all were given. Every appendix should be subjected to both careful gross and histologic examination. Reimann reports twelve new cases occurring in 10,651 specimens.

5. Suprarenal Disease.—One of the cases cited by Osborne is unusual because of the marked symptoms of insufficiency of the suprarenal glands, as shown by the unusual amount of pigmentation and the exceedingly low blood pressure. There was no history of fever. The lungs and other parts of the body were not involved in the tuberculous process. There were no digestive symptoms until the last few weeks of life. The man (34 years of age) died from the extreme weakness of his heart and the low blood pressure. The pulse pressure, Osborne says, was one of the shortest he ever noted, the difference between the systolic and the diastolic being, at the first observation, only five points. Under suprarenal it temporarily increased to thirty points. The second case was one that was unusually marked by the pigmentation deposits and unusually interesting because of the disappearance of the pigmentation under suprarenal treatment. The loss of muscular strength in both these patients, due to suprarenal deficiency, was very marked. Osborne is convinced that it cannot be attributed entirely to the low blood pressure, and therefore poor circulation; it is in part, at least, due to muscle weakness.

7. Primary Sarcoma of Heart.—Perlstein reports a case of primary sarcoma of the heart which originated in the subepicardial areolar tissue. The patient, a man, aged 43 years, complained of shortness of breath and cough, first noticed two weeks previously. He also had a slight irritation in the left side, thoracentesis withdrew bloody fluid. The patient had not had any pain to amount to anything during the course of the disease. The postmortem examination: Subepicardial

sarcoma of heart (mixed cell). Metastases into pericardial fat, pleura and mediastinal lymph glands.

American Journal of Ophthalmology, Chicago

August, 1918, 1, No. 8

- 12 Pemphigus of Conjunctiva. R. Connor and C. A. Burkholder. —p. 545.
- 13 Quinin Poisoning, Its Ocular Lesions and Visual Disturbances. R. H. Elliot, London, England.—p. 547. To be continued.
- 14 Case of Neurofibromatosis of Orbit. C. A. Campbell, Bay City, Mich.—p. 560.
- 15 Case of Conjunctivitis of Fornix. J. S. Fernandez, Havana, Cuba.—p. 562.
- 16 Case of Homologous Corneal Transplant. A. Martin, Phoenix, Ariz.—p. 566.
- 17 Iridectomy for Optical Purposes. J. H. McKellar, Los Angeles.—p. 567.
- 18 Apparent Accommodation in Aphakia. W. Zentmayer, Philadelphia.—p. 570.
- 19 Ophthalmoplegia and Optic Neuritis; Report of Cases. F. A. Morrison, Indianapolis.—p. 571.
- 20 Case of Hole in Disk. C. B. Harwood, Houston, Texas.—p. 572.
- 21 Case of Bilateral Luxation of Lens. F. Allport and J. Smith, Chicago.—p. 573.

American Review of Tuberculosis, Baltimore

August, 1918, 2, No. 6

- 22 National Tuberculosis Association in Time of War. C. L. Minor, Asheville, N. C.—p. 323.
- 23 Tuberculosis as an Army Problem. J. H. Pratt and L. Brown, Saranac Lake, N. Y.—p. 335.
- 24 *War and Tuberculosis. D. A. Stewart, Ninette, Man.—p. 357.
- 25 Tuberculosis and Soldier. T. McCrae, Philadelphia.—p. 372.
- 26 Pain in Chest with Special Reference to Pulmonary Tuberculosis. J. B. Hawes, 2d, Boston.—p. 380.

24. **War and Tuberculosis.**—So far as the British and Canadian armies are concerned, Stewart claims it can safely be said that the expected increase in tuberculosis has, fortunately, not occurred; that the bad effects of war, so far as this disease is concerned, seem to have been neutralized by the good effects of mobilization; and that a young man has less chance of breakdown with tuberculosis in the army than he had in prewar civilian life, and apparently much less in England than he would have in civilian life in time of war. The chief element in the etiology of army tuberculosis has undoubtedly been acute infections, especially infections of the upper respiratory tract. Men gathered from all parts of the country into crowded barracks were all exposed to the infections each brought. Measles, pertussis, scarlet fever, mumps, diphtheria, tonsillitis infected their thousands; but influenzas of all sorts, catarrhs of every variety, common colds and uncommon colds, familiar forms and trench forms of bronchitis infected their tens of thousands. They were universal in barracks, camp and trench. The whole army coughed. And these "colds" undoubtedly in many cases were but the prelude to the larger play. The diagnosis of tuberculosis has been made more difficult by war.

Annals of Otology, Rhinology and Laryngology, St. Louis

March, 1918, 27, No. 1

- 27 Surgery of Tongue. J. C. Beck, Chicago.—p. 3.
- 28 Susceptibility to Infection Manifested by Remains of Incompletely Removed Tonsils. H. W. Loeb, St. Louis.—p. 103.
- 29 Method of Medicating Eustachian Bougies. L. M. Hurd, New York.—p. 114.
- 30 Location of Lateral Sinus from External Markings; Also, Approach to Mastoid Antrum, as Modified by Surface Markings. H. J. Prentiss, Iowa City, Iowa.—p. 116.
- 31 Occurrence of Nodules of Cartilage in Tonsil. J. Forman, Columbus.—p. 137.
- 32 New Operation for Collapsed Alae Nasi. O. Wilkinson, Washington.—p. 145.
- 33 Case of Purulent Leptomeningitis of Otitic Origin. D. Layman, Indianapolis.—p. 149.
- 34 Cases of Bilateral Abductor Paralysis of Vocal Cords. R. Butler.—p. 153.
- 35 Remote Results of Foci of Infection in Nose and Throat. J. B. Greene.—p. 160.
- 36 Removal of Foreign Bodies from Larynx, Disproving Previously Made Diagnosis. H. Hastings, Los Angeles.—p. 176.
- 37 Rhinoscopy. E. M. Holmes, Boston.—p. 179.
- 38 What Is Cause of Defective Orientation or Equilibration? L. R. Culbertson, Zanesville, Ohio.—p. 187.
- 39 Importance of Early Intubation and Use of Antitoxins in Membranous Laryngitis. A. C. Wolfe, Columbus.—p. 189.

- 40 Nasal and Nasopharyngeal Fibroma, with Reference to Multiplicity of Growths. G. M. Coates.—p. 191.
- 41 Lingual Abscess. J. A. Cavanaugh, Chicago.—p. 206.
- 42 Cases Illustrating Diagnosis of Intracranial Complications of Ear Disease Complications. G. W. Boot, Chicago.—p. 213.
- 43 Importance of Recognizing Relation of Ear Conditions to General System. G. E. Davis, New York.—p. 226.
- 44 Value of Results in Anacusia Depends on Local and General Condition of Person Who Is Deaf. G. de Parrel.—p. 230.
- 45 Role of Pseudodiphtheria Bacillus in Pathogenesis of Ear, Nose and Throat Diseases. H. McNaught, San Francisco.—p. 245.
- 46 Association of Ocular and Nasal Accessory Sinus Disease. G. O. Ring, Philadelphia.—p. 251.
- 47 Osteoma of Frontal Sinus; Report of Case. E. C. Sewall, San Francisco.—p. 275.
- 48 Clinical Ozena and Its Vaccine Treatment. H. Horn and E. A. Victors, San Francisco.—p. 288.

Boston Medical and Surgical Journal

August 15, 1918, 179, No. 7

- 49 Hospital Standardization; Its Meaning. J. T. Bottomley, Boston.—p. 219.
- 50 Administration of Military Base Hospital and Its Comparison with Civil Hospital. C. Frothingham, Camp Devens.—p. 223.
- 51 Need of Systematic Teaching of Hospital Interns. E. H. Bradford, Boston.—p. 229.
- 52 Social Service and Follow-Up Work. R. M. Smith, Boston.—p. 233.
- 53 Hearing Test to Detect Malingerers. J. F. Callahan, Brockton.—p. 236.

August 22, 1918, 179, No. 8

- 54 The Massachusetts Tuberculosis Sanatoriums and What They Plan to Do. A. K. Stone, Framingham Center.—p. 255.
- 55 Role of County Tuberculosis Hospital in Massachusetts. O. S. Pettingill, Hebron, Me.—p. 259.
- 56 Local Municipal Tuberculosis Hospitals in Massachusetts. E. A. Locke, Boston.—p. 263.
- 57 Massachusetts Tuberculosis Dispensaries. J. S. Hitchcock, Northampton.—p. 269.
- 58 *Wound Shock and Vasomotor Center. W. T. Porter, Boston and E. Emerson, Providence.—p. 273.

58. **Wound Shock and Vasomotor Center.**—Further experimental evidence is detailed by the authors to prove that fat embolism of the vasomotor center is a frequent cause of wound shock. The demonstration of fat embolism of the vasomotor center as a cause of wound shock is as follows: (1) Excluding abdominal wounds, in which a hydrostatic fall in blood pressure may follow an invariable local injury to the largest vascular area in the body, the most frequent causes of shock in wounded soldiers are shell fracture of the femur and multiple wounds of the subcutaneous fat. (2) In fracture of the femur and in multiple wounds of the subcutaneous fat, considerable numbers of fat globules are found in the blood. (3) A quantity of fat much smaller than that known to circulate in the blood in the injuries most often followed by shock will produce shock when the nutrient vessels of the vasomotor region are stopped.

Bulletin of Johns Hopkins Hospital, Baltimore

August, 1918, 29, No. 330

- 59 *Clinical Aspects of Peptic Ulcer; Roentgen Diagnosis in Seven Hundred and Forty-Three Cases. F. H. Baetjer and J. Friedenwald, Baltimore.—p. 177.
- 60 *Experimental Meningococcus Meningitis. C. R. Austrian, Baltimore.—p. 183.
- 61 *Blood Pressure in Amyloid Disease of Kidney. K. Hirose, Baltimore.—p. 191.

59. **Clinical Aspects of Peptic Ulcer.**—From studies on the many cases of peptic ulcer in which roentgen-ray examinations were made, Baetjer and Friedenwald believe that they are justified in concluding that the roentgen ray offers most valuable assistance to the diagnosis of peptic ulcer, and although this method is not yet sufficiently well developed to be relied on alone without entering into the clinical aspects of the disease, it is of the greatest diagnostic help in obscure cases. Positive findings are noted in about 84 per cent. of cases of peptic ulcers and in 79 per cent. of cases operated. In duodenal ulcer there is excessive hypermotility of the stomach with rapid evacuation of the contents, so that the greater portion is extruded within the first half hour; there is hypermotility of the duodenum with formation, usually, of a deformity which remains fixed in all of the examinations.

The diagnosis of gastric ulcer is dependent on two conditions, namely, the functioning of the stomach, and the finding of the filling defect. It is only when the filling defect is situated along the anterior surface of the stomach and along the anterior surface of the lesser and greater curvatures that it can be demonstrated. On the other hand, it matters not what the situation of the ulcer is, the functions of the stomach are materially affected. An excessive irritation from the ulcer causes hypermotility and a spastic condition of the pylorus, so that for the time being there is practically no expulsion of bismuth. It is only when the spasticity relaxes that a portion of the bismuth is expelled. In gastric ulcer, wherever its situation, the authors always look for a certain amount of retention of contents. There is always a more or less marked hour-glass formation. According to their observations the functional signs are often as important as the presence of the filling defect in arriving at definite conclusions, inasmuch as in 8 per cent. of the cases, although there were no defects found, the functional changes pointed definitely to ulcer.

The greatest difficulties arise in the diagnosis of complicated cases; that is, when adhesions are present. These so frequently mask the usual findings that it is often impossible to determine whether there is really an ulcer of the stomach at hand or a lesion of some other organ. When the ulcer is situated at or near the pylorus, signs of partial obstruction frequently aid in establishing the diagnosis.

The roentgen ray affords an almost absolute means of differentiating between gastric and duodenal ulcer. By means of the roentgen-ray examination Baetjer and Friedenwald can generally rule out the presence of ulcer. They can determine approximately the degree of healing as well as recurrence of an ulcer which cannot be as certainly determined in any other way. Sufficient evidence can be obtained as to the extent and induration of the ulcer and degree of obstruction to guide, in a measure, as to the necessity of surgical intervention.

60. Experimental Meningococcus Meningitis.—Austrian found that the cerebrospinal canal can be infected by way of the blood stream. Though under normal conditions the presence of a bacteremia does not lead to the development of meningitis, when a condition of hyperemia of the thecal vessels exists, meningeal inflammation may result. Neither when normal conditions are present nor when meningeal irritation has been induced do meningococci introduced into the nasal mucous membrane gain access to the meninges. The demonstration of meningococci in the nasal secretion is to be interpreted as evidence of the excretion of these organisms by this route, but the conclusion is not necessarily warranted that they find a direct portal of entry to the meninges by the same channel.

These observations seem important from an etiologic standpoint. They indicate the probability that epidemic cerebrospinal meningitis, as it occurs in man, is to be regarded as a metastatic disease developing in the course of a general infection, rather than as the evidence of a primary local disease. They do not necessarily indicate the portal of entry of the invader, nor antagonize the view that the cocci are taken into the body through the upper respiratory tract, a fact apparently established. The observation that meningococcal sepsis in rabbits is followed by the development of meningeal disease only when the meninges are not in a normal state is suggestive and may explain in part, at least, the occurrence of the disease in some of those exposed and its failure to develop in others in like contact with sources of infection.

61. Blood Pressure in Amyloid Disease of Kidney.—In a series of fifty-nine cases, examined by Hirose, the presence of amyloid in the kidneys has always been associated with chronic nephritis. It is impossible to determine whether the nephritis antedated the amyloid or was developed coincidentally with it. In forty cases in which measurements were given the kidneys were larger than normal, while in nine they were small and granular. In all but one of the fifteen cases in which the blood pressure was recorded it was found to be normal or below normal. In the one patient whose systolic pressure was 170 mm., the kidneys were rather large and there was no cardiac hypertrophy. Of the fifty-nine cases, ten showed cardiac hypertrophy, but only one of these

was associated with small granular kidneys, and in none was high arterial tension noted. It appears from this that even if it be assumed that a persistent nephritis produced cardiac hypertrophy and hypertension, the advent of the amyloid-forming process must have reduced the blood pressure to a low point and may even have caused a retrogression in the size of the heart.

Colorado Medicine, Denver

August, 1918, **15**, No. 8

- 62 Diagnostic and Prognostic Significance of Albuminuria. W. T. Little, Canon City.—p. 190.
- 63 Social Insurance as Public Health Issue. J. M. Shapiro, Cleveland.—p. 197.
- 64 Asepsis and Antisepsis in Modern Dentistry. S. W. Schaefer, Colorado Springs.—p. 199.

Indiana State Medical Association Journal, Fort Wayne

August, 1918, **11**, No. 8

- 65 Occupational Neuroses. C. E. Cottingham, Indianapolis.—p. 297.
- 66 Case Simulating Brain Abscess of Upper Motor Zone Occurring as Sequel to Pneumonia: Operation; Death: Necropsy. G. W. McCaskey, Fort Wayne.—p. 302.
- 67 Ocular Diseases Due to Foci of Infection Adjacent to or Remote from Eye. S. A. Shoemaker, Bluffton.—p. 305.

Iowa State Medical Society Journal, De Moines

August, 1918, **8**, No. 8

- 68 Acute Abdominal Perforations. F. W. Cram, Sheldon.—p. 279.
- 69 Choice of Operation in Fractures. A. P. Stoner, Des Moines.—p. 283.
- 70 Medical vs. Surgical Treatment of Peptic Ulcer. S. G. Hands, Davenport.—p. 287.

Journal of Bacteriology, Baltimore

May, 1918, **3**, No. 3

- 71 Apparent Close Relationship Between B. Pertussis and B. Bronchi-septicus. N. S. Ferry and A. Noble, Detroit.—p. 193.
- 72 *Growth of Bacteria in Protein-Free Enzyme-Digestion and Acid-Digestion Products. H. C. Robinson and L. F. Rettger, New Haven, Conn.—p. 209.
- 73 *Characteristics of Bacteria of Colon Type Occurring in Human Feces. L. A. Rogers, W. M. Clark and H. A. Lubs.—p. 231.
- 74 Classification of Colon-Cloacae Group. M. Levine, Ames, Iowa.—p. 253.
- 75 Fowl Cholera: Toxins of Bacillus Avisepticus. P. Hadley.—p. 277.
- 76 Lactose Fermenting Yeast Producing Foamy Cream. O. W. Hunter.—p. 293.
- 77 Classification and Nomenclature of Bacteria. R. E. Buchanan, Ames, Iowa.—p. 301.
- 78 Early Instructors in Bacteriology in United States. E. G. Hastings and C. B. Morrey.—p. 307.

72. Growth of Bacteria in Protein-Free Products.—Numerous cultural tests were made by Robinson and Rettger, with opsin as the chief and, as a rule, the only source of nitrogen in the medium. Cultural studies were also carried on with protein-free acid-digestion products of proteins. The opsin was obtained from Paris in small metal capsules. In its original state it resembles highly concentrated commercial meat extract, although much lighter in color. It dissolves readily in water, yielding a brown but perfectly clear solution which is easily and completely decolorized by filtration through animal charcoal. The protein-free enzyme-digestion production opsin serves as an excellent culture medium for both pathogenic and nonpathogenic bacteria. Practically all of the many organisms employed grew as well or better in opsin than in Witte's peptone. The cultural characters on the two mediums were in general the same. With the exception of the diphtheria group, the different organisms remained viable as long on opsin as on the standard peptone-meat infusion medium.

The decomposition products of casein, lactalbumin and edestin obtained by acid hydrolysis were also employed as culture mediums. Of these the hydrolyzed casein gave the best results, but it was inferior to the opsin. The edestin product was the least satisfactory. It is highly probable that in the hydrolysis of these proteins with hydrochloric acid the treatment is sufficient to destroy many of the intermediate decomposition products which serve so admirably as food for micro-organisms. Bacteria do not require proteins, even in

minute quantities, to carry on their normal cultural development, but obtain their sustenance from less complex substances, as for example the amino-acids and perhaps some of the simpler polypeptides.

73. Bacteria of Colon Type in Human Intestine.—A collection of 177 cultures of the colon aerogenes type was made by Rogers and his associates from human feces. These were examined for pigment formation, indol production, liquefaction of gelatin, acid fermentation of glucose, lactose, sucrose, raffinose, melibiose, arabinose, inulin, mannitol, dulcitol, adonitol and glycerol, the methyl red test, the carbinol or Voges-Proskauer reaction and the anaerobic production of gas from glucose as determined by exact methods. A tentative scheme of classification for the typhoid colon group is presented in which the primary divisions are based on the nature of the metabolism as indicated by the gases evolved. The gas analysis of a few available cultures of the paratyphoid group gave a gas volume and ratio agreeing with that of the colon type.

Journal of Biological Chemistry, Baltimore

August, 1918, **35**, No. 2

- 79 *Autolysis of Animal Tissues. K. G. Dernby, New York.—p. 179.
- 80 Purin Metabolism of Dalmatian Coach Hound. H. G. Wells, Chicago.—p. 221.
- 81 New Form of Colorimeter. J. C. Bock and S. R. Benedict, New York.—p. 227.
- 82 *Rapid Method for Determination of Iron in Small Quantities of Blood. L. Berman, New York.—p. 231.
- 83 Determination of Buffer Effects in Measuring Respiration. W. J. V. Osterhout, Cambridge, Mass.—p. 237.
- 84 *Studies in Calcium and Magnesium Metabolism. Effect of Acid and Other Dietary Factors. M. H. Givens, New Haven, Conn.—p. 241.
- 85 Properties and Composition of Oocytin. G. W. Clark, Berkeley, Calif.—p. 253.
- 86 Histidin and Carnosin. Synthesis of Carnosin. L. Baumann and T. Ingvaldsen, Iowa City, Iowa.—p. 263.
- 87 Oxidation Product of Creatin. L. Baumann and T. Ingvaldsen, Iowa City, Iowa.—p. 277.
- 88 Reduction of Aldehyds to Corresponding Alcohols. Reduction of Heptylic Aldehyd (Oenanthal). P. A. Levene and F. A. Taylor, New York.—p. 281.
- 89 Cephalin. Hydrocephalin of Egg Yolk. P. A. Levene and C. J. West, New York.—p. 285.
- 90 Formation of Unsaturated Acids in Animal Organism. Behavior of p-Methoxyphenylpropionic Acid in Organism of Rabbit. I. Matsuo, Kiota, Japan.—p. 291.
- 91 *Food Value of Eulachon. M. R. Daughters, Corvallis, Ore.—p. 297.
- 92 Efficiency of Maize Protein in Adult Human Nutrition. H. C. Sherman and J. C. Winters, New York.—p. 301.
- 93 *Effect of Heat on Citric Acid Content of Milk. Isolation of Citric Acid from Milk. H. H. Sommer and E. B. Hart, Madison.—p. 313.
- 94 Formation of Oxyphenyllactic Acid in Animal Organism and Its Relation to Tyrosin Catabolism. Y. Kotake, Osaka, Japan.—p. 319.
- 95 Relation Between Nutrition and Formation of Kynurenic Acid From Tryptophane. Z. Matsuoka, Osaka, Japan.—p. 333.
- 96 Decomposition of Muconic and Adipic Acids in Animal Body. Y. Mori, Osaka, Japan.—p. 341.
- 97 *Experiments on Utilization of Nitrogen, Calcium, and Magnesium in Diets Containing Carrots and Spinach. H. B. McClugage and L. B. Mendel, New Haven, Conn.—p. 353.
- 98 Relation of Quality of Proteins to Milk Production. E. B. Hart and G. C. Humphrey, Madison, Wis.—p. 367.
- 99 Method for Separation and Quantitative Determination of Lower Alkylamines in Presence of Ammonia. F. C. Weber and J. B. Wilson, Washington, D. C.—p. 385.
- 100 Inhibition of Foaming. C. H. Fiske, Cleveland.—p. 411.

79. Autolysis of Animal Tissues.—The proteolytic enzymes of liver, spleen, pancreas, and leukocytes and of the mucous membrane of the stomach have been studied by Dernby. In all of these tissues it has been possible to demonstrate the existence of pepsin-like enzymes, which split native proteins to peptones but not further, and for whose action the optimal hydrogen ion concentration in all cases is at about $p_H = 3.5$. This enzyme cannot act in alkaline or even neutral solutions. It has also been possible to show that in all of these tissues there are proteolytic enzymes of the type of trypsin or erepsin that attack only peptones or peptids, and split them into amino-acids. The optimal hydrogen ion concentration for all these enzymes seems to be about $p_H = 7.8$ (from 7.6 to 8.0), and their action is checked in slightly acid solution.

Both types of proteolytic enzymes occur in all the tissues studied. In some of them, however, one or the other of the enzymes has been predominant over the others, as the pepsin in the stomach and the trypsin in the pancreas. Unlike the less specialized enzymes, pancreatic trypsin and gastric pepsin can easily be extracted from the cells.

82. Method for Determination of Iron in the Blood.—In the method described by Berman the iron held in combination in fluid blood is split off by the action of concentrated hydrobromic acid. The iron is oxidized to the ferric condition and the organic matter is destroyed by potassium permanganate. The resultant solution is mixed with a solution of ammonium sulfocyanate in water and acetone and the color is compared with that of a standard iron solution similarly treated. The ashing process is eliminated, and a complete determination may be made in ten to fifteen minutes.

84. Calcium and Magnesium Metabolism.—As a result of new experiments Givens is able to confirm his previous statement that ingested hydrochloric acid is without marked influence on the calcium and magnesium metabolism of the dog. The previously reported increased urinary elimination of calcium after acid consumption has been observed anew; but the absolute amount of this increase was not sufficient to affect to any noticeable degree the calcium balance.

91. Food Value of Eulachon.—Eulachon is an Indian name given to a species of marine fish found along the Pacific Coast from Oregon to Alaska. The eulachon is related to the smelt and it is often miscalled by this name. In food value the eulachon is equal to the salmon. It contains a higher percentage of fat than the salmon and in flavor is considered superior.

93. Effect of Heat on Citric Acid Content of Milk.—Sommer and Hart confirm the findings of Scheibe and Henkel; namely, that cow's milk does contain citric acid. The amount found was approximately 0.2 per cent. of the milk, or 2 per cent. of the milk solids. Citric acid is not destroyed in the heating of milk even in the autoclave at 15 pounds pressure for one hour, nor is it changed to an insoluble form on heating.

97. Experiments on Utilization of Nitrogen in Diet.—Metabolism experiments made by McClugage and Mendel showed that when carrots and spinach were added to the diets of dogs the nitrogen was not well utilized; the calcium in milk was better utilized than that in calcium carbonate; the calcium in spinach and carrots was poorly assimilated as compared with the calcium in milk. The authors believe that the conclusion seems justified that green vegetables should not be used extensively as a substitute for milk as the dietary source of calcium.

Journal of Cutaneous Diseases, Chicago

September, 1918, **36**, No. 9

- 101 *Bruck's Nitric Acid Reaction with Serum and Cerebrospinal Fluid in Syphilis. I. Toyama and J. A. Kolmer, Philadelphia.—p. 429.
- 102 Chemical Changes in Subcutaneous Fat in Sclerema Neonatorum. C. S. Smith, Chicago.—p. 436.
- 103 *Treatment of Syphilis at Camp Travis. W. H. Guy, Pittsburgh.—p. 441.
- 104 *Castor Oil. D. W. Montgomery, San Francisco.—p. 446.

101. Bruck's Reaction with Serum and Cerebrospinal Fluid in Syphilis.—Toyama and Kolmer applied Bruck's test with the serums of 100 persons, the majority of whom were under treatment for syphilis. Wassermann and Bruck tests with ninety-four serums (the Bruck tests being conducted with fresh active serums) yielded similar results with sixty-five serums, or about 70 per cent. All of the positive reactions with both tests occurred with the serums of persons manifesting the lesions of the secondary and tertiary stages of syphilis and undergoing treatment with arsphenamin (arsenobenzol of the Dermatologic Research Laboratories). With the serums of twenty-three persons, or about 25 per cent., the Wassermann tests were negative and the Bruck tests positive; eight of these serums were from persons regarded as nonsyphilitic and the balance (fifteen) from persons in the secondary and tertiary stages of syphilis undergoing vigorous treatment with arsphenamin and yielding positive

Wassermann reactions on admission to the clinic and prior to the time when Bruck tests were made. According to these results, therefore, the Bruck test was found to yield presumably about 8 per cent. falsely positive reactions; also that the property of syphilitic serum responsible for the Bruck test probably persists under treatment for a longer period than the reagin or Wassermann antibody. With the serum of six persons, or about 6 per cent., the Wassermann tests were positive and the Bruck tests regarded as negative; all of these serums were from persons presenting the lesions of the secondary and tertiary stages of syphilis on entering the clinic and undergoing active treatment with arsphenamin. The results of Bruck tests conducted with eighty-nine serums in the fresh active state and again after inactivation (heating) showed similar results in 85 per cent.; in 13 per cent. the reactions were positive with active and negative with inactive serum; all serums were from cases of secondary and tertiary syphilis undergoing treatment. It would appear, therefore, that active serum is better adapted for the Bruck test than inactivated serum.

103. Treatment of Syphilis at Camp Travis.—Routine treatment comprises comparatively intensive courses of arsphenamin (salvarsan) or its equivalent with mercury, the two drugs being used in conjunction. An arsphenamin (salvarsan) injection and mercurial treatment are given each week for ten weeks, after which the patient is given a complete therapeutic rest for five weeks. Then his physical examination and the Wassermann test are repeated; another course of treatment is then started, and so on until the Wassermann reaction becomes and stays negative. The arsenobenzol brand of arsphenamin has been the arsenical preparation most used. The gravity method of administration is used, dosage being determined at the rate of 0.1 gm. for each 30 pounds of body weight. About 400 cases of syphilis have been handled.

104. Castor Oil.—The main facts for a dermatologist to remember about castor oil, Montgomery says, are (1) its solubility in alcohol, and (2) the use of hot castor oil as a solvent for salicylic acid.

Journal of Nervous and Mental Disease, Lancaster, Pa.

August, 1918, **48**, No. 2

- 105 Pathology of Human and Experimental Poliomyelitis. H. S. Howe, New York.—p. 97. To be continued.
106 Familial Progressive Muscular Atrophy in Adults. A. S. Hamilton, Minneapolis.—p. 127.

Kansas Medical Journal, Topeka

August, 1918, **18**, No. 8

- 107 Responsibility of Profession Toward Disabled Soldier. G. C. Robinson, St. Louis.—p. 185.
108 Care and After-Treatment of Surgical Cases. J. A. Fulton, Kansas City, Kan.—p. 190.
109 Case Studies of One Hundred Inmates of Kansas State Industrial Farm for Women. S. L. Axford.—p. 193.

Laryngoscope, St. Louis

August, 1918, **28**, No. 8

- 110 Primary Principles of Technic of Plastic Surgery of Face. I. Frank, Chicago.—p. 565.
111 Operation for Bony Occlusion of Posterior Nares. L. E. White, Boston.—p. 571.
112 Radical Mastoid Operation; Indications, Technic and Results. J. M. Smith, New York.—p. 584.
113 Bacteriology of Tonsil Crypts. O. H. Maclay, Chicago.—p. 598.
114 Hypophysis Cerebri and Its Morphologic Influence. F. P. Lewis, Buffalo.—p. 60.
115 Medical Profession and Deaf. L. I. Morgenstern, New York.—p. 612.
116 *New Ear Test for Malingering. F. F. Teal, Lincoln, Neb.—p. 615.
117 Technic of Perineural Anesthesia for Radical Surgery of Maxillary Sinus. L. Gatewood, New York.—p. 616.

116. New Ear Test for Malingering.—In uncovering the dishonesty of "slackers" who claim to be deaf, Teal has used the following test for which he claims priority. The test is of service in unilateral catarrhal deafness only, but as this comprises the greater class of ear malingerers it is exceedingly useful. The person is blindfolded and in a friendly,

helpful manner, told that if he is really deaf there is no disposition to overlook it. But he is also warned that if he tries to show dishonesty in the test, he is sure to be "tripped up" and his veracity doubted. Air conduction is tested and of course is negative. The Weber test is then used and usually (though reluctantly) the man hears the fork in the deaf ear. Bone conduction over the mastoid is next tested and again he admits hearing the fork. He is then commended for his answers and assured that he answered as he should. The last and real test is now used. After stating that the last test (bone conduction) will be repeated a nonvibrating fork (or lead pencil, flat end) is placed over the mastoid to make the man think he is being tested in the same manner, but at the same time a vibrating fork is brought up close to the auricle with the other hand to test the air conduction. If he is simulating deafness he will answer that he hears the fork (under the impression that he hears the sound through the bone) and the fact of a normal path of air conduction is established. If he is really deaf, he will not hear the vibrating fork. Teal uses for this test a Hartman's "C" fork.

Medical Record, New York

August 24, 1918, **94**, No. 8

- 118 Relationship of Oral Sepsis to Systemic Disease, and Its Bearing on Treatment: Cases. H. B. Anderson, Toronto.—p. 311.
119 Surgery in Its Relation to Psychoses and Psychoneuroses. R. T. Morris, New York.—p. 315.
120 Drug Addiction and Its Treatment. J. Diner, New York.—p. 316.
121 Training of Physicians for Public Health Service. C. E. McCombs and E. H. Lewinski-Corwin, New York.—p. 319.
122 Psychic Element as Important Factor in Development and Treatment of Peptic Ulcer. J. Kaufmann, New York.—p. 324.
123 Hysteria vs. Neurasthenia. S. Block, Brooklyn.—p. 326.
124 Broadening Field of Mental Medicine. W. B. Cornell, New York.—p. 329.

Medicine and Surgery, St. Louis

May, 1918, **2**, No. 5

- 125 Recurring Tetanus. K. Speed, Chicago.—p. 499.
126 Surgical Treatment of Unilateral Renal Tuberculosis; Importance of Early Diagnosis. H. L. Kretschmer, Chicago.—p. 504.
127 Requirements of Successful Hemorrhoidectomy, and How They Are to Be Met. A. A. Landsman, New York.—p. 513.
128 Scope of Local Anesthesia. T. O. Burger, San Diego.—p. 518.
129 Orthopedic Diagnosis. J. K. Young, Philadelphia.—p. 524.
130 Fractures of Astragalus. J. A. Brooke, Philadelphia.—p. 530.
131 Two Cases of Fracture of Cervical Vertebra. E. G. Beck, Chicago.—p. 534.
132 Rectal Surgery Under Local Anesthesia. R. E. Farr, Minneapolis.—p. 540.

Nebraska State Medical Journal, Norfolk

August, 1918, **3**, No. 8

- 133 Surgical Successes and Failures. A. D. Dunn, Omaha.—p. 235.
134 Lymphatic Drain of Nose and Throat with Its Relation to Focal Infections. W. P. Wherry, Omaha.—p. 237.
135 Bone Surgery; Report of Cases. C. H. Brueer, Lincoln.—p. 242.
136 Pelvic Conditions Producing Bladder Symptoms. M. Emmert, Omaha.—p. 247.

New Jersey Medical Society Journal, Orange

August, 1918, **15**, No. 8

- 137 Is It Good Practice for Surgeon to Perform Visceral Exsections and Resections while Viscera Are Inflamed? P. A. Harris, Paterson.—p. 257.
138 Prostate Question. S. R. Woodruff, Bayonne.—p. 263.
139 Modern Aspects of Neurologic Surgery. H. G. Dunham, New York.—p. 268.

New York Medical Journal

August 24, 1918, **108**, No. 8

- 140 Nephritis. T. Howard, Brooklyn.—p. 313.
141 Rational Treatment of Chronic Nephritis. A. S. Blumgarten, New York.—p. 316.
142 Two Cases of Measles. J. R. Graham, New York.—p. 322.
143 Advantages of Home Treatment in Tuberculosis. I. E. Gluckman, New York.—p. 323.
144 Protein Treatment of Psoriasis. E. Van Ness Van Alstyne, New York.—p. 326.
145 Spanish Influenza. E. E. Cornwall, Brooklyn.—p. 330.
146 Statue of Edward Livingstone Trudeau. S. A. Knopf, New York.—p. 330.
147 Hospital Ship "Mercy." N. J. Blackwood.—p. 332.
148 Reeducation of Disabled Soldiers at Bombay. D. C. McMurtrie, New York.—p. 336.

Survey of Head Surgery, Washington, D. C.September, 1918, **1**, No. 2

- 149 Dark Field Study of Five Cases of Pseudomembranous Oral Infection Diagnosed Clinically as Vincent's Angina, at Base Hospital, Fort Dodge, Iowa. A. S. Brumbaugh, Camp Dodge, Iowa.—p. 45.
- 150 Case of Impacted Fourth Molar. H. H. Braxton, Camp Hancock, Ga.—p. 49.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine, LiverpoolJuly, 1918, **12**, No. 1

- 1 Cysts of Common Intestinal Protozoa of Man. J. R. Matthews.—p. 17.
- 2 Cysts of Entameba Histolytica and of Entameba Coli. A. M. Smith.—p. 27.
- 3 *Studies in Treatment of Malaria. Oral Administration of Quinin Sulphate Ninety Grains on Two Consecutive Days Only, in Simple Tertian Malaria. J. W. W. Stephens and others.—p. 71.
- 4 Strongylidae in Horses. W. Yorke and J. W. S. Macfie.—p. 79.
- 5 Id. W. Yorke and J. W. S. Macfie.—p. 91.
- 6 Polypneustic Lobes in Larvae of Tsetse-Flies (Glossina) and Forest Flies (Hippoboscidae). R. Newstead.—p. 93.

3. **Treatment of Malaria.**—In a series of eighty-nine cases treated by Stephens and his associates with quinin sulphate in solution, 90 grains (six doses of 15 grains each), on each of two consecutive days, at least eighty-four (94 per cent.) relapsed. A parasitic relapse occurred in twelve to fifty-three days, average eighteen days. In three cases there was no parasitic relapse within an observation period of sixty days. One patient was discharged on the twenty-seventh day, the second on the fortieth day. In sixty-four cases true febrile relapses occurred in thirteen to fifty-four days. Two cases relapsed parasitically on the sixteenth and thirty-ninth days; parasites were not found again and there was no febrile relapse up to the eighty-fifth and seventy-third days, respectively. A number of patients presented symptoms of quinin poisoning, for instance, deafness, giddiness, vomiting, tremors, dimness of vision. One patient became temporarily blind. In all cases unfavorable symptoms disappeared within two to three days.

Archives of Radiology and Electrotherapy, LondonJuly, 1918, **23**, No. 2

- 7 Treatment of Cases with Injury to Peripheral Nerves. N. H. M. Burke.—p. 34.

British Medical Journal, LondonAugust 3, 1918, **2**, No. 3005

- 8 Significance of Fats in Diet. E. H. Starling.—p. 105.
- 9 Treatment in Toxemias of Pregnancy. G. I. Strachan.—p. 108.
- 10 *Malaria and Diseases of Eye. J. Kirk.—p. 110.
- 11 Operation for Reconstruction of Urethra in Cases of Severe or Impermeable Stricture. J. Guthrie.—p. 111.
- 12 Influenza Epidemic in Camp. C. Averill, G. Young and J. Griffiths.—p. 111.

10. **Malaria and Diseases of Eye.**—Kirk urges that in military operations in tropical countries in all cases of chronic eye trouble latent errors of refraction should be looked for. Their correction will in many cases cure or alleviate greatly the condition even though the error may be a small one.

Lancet, LondonAugust 3, 1918, **2**, No. 4953

- 13 *Tuberculosis: Colony Treatment and After-Care. P. C. Varrier-Jones and G. S. Woodhead.—p. 133.
- 14 Colonies for Consumptives. N. D. Bardswell.—p. 137.
- 15 Rapid Cure of Hysterical Symptoms in Soldiers. A. F. Hurst and J. L. M. Symms.—p. 139.
- 16 Routine Use of Spinal Analgesia in Gynecology. N. M. Bey.—p. 141.
- 17 *Two New French Methods for Staining Blood Films and Blood Parasites. L. Tribondeau.—p. 142.
- 18 Isolation of Dysentery Bacilli from Feces. H. Whitehead and J. Kirkpatrick.—p. 143.

13. **Colony Treatment and After-Care of Tuberculosis.**—Directors of sanatoriums find that ex-soldier patients discharge themselves even before the end of the regulation three

months. The reasons for this are usually well founded. First, the temperament of the patient is such that he cannot accommodate himself to institution life. Second, patients sometimes discharge themselves owing to domestic or home difficulties. The authors suggest as a remedy: Let the patient, instructed in a trade which if not his own is closely allied to it, realize that while undergoing his treatment he is being trained for a better beith, a more highly remunerative job. It is the waste of time which the patient imagines is going on during his stage at the sanatorium to which he so strongly objects. Experience gained at the Bourn Colony and at Papworth Hall goes far to show that the mental attitude of the patient is materially improved by useful occupation, the nearer to his own trade the better, while it is found that with time and care, which assuredly are never wasted, there is no insuperable difficulty in grading any kind of work as may be desired.

The combination of sanatorium treatment (perhaps the term "colony treatment" is to be preferred) and industrial work is a step in the right direction. If, ask the authors, we can bring about the arrest of the disease while the patient is carrying on his own trade, have we not solved, partially at any rate, the problem which we set out to solve? On the colony estate at Papworth are at the present time families whose bread winners are consumptives, with tubercle bacilli in their sputum, who by means of the state subsidy—a pension—are carrying on their original trade under ideal conditions—happy, contented, and earning their own livings. A concrete proposition has been placed before these men, and they have not hesitated to grasp it and avail themselves of what is its best feature—the shielding of the patient from the keen competition of the outside world.

It has been hinted that the colony is admirably suited to the development of slackers—an idlers' paradise. A consumptive patient with numerous tubercle bacilli in the sputum can never be set down as a slacker. He is definitely diseased. There can be no question of malingering. The proof of the presence of the disease can be demonstrated. The oft-repeated mistake of accusing the consumptive of slackness is a sure road to disaster. With all the good will in the world he is unable to do a full day's work. It must not be expected of him. Once the presence of the bacillus is ascertained and the diagnosis established the greatest caution must be exercised in dealing with so-called slackness, for be it remembered that the consumptive is a strange psychologic phenomenon, and as a rule is ready to do more work than is good for him rather than too little. The patient far from slacking takes pride in showing how well he can do his work. The more advanced the disease—within, of course, well-defined limits—the more anxious is he to carry on. The exceptions, few in number, have to be dealt with specially.

17. **New Methods for Staining Blood Films and Blood Parasites.**—These two methods are related to the well known methods of Leishman and provide efficient substitutes for the secret processes of Giemsa and other German writers. Of the two methods, one (neutral solution of eosinate of methylene blue converted by ammonia) is more rapid in execution and gives more complete results, but it requires very pure and neutral distilled water. When good distilled water is not available this second method (neutral solution of eosinate of natural methylene blue and alkaline solution of eosinate of methylene blue converted by ammonia) is preferable to the first; it is less delicate. The method of preparation and use of these stains is described in detail.

Practitioner, LondonAugust, 1918, **101**, No. 2

- 19 Tooth Impacted in Secondary Bronchus of Left Lung; Removed by Lower Bronchoscopy. S. Thomson.—p. 61.
- 20 *Method of Reducing Dislocations of Shoulder Joint. P. Turner.—p. 75.
- 21 Problem of Dyspeptic Neurasthenic. E. L. Ash.—p. 77.
- 22 Prophylaxis of Fundamental Predisposing Influences of Neurasthenia Pura and Preneurasthenic State. S. H. Bennet.—p. 83.
- 23 Hysteria as Seen at Base Hospital. J. L. M. Symms.—p. 90.
- 24 Hysterical Paralysis of Long Standing. L. Scott.—p. 97.
- 25 *Diagnostic Significance of Hemoptysis. E. G. Glover.—p. 100.
- 26 Management of Epidemic of Diphtheria. F. H. Kelly.—p. 110.

20. Method of Reducing Dislocations of Shoulder Joint.—A number of cases, both recent and oldstanding (the longest interval between the injury and the treatment being twenty-four days) were treated by Turner by the following method: The patient is anesthetized lying on his back on an operating table or on a convenient couch. The surgeon now rolls up an ordinary washing towel and loops this round the inner side of the injured arm, just below the axillary folds, so that the free ends pass outward at right angles to the long axis of the body. The loop can equally well be made from a length of flannel bandage 3 inches in width. As soon as the patient is anesthetized an assistant grasps the forearm on the injured side and, without moving the arm from the patient's side, applies extension strongly in a direction parallel to the long axis of the patient's body. At the same time the anesthetist, whose hands are now free, makes counter extension by slipping his fingers into both of the patient's axillae, while the surgeon, grasping the free ends of the loop, pulls steadily in an outward direction. The extension, counter extension and external traction should be made simultaneously and steadily, as well as strongly, but without jerking. The head of the humerus enters the glenoid cavity at once with the characteristic click, and the arm is then bandaged to the patient's side.

Turner has tried this method in about twelve cases, recent and old, in which other methods had been tried, in some on two or three occasions without success, as well as in a few recent cases as the method of choice. In every case the dislocation has been reduced at once and without difficulty. All cases have been of the subcoracoid or the subclavicular varieties, but Turner sees no reason why the other less common varieties should not be reduced in the same way, provided that there is no fracture. The principle of the method is that the downward traction draws the head down to the level of the rent in the capsule, while the outward traction pulls it through the rent into the glenoid cavity. Its success, where other methods have failed, depends probably on the stronger and more direct outward traction to the upper part of the humerus.

25. Diagnostic Significance of Hemoptysis.—Briefly, the significance of hemoptysis, as Glover sees it, is as follows: While slight hemoptysis is one of the commonest forms of bleeding in pulmonary tuberculosis, nontuberculous hemoptysis is also most commonly slight. The number of slight nontuberculous hemoptyses is very large, and in any case, even when a tuberculous lesion is the cause of bleeding from the lung, rapid arrest often occurs. When the signs are as a whole of doubtful import, it is an open question whether a slight hemoptysis is indicative of active disease or not, or for that part of it whether it is indicative of tuberculosis at all. On the other hand, when a moderately large or a severe hemoptysis takes place and other gross causes are excluded, the probabilities are that the lesion is tuberculous and, in most instances, actively evolutive, the exceptions being cases of rapidly healing or abortive tuberculosis. This, however, cannot be ascertained without the employment of specific methods of investigation either by serum reactions or by the use of subcutaneous doses of tuberculin, and until some such methods of examination are adopted an open mind must be maintained. Hemoptysis does not contraindicate test injections but it is an indication for careful dosage.

Archives Médicales Belges, Paris

April, 1918, 71, No. 4

- 27 *Colibacillosis. F. Rathery.—p. 369.
- 28 *Icterohemorrhagic Spirochetosis. P. Nolf and J. Firket.—p. 380.
- 29 Eye Disturbances in Icterohemorrhagic Spirochetosis. L. Weekers and J. Firket.—p. 414.
- 30 After Amputation of the Arm. M. Stassen and G. Hendrix.—p. 418. F. Martin.—p. 428.
- 31 General Principles for Prostheses after Amputation. M. Stassen.—p. 443.

27. Colon Bacillus Septicemia.—Rathery reiterates that bacteriologic examination of the blood is the only means of differentiating colon bacillus septicemia from typhoid. In two of his five cases with positive findings the clinical picture was exactly like that of mild typhoid, with rapid convalescence. In other cases the septicemia resembled acute dysenteriform colitis in its manifestations, the attacks of

pain and diarrhea. In the third case pulmonary symptoms predominated but there were always some symptoms on the part of the digestive apparatus, and infectious sore throat. Still another type was presented by one man of 36 who developed febrile jaundice and suppuration in the gallbladder in the course of an echinococcus cyst in the liver. Other echinococcus cysts were found in the lung at necropsy. Picot and Michel found colon bacilli in forty among 460 war wounds examined, including one case of skull wound. In the majority, the wounds were on the legs. The colon bacillus was in pure culture only in four of the forty. Some of the wounds were soiled and others only slightly so. The presence of colon bacilli did not interfere with the primary suture of the wounds. Rathery found the colon bacillus in the blood only in the above five cases out of 1,863 men whose blood was examined for the purpose.

28. Icterohemorrhagic Spirochetosis.—Nolf and Firket review the experiences with 100 cases at the Hôpital Cabour in Belgium. Most of the cases developed during hot weather. The disease was very severe in about 10 per cent.; in some of these the hemorrhages were alarming. In others the nervous symptoms predominated, or extreme prostration was the main feature. The blood pressure in this latter group was lower than they had ever observed before in any disease with a favorable outcome. They recorded the blood pressure in all the men with this spirochetosis, and regard the extreme hypotony often noted as the cause of the anuria. Others ascribe this anuria to toxic kidney derangement, but Nolf and Firket were impressed, on the contrary, with the absence of signs indicating involvement of the kidneys. There was no visible hematuria in any instance, and scarcely any albumin or tube casts in the urine. But the low blood pressure entailed the anuria, and this demonstrates the necessity for giving the patient abundant fluids to drink. The physician must pay special attention to this, as with the extreme prostration and the tendency to vomit, the patient is liable not to get enough to drink. They ordered the nurses to give these patients 3 liters of fluid a day, half in the form of milk. This was supplemented with epinephrin to tide the men past the danger point. They gave to every patient with minimal blood pressure of 6 c.c. mercury, four, six or even eight doses in the twenty-four hours, each of 0.5 c.c. of the 1 per thousand solution. A few patients were unable to drink so much fluid, and they were given subcutaneous injections of an isotonic solution of glucose or an intravenous injection of a 10 or 30 per cent. solution of glucose. The effect seemed to be favorable. They warn that the finding of spirilla in the urine may be accidental contamination or it may be a question of saprophytes. The fever may return, but the jaundice does not accompany it, nor the severe pains and other symptoms of the original onset, and the fever lasts only four or five or seven days at farthest.

In conclusion they comment on the close analogy between this spirochetosis and yellow fever. These two diseases are of the same type, only that yellow fever is graver. The analogy becomes identity, they assert, when this spirochetosis is compared with "bilious typhoid" or "Griesinger's disease," another tropical disease. This too, like the spirochetosis, is not contagious; its small foci are always located close to the mouths of sewers, and it appears in the summer and disappears during the winter.

Bulletin de l'Académie de Médecine, Paris

July 9, 1918, 80, No. 27

- 32 *Agricultural Work for the Wounded. J. Bergonié.—p. 23.
- 33 Magnesium in Treatment of Cancer. J. Regnault.—p. 29.
- 34 *Hot Air in Treatment of the Gassed. J. Bandaline and J. de Poliakoff.—p. 30.
- 35 Gastritis and Dyspepsia. F. Ramond.—p. 32.
- 36 *To Measure Force of Jaws. P. Robin.—p. 33.

32. Substitution of Natural for Artificial Physiotherapy.—Bergonié laments that it has taken four years for even the most progressive physicians to become convinced that natural physical measures are incomparably superior to artificial measures in restoring approximately normal conditions in the wounded. Repeated muscular contraction, he reiterates, is the best form of deep massage of the tissues involved, and life

out of doors is the best all-around means for recuperation in general. All of this is realized by agricultural work, and he is applying it systematically more and more in treatment of the wounded, without waiting for complete healing. He pleads for hospitals in a farm environment to which the wounded can be sent after their operation, where wounds can be dressed and agricultural work imposed under medical surveillance. His three years' experience has convinced him more and more that work in the fields every day and all day long gives a functional activity superior both in quality and quantity to what can be realized with artificial physiotherapy, even leaving out of account the improvement in morale and hygiene of the out-of-doors life. He insists that the costly installations of mechanotherapy in the war hospitals have been an expensive blunder. It is time to admit this and turn to agricultural work, medically prescribed and under medical supervision, as superior to all other measures in treatment of the sequels of war wounds. Bergonié has been making a special study in the last few months of the present status of the wounded who had been treated with the natural or the artificial method of physiotherapy, and what he has found has aroused him to proclaim anew, with insistent emphasis, the superiority of the natural over the artificial method. At the Hôpital complémentaire 4, where it has been applied for a year, 93 per cent. of the 1,605 wounded were restored to the army, only thirty-six men being classed for limited service, and sixty-five men dismissed from all service, with thirty-eight stationary cases. He adds that the tangible results of 107,000 days of agricultural work form a useful by-product of the method.

34. Hot Air in Treatment of Burns from "Mustard Gas."—Bandaline has been much impressed in cases of severe burns with the prompt relief and promotion of healing that follow turning a jet of hot air on the lesion. He uses hot air at 150 or 180 C. under a pressure of 300 gm. It proved particularly effectual in treatment of the intense pain and insomnia from the burns caused by yperite—"mustard gas." In ten such cases the intense pains had persisted for three weeks or more, but under the hot air douches the lesions healed completely in three or four weeks.

36. Functional Disability of the Jaws.—In estimating the degree of disability after war wounds, Robin has found useful a device that he calls the buccal dynamometer. It records automatically the degree to which the mouth can be opened and the force left in the jaws. It thus enables appreciation of the amount of functional disability after a war wound of the jaws and reveals any attempt at simulation.

Paris Médical

June 15, 1918, **S**, No. 24

37 *Beriberi with Edema. P. Mauriac and D. Duclos.—p. 465.

38 *Malignant Slow Endocarditis. H. Roger.—p. 468.

39 *General Anesthesia by Sacro-Cocainization. G. le Filliatre.—p. 471.

40 *Clinical Rachi-Albuminimetry. L. Boyer.—p. 475.

41 Radicular Phrenic Neuralgia. J. Lévy-Valensi, Brian and Aboulker.—p. 476.

37. Beriberi with Edema.—In this communication is described a small epidemic of twenty-one cases of beriberi in native troops from the Senegal, serving in France. The main features were the edema, the disturbances on the part of the heart, and the mononucleosis in the blood. There was albuminuria in half the cases. The edema predominated in the legs and spared the face and scrotum, but pulmonary edema developed in some. Retention of chlorids seemed to be a factor, as the edema subsided on a salt-poor diet. The men at first complained of pains in legs and chest, but seemed to forget them by the next day, except in one case in which there seemed to be actual myalgia. All the men recovered except one. The diagnosis of beriberi is not very certain as there was no tendency to polyneuritis, dyspnea or vomiting.

38. Slow Endocarditis.—Roger reports two cases of malignant endocarditis with a protracted course. One patient was a Russian lawyer of 40, the other a man of 30 in the diplomatic service. Both had had acute articular rheumatism in youth. The only hope seems to be from autogenous vaccine therapy and serotherapy, and this should be tried in such

cases. The onset is insidious, and nothing on auscultation shows the development of the phase in the evolution of the old valvular lesion. The fever is the principal and often the only symptom; it is often remittent, but bed rest does not seem to reduce the temperature. The disease progresses in waves, and in the intervals the patient talks of returning to business. The waxy complexion is striking; it is quite different from the cyanosis of ordinary heart disease. Lassitude, emaciation and pains in the joints, inclined to be fleeting, but sometimes accompanied by swelling, are the chief complaints. The diagnosis of pulmonary tuberculosis is often erroneously made. Purpura is common, petechial spots rather than large ecchymoses, but the pathognomonic sign is the appearance of small erythematous nodules on the skin, about as large as a pea, painful, persisting for hours to two or three days, and occurring in groups of four or five. They appear mostly on fingers and toes, and are caused by minute emboli, scraps from the new vegetations forming in the endocardium. They are never found in other forms of heart disease.

39. General Anesthesia by Sacrococainization.—De Filliatre declares that more than 2,000 applications of the *barbotage* method of spinal anesthesia have confirmed the efficacy and harmlessness of the technic. With a single injection the entire spinal cord and its roots can be anesthetized. Cocain seems the best anesthetic for this technic. The needle is 12 or 15 cm. long; the syringe has a capacity of 3 c.c. and with it is used a graduated glass tube of 30 c.c. The needle is introduced into the sacrolumbar space at the first sacral vertebra. After removing the guide, the spinal fluid flows and is received in the graduated tube. Then the syringe containing the solution of cocain is attached and the piston is gently pushed in. Then it is allowed to slide back, having the patient cough if necessary. The piston is then pushed in again, and this maneuver is repeated three or four times. This *barbotage* terminated, the needle is withdrawn and the seated patient is made to recline. (The dictionary defines *barboter*, "to dabble, to paddle.") He draws 20 c.c. of the spinal fluid for anesthesia to the breast if the fluid drips, but takes 25 c.c. if it spurts. For anesthesia of the head, he draws 25 or 30 c.c. The amount of cocain for the subumbilical region is 2 c.c.; for the supra-umbilical region, 2.5 c.c. If the patient is very strong he goes up to 3 c.c. For the legs, 1 c.c. is enough. An assistant makes the patient breathe regularly twenty times a minute. During the operation and for two hours thereafter the patient's head is not moved. Another precaution is a subcutaneous injection of scopolamin morphin half an hour before the operation, with an injection of 3 mg. strychnin sulphate and of 5 cg. spartein sulphate. The eyes are then bandaged, and no one speaks during the operation.

40. Clinical Albuminimetry for Spinal Fluid.—The fluid is treated with a precipitating reagent, and is then compared with a scale of known strengths of albumin. The reagent advocated is a mixture of 13 gm. salicylic acid crystals and 15 c.c. of pure sulphuric acid. This mixture is heated gently, and set aside to cool as soon as fusion is complete. Then distilled water is added to bring it to 100 c.c. Then filter. The scale for comparison is a set of ten tubes containing human blood serum, starting with 1 c.c. and 74 c.c. of physiologic saline.

Presse Médicale, Paris

March 18, 1918, **26**, No. 16

42 *Resisting Power of Blood Corpuscles in Various Isotonic Salt Solutions. H. Chauffard and J. Huber.—p. 141.

43 *Periosteum in Formation of Bone. R. Leriche and A. Policard.—p. 143.

44 *Quinin in Capsules. P. Ravaut.—p. 146.

45 Tertiary Syphilis in Morocco. Lacapère.—p. 146.

46 American Theories of Shock. J. Luzoir.—p. 148.

47 Abuse of Milk in Children. J. Comby.—p. 150.

42. Resistance of Blood Corpuscles.—Ringer's fluid seems to be the best adapted for testing the fragility of the blood corpuscles in hemolytic conditions. The aim should be to test them as much as possible in their natural environment. Different isotonic saline solutions may vary in their ion content, and hence they cannot be considered as physiologic equivalents.

43. **The Periosteum.**—The experiences of Leriche and Policard demonstrate that with periosteum one can almost make bone at will, whatever the age of the subject. The corticalis of the bone produces the bone tissue, and the periosteum keeps it within proper bounds. The regeneration of bone requires the cooperation of the two. The periosteum, thus physiologically understood, represents the true manageable element of surgical osteogenesis. Some of the histophysiologic details of the regeneration of bone are shown in illustrations, confirming that the periosteum serves as a region of ossification, but only when there is some bone tissue present. In a subperiosteal resection, for instance, scraps or slices of the osseous tissue, the corticalis of the bone, must be left adherent to the periosteum. From the combination of the two, results a regeneration of bone which is under control at all times.

44. **Capsules for Quinin.**—Ravaut urges the use of capsules which pass through the stomach unmodified. By this means all disturbing influence on gastric digestion is avoided. The technic for making protecting capsules is not perfected; those he has been using crumbled in three months.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 6, 1918, 48, No. 27

48 *The Prematurely Born. M. Reber.—p. 897.

49 *Transfusion of Blood. C. A. Pettavel.—p. 906. Conclusion.

July 13, 1918, 48, No. 28

50 Industrial Insurance from Otolaryngologic Standpoint. F. Siebenmann.—p. 929.

51 Treatment of Little's Disease. H. Hössly.—p. 935.

52 Herpes Zoster of Nose and Face with Paralysis of Ocular Muscles. W. Löffler.—p. 942.

48. **The Prematurely Born.**—Reber's experience at the Basel Infant Asylum with 152 prematurely born infants has confirmed that such children must be given from 120 to 140 calories per kg. of body weight every day. It is possible for children to thrive even when they weighed only a little over 1,000 gm., that is, about 2 pounds and 4 ounces. The smallest surviving infant weighed 1,120 gm. at birth, and 1,010 gm. a few days later. The main difficulty is to get them to take the food. The smallest chest measure of any child that survived was 21 cm., and 26 cm. was the smallest circumference of the head. The prematurely born children of parents with tuberculosis or syphilis all died, and the children presenting protracted jaundice or attacks of asphyxia generally died. About 20 per cent. of all the prematurely born in his service were twins. The surviving prematurely born infants have nearly all developed into healthy children, with average weight and height for their years, and average hemoglobin percentage.

Incubators are not used now in the institution; the infants are kept warm with two or three hot water bottles in the bed, the head covered with a cotton padded hood, with careful and frequent control of the infant's temperature. The infant can be fed in this way without having to move it much. It is of vital importance not to let the child get chilled on its way from the residence to the institution. The drop in temperature after birth is exceptionally great in these infants. One child that survived had only 34.4 C. (94 F.) at one time, and normal temperature was not attained until after two weeks. Both the central and the peripheral regulations of the temperature seem to be defective. The evening rectal temperature was scarcely ever over 37 C. when the children were thriving. Even with children born at term, a rectal temperature over 37.2 C. (99 F.) he regards as pathologic. Only one died of the four prematurely born infants of women in eclampsia, and none of the four women with a heart defect.

He found buttermilk useful in the first weeks when the supply of breast milk was not adequate. A mixture of cow's milk and gruel to supplement the breast milk sent the weight up, probably from retention of water on account of the increased ingestion of salt. One of the larger of the prematurely born infants seemed to thrive perfectly on diluted cow's milk alone from the very first days.

49. **Transfusion of Blood.**—Pettavel describes the present status, technic and results of transfusion of blood, with the recent bibliography on the subject, including numerous articles

from THE JOURNAL. The principal indications for it, he says, besides anemia from severe hemorrhage, are in the hemorrhagic diatheses (hemophilia, hemorrhagic tendency in the newly born and hemorrhagic purpura), and in certain toxemias, such as poisoning with illuminating gas. To attempt transfusion of blood under other conditions is to bring discredit on it. We must not demand of it beyond what it is able to render.

Annali di Ostetricia e Ginecologia, Milan

January, 1917, 39, No. 1. Pub'd July, 1917

53 Spontaneous Healing of Ureter Fistulas after Gynecologic Operations. A. Gentile.—p. 1.

54 *Tuberculosis of Female Genital Organs. U. Tassoni.—p. 25.

54. **Tuberculosis of Female Genital Organs.**—Tassoni states that among the 948 patients in the Istituto Clinico Ostetrico-Ginecologica at Rome, in a recent three-year period, nine presented unmistakable tuberculous lesions in the genital organs. The tubes were involved in seven of the cases, while the ovaries and vagina were spared. In seven of the nine cases, hypoplasia of the genital organs had evidently afforded a predisposition, and in seven cases the lesions were secondary—usually to peritonitis. The interval between the primary lesion in pleura, lung or peritoneum was two, three, ten, twelve or fifteen years. The symptoms from the genital lesions were long vague and insidious. Five of the women had previously borne children. In one case there was concomitant gonorrhea, and in another, syphilis.

Clinica Chirurgica, Milan

Oct. 31, 1917, 25, No. 9-10

55 *War Wounds of the Skull. S. d'Este.—p. 225. Conclusion.

56 *Internal Hernia in Peritoneal Fossas. G. Bolognesi.—p. 250.

57 *Blood Cysts in the Neck. F. Nasseti.—p. 298.

55. **War Wounds of the Skull.**—D'Este's profusely illustrated article reviews his experience with 87 operative cases of war wounds of the skull. It teaches that exploration should never be neglected, even when the cranial wound seems insignificant. The skull in the region should always be exposed. A semicircular incision in the scalp gives the best flap for examination of the bone. He does not approve of craniotomy as the routine procedure, but only when it is called for. Then the traumatic area from scalp to brain must be cleared out, removing all loose splinters of bone and accumulations of blood, as well as all accessible projectiles. The splinters of bone, loose or still attached, are fitted into place in repairing the breach, fastening them if necessary with wire, silk or coarse catgut. He uses an extension frame, something like a photographer's head rest, which screws to the table and holds the head at the desired angle and height above the plane of the table. The brain was found to be injured in 36 of the total 87 cases, a simple contusion, inflammatory processes, or embedded splinters, but all the men recovered except six. In 4 men the brain lesion was found too serious for survival; in the other 2 complications were responsible for the fatality. The article is accompanied by a page long summary in French, in German and in English.

56. **Internal Hernia.**—Bolognesi refers to hernias in the hiatus of Winslow or the natural recesses in the peritoneum in the region of the duodenum, cecum, sigmoid flexure, etc. They are usually grouped as retroperitoneal hernias or Treitz' hernias. He has been studying these recesses on cadavers, and reviews the literature on clinical cases, giving thirty-five illustrations of the various types of these *fosslette peritoneali*. The symptoms may be merely slight digestive disturbance or acute or chronic obstruction of the bowel. About 50 per cent. of the duodenal cases proved fatal, but there are quite a number of successful operative cases on record, and about thirty successful cases of the cecal type. He reports a case from his own experience belonging to this latter group. The patient was a man of 46 with acute ileus; he had had similar attacks during the last five years, but very much milder and retrogressing under an enema. The operation revealed an internal hernia in the ileo-cecal recess of the peritoneum, with strangulation of the bowel. The stercoremia was so intense that the man succumbed within thirty-six hours.

Seven pages of bibliography are appended, classified for each of the five peritoneal recesses involved. Summaries of the article in three languages are also given.

57. Blood Cysts in the Neck.—Nasseti presents an illustrated description of two cases and reviews fifty from the literature. In twenty-one of the cases an operation was attempted; in five cases necropsy first explained conditions. The differential diagnosis is not an easy matter. The features which speak for a blood cyst are the congenital nature of the tumor, the location in the side, or middle and side of the neck (carotid and supraclavicular), the soft and fluctuating consistency, the extreme compressibility, the rapid and pronounced changes in size and tension during muscular effort, and the extraction with a needle cannula of normal or more or less altered venous blood. None of these features, however, are pathognomonic. Some of the persons were so little incommoded by the lesion that they bore it for ten or twenty years before applying to a physician. There are five deaths on record, but two of the fatalities were due to other causes.

In treatment, compression of the tumefaction reduced it completely in the case of one babe of 4 months. Evacuation of blood does no good; even when associated with compression it never induced complete obliteration of the cavity. In some cases, 5 gm. a day of a 1:5 iodine solution, injected into the cavity, was followed by a cure, the consecutive thrombosis leading to the filling up of the cavity with connective tissue, but complications render this method too dangerous. Woerner's patient died suddenly after the injection. Total enucleation of the cyst seems more rational treatment. This was applied in twenty-three cases, adults and children. Injury of the vein caused threatening hemorrhage in some of the cases. For this reason it seems advisable to ligate the afferent veins beforehand. Also the efferent veins to ward off gas embolism. Hueter had air embolism in one case, but without serious results. The ligatures need not be tied unless or until necessity arises. In cases with extensive adhesions, some have resected part of the cyst wall and painted what was left with phenol and alcohol, but total enucleation of the cyst ensures a complete and permanent cure. In Wolff's case the recurrence three years later was evidently due to the part of the cyst wall which had been left, as it had been adherent to a vein. This case confirms the advisability of resecting along with the cyst any adherent segment of vein.

Policlinico, Rome

July, 1918, **25**, Medical Section No. 7

- 58 Luetin in Diagnosis of Syphilis. F. De Napoli.—p. 193.
- 59 Fatal Hemorrhagic Jaundice. A. Bizzarri.—p. 206.
- 60 Pulmonary Tuberculosis with Bovine Bacilli in Woman. M. Pergola.—p. 216.

July, 1918, **25**, Surgical Section No. 7

- 61 Penetrating Wounds of Abdomen. G. Egidi.—p. 193.
- 62 *Changes in Lung after Ligation of Pulmonary Vessels. A. Avoni and P. Caliceti.—p. 207.
- 63 Successful Operative Treatment of Fistula in Track of Bullet Passing through Buttocks and Rectum. D. Taddei.—p. 219.

62. Ligation of Pulmonary Vessels in Treatment of Tuberculosis.—Avoni and Caliceti found that ligation of the branches of the pulmonary vein in rabbits entailed sclerosis in the corresponding territory. The ligation of these ramifications of the vein did not seem to be a serious procedure in the rabbits, but ligation of branches of the pulmonary artery always proved fatal from the grave lesions which developed in consequence in lung and pleura. They ranged from simple inflammatory processes and infarcts to abscesses and gangrene.

Riforma Medica, Naples

July 13, 1918, **34**, No. 28

- 64 Food Requirements. S. Baglioni.—p. 541.
- 65 Trauma and Tuberculosis. D. Giordano.—p. 543.
- 66 *Malaria Plasmodium in the Blood. G. Cavazzani.—p. 546.
- 67 *Diagnosis of Small Pleural Effusions. G. Tomasinelli.—p. 547.
- 68 *The Prevailing Febrile Epidemic. A. Montefusco.—p. 549.
- 69 Uterine Myomas. G. Cristalli.—p. 550.

66. Evolution of Malarial Plasmodium in the Blood.—Cavazzani relates experiences which seem to show that the

evolution of the *Plasmodium vivax* in the blood differs from the description in the textbooks. His research has apparently demonstrated that certain bodies which have been considered a special form of the parasite are in reality merely empty shells or sacs. It is possible that the action of the laws of gravity may be the explanation of the rising of these empty shells and the consequent clogging of the vessels in the brain, and resulting apoplectic attack, in the course of pernicious malaria. The blood examined was all derived from men with recurring tertian and the *Plasmodium vivax* in the blood. In fresh specimens treated with the May-Grünwald stain, the shape of the red corpuscles containing the blue colorations, although sometimes a little wider in diameter, was never longer axially but rather inclined to be irregular in outline. The outline was not like that of a sac filled to repletion but more like an empty sac. Some seemed to have burst from distension, but some of the contents still clung to the corpuscle, as flour still clings to an emptied flour bag. The blue stain was seen only at the edges, the center being free from it, confirming that the center was empty. Certain corpuscles stained with eosin showed bunches at one or more points around the edge; these apparent bunches proved to be in fact merely the impression from the sinking in of the outline between them, from the collapsing in the center.

In the fresh specimens, moreover, examined within five minutes, at a temperature of 25 C., he noted numerous bodies which resembled a chestnut bur, with every prickle motile to such a degree that the body not only moves about in the plasma but pushes obstacles out of its way, scattering the corpuscles right and left when it meets a group of reds. The diameter of these bodies is about half that of the large reds, and the color is a little more distinct than that of the reds. A curved, forking projection, about 2 microns long, imparts such velocity of movement that in a few seconds it traverses the microscopic field. In the dried specimen, the outline is smooth, the projections evidently shrinking during the desiccation. In one specimen this body seemed to have just escaped from a red corpuscle beside it, and it was making contractile movements, at least 100 a minute. There can be no doubt as to the identity of these bodies with the plasmodium, he exclaims, but they take the eosin stain. The blue stain in the red corpuscles seems to be merely the stain taken by the walls lining the passage of the parasite on its way through and out of the red corpuscle. The blue stain shows the effects, the track, of the parasite, but not the parasite itself. He refers to research by his brothers which demonstrated pores in the red corpuscles. These pores explain the ready penetration of the parasite in the bacteriform stage into the red corpuscle. If the pore where it entered happens to get obstructed, the blue stain does not get into the red corpuscle. Cavazzani is physician in chief of the malaria section of the Bergamo base hospital.

67. Small Pleural Effusions.—Tomasinelli declares that the only way to detect a small pleural effusion is by letting it accumulate at one point by the action of gravity—all effusions are mobile, he insists, unless adhesions prevent. The patient should lie supine and the posterior wall of the chest should be auscultated, palpated and percussed. This is inconvenient, but it is possible by having the patient's neck supported as he lies with the upper part of his trunk projecting beyond the bed. Effusions, even those of inflammatory origin, slide around readily for weeks.

68. The Prevailing Febrile Epidemic.—Montefusco describes the febrile epidemic that is sweeping over Italy, as it did over Spain, and declares that rigorous clinical observation and epidemiologic considerations dispel all doubt and confirm that the epidemic is the so-called three-day fever and not influenza. No influenza bacilli have been found in the cases in Italy. Influenza is a cold weather disease; it is accompanied by symptoms on the part of the respiratory organs, while these are exceptional in the present epidemic. The pains in the limbs are more of the "break-bone" type of three-day fever and dengue than of influenza. Epidemics of three-day fever have been reported at various points in recent years, one at Messina in June, 1910, attacked 6,000 civilians and 1,000 soldiers.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

January, 1918, 9, No. 1

- 70 Balantidiosis in São Paulo. T. Bayma.—p. 1.
71 Artificial Pneumothorax in Treatment of Pulmonary Tuberculosis. C. Ferreira.—p. 5. Commenced in Vol. 8, No. 12.—p. 269.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

June, 1918, 1, No. 6

- 72 Tests for Fermentation in Stools. F. F. Martinez.—p. 241.
73 Tardy Pains in Glandular Gastritis. A. L. Mingot.—p. 244.
74 Roentgen Diagnosis of Gastric Cancer. B. Barcelona.—p. 264.

Brazil-Medico, Rio de Janeiro

May 25, 1918, 32, No. 21

- 75 Flagellate Parasites of Brazilian Mammals. A. da Cunha.—p. 161.
76 *Antiscorpion Serotherapy. E. Villela.—p. 161.
77 *Nervous Symptoms from Eye Strain. C. de Rezende.—p. 162.

June 1, 1918, 32, No. 22

- 78 Cholecystitis with Liver Abscess. C. Fonte.—p. 169.

76. **Antiscorpion Serotherapy.**—Since Villela's first publication on this subject (summarized in THE JOURNAL, Feb. 9, 1918, p. 423), this serotherapy has been applied successfully in a number of cases. Most of them were mild, but two were quite serious, and he gives the clinical history in these cases. They are particularly instructive as rapid-recovery followed the serotherapy in the one case in which the antivenom was injected early. In the other case there was an interval of twenty hours, and the child, a little more than 2 years old, died three hours later. The other child, 10 years old, had been stung on the hand, forearm and in the sacral region. She began to vomit almost at once and incessantly, and felt very chilly, with extreme thirst and agitation, tachycardia, arrhythmia, and intense pain in the stung arm. In less than four hours the antiscorpion serum was injected in a dose of 6 c.c. in the arm and 2 c.c. in the thigh. The serotherapy had been preceded by three venesections. Improvement was soon manifest, but the vomiting kept up for several more hours. The next day, except for local tenderness, there were no further disturbances.

77. **Nervous Disturbances and Eye Strain.**—De Rezende comments on the widely diverse pains and other disturbances for which eye strain may be responsible. The connection between the headache or other pains or nervous disturbances with the defect in refraction causing the eye strain is almost invariably overlooked by the general practitioner, he says, in Brazil, at least. He cites literature which shows that this is not restricted to Brazil. Seven particularly instructive cases are reported. One woman had headache for four years, sometimes frontal and sometimes occipital, most frequent and tormenting during the months of extra work in her trade of making flowers. She wore spectacles, but when proper glasses were prescribed all symptoms disappeared. This patient was a woman of 44, and the headache came on during the day. The other patients were between 19 and 28, and the symptoms from eye strain included dizziness, morning vomiting or attacks of hysteria besides the severe headache, generally in the morning. One young woman said she felt as if there was something wrong inside her head and that insanity was impending, and she pressed her hands on the two parietal regions.

Cronica Medica, Lima

May, 1918, 35, No. 659

- 79 *Syphilitic Cerebral Arteritis. E. Odriozola.—p. 129.
80 *Anomalies in Pectoralis Muscle. J. C. Dianderas.—p. 134.
81 *Psychoanalysis in Neuroses and Psychoses. H. F. Delgado.—p. 140.

June, 1918, 35, No. 660

- 82 *Spirochetes in Lima Rats. R. E. Ribeyro.—p. 157.
83 Motor Aphasia. L. D. Espejo.—p. 159.
84 Section for Contracted Pelvis. J. A. Maldonado.—p. 162.
85 *Dubious Sex. M. E. Portugal and C. A. Bambaren.—p. 114.
86 *Acute Nephritis in Secondary Syphilis. L. N. Saenz.—p. 169.
87 The Lymphoid Apparatus. P. Arana and L. Rospigliosi.—p. 173.

79. **Syphilitic Hemiplegia.**—In Odriozola's case, the left hemiplegia is of cerebral origin and the signs of syphilis and alcoholism point to arteritis inducing some small thrombosis or hemorrhage. Such lesions are exceptionally rebellious to

treatment; specific treatment kept up for years seems to be the only recourse.

80. **Anomalies in Pectoralis Muscle.**—Dianderas gives an illustration of some anomalies found in both pectoralis muscles of the cadaver of a youth of about 16. If a surgeon had met them in operating he would have been misled.

81. **Psychoanalysis in Neuroses.**—Delgado discusses the interpretation of neuroses and functional psychoses by the light of psychoanalysis.

82. **Spirochetes in Rats at Lima.**—Ribeyro's research has demonstrated in rats, caught at different points in the city, the presence of the spirochete of hemorrhagic jaundice. They were found in two of the six adult rats, but none were detected in the eight young rats. The kidneys were the only organs examined. The spirochetes were found in the convoluted tubules; sometimes they were in such numbers that they obstructed the lumen. He urges that this infestation with spirochetes is another reason for redoubling the efforts to exterminate rats.

85. **Dubious Sex.**—The patient lived as a woman, but the genital organs were those of lateral hermaphroditism, with what looked like spermatic fluid and irregular menstrual discharge.

86. **Syphilitic Nephritis.**—Saenz remarks that the high albuminuria with acute nephritis in the secondary stage of syphilis does not necessarily imply a grave prognosis. From 5 to 25 gm. of albumin is common, and one case is on record with 110 gm. per liter, with recovery. The other symptoms are those of any nephritis. The prognosis can be estimated from the retention in the blood as with nephritis of other origin. If the retention of chlorids and the albuminuria persist unmodified by specific treatment, the outlook must be regarded as grave. As a rule, however, the acute nephritis subsides under specific treatment, but sometimes it becomes so severe that a fatal termination is inevitable, or the patient may succumb to an intercurrent lymphangitis or erysipelas.

Prensa Medica Argentina, Buenos Aires

June 10, 1918, 5, No. 1

- 88 Joint Lesions from Tardy Inherited Syphilis. M. R. Castex and R. Denis.—p. 1. To be continued.
89 *Round Ulcer in Esophagus. P. Escudero.—p. 7.
90 *Pulmonary Syphilis. P. M. Barlaro.—p. 8.
91 *Visceral Lesions with Ignored Syphilis. C. B. Udaondo and M. M. Casteigts.—p. 10.
92 Necessity for Coordination and Standardization of Institutions for Child Welfare Work. G. A. Alfaro.—p. 11.

June 20, 1918, 5, No. 2

- 93 Present Status of Gastro-Intestinal Derangement in Infants. F. de la Torre.—p. 17.
94 *Cirrhogenous Splenic Anemia. T. Castellano.—p. 20.
95 *Myiasis of the Palate. J. Hansen and S. Mazza.—p. 23.

89. **Round Ulcer of the Esophagus.**—Escudero's patient was a man of 56 with symptoms of cancer at the cardia gradually developing in the course of two years. Gastrostomy gave only transient relief, and roentgenoscopy located the stenosis in the lower esophagus and explained it as the cicatrix of an ulcer in the esophagus. Necropsy three years and a half after the first manifestations showed the typical scar of a gastric round ulcer in the lower esophagus, with a cancerous growth just below. With an esophageal ulcer, the progressive stenosis follows after the pains, while with a juxta-cardiac gastric ulcer, the painful dysphagia persists as long as the morbid picture continues. With an organic stenosis there is dysphagia for solid food first, and later for fluids; with cardiospasm the dysphagia occurs with liquids first and later with solid food.

90. **Pulmonary Syphilis.**—Barlaro gives the details of three cases which show the wide range of lesions in the lungs for which syphilis may be incriminated. One woman of 47 presented what seemed to be bronchopneumonia on one side and putrid bronchitis on the other, but the whole vanished in eight days, under mercury, as also in another case a bronchitis with much dyspnea which had been dragging along for six months.

91. **Visceral Lesions with Tertiary Syphilis.**—The man of 63 had had symptoms at times from the stomach and later

from the duodenum for nearly ten years. There were no known venereal antecedents. Considerable improvement followed an operation on the duodenal ulcer, but the man returned two months later with unmistakable tertiary meningitis which promptly subsided under mercurial treatment, as also a grave hepatitis which developed a few months later.

94. **Splenic Anemia.**—Castellano is unable to class the case he describes with any of the established types of splenic anemia. The young man's anemia was intense from the first; the spleen and liver became much enlarged with ascites. The necropsy findings in the spleen differed from those with Banti's disease, and treatment as for syphilis had been futile.

95. **Myiasis of the Palate.**—The young herdsman was accustomed to sleep with his mouth open during his siesta in the fields. He applied for relief from sore throat; a patch of gangrene in the center of the palate attracted attention, and this was flushed with an antiseptic. The fourth day from the first symptoms he expelled from his mouth a worm, the larva of a fly. The gangrenous patch was then excised and in a cavity behind it were found 265 larvae of the blue meat fly. The larvae measured from 15 to 18 mm. long by 3 mm. in diameter.

Progresos de la Clinica, Madrid

June, 1918, 6, No. 66

96 *Semen from Forensic Standpoint. A. Lecha-Marzo.—p. 249.

97 *Lesions of Tertiary Syphilis. V. Gimeno.—p. 281.

98 *Test for Gastric Acidity. E. de Salamanca.—p. 299.

96. **Spermatic Fluid from Medicolegal Standpoint.**—Lecha-Marzo reviews the extensive literature on the identification of human semen in spots on linen, etc., and also the literature on the various tests that have been proposed for differentiation. He gives the microscopic findings with the Florence iodine test and others, illustrating both the Florence roundish crystals and the Baecchi hexagonal crystals. The Florence test gives positive findings not only with semen from dogs, cats, horses and other animals, but also with egg yolk, juice of beans and of garlic and other substances, but the Baecchi crystals found with it seem to be specific for human semen. The Barberio test with a saturated aqueous solution of picric acid seems to be specific for spermatic fluid but Lecha-Marzo and De Dominici have reported positive findings with dog spermatic fluid. Lecha-Marzo's own test (published in 1913), is with a 10 per cent. solution of phosphomolybdic acid. A drop of the spermatic fluid or of the maceration of a stain is placed on a glass slide; this is covered with a cover glass, and between the two is passed a drop of the phosphomolybdic reagent. He usually moistens with distilled water the suspected stain, and after waiting a few minutes to an hour, he squeezes the fluid out on the slide. It can be made more concentrated by heating to evaporate some of the fluid. The reaction is not complete for several minutes. Then a microscope of 600 diameters shows numerous crystals. The most characteristic are hexagonal flat crystals, isolated or clumped. There may also be crystals resembling Barberio's crystals. The characteristic hexagonal and round crystals may show striation, and yellow bodies, resembling mulberries, may be seen in the microscopic field also. Some crystals are colorless, some yellow, some greenish. The hexagonal crystals resist the action of chloroform. Potassium hydroxid turns them blue, and new shapes of crystals appear. In conclusion, he reiterates that his test and the Florence and Barberio tests are specific for spermatic fluid, but further experience is necessary to determine beyond question whether they are specific for human spermatic fluid.

Biologic tests for spermatic fluid with prepared guinea-pig serum have given interesting results. Lecha-Marzo's own experiments suggest the possibility of distinguishing the spermatic fluid of a given person by anaphylaxis tests. He found that an anaphylactic shock followed when a guinea-pig, sensitized by intracardiac injection of blood from a certain person, was then injected with spermatic fluid from the same person. Similar positive results were observed also when the sensitizing injection was made with 0.25 c.c. spermatic fluid, followed by the injection of 1 c.c. blood from the same person. There was no sign of anaphylaxis, on the other hand,

when the blood and the spermatic fluid were derived from two different persons. The anaphylaxis test does not prove that the stain is from spermatic fluid, but that it is of human origin. His research offers the prospect that with the anaphylaxis method we may be able to distinguish between different individuals in this respect. As a rule, however, the precipitation method is the most reliable to date of the biologic tests. The article is accompanied with fifteen fine microscopic views, some colored.

97. **Tertiary Syphilitic Lesions.**—Gimeno contributes to the clinical iconography of acquired syphilis, among others, two colored plates of tertiary lesions. One shows ulcerating gummatous syphilids on the back, the other on cheek and lip.

98. **Test for Gastric Acidity.**—De Salamanca declares that heating to boiling renders the usual tests for acidity much more reliable, as he describes in detail.

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99 *Aerophagia. E. Piedrahita.—p. 461.

100 The Schooling of Abnormal Children. J. Bejarano.—p. 475.

101 *Amebic Dysentery; Toxicity of Emetin. R. Zapata.—p. 485.

102 Fracture of Skull. J. A. Escobar.—p. 492.

99. **Aerophagia.**—Piedrahita says that the repeated movements of swallowing, the belching of gases, followed by transient relief, and the gurgling sound heard on auscultation of the cardia, aid in revealing aerophagia as the cause of certain disturbances in the stomach, heart and air passages. If the eructation is done facing the flame of a candle, the flame does not waver as it does when fermentation gases are expelled. Three unusually inveterate cases are described, in men from 50 to 64 years old, whose incessant but unsuspected aerophagia had caused dilatation of the stomach with consequent displacement of other organs, with symptoms that had annoyed them for twenty years. The men were enlightened as to their unconscious swallowing of air as they swallowed their saliva, and were instructed how to avoid it. The most effectual means for this is to place a cork between the teeth for fifteen minutes at a time, especially after meals. With a cork between the teeth it is impossible to swallow, and the men soon conquered their aerophagia habit and with it subsided all their symptoms. Piedrahita says that this habit of swallowing air is often an actual tic, and it seems to be responsible for 10 to 15 per cent. of the cases of digestive disturbances encountered at Bogota. This dilatation of the stomach stretches its walls and smoothes out the folds which shelter the secreting glands, and, besides this, the pressure on surrounding organs may induce dyspnea, intracranial oppression and sensory phenomena, unconsciousness and dizziness. He advises carrying a cork in the pocket and putting it between the teeth when the impulse comes to swallow. If there is a tendency to hyperacidity, he supplements this with alkalines and sedatives to soothe the irritated glands in the stomach. By these means excessive production of saliva is prevented, which aids further in checking the swallowing of air.

101. **Amebiasis at Bogota.**—Zapata comments on the prevalence of amebiasis at Bogota, even in persons who have never lived at a lower altitude. The action of the ameba is by no means restricted to the production of dysentery. It may be responsible for various intestinal disturbances but the most common manifestation of its presence is a form of colitis. In one case of the kind an operation for hemorrhoids and an exploratory laparotomy were made, seeking to remove the cause of the bloody stools, the intense pain in the left iliac fossa and the diarrhea. Under emetin, all the symptoms subsided for five months; then they returned severer than ever, and the emetin was resumed supplemented with ipecac. The symptoms were much mitigated but did not completely subside, and the ipecac was given in larger doses, 2 gm. in 100 c.c. of water. After the second of these large doses the pulse ran up suddenly to 120 while the blood pressure dropped very low and there was paresis of all the muscles, especially those of the neck and of inspiration. The woman could not lift her head and swallowing was extremely difficult, compelling suspension of the treatment.

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SYMPOSIUM ON DISEASES DUE TO DEFICIENCIES IN NUTRITION*

THE "VITAMIN" HYPOTHESIS AND THE DISEASES REFERABLE TO FAULTY DIET†

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The studies of the past decade have revealed the fact that the adequate diet of the higher animals must contain protein of the type known as "complete," by which we mean a protein yielding all the amino-acids that are required in the nutrition of an animal. It must contain, in the form of suitable salts, at least nine of the inorganic elements, namely, calcium, magnesium, sodium, potassium, iron, chlorine, iodine, phosphorus and sulphur. The sulphur must be in organic combination in the form of the amino-acid cystine. The diet must supply a suitable quota of energy in the form of protein, carbohydrates and fats, and must, in addition, contain certain substances of unknown chemical nature, to which Funk gave the name "vitamins." There are still differences of opinion concerning the probable number of these substances.

There are two ways of attacking the solution of this problem. We may attempt to show that the several syndromes that are referable to faulty diet can be relieved by the administration of such preparations as make it certain that the relief is not brought about by any known and well recognized constituent of the diet. For each of the syndromes now usually spoken of as "deficiency" diseases, which can be conclusively demonstrated to be relieved by such a method, the existence of a substance of the class frequently designated as "vitamins" is demonstrated. Successful attempts in this direction have been limited to two syndromes. Beriberi, which is recognized as being due to the lack in the diet of a sufficient amount of a substance, which is an organic compound, and of which an animal requires only a very small amount, and more recently, a type of xerophthalmia which results from specific starvation for a substance that is especially abundant in the fats of milk and of egg yolk, but is found in all foods which contain cellular struc-

tures, whether these are of animal or vegetable origin. McCollum and Simmonds¹ first pointed out that this syndrome is analogous to polyneuritis in that there is an organic substance which is found widely distributed in natural foodstuffs which, when administered, causes a prompt relief of all the symptoms in animals that are moribund as the result of specific starvation for this substance. Efforts to demonstrate the existence of a specific substance which can relieve scurvy, a disease which is certainly brought about by faulty diet, have up to the present time proved unsuccessful. Although pellagra has been suspected by some as being one of the "deficiency" diseases in the same sense as beriberi, no evidence of a convincing nature has been brought forward in support of this view.

A second method of approaching the problem of determining the number of chemically unidentified substances which are present in the normal diet and are essential for the preservation of a state of physiologic well-being is through a study of diets simplified as far as possible, and containing only known chemical compounds. The early work in this field by Henriques and Hansen² was not sufficiently thorough to contribute much, and that of Hopkins³ did nothing more than demonstrate the necessity of having in the food of an animal some substance or substances other than the long recognized dietary essentials, protein, carbohydrate, fats and mineral salts. The announcement of the necessity of certain "accessory" food substances, by Hopkins, marked the beginning of a new era in nutrition studies.

Osborne and Mendel⁴ conducted an extensive experimental inquiry into the possibility of adequately nourishing an animal during growth on mixtures of carefully purified foodstuffs for the purpose of studying the relative biologic values of the numerous purified proteins that Osborne had isolated from vegetable sources. All their efforts were unsuccessful, and they ultimately adopted a basal food mixture containing a liberal amount of "protein free milk," a product containing all the constituents of milk other than the casein, lactalbumin and fat. To this was added carbohydrate, fat, the indigestible substance agar-agar, and the protein which it was desired to study. Diets of this character cannot be considered as containing only purified foodstuffs, and are not comparable with them.

McCollum and Davis⁵ made a systematic effort to find why animals do not thrive on diets consisting of proteins, carbohydrates, fats and inorganic salts. The

* This symposium includes the papers by E. V. McCollum; Alfred F. Hess; Joseph Goldberger, G. A. Wheeler and Edgar Sydenstricker; John R. Murlin, and Paul Roth—the first five papers in this issue.

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‡ Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. McCollum, E. V., and Simmonds, N.: Jour. Biol. Chem., 1917, 32, 181.

2. Henriques, V., and Hansen, J.: Ztschr. f. physiol. Chem., 1905, 43, 417.

3. Hopkins, F. G.: Jour. Physiol., 1906, 44, 425.

4. Osborne, T. B., and Mendel, L. B.: Bull. 156, Publications of the Carnegie Institution of Washington, Parts 1 and 2, 1911.

5. McCollum, E. V., and Davis, M.: Jour. Biol. Chem., 1915, 23, 231.

details of these studies cannot be described here,⁶ but the results led them to the belief that in addition to the above named substances the diet, to maintain health, must contain two chemically unidentified substances. These have been designated by McCollum and his co-workers as fat-soluble A and water-soluble B. The first of these is found abundantly in certain fats, as those of the egg yolk and milk; the second is never associated with any fats of either animal or vegetable origin. When the diet lacks the substance of fat-soluble A, animals develop a peculiar eye affection in which the tissues surrounding the orbit swell until the eyes cannot be opened. There is inflammation of the cornea, and blindness results within three or four weeks. The eyes resume the normal appearance after a period of feeding such foodstuffs as contain the dietary essential in question. What we term water-soluble B is the "curative" substance for polyneuritis, or beriberi.

According to the view of my co-workers and myself, these two syndromes constitute the only "deficiency" diseases in the sense in which Funk used this term. Scurvy and pellagra, while due to faulty diet, are apt to be explained in other ways than by a lack of specific complex in the diet.

SCURVY

Whatever I may say regarding the nature of the cause of scurvy need apply only to the disease as it is produced experimentally in the guinea-pig, for I have had no extensive opportunity to observe it in the human subject. There are certain well established facts regarding the causation of the disease in the guinea-pig that must be given careful consideration before one forms an opinion concerning the etiology of the syndrome. These will be briefly considered, but first a few words should be said about the character of the most simplified diets with which success has been attained in the nutrition of other species of animals. The animal with which most of the experimental work has been done with such diets is the rat.

It is possible with a diet consisting of carefully purified protein, starch, a suitably constituted inorganic salt mixture, a small amount of indigestible substance, such as agar-agar, together with a fat that contains the dietary essential fat-soluble A (for example, butter fat) and an extract, either by water or alcohol, of some natural foodstuff (such as wheat germ or yeast) to nourish young rats so as to induce practically a normal growth curve to about the full adult size. The extract must, therefore, contain the one or more unidentified dietary essentials not furnished by the butter fat. Either the butter fat or the extract alone in the diet is not sufficient. If the former is omitted, xerophthalmia will appear, and if the butter fat is included and the extract is omitted, polyneuritis will result. A problem of great interest is to determine whether this extract contains one or more than one indispensable substance. Since rats do not develop scurvy on such a diet, one of two assumptions must be accepted. Either the rat does not require a certain chemical complex, a hypothetical antiscorbutic substance which is necessary for the normal nutrition of certain other species, as man and the guinea-pig, both of which are susceptible to the disease, or the antiscorbutic substance, if there be one, is furnished by the extract in question. To say that all the experimental evidence,

which is now extensive, points to the conclusion that the chemical requirements of one species of the higher animals is the same as another is scarcely sufficient to dispose of this view.

My associates and I⁷ have thrown light on the problem as to whether such extracts contain but one or more than one indispensable dietary complex by our studies of the dietary properties of extracts of natural foods prepared in a somewhat elaborate manner. It was shown that navy beans can be thoroughly extracted with ether, then with benzene, and that neither the ether-soluble nor benzene-soluble material has the power to relieve polyneuritis in the rat, when the animals were caused to develop the disease by restricting them to a diet of purified foodstuffs plus fat-soluble A (butter fat). That the antineuritic substance (water-soluble B) was not destroyed by this treatment of the beans was shown by the fact that the extracted beans or an alcoholic extract of the same still caused prompt recovery of the animals, and resumption of growth when added to the diet. It was further observed that when the material which can be extracted by hot alcohol from beans previously extracted with both ether and benzene was spread over a large surface, by evaporating the alcohol on some finely divided substance, such as dextrin, and the latter then extracted with hot benzene, the benzene-soluble material was capable of inducing prompt recovery of animals suffering from polyneuritis, and of causing them to grow during several weeks. It cannot be argued that the "cure" was temporary in these experiments, for the animals were in a perfectly normal condition when the experiments were discontinued. It follows that, if in addition to the antineuritic substance the benzene extract of the alcohol-soluble material from beans likewise contained an antiscorbutic substance, these, as they exist in the bean, must have both been practically completely insoluble in ether and in benzene, for the extractions were conducted in a continuous extract or for a period of eighteen hours, and that both must have been soluble in hot alcohol, which solvent was likewise continuously applied for a like period. After being removed from the beans by means of hot alcohol, both must have been soluble in hot benzene. The probability that there should be two substances with such unlike physiologic properties, which should agree so completely in their solubility relations, is exceedingly small.

My associates and I⁶ have described feeding experiments with rats, in which a purified food mixture consisting of casein, starch (dextrinized), a salt mixture, and butter fat formed 75 per cent. of the food supply, and 25 per cent. of navy beans the remainder. The beans were soaked and heated in an autoclave at 15 pounds pressure for an hour and a quarter, dried and ground. The beans furnished the only source of chemically unidentified food substances other than fat-soluble A, which was supplied in the butter fat, and which, as has been stated, bears no relation to scurvy. On this diet young rats grow well and reach the full adult size. According to the commonly accepted views concerning the properties of the supposed antiscorbutic substance, it should be destroyed by such drastic treatment.

A very significant fact in connection with the production of scurvy in the guinea-pig is that the disease

6. McCollum, E. V.: The Supplementary Dietary Relationships Among our Natural Foodstuffs, THE JOURNAL A. M. A., May 12, 1917, pp. 1379-1386.

7. McCollum, E. V., and Simmonds, N.: Jour. Biol. Chem., 1918, 33, 55.

develops when the animals are confined to a diet of rolled oats and milk. This diet is highly satisfactory for the maintenance of health and the support of growth in those species of animals which we have observed (rat and swine) with the exception of the guinea-pig. There can be nothing lacking from a diet of oats and milk which is essential for the maintenance of growth and health in the swine and rat, yet the guinea-pig suffers malnutrition promptly when confined to this food supply. In fact, it has been shown by McCollum and Pitz⁸ that a number of diets which suffice for the nutrition of the rat are very unsatisfactory for the guinea-pig. The latter ordinarily thrive only on diets which contain a succulent vegetable, since its cecum becomes packed with feces on diets which are unsuited to its digestive tract. The cecum in this species is very large and delicate, and such a constipating diet as oats and milk causes malnutrition because of the physical properties of the feces which are formed from it, rather than because of a lack of any antiscorbutic substance.

McCollum and Pitz⁸ were able to cause the recovery of guinea-pigs which were near death, by the lubrication of their alimentary tracts by the administration of liquid petrolatum, and by the administration of suitable doses of phenolphthalein, which induced sufficient secretion of liquid into the tract to keep the contents of the cecum soft and capable of elimination. Relief and protection in this species were also afforded in several instances by the addition to the diet of an artificial orange juice, made up of such a salt mixture, sucrose and citric acid, as furnished these in about the proportions contained in the edible portion of the orange.

That the condition characterized by swollen joints, hemorrhages in the knees and elbows and gums was actually scurvy rests on the microscopic examinations of their animals by Jackson and Moore,⁹ who first described development of the disease by restricting guinea-pigs to an oat and milk diet, and on the diagnosis of the disease by Holst,¹⁰ in animals restricted to an oat diet.

Very important information relating to the etiology of scurvy is furnished by the observations of Hess¹¹ on human infants. I regard his discussion of the relation of heated milk to the causation of scurvy in infants as the best correlation of the clinical observations that has yet been made, since it harmonizes the conflicting views of various observers, and his conclusions are in harmony with the results of studies on animals fed on simplified diets. Briefly summarized, the data seem best explained as follows:

One of the factors in the pathogenesis of infantile scurvy is faulty diet. Pasteurized milk is a contributing cause when it is stale, and therefore, not in good bacteriologic condition. Aging of milk, with its development of an abnormal flora, is a more important factor in the production of scurvy than is heating, whether the heat treatment involves only pasteurization or heating to the boiling point. Boiled milk or milk pasteurized at from 140 to 145 F. is less liable to induce scurvy than is milk heated at 165. Boiling tends to destroy all the bacteria in milk. Heating to from 140 to 145 for thirty minutes fails to destroy all

the lactic acid forming organisms, and milk so heated will sour. The souring is a protective process, in that the development of acid holds in check the growth of putrefactive forms, which constitute the dangerous factor in stale heated milks. Milk that has been pasteurized at 165 will no longer sour unless reseeded with lactic acid bacteria after the pasteurization process. In clean, well regulated pasteurization plants this does not happen, but may occur in slovenly managed plants.

Holst¹⁰ believed that scurvy in the guinea-pig develops as the result of a lack of an antiscorbutic substance in the diet, and believed that this is so unstable that the ordinary drying of cabbage causes its destruction. He held that the oat kernel lacks this antiscorbutic substance. McCollum, Simmonds and Pitz¹² have shown that rolled oats can be supplemented with pure protein (gelatin), an inorganic salt mixture, and butter fat, so as to render it capable of satisfactorily nourishing young rats from weaning time to full adult size, growth taking place at the normal rate. Jackson and Moore⁹ have emphasized that butter fat has no tendency to protect the guinea-pig against scurvy, and this I have fully confirmed. It must follow that the oat kernel contains a satisfactory amount of antiscorbutic substance, provided the rat requires such a complex. The fact that the guinea-pig, when fed this diet of oats and purified food additions, rapidly fails necessitates the assumption that the guinea-pig requires a chemical complex not necessary for the normal nutrition of the rat, or the abandonment of the view that an antiscorbutic substance exists.

Hess¹¹ has also pointed out that one of the common symptoms of scurvy is oliguria, and that the mild therapeutic effect of citric acid may be ascribed to its diuretic properties. He likewise noted in infants the diuretic effects of orange juice. This is an important observation which should aid one in appreciating the fact that the organism may react with the development of profound pathologic states, such as constitute the most prominent features of scurvy, from causes other than a specific starvation for a hypothetical antiscorbutic substance. Injury to the mucosa of the digestive tract may be brought about through diets of faulty physical character, in such an animal as the guinea-pig, because of the peculiar disability of this species due to the unfortunate anatomy of its digestive apparatus. Stagnation of the contents of the cecum are followed by abnormal decompositions, and contact of the mucosa with these may be reasonably held to cause injury. It is not necessary to assume the invasion of the body by organisms as a factor in the causation of scurvy, although this may take place, as the studies of Jackson and Moore⁹ indicate. The absorption of abnormal decomposition products of proteins under these conditions may be chiefly responsible for the changes observed. The observation of Lewis¹³ that there is no increase in the excretion of phenol in guinea-pigs fed an oat diet can have but little bearing on the extent to which protein is undergoing fermentative decomposition in the digestive tract of the animal, since phenol production is limited by the yield of aromatic amino-acids by the proteins which are being putrefied. Longcope¹⁴ points out that the characteristic result of acute anaphylactic shock in guinea-pigs is the

8. McCollum, E. V., and Pitz, W.: *Jour. Biol. Chem.*, 1917, **31**, 229.

9. Jackson, Leila, and Moore, J. J.: *Jour. Infect. Dis.*, 1916, **19**, 478.

10. Holst, A., and Fröhlich, T.: *Ztschr. f. Hyg. u. Infektionskrankh.*, 1912, **72**, 1.

11. Hess, A. F.: *Infantile Scurvy*, *Am. Jour. Dis. Child.*, November, 1917, pp. 337-353.

12. McCollum, E. V.; Simmonds, N., and Pitz, W.: *Jour. Biol. Chem.*, 1917, **29**, 341.

13. Lewis, H. B., and Karr, W. G.: *Jour. Biol. Chem.*, 1917, **28**, 17.

14. Longcope, W. T.: *Harvey Lecture Series*, 1915-1916, p. 296.

appearance of hemorrhages. He further states that "undoubtedly infection is the most important factor in the cause of nephritis in man," a view that has gained wide acceptance within recent years.

Recovery from scurvy following a change of diet, or an improvement of the bacteriologic condition of the food, or following the administration of substances having diuretic properties, may be more satisfactorily explained in other ways than by the assumption that such changes in the dietary regimen produce their effects because of the introduction of a hypothetic antiscorbutic substance. It is necessary, henceforth, that those who discuss the etiology of scurvy should take into consideration the results of recent researches in nutrition with simplified diets. Whoever would seek to establish the validity of the theory of the existence of a specific antiscorbutic substance should first furnish new explanations for the experimental results that are not in harmony with the antiscorbutic theory, rather than present new experiments that harmonize with this most attractive hypothesis.

PELLAGRA

One of the greatest public health problems, a practical method for the prevention and treatment of pellagra, has been solved by Goldberger and his associates. There remains little room for doubt that faulty diet is the primary factor in the causation of the disease, and that the inclusion of an abundance of milk in the diet will prevent an attack, or cause recovery. It should be mentioned here that my co-workers and I⁶ have established the fact that it is not possible to secure diets derived solely from the seeds of plants, together with tubers and edible roots, which will adequately nourish either a young animal during growth, or long maintain health in the adult. Even mixtures of these foodstuffs together with liberal amounts of meat (round steak) fail to induce satisfactory nutrition in the growing young. There are, as is shown by their investigations, but two types of food mixtures which give very satisfactory results in the nutrition of experimental animals. These are: (1) combinations in which seeds, tubers, edible roots and meats are either singly or collectively combined with suitable amounts of the leafy portion of the plant, and (2) combinations of seeds, tubers, roots, meats and leaves, singly or collectively, with liberal amounts of milk.

The vegetable foods listed under 1 are, with the exception of leaves, all structures whose functions are those of storage organs. They consist principally of a reserve food package of proteins, starch, sugars, fats and mineral salts, but in the germ of the seed, and certain areas in the tuber and root, there are cellular structures which constitute actively metabolizing protoplasm. The leaf, aside from its skeletal tissues, is rich in cells, and a large part of it is active protoplasm. There goes with this difference in function between the leaf and the storage organs a corresponding difference in dietary properties. Seeds, tubers and roots, and probably likewise fruits, are deficient in three respects from the dietary standpoint. In all cases they are too poor in three inorganic elements, namely, calcium, sodium and chlorin; they do not contain a sufficient amount of fat-soluble A, and their proteins are of relatively low biologic value as compared with those of milk, meats and eggs. The leaf of the plant and milk are so constituted as to make good these

deficiencies, when they are included in the diet in sufficient amounts. It is for this reason that I have recently introduced the term *protective foods*, to designate milk and the leafy portion of the plant. Meats supplement seeds, tubers and roots with respect to protein, but not efficiently with respect to the other deficiencies. Eggs should be classed with milk in their special food properties, but are not so rich in calcium when the shell is discarded. From the studies of Goldberger, it has been found that the diets of the peoples in those districts in which pellagra is found is derived in great measure from seed products, tubers and meat, principally fat pork. For an experimental attempt to produce pellagra in man, Goldberger selected a diet consisting of bolted wheat flour, degerminated corn meal, polished rice, sugar, starch, syrup, pork fat, sweet potatoes, cabbage, collards, turnip greens and coffee. I have calculated that about 95 per cent. of the total dry matter of this diet was derived from the endosperm of seeds and pork fat. There was present entirely too small an amount of the leaf (the sole *protective food*) to correct the faults in the rest of the food mixture.

In order to determine whether there is lacking from this list of foodstuffs any chemically unidentified food essential analogous to fat-soluble A and water-soluble B, McCollum, Simmonds and Parsons have fed to rats the mixture in the proportions employed by Goldberger, and in a series of experimental animals the same diet was fed supplemented with single and multiple additions of carefully purified foodstuffs. It has been shown¹⁵ that it is possible to supplement this diet with known food principles, so as to make it sufficiently complete from the dietary standpoint to enable young rats to grow at a fairly good rate and to remain in a state of health. It seems necessary to conclude from this that the faults in such diets as are derived largely from seed products, tubers, molasses and fat meat, have essentially the same kinds of deficiencies as have seeds generally; but in diets in which the endosperm of the seeds predominates (polished rice, bolted wheat flour, degerminated corn meal) the deficiencies are much more pronounced than would be the case if the entire seeds were employed. Each of the more important cereal grains have been shown to require three kinds of additions to make them dietetically satisfactory.⁶ These are the inorganic elements calcium, sodium and chlorin, a protein, and fat-soluble A, the unidentified dietary essential which is most abundant in butter fat and the fats of the egg yolk.

Chittenden and Underhill¹⁶ have described in dogs what they believed to be a condition closely resembling pellagra in man, by restricting the animals for periods varying from two to eight months to a diet consisting of peas, crackers (equivalent to bolted flour) and cottonseed oil. They observed sloughing of the mucosa of the mouth, diarrhea, ulceration of the gastric mucosa, and skin lesions. They held the view that the cause was probably to be sought in the lack of some unidentified dietary essential of the class which Funk designated as "vitamins."

McCollum, Simmonds and Parsons¹⁷ have demonstrated that this diet can be supplemented with care-

15. McCollum, E. V.; Simmonds, N., and Parsons, H. T.: Unpublished data.

16. Chittenden, R. H., and Underhill, F. P.: Am. Jour. Physiol., 1917, **44**, 13.

17. McCollum, E. V.; Simmonds, N., and Parsons, H. T.: Jour. Biol. Chem., 1918, **33**, 411.

fully purified protein, the salts, calcium carbonate and sodium chlorid, and butter fat (fat-soluble A) so as to make it sufficiently complete to enable young rats to grow from weaning time to full adult size. This proves that there is no deficiency in this diet other than in the three now well recognized dietary factors. Rats that were brought to a moribund condition as the result of restricting them to a diet of peas, wheat flour and cottonseed oil showed at necropsy an apparently normal condition of the mucosa of the mouth and intestine. There was no diarrhea, and there were no skin lesions suggestive of pellagra in man. Partial loss of hair was observed.

Jobling and Petersen¹⁸ have made a very thorough study of the conditions in those parts of Nashville where pellagra occurs, and have reached the conclusion that the disease involves an infection, being especially prevalent in those districts where sewage disposal does not exist, and where flies have free access to human excreta, and the houses are unscreened. The Thompson-McFadden¹⁹ Commission likewise believe that the disease is caused by infection. The studies of Jobling and Petersen show that the diet of pellagrins is derived during the greater part of the year from seed products, tubers, molasses and fat meat. It is at the end of winter, after several months on a restricted diet of this character, that the new cases and recurrences of old cases occur. During the summer, when green vegetables are obtainable, and the milk supply is better than during the winter, recovery takes place.

It cannot be definitely stated at present whether man will react to the continued restriction to such diets as those described, with the appearance of the syndromes characteristic of pellagra, without the agency of an infection. The infection theory cannot be dismissed at the present time, but it seems certain that if pellagra is the result of infection, the latter is always superimposed on a certain degree of debility that results most frequently from the adherence for a considerable period to a diet of a faulty character. It seems practically demonstrated that the faults of the diets that lead to the appearance of the disease are not due to the absence of any unidentified dietary essentials, but rather to poor quality with respect to three of the well known dietary factors.

18. Jobling, J. W., and Petersen, W.: *Jour. Infect. Dis.*, 1916, **18**, 501.

19. Siler, J. F.; Garrison, P. E., and McNeal, W. J.: *Pellagra*, THE JOURNAL A. M. A., Jan. 3, 1914, pp. 8-12.

Whole Wheat Flour and a Balanced Diet.—Under these circumstances the plea for whole wheat flour in the American diet today fails of justification from this point of view. People should be allowed to select their roughage, whether in the form of fruits and vegetables, or in the form of whole grains. They should be allowed to select their mineral salts and vitamins in the same manner, and both are freely available. The legal distinction between food conservation and health propaganda must be kept in mind. It is argued in favor of whole wheat flour that its use might relieve or prevent constipation, rickets, scurvy, anemia and pellagra. But the function of a food administration is to secure and conserve food, not treat preexisting diseases in a compulsory manner, applied to the majority who are not afflicted, as well as to the minority who may be diseased but still possess the right to select their treatment. In each country at war diet fads are being pushed at the food administration, who must confine themselves to the specific functions defined by legislative authorization.—A. E. Taylor, "War Bread."

THE RÔLE OF ANTISCORBUTICS IN OUR DIETARY *

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From one standpoint our foodstuffs may be classified as essential and nonessential, according as to whether or not they are necessary for the maintenance of life and normal growth. Among the former group may be mentioned the proteins, inorganic salts, and the water-soluble and fat-soluble "vitamins" which recently have been the subject of so much discussion. In my opinion the essential group includes also a food factor that is a necessary component of the diet if we would be protected against the development of scurvy.

In view of the present lack of knowledge it would be fruitless to discuss the question of the exact nature of this food factor—whether it should be termed vitamin, whether it is indeed a food substance, or whether it should be regarded merely as an activator or catalyzer of the foodstuffs. What I wish rather to emphasize is that unless the diet of man includes food possessing this antiscorbutic property, scurvy will develop in due course of time. From this point of view, scurvy must be regarded as a deficiency disease. If, however, we would limit this term to diseases brought about by a deficiency of a definite chemical or biologic substance, then we are not at the present time warranted in thus classifying it. Nor is it necessarily true that scurvy is directly brought about by a lack of this accessory food factor. It is quite probable, as brought out elsewhere,¹ that the lack of this factor leads rather to the development of substances which in themselves occasion the symptoms of the disease.

I have introduced the subject from this angle as its entire relevancy depends on the question of whether there are or are not antiscorbutic foodstuffs. If the protective or curative value of such foods are, as McCollum and Pitz² have recently contended, merely dependent on their laxative properties, and interchangeable with laxatives, such as liquid petrolatum or phenolphthalein, then scurvy is in no sense whatsoever due to food deficiency, and has not a proper place in this symposium. Observations of many cases of infantile scurvy, however, have convinced us³ that constipation plays no essential rôle in this disease. In reviewing the many cases that we have seen we find that the infants were not constipated to a greater degree than normal babies, and that the disorder bore no parallel relationship to the activity of the bowels. Furthermore, as brought out in a recent paper,¹ potato, which is a sovereign remedy for scurvy, is not a laxative, and malt soup preparations, which most readily lead to this disorder, are rather laxative than constipating. To this evidence may be added a recent experience that infantile scurvy does not yield to treatment by liquid petrolatum, but that its symptoms are rapidly alleviated by small additions of orange juice to the dietary, so small as to be without apparent effect on the bowels. In this connection we may add an observation that will be referred to again in its relation to the therapy of this disorder, namely, that orange juice,

* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Hess, A. F.: *Infantile Scurvy*, *Am. Jour. Dis. Child.*, January, 1917, p. 98.

2. McCollum, E. V., and Pitz, W.: *Jour. Biol. Chem.*, 1917, **31**, 229.

3. Much of this work has been done in conjunction with Dr. Lester J. Unger.

boiled and rendered slightly alkaline, may be given intravenously with signal success; this procedure leads to no laxative action, and it is evident that its effect cannot be explained in this way. The nature of the antiscorbutic potency of orange juice remains as much an enigma today as ever. Recently we made use of "artificial orange juice,"⁴ prepared according to the formula of McCollum, who had found it of marked therapeutic value in the scurvy of guinea-pigs. After a trial of three weeks, however, it was found to be ineffective; on substitution of orange juice in the same dosage, the hemorrhage of the gums disappeared within a few days.

It will be of advantage to digress for a moment to say a few words concerning the relationship of the so-called guinea-pig scurvy to that of human beings.

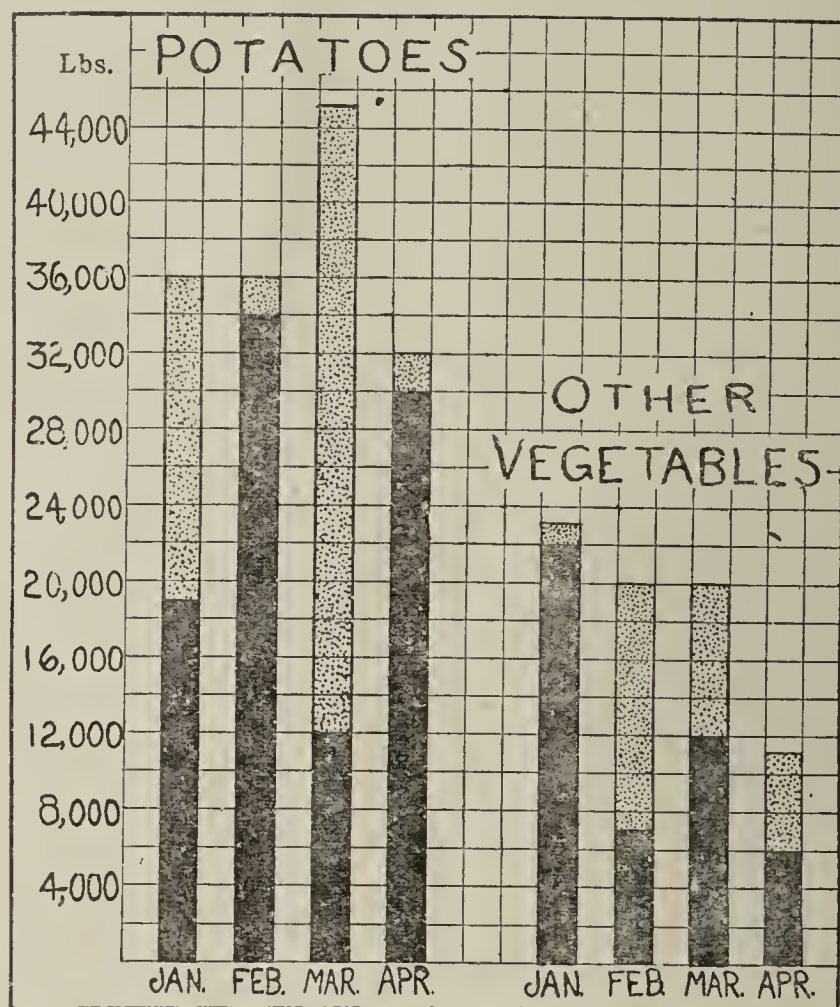
There is great danger of error in translating the results obtained on these animals directly into terms of the human disease. It would seem that much of the confusion of thought and difference of opinion at the present time as to the nature of scurvy is due to the fact that some are thinking of a disease which they have produced in animals, and others of scurvy as they have encountered it in man; furthermore, that some have brought about a disease in animals by means of one diet, whereas others have employed a diet of quite different nature. These divergences can be harmonized only by a study of the pathology of the disease. At present the diagnosis of scurvy in guinea-pigs, in most investigations, is based solely on clinical signs, uncontrolled by microscopic examination of the bones, in spite of the fact that there are osseous changes which are typical of this disease. The pitfall of omitting histologic examination may be judged when we

state that recently we have found that guinea-pigs fed on certain diet may manifest typical signs of scurvy and yet microscopic examination of the bones suggests that we are dealing with rickets and not with scurvy. It would seem as if many of the results of Jackson and Moore⁵ are to be interpreted in this way. Gerstenberger,⁶ in a recent article, suggested that some of the scurvy in guinea-pigs might be rickets or pseudoscurvy. At any rate, if we are to avoid great confusion, and a repetition of an error

similar to that which delayed for years the differentiation of congenital syphilis from rickets in human pathology, all reports of experimental scurvy should be controlled by careful pathologic examinations.

Every individual requires a certain amount of antiscorbutic substance in his dietary, or, to put this statement in a broader way, every nation has need for a per capita quota of foodstuffs containing this necessary food factor, if scurvy is to be avoided. How much of this type of food is required, in other words, what is the antiscorbutic minimum for the individual or for the nation, is just as little known as is the minimum requirement of other so-called vitamins. The margin of safety over our annual supply is certainly not very great, assuredly not as large as the excess of water-soluble vitamin, which is so abundantly distributed

throughout nature, and probably no greater than that of the fat-soluble vitamin, which McCollum has shown to be present to a considerable extent in milk, eggs and the leaves of plants. How scant is the margin of safety in some countries may be judged from the fact that in Ireland they are dependent for their health in this regard on the potato—when the crop fails, scurvy develops. That we in the United States are not entirely independent of the potato crop for our antiscorbutic supply was shown in 1916, when, as you remember, we had to depend on an exceptionally poor yield of the previous year. As a result of this potato deficiency, scurvy developed in numerous institutions in the spring; in one there were to my knowledge more than twenty deaths; in another, in which the amounts of vegetables, and more particularly of potatoes, received during the months of January, February and March were far below what were



A comparison between the requisitioned quantity (in thousand pound units) of potatoes and other vegetables, and the quantity received per month by an institution in which more than 200 cases of scurvy occurred at the beginning of April, 1916. The total height of column represents the amount needed and requisitioned; the solid black portion the amount received. The number of inmates in the institution remained approximately the same. The chart illustrates our great dependence on the potato during the winter months. This is due not only to its intrinsic antiscorbutic potency, but, probably quite as much, to the fact that fully twice as many pounds of potatoes are consumed during the winter as of all other vegetables combined. Therefore, according to present dietary habits, if this crop fails or is dehydrated (devitalized), scurvy will develop in the spring.

needed and requisitioned, as shown in the accompanying chart, scurvy broke forth in April and attacked more than 200 inmates. It may be added that when 200 cases of frank scurvy are diagnosed in an institution there are probably an equal number of latent cases which escape observation, for we must remember that it takes about six months of food deprivation for an individual to manifest scurvy.

Scurvy has not only a civil but also a most important military aspect. As is well known, it was at one time the scourge of armies. In de Joinville's account of the Crusade of Louis XI, we read of its attacking the troops in Palestine; in Lind's classic monograph on this disease, it is recorded that "when the Swedes car-

4. This artificial orange juice was prepared from pure inorganic salts, sucrose and crystalline citric acid in proportions similar to those found in the edible portion of the orange.

5. Jackson, Leila, and Moore, J. J.: Jour. Infect. Dis., 1916, **19**, 478.

6. Gerstenberger, H. J.: Am. Jour. Med. Sc., 1918, **155**, 253.

ried on a war against the Muscovites, almost all of the soldiers of their army were destroyed by the scurvy."⁷ But we do not need to retrace our steps so far to learn of the appearance of scurvy in the army. In the "Medical and Surgical History of the War of the Rebellion" we find the following statements:⁸

"A scorbutic tendency was developed at most of our military posts during the winter season, after the troops had been confined to the use of the ordinary ration with desiccated vegetables. The latter in the quantities failed to repress the disease. At posts which could be readily supplied with potatoes only the taint was manifested, on account of a want of liberality in the issues." And again: "Among the white troops during the five and one-sixth years covered by the statistics, 30,714 cases of scurvy were reported; and 383 deaths were attributed directly to that disease."

In the present war, Harvier⁹ has reported that he was surprised to find that among some 800 troops of which he had charge, at least 95 per cent. had scurvy in the spring of 1917, and that since then epidemic centers have been recognized outside of this sector.¹⁰

While I do not wish to overestimate the importance of this disorder, I do wish to lay stress on the fact that it is a disorder that must be considered both in civil and in military practice, and that unless we distinguish between those foodstuffs which possess and those which do not possess antiscorbutic value, scurvy will cease to be an exceptional disease. In this regard it may be of advantage to summarize some personal experiences with various antiscorbutics, a detailed account of which will be reported elsewhere. We have found that the bran and germ of the wheat seed and brewers' yeast—substances which are so effective in preventing beriberi—are of no value in warding off scurvy. Dehydrated vegetables retain but little of their antiscorbutic power. We have employed dried carrots in two cases of infantile scurvy, and have found it lacking in curative power. It will be remembered from the quotation cited above that such was the experience in the army in the Civil War. The vegetable which we tested had been heated to a temperature of only from 130 to 135 F. and was attractive in appearance and in flavor. However, "the accessory food factor" had evidently been destroyed. It was employed some weeks after drying, having been kept during the interval in paraffined bags. Feeding experiments with animals that were fed with dehydrated vegetables obtained from various sources led to the same result. We do not, by any means, wish to deprecate the use of dehydrated vegetables, for we appreciate their food value and the great advantage that they possess on account of their small bulk. However, I would emphasize the fact most strongly that they cannot be considered the food equivalent of fresh vegetables, and that unless they are given in conjunction with fresh vegetables, fresh fruit or other antiscorbutic, the dietary will induce scurvy. It is quite possible that improved methods of preparation, as regards the temperature or the state of moisture in

connection with the dehydration may make it possible to overcome this limitation.

The same defect that applies to dried vegetables seems to hold in regard to fruits. From personal experience, at least, I can state that prunes, which are used so extensively in the dietary of infants, possess practically no antiscorbutic power. In this connection I may add that the banana, which would be of great value in this respect, on account of its ready preservation throughout the winter, seems to be singularly poor in antiscorbutic power.

It is clear that there is a need, not only of an exact inventory of antiscorbutic foodstuffs, such as has been recently undertaken by the Lister Institute,¹¹ but of efforts directed to enlarge their number. Looking toward this end, I suggested a few years ago the use of the orange peel, instead of or in conjunction with the juice of the orange, in the dietary of infants who are not receiving fresh food. Since this time I have made use of an infusion of the peel¹² in a large infant asylum, and found it entirely satisfactory. I bring this forward as a suggestion for making use of a waste food product. At a time when oranges are so expensive, and the cost of food has become such a serious item, both for the individual and for institutions, it seems as if this suggestion may be welcomed by the housewife and baby welfare stations. Some arrangement seems possible whereby hotels would save these orange peels for this purpose. By this procedure we obtain about twice the quantity of antiscorbutic material from the orange.

In closing I wish to revert to a subject I mentioned in the early part of this paper, namely, that orange juice, boiled and slightly alkalinized with normal sodium hydroxid, constitutes an excellent antiscorbutic agent for intravenous use. It can be given in doses of 1 ounce without occasioning the slightest reaction. This measure is of interest from the standpoint of the pathogenesis of this disorder, and on account of its rapidity of action might be of therapeutic value in combating a large number of cases of scurvy in the advanced stage of the disease.

There are some who are of the opinion that scurvy is of bacterial origin, that it is indeed an infectious disease. This point of view was maintained by the famous Boerhaave and supported by Villemain in the seventeenth century; it is held by many of the physicians in Russia today, and has been emphasized in a recent study on experimental scurvy.⁵ To my mind, when an invasion of micro-organisms occurs it is to be regarded as secondary in nature and merely grafted on the nutritional disorder. I bring this aspect of the subject forward at this time to show the important relationship between nutrition and infection, and furthermore to illustrate by means of this example how simple foodstuffs are able to prevent and to cure a systemic infection. In the case of scurvy the fresh vegetables or fruits protect the tissues, not so much by increasing the immunity of the body fluids, but, as I shall show elsewhere, by rendering normal and impermeable the mucous membranes. This constitutes a most remarkable instance of the broad scope of dietetic therapy.

16 West Eighty-Sixth Street.

7. Lind, James: Treatise on the Scurvy, London, 1772, p. 178.

8. Medical and Surgical History of the War of the Rebellion, Washington, 1888, Part III, pp. 683-684.

9. Harvier, P.: *Paris méd.*, 1917, 7, 394.

10. Undoubtedly scurvy has increased recently both in the civil and military population of the warring countries. We read of a marked increase of this disorder in the Poor Law hospital in Glasgow (*Lancet*, London, 1917, 2, 21) as well as in the Poor Law infirmary of Newcastle (*Brit. Med. Jour.*, 1917, 2, 46). In both instances this increase is attributed to replacing potato in the dietary by bread. From Russia comes a report of the occurrence of 500 cases in Petrograd (Russk. Vrach, 1916, 15, 1216). During the spring of 1917, according to Ferrari, an outbreak associated with neuritis invalidated Italian troops on active service (*Gazz. d. osp.*, 1917, 38, 778).

11. Chick, T., and Hume, M.: *Tr. Soc. Trop. Med. and Hyg.*, 1917, 10, 141.

12. The orange peels are washed, grated, and added to twice their volume of boiling water. This is allowed to stand over night, then strained and is ready for use. Sugar is added when necessary to make it palatable.

A STUDY OF THE DIET OF NONPELLAGROUS AND OF PELLAGROUS HOUSEHOLDS

IN TEXTILE MILL COMMUNITIES IN SOUTH
CAROLINA IN 1916*

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AND

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In the spring of 1914, a series of investigations of pellagra was begun under the direction of the senior author which by the end of 1915 had yielded results that clearly showed the controlling influence of diet in both the prevention and the causation of the disease.¹ During the winter of 1915-1916 it was planned to supplement these in part epidemiologic but chiefly experimental investigations by a study of the relation of various factors (dietary, economic and sanitary) to the prevalence of pellagra in different types of communities. For various reasons it was decided to begin with a study of conditions in cotton mill villages, these representing one of the types in which pellagra was believed to be rather prevalent. In the present communication we present, in brief, some of the results of what we regard as an orientation study with respect to the relation of household diet to the incidence of pellagra. It is planned to present the full details in an official report of the work.

Seven villages in the northwestern part of South Carolina were the localities selected for study. None had more than 800 or fewer than 500 inhabitants. Of the households made up by this population only those of the white mill operatives were included in the study. The families of the mill officials, store managers and negro employees were not included.

PLAN OF STUDY

The investigation included two main divisions. One concerned itself with the determination of the prevalence of pellagra, the other with the collection of data relating to the family diet and income.

Prevalence of Pellagra.—For the study of the relation of household diet to pellagra it is of more than ordinary importance to secure as complete a record as possible of the prevalence of the disease. It was our opinion that reports of physicians, even with the fullest cooperation which we enjoyed, could not be depended on to give us a sufficiently full record, an opinion that subsequent experience has amply justified. Accordingly, to supply this fundamental need, a systematic search for cases by a house-to-house inspection was instituted (by G. A. W.) about the middle of April, 1916, and was continued every two weeks to the end of that year. So far as we are aware this is the first time that this expedient has been applied systematically and continuously over so long a period to the study of this disease. The confusing results of other workers in this field may

in considerable measure be attributed to their having placed their main reliance on the, for this purpose, much too incomplete pellagra morbidity records supplied by reports of practicing physicians supplemented at most by a single house-to-house canvass.²

Diagnosis.—Only patients with a clearly defined bilaterally symmetrical dermatitis were recorded as having pellagra. In the course of the canvass, cases with well marked subjective symptoms were observed, but in the absence of a clearly defined eruption were recorded simply as "suspects." We think it important to invite attention to this definition of what, for the purpose of this study, constituted pellagra. It is the conventional clinical definition, but we feel that by thus restricting it we failed to include some cases that very probably should have been included. Another reason for inviting attention to this definition is that we (J. G. and G. A. W.) have been increasingly impressed by the suspicion of the possibility, if not the probability, that, so defined, pellagra includes at least two commonly associated but etiologically essentially distinct though closely related syndromes, namely, (1) the syndrome that is comprehended by the phrase "pellagra sine pellagra," and (2) the dermatitis or pellagra without or with only slight subjective manifestations. According to this idea or, perhaps better, suspicion, both syndromes are dependent primarily on a faulty diet; the former is to be regarded as the expression of a nutritive or metabolic failure, not perhaps entirely specific in character, and the latter as a reaction to a toxic substance or substances of a fairly specific type. The chief basis for this suspicion is the fact many times observed by clinicians that, on the one hand, the syndrome without eruption frequently occurs and recurs and each season may persist for months without recognizable eruption; and, on the other hand, that the eruption frequently occurs without or with but slight subjective manifestations.

In relating the incidence of pellagra to dietary conditions, cases were considered without regard as to whether they were first or recurrent attacks, provided only that the individual affected was a member of the household or dietary group for a period of not less than thirty days prior to the beginning of the eruption, the date of the appearance of which was assumed to mark the onset of the attack.

Dietary Data.—Our data with respect to diet relate to households and do not indicate any difference that might have existed, and in all probability did exist, in the diets of the individual members. Under the conditions of the study it was impracticable to obtain records of the diet of individuals. It was assumed that, having a knowledge of the diet of a considerable number of households, the outstanding characteristics of the diet of groups of these would be suggested in a general way, at least, when classified according to the occurrence or nonoccurrence of pellagra, economic status or other basis.

Information with respect to diet was secured by arranging with the stores at which the families principally dealt, for a record to be kept for us of every purchase of food by mill workers and members of mill workers' households during a specified period.

* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Goldberger, Joseph: The Etiology of Pellagra, Pub. Health Rep., 1914, 29, 1683. Goldberger, Joseph; Waring, C. H., and Willets, D. G.: The Prevention of Pellagra, Pub. Health Rep., 1915, 30, 3117. Goldberger, Joseph, and Wheeler, G. A.: Experimental Pellagra in the Human Subject Brought About by a Restricted Diet, Pub. Health Rep., 1915, 30, 3336.

2. Siler, J. F.; Garrison, P. E., and MacNeal, W. J.: A Statistical Study of the Relation of Pellagra to Use of Certain Foods and to Location of Domicile in Six Selected Industrial Communities, Arch. Int. Med., September, 1914, pp. 292-373. Jobling, J. W., and Petersen, William: Epidemiology of Pellagra in Nashville, Tennessee, I, Jour. Infect. Dis., 1916, 18, 501-567; II, ibid., 1917, 21, 109-131.

Immediately at the close of the selected period, trained enumerators under the immediate direction and supervision of one of us (E. S.) were sent to the village to ascertain the composition of each household with respect to the age and sex of the individuals included during the period and to determine the quantity and value of the articles of food obtained from sources other than the stores where purchase records were secured.

In order that dietary data may properly be related to pellagra incidence, it is clearly necessary that they be representative of the season immediately anterior to or, at least, coincident with the incidence of the disease—the season, that is, when more than at any other time the diet, if it have any relation to the incidence of the disease, may be expected to be most distinctively pellagra-producing, just as it may reasonably be expected that the diet is most distinctively pellagra-preventing at the season immediately anterior to and coincident with the rapid decline in incidence and the rapid clinical improvement of active cases. Curiously enough, in no previous study, so far as we are aware, has this vitally important seasonal factor been considered, and we venture to suggest this as one of the important contributing elements in the failure of previous American workers to discover any definite, significant relationship between diet and the incident of pellagra.

With the seasonal curve of incidence of the disease in mind, it was assumed that a record of the diet for the season between April 15 and June 15 would comply with the above mentioned requirement. It being manifestly impracticable to secure a record of the complete food supply of each household for this entire season, it was necessary to restrict ourselves to a sample period for which an accurate record would be practicable and which would be fairly representative of the diet of the season. For these and other reasons a fifteen-day sample or cross-section period was selected. As it was not feasible, with the limited personnel available, to cover all seven villages in the same fifteen-day period, the record of the food supply was secured in successive sample periods for single and pairs of villages, all seven villages being covered during the season April 15 to June 16. In all we obtained records of the food supply of 798 households with an aggregate population of 4,399 individuals.

The data thus secured are not, it should be noted, records of consumption but, rather, records of household food supply for a fifteen-day sample period. Since, however, but few of the households purchased in quantities large enough to constitute a supply for more than a fifteen-day period, the data, for practical purposes, may be considered as records of consumption plus refuse and waste.

In the computation of these data, the supply of any article or group of articles of food obtained by a household or group of households has been expressed in quantity per adult male unit, the Atwater³ scale of food requirements for the sexes at different ages being used for this purpose.

In the analysis of our data, account is taken of several factors which might tend to obscure the results of comparisons between pellagrous and nonpellagrous households. Thus, some households for which we secured food records moved away soon

thereafter and so passed from observation. Such might appear to have been free from pellagra, though in reality one or more cases may conceivably have developed in some of them shortly after passing from observation. Again, by restricting the diagnosis of pellagra to cases presenting a definite eruption, the result was that cases with poorly defined eruption and cases clinically pellagra but without eruption were, as already stated, not included, so that some of the households appearing in our records as nonpellagrous should perhaps more correctly have been classed as pellagrous. Another factor tending in some measure to obscure the results of the comparison of groups arises from the fact that in a few of the households classed as pellagrous the pellagra occurred late in the year, at a considerable time after the "sample" period; in such it is manifestly possible that the diet records were not fairly representative of the conditions in the period immediately preceding the onset of the attack. Accordingly, in the following comparisons of nonpellagrous with pellagrous households with respect to the "sample" of the diet in the season between April 15 and June 16, there have been included only those "nonpellagrous" households which continued under observation from April 15 to at least Oct. 1, 1916, and in which no one with suspicious symptoms was observed, and only those "pellagrous" households in which one or more cases of pellagra with clearly defined bilaterally symmetrical dermatitis occurred before Aug. 1, 1916, that is, not too long after the sample of the diet was recorded.

COMPARISON OF HOUSEHOLD DIETS

We have studied the diets of various groups of the households for which data were secured, but within the limits of the present paper can consider only the most representative types. For this purpose we have prepared Table 1, in which is shown the approximate average daily supply of the various articles of food entering into the diets of four groups of households, of which two are nonpellagrous and two pellagrous. The diets of pellagrous households here presented are, so far as known, the first in the literature giving a detailed quantitative statement of supply for a sample period of the season immediately anterior to or coincident with the peak of seasonal incidence of the disease.

For the sake of simplicity the diets are distinguished as Diets 1, 2, 3, and 4, and the respective groups of households will be similarly referred to. Diets 1 and 2 are those of nonpellagrous, 3 and 4 of pellagrous households. Of the diets of the nonpellagrous groups, Diet 1 is that of households belonging to the highest income group of families (from \$14 to about \$20 per adult male unit per fifteen-day period), while Diet 2 is that of households belonging to the lowest income group (less than \$6 per adult male unit per fifteen-day period). Of the diets of the pellagrous groups, Diet 3 is that of households having one or more cases each, while Diet 4 is that of households with a minimum of two cases each. Economically, Group 3 is of the same low class as Group 2. Of the households comprising Group 4, fully three fourths are of the same economic class, and are included in Group 3. It follows, therefore, that economically Group 4 is very close both to Group 3 and to Group 2.

From the point of view of pellagra incidence as modified by the influence of economic status, Groups 1

3. Atwater, W. C.: Principles of Nutrition and Nutritive Value of Foods, Farmer's Bull. 142, Washington, D. C., 1915, p. 33.

and 4 may be considered as representing extreme contrasts, and accordingly Diets 1 and 4 may be expected to represent, and as will be seen, do represent, extreme types. The indications afforded by comparing them,

the pellagrous groups with 3,288 and 3,310 calories, respectively, are essentially identical in this regard, but clearly below that of either of the diets (1 and 2) of the nonpellagrous groups having 4,267 and 3,836 calories, respectively. As between the diets of the nonpellagrous groups, that of the group of poorer households (Group 2) appears to provide somewhat less energy than that of the group of households with highest income (Group 1). It is to be noted, however, that both of these as well as those of the pellagrous groups, even after making due allowance for waste, compare favorably with recognized standards, particularly so with the standard recommended by Chittenden.⁴ It would follow, therefore, that the fuel value of the diet cannot be considered as in itself an *essential* factor in relation to the incidence of pellagra.

Turning now to details (Table 2 and Chart 2), we find that the diets (3 and 4) of the pellagrous households resemble each other closely not only, as already pointed out, with respect to total fuel value, but also with respect to the calories furnished by each of the seven groups into which the foods enumerated in Table 1 have been combined. By comparing with Diet 1 we find that the lower fuel values of Diets 3 and 4 are due mainly to a deficiency in supply of three classes of foods, namely, (1) meats, milk, etc. (the animal protein foods); (2) green vegetables, and (3) sugar, syrup, etc.

Considering only the contrast between Diets 3 and 4 on the one hand and Diet 1 on the other, the interpretation would seem to be suggested that the freedom from pellagra enjoyed by the nonpellagrous households with Diet 1 was associated with a more liberal supply of some one or some combination of the foods in the groups in

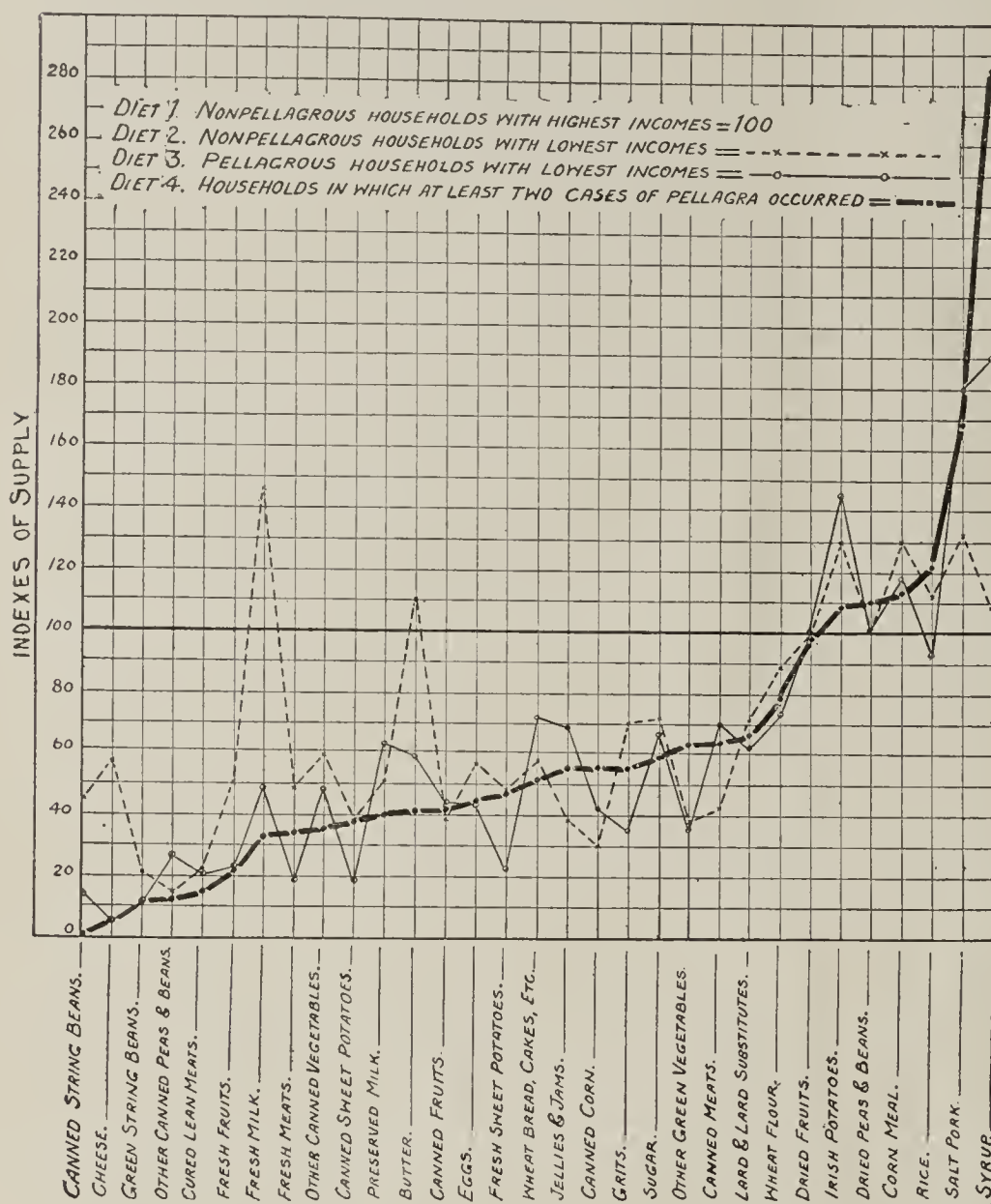


Chart 1.—Relative average daily supply of various articles of food of groups of nonpellagrous and of pellagrous households in seven cotton mill villages of South Carolina during a fifteen-day period between April 15 and June 16, 1916 (Table 1).

however, must, on account of the economic factor, be checked and interpreted in the light of the indications furnished by comparisons between Diet 2 on the one hand and Diet 3 or 4, or both of these, on the other.

An examination of Table 1 and the graph (Chart 1) based thereon at once makes evident similarities and differences between the diets. The indications afforded by this examination are obscured by the confusing effect of quantitatively apparently unimportant single articles, such as cheese, for instance, and by the substitution of increased quantities of one article in one diet for a related food in another as, for instance, the substitution of salt pork for lard, and of syrup for sugar. In order to minimize these obscuring and confusing factors, related foods were combined into groups and the fuel value of each such group used as a measure of its importance in relation to the corresponding groups in the other diets.

The resulting groups, the fuel value of each, and the total caloric value of the supply in each diet are shown in Table 2, and the relative importance of corresponding groups in the graph (Chart 2) based on this table.

Considering the diets, first of all, with respect to total fuel supply, we find that the diets (3 and 4) of

which the pellagrous households with Diets 3 and 4 are notably short. If, however, we examine Chart 2 further we find that the diet (Diet 2) of the group of nonpellagrous households of lowest income at once resembles closely Diets 3 and 4 of the groups of pellagrous households, and differs from the diet (Diet 1) of the nonpellagrous households of highest income in substantially the same degree as do Diets 3 and 4, with respect to the supply from all groups of foods but one. This one is

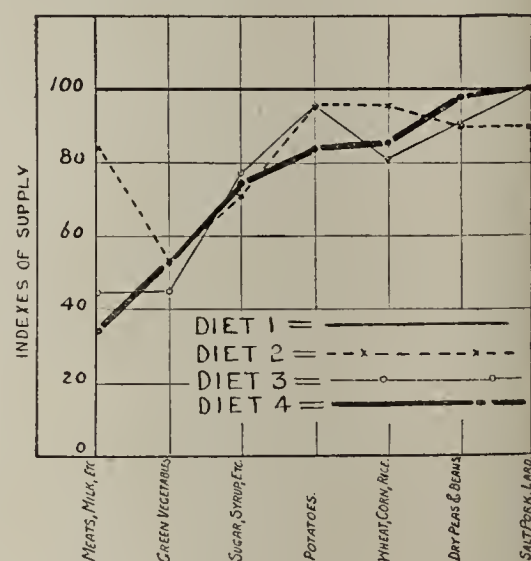


Chart 2.—Relative caloric value of groups of foods constituting the average daily supply of nonpellagrous and of pellagrous households in seven cotton mill villages of South Carolina during a fifteen-day period between April 15 and June 16, 1916 (Table 2).

4. Chittenden, cited by Lusk, Graham: The Elements of the Science of Nutrition, Ed. 3, Philadelphia, 1917, p. 347.

the group comprising the lean meats, milk, butter, cheese and eggs, the supply from which in Diet 2 is notably greater than in Diets 3 and 4 and but little short of that in Diet 1. Clearly, then, the freedom from pel-

TABLE 1.—APPROXIMATE AVERAGE DAILY SUPPLY OF VARIOUS ARTICLES OF FOOD OF SPECIFIED GROUPS OF NON-PELEAGROUS AND OF PELLAGROUS HOUSEHOLDS IN SEVEN COTTON MILL VILLAGES OF SOUTH CAROLINA DURING A FIFTEEN-DAY PERIOD BETWEEN APRIL 15 AND JUNE 16 1916

Articles of Food	Household Groups			
	Nonpellagrous		Pellagrous	
	With Highest Income† (Diet 1) Gm.	With Lowest Income‡ (Diet 2) Gm.	All with Lowest Income;§ with One or More Cases (Diet 3) Gm.	Majority with Lowest Income;¶ with Two or More Cases (Diet 4) Gm.
Fresh meats.....	48.9	19.9	9.4	16.3
Cured lean meats.....	54.0	11.8	11.1	8.1
Canned meats.....	25.1	10.6	17.5	15.7
Eggs.....	69.5	38.9	30.6	31.1
Fresh milk.....	379.3	554.0	187.2	126.9
Preserved milk.....	4.5	2.3	2.8	1.8
Butter.....	27.2	30.2	16.0	11.2
Cheese.....	3.6	2.0	0.2	0.2
Dried peas and beans.....	31.1	31.4	31.4	34.1
Canned peas and beans#.....	12.1	1.8	3.3	1.6
Wheat flour.....	445.4	398.6	323.1	351.5
Wheat bread, cakes and crackers	18.1	10.3	13.1	9.4
Corn meal.....	127.1	164.9	149.8	144.3
Grits.....	9.4	6.6	3.3	5.2
Canned corn.....	11.5	3.5	4.8	6.3
Rice.....	4.5	5.4	4.2	5.5
Salt pork.....	38.6	59.7	69.5	65.2
Lard and substitutes.....	52.8	37.1	32.0	34.7
Green string beans.....	31.7	6.6	3.5	3.4
Canned string beans.....	9.1	4.1	1.3	0.0
Other green vegetables.....	90.6	33.9	32.3	57.4
Other canned vegetables.....	56.2	32.9	27.8	19.9
Fresh fruits.....	42.3	21.1	9.7	10.1
Dried fruits.....	9.7	9.7	9.7	9.5
Canned fruits.....	37.4	14.5	16.6	15.7
Irish potatoes.....	48.9	63.7	71.0	53.1
Fresh sweet potatoes.....	7.9	3.9	1.7	3.9
Canned sweet potatoes.....	7.9	3.1	1.4	3.1
Sugar.....	55.6	38.6	37.1	32.0
Syrup.....	7.9	8.6	15.1	22.6
Jellies and jams.....	10.9	4.2	7.5	6.0
All other foods (cost in cents)....	1.7	1.5	1.2	0.9

† Households composed of 299.4 adult male units.
‡ Households composed of 750.7 adult male units. Data were available for the following number of adult male units for the articles of food specified: fresh milk, 713.1; green vegetables, 726.3; dried fruits, 726.6.
§ Households composed of 134.6 adult male units. Data were available for only 117.1 adult male units with respect to fresh milk and butter.
¶ Households composed of 117.5 adult male units.
Exclusive of canned string beans.

lagra of the households with Diet 2 is associated with a more liberal supply from this one group of foods. It would appear to follow, therefore, that the freedom from pellagra of the households of highest income (with Diet 1) can be considered as associated significantly only with the more liberal supply from the same source.

With the view of testing this clearly indicated association further, we have analyzed our data with respect to the relation of pellagra incidence to variation in the supply of single foods.

Fresh Meat.—In the study of the relation of meat supply to incidence, we found that of 196 households whose average daily supply of milk was so small as not notably to influence pellagra incidence, that is, less than 250 gm. per adult male unit, 126 had a supply of fresh meat averaging in each less than 30 gm. per adult male unit per day, and of these, twenty-five, or 19.8 per cent., had one or more cases of pellagra; whereas of seventy that had a supply of fresh meat averaging in each over 30 gm. per adult male

unit per day, only four, or 5.7 per cent., were pellagrous.

Milk.—With respect to fresh milk we found that of 368 households whose supply of fresh meat was minimal, that is, with an average of less than 30 gm. per adult male unit per day, 207 had a daily supply of fresh milk averaging less than 500 gm. per adult male unit per day, and of these, thirty-four, or 16.4 per cent., had one or more cases of pellagra; while of the remaining 161 having a daily supply of fresh milk averaging over 500 gm. per adult male unit, eight, or only 5 per cent., were pellagrous. The association of a markedly lower incidence with a liberal milk supply is indicated in another way. Of 127 households owning cows which supplied milk during the three months preceding the date of the canvass in the spring of 1916, two, or 1.6 per cent., were pellagrous; whereas of 451 not owning such cow, forty-seven, or 10.4 per cent., had one or more cases of pellagra. Even when due allowance is made for the possible influence of fresh meat or other possibly preventive food in the diet of the cow-owning families, the relative freedom from pellagra of such families is nevertheless very striking and significant. Its significance is enhanced when we note that in the group of no-cow-owning families, some enjoyed a liberal supply of milk by purchase from cow-owning families or other dairy.

TABLE 2.—APPROXIMATE CALORIC VALUE OF VARIOUS GROUPS OF FOODS* CONSTITUTING THE AVERAGE DAILY SUPPLY OF SPECIFIED GROUPS OF NONPELLAGROUS AND OF PELLAGROUS HOUSEHOLDS IN SEVEN COTTON MILL VILLAGES OF SOUTH CAROLINA DURING A FIFTEEN-DAY PERIOD BETWEEN APRIL 15 AND JUNE 16, 1916

Groups of Foods	Nonpellagrous Households		Pellagrous Households	
	With Highest Income (Diet 1) Calories†	With Lowest Income (Diet 2) Calories†	All with Lowest Income; with One or More Cases (Diet 3) Calories†	Majority with Lowest Income; with Two or More Cases (Diet 4) Calories†
Meats (exclusive of salt pork), eggs, milk, butter, cheese.....	762	639	338	270
Dried and canned peas and beans (exclusive of canned string beans)	126	113	115	123
Wheaten flour, bread, cakes and crackers, cornmeal, grits, canned corn, rice.....	2,162	2,082	1,752	1,810
Salt pork, lard and lard substitutes	741	673	748	745
Green and canned vegetables (exclusive of canned corn), green and canned string beans, fruits of all kinds....	131	71	60	60
Irish and sweet potatoes.....	55	53	53	46
Sugar, syrup, jellies and jams	240	205	222	217
All foods	4,267	3,836	3,288	3,310

* Foods as purchased less nonedible portion. No deduction has been made for waste of edible portion. The computation of edible portion and the caloric value thereof is according to analyses published in Bulletin 28 (Revised Edition), U. S. Department of Agriculture (Atwater and Bryant: The Chemical Composition of American Food Materials). Because of the form in which it was necessary to obtain the data, the compilations are approximately correct, not absolutely exact.
† Calories per adult male unit.

It may here be recalled that Siler, Garrison and MacNeal,² as a result of their studies, concluded that the daily use of milk seemed to diminish to some extent the danger of contracting pellagra. When, however, one examines the data on which they base this conclusion, it quickly becomes apparent that in reality no conclusion was permissible or, at best (see their

Tables 82 to 88), the paradoxical conclusion that it is the use of milk "rarely" as well as "daily" but not "habitually" that diminishes the danger of contracting pellagra.

Our data did not permit of satisfactory study of the other foods, butter, cheese and eggs, of the same group. We hope that the larger mass of data collected in 1917 will prove to be more suitable for such analysis. It should be noted, however, that the indications afforded by the analysis presented with respect to fresh milk should be regarded as, in a general way, also representative of butter, fresh milk appearing in the diet of these people in the form, for the most part, of home-churned buttermilk and butter.

Dried Peas and Beans.—Analyses of the relation of pellagra incidence to the use of a number of other foods were made by us, but we shall at this time refer only to those in relation to dried peas and beans. Analysis of our data with respect to this group showed no significant variation in incidence with variation in supply, a fact which is clearly suggested in Table 2 and Figure 2. The present study fails to confirm, therefore, deductions from epidemiologic observations made by the senior author about four years ago with respect to the apparently important preventive value of the common varieties of dried peas and beans (cowpea, white bean, pink bean, lima bean). It is important to note, however, that in the light of various recent studies (Daniels and Nichols,⁵ Daniels and Loughlin,⁶ McCollum⁷ and Osborne and Mendel⁸), this does not necessarily apply to other species, and probably still less to the immature or green stage, that is, to the green string beans. Indeed, our observations tend to indicate that the green string bean plays a rôle distinctly different from (probably diametrically opposite to) that of the mature bean in relation to the prevalence of pellagra. On this point, however, we hope to be able to present at a later date the more definite results of a continuation study now nearing completion.

DIETARY FACTORS

Calories.—Thus far we have considered the diets of nonpellagrous and of pellagrous households from the point of view, chiefly, of discovering possibly significant differences of a general character. It will be of interest now to consider briefly the more intimate make-up of these diets. Attention has already been called to their calorific value, which was found to compare favorably with recognized standards.

Protein.—Turning to protein, we find that Diet 1 supplies approximately 126 gm.; Diet 2, 105 gm.; Diet 3, 84 gm., and Diet 4, 85 gm. From this we see that the protein supply of the two groups of pellagrous households (Groups 3 and 4) is identical and also considerably smaller than that of the groups of nonpellagrous households, particularly of the households of highest income (Group 1). As with the fuel value of the diets, the supply of protein (even after deducting for waste) conforms fairly well to recognized standards.⁹ This would suggest the interpretation that

the total protein supply is in itself not an *essential* factor in relation to the prevalence of pellagra.

In view of the importance of the biologic quality of the protein, we have examined the sources of the protein supply of each of the diets here considered and find that in Diet 1, approximately 40 per cent. is derived from animal foods; in Diet 2, approximately 33 per cent.; in Diet 3, approximately 28 per cent., and in Diet 4, approximately 25 per cent. On the other hand, Diet 1 derived approximately 57 per cent. of its protein from cereals (wheat, corn and rice) and the common (including the canned) dried peas and beans; Diet 2, approximately 64 per cent.; Diet 3, approximately 68 per cent., and Diet 4, approximately 71 per cent. In other words, the protein supply of the nonpellagrous households tends to include, on the one hand, a larger proportion derived from animal foods, and on the other, a somewhat smaller proportion from cereals and dried legumes than does the protein supply of pellagrous households. With the work of Osborne and Mendel¹⁰ and especially the recent work of McCollum⁷ and his associates in mind, these facts would suggest that the protein mixture in the diets of the nonpellagrous households is likely to be of a somewhat better character than that in the diets of the pellagrous groups.

Carbohydrate and Fat.—With respect to the carbohydrates and fats considered together, the supply of these constituents, as measured by total calories from these sources, is identical in the diets of the pellagrous households but smaller in these than in those of the nonpellagrous. The proportion of total calories in the respective diets derived from these constituents is, however, essentially identical for all here considered. It is of interest to note further that the supply of carbohydrate, apart from fat, is somewhat smaller in the diets of the pellagrous than in those of the nonpellagrous households. This does not seem to support the suggestion made by Deeks¹¹ that the production of pellagra is dependent on the excessive consumption of carbohydrates.

With respect to the source of the fat supply, it is of interest and importance to note that, as might have been anticipated from what has gone before, both nonpellagrous groups enjoy a larger supply from such sources as milk and butter than do the pellagrous households.

Vitamins.—A study of Table 1 discloses the fact that with respect to recognized sources of the fat-soluble vitamin, the pellagrous households tend to be at a distinct disadvantage as compared with the nonpellagrous. This disadvantage is especially marked with respect to such sources as milk and butter. It follows, therefore, that the diet of the nonpellagrous includes decidedly more of the essential, fat-soluble vitamin (or vitamins?) than does that of the pellagrous.

As in the case of the fat-soluble, so with the water-soluble vitamin (or vitamins?), we can estimate the relative supply of this factor in the different diets only as these include a smaller or larger supply of the foods known to be rich in this constituent. Judging in this manner, the indications afforded by Table 1 are that the pellagrous have a somewhat smaller supply of this

5. Daniels, A. L., and Nichols, M. B.: The Nutritive Value of the Soy Bean, *Jour. Biol. Chem.*, 1917, **32**, 91-102.

6. Daniels, A. L., and Loughlin, R.: Feeding Experiments with Peanuts, *Jour. Biol. Chem.*, 1918, **33**, 295-301.

7. McCollum, E. V.: The Supplementary Dietary Relationships Among Our Natural Foodstuffs, *THE JOURNAL A. M. A.*, May 12, 1917, pp. 1379-1386.

8. Osborne and Mendel: The Soy Bean as Food, *Jour. Biol. Chem.*, 1917, **32**, 369-376.

9. Lusk, Graham: The Elements of the Science of Nutrition, Ed. 3, Philadelphia, 1917, p. 345.

10. Mendel, L. B.: Nutrition and Growth, *THE JOURNAL A. M. A.*, May 8, 1915, pp. 1539-1547.

11. Deeks, W. E.: Pellagra in the Canal Zone, *Med. Rec.*, New York, 1912, **81**, 566-569.

dietary essential than do the nonpellagrous households, though it would seem that the disparity in this instance is probably much less marked than in the case of the fat-soluble vitamin.

Inorganic Constituent.—Reasoning in a somewhat similar way, and recalling particularly that the milk supply of the nonpellagrous households is notably more liberal than that of the pellagrous households, it would seem clearly indicated that the mineral constituent will tend to be superior (less likely to be defective) in the diet of the nonpellagrous than in that of the pellagrous household.

SUMMARY

To supplement the studies, chiefly experimental, of 1914 and 1915, a study was begun, in the spring of 1916, of the relation of various factors to pellagra prevalence in cotton-mill village communities in South Carolina. This paper presents briefly some of the results of the phase of the study dealing with the relation of household diet to pellagra incidence.

Pellagra incidence was determined by a systematic biweekly house-to-house search for cases carried on from April 15, 1916, to Dec. 31, 1916.

The diagnosis of pellagra was restricted to cases presenting a definite, bilaterally symmetrical eruption. It is suggested that, so defined, pellagra includes at least two commonly associated, etiologically distinct, though closely related, syndromes.

Data relating to household diet were secured by obtaining records of sale from the principal stores for a fifteen-day sample period during the season immediately anterior to or coincident with the incidence of the attack as suggested by the seasonal curve, supplemented by inquiries by a trained investigator.

Comparisons of diets of nonpellagrous with those of pellagrous households clearly showed that:

1. The nonpellagrous enjoyed a larger supply of the animal protein foods (lean meat, milk including butter, cheese and eggs).

2. Varying supplies of fresh meat were associated with a corresponding (inverse) variation in the incidence of pellagra.

3. Varying supplies of milk were associated with a corresponding (inverse) variation in the incidence of pellagra.

4. The calorific value of the diets of pellagrous households was somewhat less than that of nonpellagrous households, but this, nevertheless, conformed to recognized standards and could therefore not be considered as an *essential* factor in relation to the incidence of pellagra.

5. The total protein supply in the diets of the pellagrous households was somewhat less than in that of nonpellagrous households, but was not below Chittenden's standard, and therefore a deficiency in total protein would seem not to be an *essential* factor in relation to the incidence of pellagra.

6. The proportion of protein from animal food tends to be somewhat smaller, and that from cereals and the common mature peas and beans somewhat larger in the diets of the pellagrous than in those of the nonpellagrous households, and therefore the protein in the diet of the nonpellagrous was likely to be of somewhat better quality than that in the diets of the pellagrous households.

7. The diets of the pellagrous households included somewhat less of the carbohydrates than did that of the nonpellagrous, and therefore the production of

pellagra is not necessarily dependent on an excessive consumption of this food constituent.

8. The diets of the pellagrous households had a decidedly smaller supply of the fat-soluble and likewise a somewhat smaller supply of the water-soluble vitamin than the diets of the nonpellagrous households.

9. The mineral constituent of the diets of the nonpellagrous households was likely to be superior—less likely to be defective—than that of the pellagrous households.

CONCLUSIONS

1. The indications afforded by this study would seem very clearly to suggest that the pellagra-producing dietary fault is the result of some one or, more probably, of a combination of two or more of the following factors: (1) a physiologically defective protein supply; (2) a low or inadequate supply of fat-soluble vitamin; (3) a low or inadequate supply of water-soluble vitamin, and (4) a defective mineral supply. In this connection it is of interest to note that McCollum, Simmonds and Parsons,¹² as a result of their studies of faulty diets in rats, believe that pellagra is primarily associated with the unsatisfactory character of three dietary factors, namely, a shortage of the "fat-soluble A," the faulty character of the inorganic moiety, and the relatively poor quality of the protein mixture.

2. The somewhat lower plane of supply, both of energy and of protein, of the pellagrous households, though apparently not an essential factor, may, nevertheless, be contributory by favoring the occurrence of a deficiency in intake of some one or more of the essential dietary factors, particularly with diets having only a narrow margin of safety.

3. The pellagra-producing dietary fault may be corrected and the disease prevented by including in the diet an adequate supply of the animal protein foods¹³ (particularly milk, including butter, and lean meat).

12. McCollum, E. V.; Simmonds, N., and Parsons, H. T.: Pellagra-Producing Diets, *Jour. Biol. Chem.*, 1918, **33**, 411-423.

13. The possibility that other classes of foods may also serve this purpose is, of course, not excluded.

Decline in Infant Death Rate.—An infant mortality survey by the New York Milk Committee has been made public which shows that the efforts of the various agencies engaged in infant welfare work, as well as the work of the New York Milk Committee has been effective in reducing the infant death rate in New York City. The survey covers the calendar year 1917 for which the death rate was 88.8 per 1,000 living births. In 1907 the rate was 135.8. The number of infant deaths under 1 year of age for the year 1917 was 12,568 as against 16,000 in 1907. The report of the Milk Committee also contains figures from 163 of the largest cities which show with one exception decreases in the death rate. The lowest mortality for cities of 100,000 is found at Omaha and Seattle, which have 59.2 and 59.4, respectively. The low rate for the country is found at Alameda, Calif., where the rate is 40.7. Other cities of 50,000 that are only a fraction above this level are Brookline and Everett, Mass., La Crosse, Wis., and Berkeley, Calif. The highest mortality of the country is at Nashville, Tenn., which has a rate of 182.2 with a population of 110,364. Chicago exceeds New York in infant mortality by nearly 18 points and Philadelphia by 21 points. Other cities having an infant death rate of over 100 per thousand living births are Baltimore, 119.3; Pittsburgh, 116.2; Detroit, 103.6; Buffalo, 103.7; New Orleans, 113.5; Jersey City, 113.8; Louisville, 110.5; Syracuse, 101.9; Birmingham, 147.5; Memphis, 145.7; Richmond, 134.5; Fall River, 153.8; Grand Rapids, 134.9, and Albany, 103.2. Boston has 98.9.—*Medical Record*.

DIET OF THE U. S. ARMY SOLDIER IN
THE TRAINING CAMP *

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The Food Division of the Surgeon-General's Office has completed detailed surveys of 227 messes scattered among more than 40 training camps in this country. Results of these surveys have been studied with some care and certain conclusions reached regarding the suitability of the Army ration as now provided.

Before proceeding to a discussion of these surveys, the messing system of the U. S. Army should be briefly described. Soldiers are fed by companies or units of corresponding size, such as batteries of artillery, troops of cavalry, squadrons of aviators, etc. The responsibility for proper feeding is placed by the Army Regulations squarely on the company commander. As a rule, the company commander details the supervision of the mess to a commissioned officer, commonly a second lieutenant, known as the mess officer. The purchasing agent for the company is a sergeant known as the mess sergeant. Certain articles of food are issued by the camp quartermaster every day. These are fresh meat and bread from the camp bakery. Other articles of food are issued in ten day periods on requisition by the mess sergeant. If, however, the sergeant desires to purchase something not carried by

TABLE 1.—GARRISON RATION

	Ounces		Ounces
Meat	20	Flour	18
Beans	2.4	Potatoes	20
Prunes	1.28	Coffee	1.12
Sugar	3.2	Milk	0.5
Lard	0.64	Butter	0.5
Syrup	0.32		

Salt, pepper, cinnamon, vinegar and flavoring extract, a small fractional part of an ounce.

the quartermaster, he can obtain money in lieu of a certain undrawn portion of the ration for his men and purchase in the local market. The practice of different camps in this respect varies. Where the local markets are good, as much as 50 per cent. of the value of the ration may, on order of the commanding officer, be spent locally. The average, however, is not in excess of 35 per cent., the remaining 65 per cent. being issued by the camp quartermaster.

The garrison ration (Table 1) is the basis of feeding the soldiers in training camps. For calculation of the value of the ration, certain definite substitutions are made. For example, 70 per cent. of the meat component is issued as fresh beef, 20 per cent. as ham, and 10 per cent. as bacon; 50 per cent. of the bean component is calculated as beans, and 50 per cent. as rice; 70 per cent. of the potato component as potatoes, 20 per cent. as onions, and 10 per cent. as tomatoes, etc.

The average value of the ration in the training camps since their organization last fall has been in the neighborhood of 39 cents per man per day.

Officers of the Food Division, organized as survey parties, have visited all of the larger camps once—many of them twice—twelve aviation camps, and a number of special camps, such as embarkation camps and quartermaster camps. In all, the number of men

whose messes have been studied totals in the neighborhood of 60,000. Besides estimating the quantity of food supplied, wasted and consumed, these parties have made inspections of the food both in subsistence stores and at the mess houses and have given a considerable amount of instruction to mess officers and mess sergeants in the proper use of foods. The amount of food is determined by making an inventory of the stock on hand at the mess house at the beginning of a definite period, keeping account of all accessions to stock within the period, and a second inventory at the close. Concurrently the edible waste is separated, weighed, mixed, sampled and analyzed. These analyses have been made through the courtesy of Dr. Alsberg and his co-workers at the Bureau of Chemistry laboratories in several of the large cities. When the reports of these analyses are received, suitable deductions are made for wastage, and the actual consumption of food in grams of protein, fat and carbohydrate per man per day is computed.

TABLE 2.—STATISTICAL SUMMARY OF NUTRITIONAL SURVEYS

Nutrients	Food per Man per Day			Distribution of Fuel Value Consumed, %	Wasted, %	Per Man per Day
	Supplied	Wasted	Consumed			
Averages, 49 messes:						
Protein, gm.	139	12	127	14	9	Consumed cost, 41.39 c.
Fat, gm.	129	14	115	30	11	Waste cost, 3.57 c.
Carbohydrate, gm.	539	40	499	56	7	Total waste
Fuel value, cal.	3,980	343	3,637	100	9	Edible waste
Averages, 68 messes:						
Protein, gm.	139	11	128	14	8	Consumed cost, 40.82 c.
Fat, gm.	127	13	114	29	10	Waste cost, 3.51 c.
Carbohydrate, gm.	537	37	500	57	7	Total waste, 0.82 lb.
Fuel value, cal.	3,953	318	3,635	100	8	Edible waste, 0.45 lb.
Averages, 85 messes:						
Protein, gm.	139	10	129	14	7	Consumed cost, 41.53 c.
Fat, gm.	130	12	118	30	9	Waste cost, 3.41 c.
Carbohydrate, gm.	536	35	501	56	7	Total waste, 0.82 b.
Fuel value, cal.	3,977	297	3,680	100	7	Edible waste, 0.43 lb.
Averages, 143 messes:						
Protein, gm.	139	10	129	14	7	Consumed cost, 42.55 c.
Fat, gm.	132	12	120	30	9	Waste cost, 3.16 c.
Carbohydrate, gm.	534	33	501	56	6	Total waste, 0.85 lb.
Fuel value, cal.	3,987	288	3,699	100	7	Edible waste, 0.44 lb.
Averages, 185 messes:						
Protein, gm.	138	9	129	14	7	Consumed cost, 42.17 c.
Fat, gm.	130	12	118	30	9	Waste cost, 2.99 c.
Carbohydrate, gm.	529	32	497	56	6	Total waste, 0.82 lb.
Fuel value, cal.	3,944	280	3,664	100	7	Edible waste, 0.43 lb.
Averages, 213 messes:						
Protein, gm.	138	9	129	14	7	Consumed cost, 42.75 c.
Fat, gm.	133	12	121	31	9	Waste cost, 3.00 c.
Carbohydrate, gm.	527	31	496	55	6	Total waste, 0.83 lb.
Fuel value, cal.	3,963	276	3,687	100	7	Edible waste, 0.42 lb.

In Table 2 the average amount of nutrients supplied, wasted and consumed for 49, 68, 85, 143, 185 and 213 messes is given. It will be noted that the average figures have changed but little with the different numbers of messes compiled, showing that the results actually represent average conditions. The total amount of energy supplied is just short of 4,000 calories; the amount wasted a little less than 300 calories, and the amount consumed in the neighborhood of 3,700 calories. The distribution of calories consumed for 213 messes is 14 per cent. protein, 31 per cent. fat and 55 per cent. carbohydrate. There has been a noticeable though small improvement in the amount of waste. For the first forty-nine messes studied, the amount was 9 per cent. of the total fuel value. For the 213 messes, the amount is 7 per cent. It will be noted that the cost of the ration as actually consumed is 42.75 cents, and the value of the waste is 3 cents. The reason the mess sergeant can spend 42.75 cents for food actually consumed is that the actual attendance at mess is only about 90 per cent. of the

* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

total number of rations authorized. The number of rations authorized by regulations is fixed by the morning report at the beginning of the ten day period. A large number of the men, however, leave camp Saturday afternoon and do not return until Sunday night, missing three or four meals out of the twenty-one. This makes the per capita cost of food consumed considerably higher than the value of the ration.

The actual average consumption of different articles of food as computed from the reports of the Survey Parties for 227 messes is given in Table 3. The total energy accounted for in the fifty articles of food included in this list is in the neighborhood of 90 per cent. of the total consumed; the other 10 per cent. is distributed over more than 100 articles used in very small quantities each.

TABLE 3.—AVERAGE CONSUMPTION OF FOOD Ounces

Fresh beef	9.15
All fresh meats together	11.51
Bacon, ham, sausage and frankfurters together	2.16
Bread	7.98
Total bread, including hard bread and flour	9.87
Total other cereals, such as oatmeal, cornmeal and farina	1.25
Beans, dried	1.01
Total beans, baked beans, peas, canned peas and canned corn	2.41
Total rice, hominy, macaroni, spaghetti and corn starch	0.97
Total potatoes	12.51
Total other vegetables	2.64
Total tomatoes	1.41
Total dried fruits	1.45
Total other fruits	1.47
Coffee	1.08
Sugar	3.39
Milk, evaporated	2.05
Butter and oleomargarine	0.51
Lard and lard substitute	0.69
Syrup	0.72

It is interesting to note first, that out of the 20 ounces of fresh meat, including bone, provided by the ration, only a little more than one half is consumed as meat. Of the total bread provided by the ration, less than one half is consumed as bread. Of the total 20 ounces of potatoes provided by the ration, 12½ ounces are consumed as potatoes. The result is a much better balanced dietary than that laid down in Army regulations. In fact, it is doubtful whether any soldier could long subsist on the Army ration as provided in the regulations. In the first place, he could not eat all of the ration, unless he were doing excessively hard work such as the work of a lumberman exposed to cold. In the second place, the Army ration as laid down in the regulations would provide too much acid ash, and in the third place, it provides an excessive amount of protein for a laboring man. By means of the ration saving system, however, the soldier is not obliged to eat what the regulations prescribe. The garrison ration is simply the basis for the money value of the ration.

The question arises whether the ration should not be readjusted to a basis more nearly approaching the basis of choice as actually expressed in the last ten months' experience. If this were done, the resulting ration could be issued in kind, that is, issued alike to all the men simultaneously. The advantages would be (1) reduction of waste by obliging organizations to secure their luxuries by exercising rigid economy; (2) guaranteeing a satisfactory distribution of nutrients; (3) the possibility of centralized purchasing and consequent reduction in cost to the government, and (4) training the men on a ration basis much more nearly approaching the requirements of field conditions.

A distinction should, however, be made between such a "training ration" and the actual field ration, after the manner of all the other allied armies. For

example, the British home ration, used in the training camps in England, provides only 3,400 calories, whereas the field and trench ration provides 4,250 calories. The French normal ration, used in training camps, provides 3,300 calories, the strong ration, used in actual campaign, 3,600 calories. The Italian territorial ration, used in the training period, provides 2,500 calories, while the combating rations, used in campaign, provides 3,300 calories. The present garrison ration of the U. S. Army, if selected as written in the regulations and as used in computing the value of the ration, would provide nearly 4,800 calories. This is at least 500 calories in excess of any other army ration now used by the Allied armies.

There are hopeful signs that the messing of troops in training camps will in time be treated as a hygienic measure. If it is worth while to feed an athletic squad, undergoing training, at a training table where every article of diet is carefully scrutinized by the medical director, it requires no argument to show that the soldier, in preparation for the highly specialized work of modern warfare, should be fed with equal care. Physical fitness for emergency is much more important in the case of an aviator, an artillery observer, a signal corps officer, or a tank operator than in the case of a half-back or a stroke. This attitude has already been adopted by the Air Service Division of the Surgeon-General's Office, and a special request has been made for the assignment of nutrition officers capable of exercising skilled supervision of dietaries at aviation training centers. The Food Division has already rendered much assistance to these camps. Captains Eddy, Brewster, Gephart and Joseph have visited a number of these camps and have rendered much assistance in the supervision of mess conditions. At the special request of General Pershing, all the aero squadrons, sailing for further training in England, will be instructed by the Food Division in the use of the British home ration. That ration, it will be recalled, provides only in the neighborhood of 3,400 calories per man per day as against an available 4,000 calories in the average ration supplied to American troops in training during the past eight months. Special measures of economy are necessary in order that our troops may live comfortably on this ration.

There has been much improvement in the matter of food economy in all of the training camps since last fall. A number of reports have been received; for example, from Camps Funston, Travis, Sevier, Devens and Wadsworth, showing that in certain organizations the average edible waste per man per day has been reduced to less than one-tenth pound. The average throughout all the training camps in the United States is in the neighborhood of forty-two hundredths pound.

A number of problems in connection with the nutrition of soldiers still press for solution. For example:

What is the simplest corrective of constipation in the Army?

What is the best diet for an aviator?

Is there any danger in the use of dehydrated materials, now being shipped for use of the American Expeditionary Forces?

Will prolonged subsistence on a high protein diet produce injury to the excretory organs?

Is there any dietary factor involved in the etiology of trench nephritis?

The attention of medical men, especially interested in nutrition, is invited to these and kindred problems. The Food Division has already made substantial progress in the solution of some of them, but it will welcome aid from any source.

THE CIVILIAN WAR RATION *

PAUL ROTH, M.D.

BATTLE CREEK, MICH.

Never before in the history of mankind has war called for such a universal enlistment of labor and science as in the present conflict, and never before has victory depended on the support of the civilian to the extent that it does now. In fact, victory lies as much in the hands of the civilian as in those of the soldier. While duties rest on every one, man or woman, civilian or soldier, the responsibilities of the physician, in civil life as well as in uniform, are exceptionally great in the services he is called on to render and also in the influence that he may exert at home as well as at the front.

If food is to win the war, the fact must be thoroughly impressed on the civilian population, who will respond with far greater tangible results if led to cooperate intelligently rather than by compulsion. The civilian naturally looks on the physician as a leader and has the right to expect of him the ablest and safest guidance.

It was in anticipation of the needs of this nation that, nearly a year ago, the Carnegie Institution of Washington suspended the bulk of its activities in the Nutrition Laboratory of Boston to undertake an exhaustive study of the effects on metabolism, physical and mental fitness and endurance, of reduction of the daily food allowance, such as has been forced on several of the unfortunate European nations, and such as seriously threatens to become a necessity in our own country, for the benefit of the Allied cause.

A detailed survey of the entire research will shortly appear in a monograph of the Carnegie Institution of Washington, from the pen of Dr. F. G. Benedict, director of the Nutrition Laboratory of Boston. His collaborators are Dr. Walter R. Miles, H. Monmouth Smith, and myself. I believe that the publicity of such results as relate to the nation's present food problems should not be delayed, and advantage is taken of this great opportunity to offer this information to the medical profession.

DETAILS OF EXPERIMENT

Briefly stated, the problem was to submit normal men to a reduction of the daily food allowance sufficient to cause a comparatively rapid loss of body weight, equivalent to approximately 10 per cent. of the weight of the subject at the beginning of the experimental period. Then the food allowance was to be increased and regulated to prevent any further loss of weight while maintaining this reduced body weight for several weeks. This was to be done without materially interfering with the usual daily activities and duties of the subjects. Meanwhile, the subjects were to submit to numerous tests and observations relative to their metabolism, endurance and general physical and mental efficiency.

We were fortunate to secure for this strenuous program more than twenty-five volunteers from among the students of the Y. M. C. A. College of Springfield, Mass. Their contribution to the achievement of this research has been, to say the least, a noble and patriotic one, indeed.

These subjects are grouped into three classes:

1. Diet Squad 1, of twelve subjects, who were under observation for a period of four months, during which time their diet was controlled as stated above.
2. The control squad, of twelve subjects, whose diet was not modified or controlled in any way, but who were submitted to several control tests for a period of three months.
3. Diet Squad 2, of twelve subjects, recruited almost entirely from the control squad, and who, for a period of three weeks, were placed on a practically reduced daily ration averaging about 1,400 calories net.

The investigation carried out included:

1. A strict account of all the food served to the diet squads, and a determination of its calorific value.
2. A collection of all the urine of each subject of the diet squads, in twenty-four hour periods, and frequent collections of the stools for periods of several days each.
3. Almost daily determinations of the basal metabolism of each subject in Diet Squad 1, including careful estimation of the pulse and respiration rate, total lung ventilation and alveolar carbon dioxide tension. These observations were made at the Y. M. C. A. College in Springfield in laboratories equipped for the purpose by the Nutrition Laboratory of Boston.
4. Week-end trips, made alternately by each squad, to the Nutrition Laboratory in Boston, where numerous tests, bearing on the neuromuscular processes and mental condition of each subject, were conducted.
5. In Boston, spending of the night by the entire squad in a large respiration chamber constructed for the purpose of estimating the total metabolism of entire groups of subjects collectively.
6. Also a series of observations made on the efficiency of each subject during muscular work. This was accomplished by the use of a treadmill, inclosed in a small respiration chamber.
7. In addition, observations made on the body weight, measurements of body surface, strength tests, oral, skin and rectal temperature, blood tests, including hemoglobin, red and white cell and differential counts, and blood pressure.
8. Finally, the taking of photographs and motion pictures, making a most valuable addition to the record of the results obtained.

RESULTS

The effects of the prolonged reduction in the diet dealing primarily with basal metabolism were thus summed up by Dr. F. G. Benedict:

1. A gradual reduction in weight to a point 12 per cent. below the initial weight took place during a period of from three to ten weeks, with low calories and a moderate amount of protein in the food intake. The normal demand of the men prior to the dietetic alteration ranged from 3,200 to 3,600 net calories. One squad of twelve men subsisted for three weeks on 1,400 net calories without special disturbance.
2. After the loss in weight of 12 per cent. had been reached the net calories required to maintain this weight averaged about 2,300, or approximately one-third less than the original amount required.
3. At the end of the reduction in weight, the actual heat output during the hours of sleep, as computed by indirect calorimetry, was approximately one-fourth less than normal, thus giving a rough confirmation of the lowered number of calories found by actual measurement of the food intake. That there was no seasonal variation in metabolism was shown by the constancy in the metabolic level of the control squad.
4. The heat output by indirect calorimetry per kilogram of body weight and per square meter of body surface was essentially 18 per cent. lower than at the beginning of the study.
5. The analyses of food, feces and urine were sufficiently complete to permit a nitrogen balance to be made, and it was found that throughout the period of loss in weight and for some time subsequent thereto, there was a marked loss of nitrogen to the body. In round numbers these men each lost

* Read before the joint meeting of the Section on Pharmacology and Therapeutics and the Section on Pathology and Physiology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

approximately 150 gm. of nitrogen. There is an intimate relationship between this "surplus nitrogen" and the metabolic level. Removing what we may designate as "surplus nitrogen," we believe, distinctly lowers the stimulus to cellular activity.

6. The nitrogen output per day at the maintenance diet of 2,300 net calories was about 9 gm. A control group of twelve men, living substantially the same life and eating in the same dining room, but with unrestricted diet, showed a nitrogen output of from 16 to 17 gm. per day.

7. The pulse rate was astonishingly lowered. Many of the men showed morning pulse rates as low as 33, and daily counts of 32, 31 and 30 were obtained; at least one subject gave six definite counts on one morning of 29.

8. The blood pressure, both systolic and diastolic, was distinctly lowered.

9. The skin temperature, as measured on the surface of the hands and forehead, was, with some subjects, considerably lower than normal. With most of the men, normal temperatures prevailed.

10. The rectal temperature was practically normal.

The general picture that the men presented at the end of the test, or at their minimum weight, was one of noticeable emaciation, particularly in the face; but all the men continued the usual college activities with no obvious reduction in stamina.

Two of the men had chronic nasal disorders. One was operated on during the test and the other should have been. Aside from these two, the prevalence of colds during the period was about the same as with the other college students. During the study three men underwent ether narcosis for operations (on nose, foot and for hemorrhoids) and made rapid recoveries. One man at the lowest period of weight became infected with typhoid, ran through a course of very high fever, and was critically ill for some time; he has made a complete convalescence and recovery and has returned to college.

The most noticeable discomfort experienced by the subjects was a feeling of cold, which it is only fair to say might be due in large part to the severity of the past winter. In general, notwithstanding the very great reduction in the metabolism (which we believe was due to the removal from the body of the stimulus to cellular activity of approximately 200 gm. of "surplus nitrogen"), the whole period of lowered food intake had no untoward effect on the physical or mental activities of these men, and they were able to continue successfully their college duties.

The control squad, having demonstrated the absence of a seasonal variation in metabolism for about three months, was put for a period of three weeks on a restricted ration of less than one-half the previous calory consumption. In all details the picture exhibited by the first squad was strikingly duplicated by the second squad, although, as the loss in weight was obviously not so great (6 per cent. as compared with 12 per cent.), the phenomena were quantitatively somewhat less emphasized.

The alveolar carbon dioxide tension of every subject remained constantly normal.

As a result of numerous tests of the neuromuscular processes, Dr. Walter R. Miles found that there was no material change as a result of the reduced diet. There was a very slight falling off in the strength tests with the hand dynamometer.

The observations of Dr. H. Monmouth Smith on muscular efficiency in horizontal walking on the treadmill showed a decreasing energy requirement from 0.61 gm. calory to 0.52 gm. calory per horizontal kilogram

meter, after four months' reduction of the diet to about two thirds of the normal. This amounts to an increase in efficiency of approximately 14 per cent. over and above the economy of energy requirement due merely to the reduction in body weight. In fact, the total gain in economy amounted to 14 per cent. for Diet Squad 2 after twenty days of reduced diet, and to 22 per cent. for Diet Squad 1, at the end of the four months of reduced food allowance.

APPLICATION OF THE FINDINGS

Whatever bearing the facts revealed in this research may have on the economies of life in time of peace, no hesitancy should stand in the way of adopting for civilians, in times of need like the present, war measures of food conservation that would result in enormous gains without endangering the efficiency of the civilian population. It is to be clearly understood, however, that the diet of the growing child should never be voluntarily reduced.

The reduction of diet can safely include all food principles, proteins, as well as carbohydrates and fats. Chittenden's low protein diet is shown by these experiments to be fully practicable, a fact of no little importance, as it relates to the most expensive source of food material.

Many would be benefited by dropping occasionally or regularly one meal per day. No matter what measure of reduction is adopted, the total calorific value of the daily ration could ordinarily be cut down one third or even one half, for a considerable length of time. The frequent use of the scales will be the indubitable proof of one's actual cooperation in this method of food conservation.

We have found the use of bran and the liberal serving of coarse green or cooked vegetables of considerable value, not only in minimizing the cravings of an unsatisfied appetite, but also in avoiding constipation due to lack of bulk in the diet. Indeed, it was evident with our subjects that hunger was appeased, temporarily at least, just as effectively by a bulky meal of low calorific value as by a less bulky one of greater calorific value. The free use of fresh fruits also will prove to be of inestimable value. Even water drinking, before and during the meal, when not contraindicated, will serve as an effective means of taking off at least the keen edge of the appetite.

Eating between meals is a very important source of food waste, which, with the average student, amounts to at least 10 per cent. of the daily intake of food. Enormous curtailment in the indulgence in candy and food luxuries is today the plain duty of every patriot. The weekly "candy day" should be adopted by all, even children, unless the use of candy is entirely abandoned, as could be done to advantage. The use of water alone to relieve thirst should replace the use of other drinks, especially those containing sugar.

However, it must be recognized that those in occupations entailing considerable physical exertion will of necessity require a proportionately greater consumption of food material, especially of starches.

CONCLUSION

The assurance of the safety of the adoption of even a considerable curtailment in the daily food allowance of the adult population will prove to be of no small incentive to an enthusiastic response as a patriotic service, and to this end the physician should stand ready to pledge unbounded cooperation.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. MCCOLLUM, HESS, GOLDBERGER, WHEELER AND
SYDENSTRICKER, MURLIN AND ROTH

COL. VICTOR C. VAUGHAN, Ann Arbor, Mich.: Concerning Dr. Goldberger's paper, permit me to say that last fall Surgeon-General Blue of the Public Health Service asked Dr. William H. Welch of Johns Hopkins University and me to go over Dr. Goldberger's work, both theoretically and practically, and make a report to the Surgeon-General concerning it. We went to Spartanburg, S. C., and there studied the statistical work done by Dr. Goldberger and his assistants. At that place we also visited the hospital which is maintained by the Public Health Service for those who have pellagra. In the neighborhood of Spartanburg we visited a large number of cotton mills, in which the observations recorded by Dr. Goldberger had been made. Subsequently, we proceeded to Milledgeville, Ga., and visited the insane asylum in which Dr. Goldberger has been carrying on his observations and experiments for more than two years. This is a large asylum, housing about 4,000 patients. Two years ago and more Dr. Goldberger took charge of one colored and one white ward in this asylum. Cases of pellagra were in all the wards. Dr. Goldberger changed only the diet; in addition to the ordinary food furnished the inmates, he supplied additional animal food. Pellagra has wholly disappeared from the wards under Dr. Goldberger's care, and has persisted in all other wards. When the experiment was begun, these two wards contained a large number of pellagrins, all of whom have recovered, and in none of whom has there been seasonal reappearance of the disease. From time to time patients have been added to these wards, and within a few weeks have recovered completely, so far as pellagra is concerned; while in all other wards the disease has persisted. Here we have two wards in a large asylum with the inmates of all wards living under exactly the same conditions with the exception of diet. In the two wards placed on a liberal diet, pellagra has disappeared, while in all other wards it has persisted. This is one of the most striking and successful experiments that I have ever seen, or, so far as I know, has ever been recorded.

After a careful study of all the publications on pellagra, those of Dr. Goldberger and his assistants and those of his opponents, and after a thorough study on the ground, Dr. Welch and I have been thoroughly convinced that Dr. Goldberger and his assistants are right in their claim that pellagra is a disease of malnutrition. He does not claim to have discovered, as yet, the exact food constituents, the presence of which or the absence of which contribute to the development of this disease, but he has demonstrated that it may be caused by a diet poor in proteins; that when it exists it disappears under a liberal diet, and that pellagra may be wholly eradicated by proper feeding. Dr. Goldberger properly insists that it is not enough in an experiment of this kind to show that individuals are supplied with proper food; it must be demonstrated that they eat it. Supplying a family with proper food does not mean that every individual in that family eats the proper kind of food. During the past few months, in some of the Southern camps it has been found difficult to induce certain men, especially those from the rural districts, to eat the liberal, varied and scientific diet furnished in the soldiers' rations. These young men have always eaten corn bread, side meat and syrup, and if they can get these things, they will eat nothing else. Appetite is not always a safe guide; it depends more on habit than physiologic fitness.

DR. EUGENE LYMAN FISK, New York: I would like to have Dr. McCollum say something about the relationship between complete fasting experiments and the so-called deficiency diseases. In the complete withdrawal of food every possible food element is absent, and yet in such experiments these characteristic changes do not develop.

DR. CHARLES W. GREENE, Harriman, Tenn.: We have certain comparative results produced by certain experimentations on this problem, and I would like to state the case: We have fishes that migrate from the sea into the fresh waters for spawning purposes. This is one of that group which we know in general terms as the king salmon, which takes from three to five months in making its migration, running from

the ocean through the Golden Gate into the head waters of the Sacramento. Extensive changes take place in these fishes, the details of which do not necessarily fall in this discussion, but resulting, roughly speaking, in very marked changes in the proportionate composition of the constituents of the protoplasm; yet these animals give off energy very active and very aggressive in their physical manifestations of energy, up until perhaps the last few days before they die; and even that takes place almost immediately after the spawning. I have seen mixed specimens collected for practical spawning purposes that showed an extreme vitality and vigor just at the time of the collection. Those are held in spawning pens, so called, and in two or three days these same specimens will have died. That often is the culmination of changes taking place in the composition of the fish; but so far as I can see, it is rather a difficult problem to assume that these changes are necessarily traceable to deficiencies in the diet that they took some five months before. If it is possible to leave in the problem in relation to the feeding experiments of such animals as the king salmon, I would like to have an expression of opinion from a man so skilful in interpreting detailed data as Dr. McCollum.

DR. E. V. MCCOLLUM, Baltimore: In experimental polyneuritis a characteristic change is a degeneration of the motor cells. I have submitted a number of animals with experimental xerophthalmia to pathologists, and they assured me they could find nothing wrong with them other than changes affecting the eye structures.

Dr. Goldberger's observation that pellagra does not occur among those who use milk liberally, coupled with the observation that many patients recover during the summer when string beans, turnips, tops of greens and other leafy vegetables find a prominent place in the diet, correlates in every way with our observations on experimental animals. The string bean would seem to be analagous to the leaf in its dietary problem. In other words, while the pod is functionally active, it has the dietary properties of the leaf. The seed of the bean is quite a different thing, from the dietary standpoint.

DR. H. GIDEON WELLS, Chicago: During the past year I had opportunity to observe one of the largest mass experiments on human deficiency disease of recent times. It will always be a source of regret to me that I was not able to give this opportunity the study it deserved, but I was assigned to work on a more acute problem, that of typhus fever. I was in Roumania last summer and autumn for a brief period; and, as you all know, Roumania has suffered from starvation during this war as almost no other country has. So severe has been starvation that even during the harvest months of September and October people were dying of starvation in great numbers. Under these conditions, deficiency diseases were particularly good for studying them, because we had an opportunity to contrast two sets of people, differing not at all in geographical situation or in opportunities for caring for themselves, but who differed in their habits of diet—that is, the Russians and the Roumanians. The deficiency diseases among these two sets of people were quite different, and their dietary habits were different. As you went down the Russian and Roumanian fronts, and saw where pellagra occurred and where it did not occur, the thing that stood out, in a way that you could not get away from, was that where there was pellagra the chief article of diet was always yellow corn; and where you have corn you have pellagra. There was starvation and scurvy among the Russians, but the Russian's fundamental dietary article was black rye bread and beans.

Before the war pellagra was common in Roumania. I was told that there were from 60,000 to 80,000 cases before the war. Pellagra occurred only in the districts of Roumania where this limited diet was prevalent. It occurs in direct proportion to the extent that the people cannot supplement "mamaliga," or corn meal mush diet, with other foods.

Last summer, after having been in the war about a year, the Roumanians were beginning to observe just what the Austrians on the other side of the line observed after they had been in the war for a year; and that was a form of edema which, at first, they thought was an acute nephritis, with

dropsy, face, feet and hands swollen, but with no renal changes. This disease is described in Germany as the "Kriegsoedem," or war dropsy. This was beginning to appear in Roumania among the people who had been most seriously deprived of food. You will notice in the usual dietary of the Roumanians an evident deficiency in fats. They cannot afford to eat the butter that they make, and while they use the cows and oxen for transportation purposes, they do not seem to get very much milk from them. We found, as far as we had time to observe it, that when these patients were given butter fats they were likely to get better. But, of course, when under treatment they always got milk, soup and other things. Another thing about pellagra that was quite striking was that before the war, in Roumania, as in most countries, pellagra occurred chiefly in adults, presumably because it takes a great many years of dietary deficiency of ordinary degree to produce it; but in those districts of Roumania in which the war had reduced the diet almost solely to corn meal mush, they find a very acute form of pellagra in children 5 or 6 years of age. So the thing that stood out all the time in our observation was: yellow corn and pellagra.

DR. E. V. MCCOLLUM, Baltimore: I neglected to reply to the question that Dr. Hess asked in regard to whether we made any histologic examination of our animals suffering from experimental scurvy. No such observations were made by us. We took as criteria of scurvy the swollen and hemorrhagic condition of the joints. We assumed that the disease was scurvy in the light of the observations of Drs. Jackson and Moore, who made such histologic examinations of guinea-pigs which were brought to a state of scurvy by the same procedure. In all cases we induced scurvy in our animals by feeding a diet of oats and milk. In all the work we have done with rats, heating foods for an hour to an hour and a half at 15 pounds pressure apparently does not cause marked deterioration in the quality of the foods.

DR. RALPH G. MILLS, Seoul, Korea: The experience of which I wish to speak is one involving several million people and extending over about 4,000 years. In other words, it affects the Korean people, among whom I have been working for the last ten years. These are all more or less short of food, and yet they do not have pellagra or rickets or scurvy. However, I do find a little beriberi; and that is, so far as we have been able to tell, of more recent origin, being found only among the young Koreans, the more wealthy people, who are able to afford the Japanese rice, which, as compared with the Korean rice, is more highly polished and higher in price. Being whiter in appearance, it attracts them. The physical deficiency of the Korean people is only to a slight extent manifest. That is, the race, as a whole, is slight and rather tall. We see very few fleshy people among them. The chief difficulty is that there is a certain amount of mental sluggishness, not widespread—I mean not intensely bad when you compare it with the mental tests comparable to those used in our own schools. The Korean child is two or three years behind the average American child of the same age. Just what the cause of this is, is hard to say. These same children are more susceptible to tuberculosis under the same conditions that would prevail in schools in this country; and, therefore, there are these two and other reasons which make us feel that there is something radically wrong with the Korean diet.

Investigation in this has just been begun. One of the first things found was the excessive use of rice. Rice, in itself, contains a great deal of nutriment, and the actual amount that the Korean gets daily is sufficient for his nourishment, if he could use it all; but apparently he gets so much that the actual bulk of it interferes with his digestion. Intestinal disturbances are common. Living on a very small amount of meat, with a lot of dried fish, you would expect to find but little intestinal trouble, and almost complete absence of indicanuria. The metabolism of the people is at a low ebb. The creatinin figure is not over half of what it is for America. On the other hand, the resistance has been increased toward certain infections. Ordinary infections do not seem to take hold of them as much as we would expect to find under the circumstances; but there is an increased susceptibility to diphtheria; so that, while in certain phases of their life we get

deficiency, possibly it is made up in other ways, and it may have balanced it.

DR. WILLIAM MOORE, St. Paul: I spent three and one-half years in South Africa. The chief diet of the natives of Africa is corn meal, usually white corn meal, not yellow corn. The ordinary Kaffir boy in service, or at work, usually receives corn meal as his main diet. I do not remember that I ever saw a Kaffir boy drinking milk; it is not served as a portion of his diet. He may receive about 5 or 6 cents' worth of meat once or twice a week. I think the rickshaw boys in Durbin are required to have meat twice a week. It is what they call "boy's" meat; it keeps them in good healthy condition. They eat very little vegetables. Oftentimes they will dig up meat that has been buried. They may bring up the question of their having a sufficient amount of meat, but it is oftentimes decomposed meat; but their primary diet is corn meal, and I have never heard of a case of pellagra out there.

DR. ARTHUR D. HIRSCHFELDER, Minneapolis: I would like to ask the speaker whether there is any relation between the inorganic salts of these different diets, especially as to sodium, potassium and calcium, and possibly magnesium, in the diet? Certainly in some cases of angioneurotic edema the disturbance may be associated with excess of sodium as compared with potassium, and, as Wright found, these cases sometimes subside under calcium. It seems to me possible that some of these specific variations in diets, in deficiency diets, might be associated with variations in the mineral content rather than in the organic constituents. I would like to ask whether there is any evidence on the subject?

DR. ALFRED F. HESS, New York: In relation to what has just been said as regards scurvy, it was for a long time thought that potassium had a direct relation to scurvy, particularly as all the fresh vegetables and fruits are rich in potassium; but it was shown that by adding inorganic potassium to the diet scurvy could not be prevented or cured. It was then thought that it had to be in organic form. But it was shown that the antiscorbutic property of the various vegetables and fruits had no direct relationship to their content of potassium. It was thought, then, that calcium had a direct relationship. Orange juice is very rich in calcium, but, on the other hand, some antiscorbutics are not. Diet rich in sodium will not bring on scurvy. This was an idea formerly thought to be the case, in view of the salt diet, the salty meats; but they have been shown to bear no exact relationship.

I asked Dr. McCollum whether he had examined the histology of the bone of the guinea-pig, on account of an experience which I had. I fed some guinea-pigs on the diet which he used, and some of these pigs developed apparent scurvy, with swelling and thickness of the joints. When I examined these histologically, I was most surprised to find a picture resembling rickets with osteoid tissue.

I do not want to interpret Dr. McCollum's results, especially in view of the fact that he has carried out such a large amount of excellent investigations, but I think there must be some way of making our results conform. It is possible that we are dealing with different diseases, as we are using different diets. I have examined the bones of the animals of which I speak, and they show typical scurvy. In regard to such a simple question as constipation a person cannot be mistaken. You cannot prevent the onset of scurvy by giving liquid petrolatum.

When you give these animals dried vegetables, they develop scurvy. If you give them fresh carrots, they are cured of it. Or if you feed animals on oats and hay, they develop scurvy. On oats and grass they will not develop scurvy. The only difference between the hay and the grass is that the grass has been dried in the sun; not at any high temperature.

Finally, I want to say a word again about the dried vegetables. I realize that dried vegetables are of great value, both because they can be utilized throughout the winter, and because they have the same caloric value as the fresh vegetable; but I think we make a great mistake and will get into trouble if we spread the propaganda among the laity that the dried vegetable is the equivalent of the fresh vegetable. I am sure, as the result of the misinformation, that we will have scurvy among individuals and in institutions. If, however, we say that dried vegetables have great food value, and may

be used to half the extent, the other half being fresh vegetables, then I feel sure there will be no danger. This danger is intensified if we are to dry potatoes. In the winter time we depend largely for our fresh food on potatoes, partially also on carrots and turnips. If we dry not only vegetables in general, but also potatoes, and thus cut off fresh food throughout the winter, I am sure that in the spring we shall have scurvy in civil as well as military quarters.

DR. JOSEPH GOLDBERGER, Washington, D. C.: A number of interesting questions have been raised; one of them the age-old question of the relation of maize to pellagra. Professor Wells' observations of the relation of corn to the prevalence of pellagra in Roumania is, no doubt, correct. This has been repeatedly observed, and it applies also to Northern Italy; but the interesting thing is the interpretation to be put on this observation. We have just had evidence presented that in South Africa they have no pellagra, even though they eat white corn. Clearly corn cannot be an essential factor unless its color is of importance. Progress in clearing up this problem will be more rapid, I think, if we consider it as a question of a faulty diet rather than one of a particular food. No one subsists on corn or rye exclusively; almost invariably there are also other foods. Evidently these other foods may make a corn ration adequate. Again, while a diet too largely of corn is almost certain to be faulty, we do not know that this is also true of rye; or, again, corn supplemented by beans may still be a faulty diet, while rye so supplemented may be entirely adequate. Why the Russians did not have pellagra, though without milk, I do not know. Doubtless, however, their diet, even without milk, was a satisfactory one, so far as pellagra is concerned, at least.

There may be several ways of correcting the pellagra-producing fault. What we have presented this afternoon has simply emphasized the fact that so far as regards the diet associated with pellagra in this country, the addition of the group of foods represented by meat, eggs, and particularly milk, will correct the fault in this diet and prevent pellagra.

With respect to "war edema," I have a rather strong suspicion that cases of that condition occur in this country. I recently saw pellagra in a child in which there was marked edema of the feet. Cases of this sort are, I suspect, passed over as nephritis.

In this country pellagra is a very common occurrence in children of over 1½ or 2 years. The deprivation period, no doubt, varies, among other things, with the degree of deprivation; it may possibly be a matter of years, or it may not exceed four or five months.

DR. R. G. HOSKINS, Chicago: This, perhaps, should be mentioned in regard to Dr. Murlin's figures: In some of the inspections that have been made lately, there is some indication of the mess sergeants inherently meeting the situation by cutting down on the high caloric foods, etc. In regard to Dr. Hess' comments on desiccated vegetables, etc., and with reference to the experiments made on guinea-pigs, the guinea-pig has never acquired the drink habit.

DR. ALFRED F. HESS, New York: About the vegetables which we used, I may add that they were not given in the dry state. Guinea-pigs will not take dry vegetables. They were of three different kinds; from a well-known laboratory in this city; bought in the open market, which you may call commercial dehydrated vegetables; and a third lot dehydrated last summer, in an amateur way. The first lot were 2 weeks old; the commercial variety of indefinite age, and the third lot 6 or 7 months old. They were not given in the dry state, but as much water was added as could be absorbed. In two instances, where I had the opportunity, I gave dehydrated vegetables to infants suffering from scurvy. They were carrots of the very best kind, excellently flavored, and of good appearance. They did absolutely no good. I followed them by fresh vegetables, with a prompt amelioration of the symptoms.

DR. PAUL ROTH, Battle Creek, Mich.: We may assume that two or three months was not sufficient to determine what might happen on a prolonged dictation of diet. That is true. We made it four months, and then we admit the fact that we do not know what might happen in the course of two years, or centuries even, about this civilian war ration; but that we know, at least, what happened in that length of time, possibly.

THE RELATIVE VALUES OF THE PRINCIPLES OF EXTENSION, SUSPENSION AND MOBILITY

EXEMPLIFIED IN BOTH CIVIL AND WAR PRACTICE BY
THE HODGEN WIRE CRADLE EXTENSION
SUSPENSION SPLINT *

FRANK G. NIFONG, M.D.

COLUMBIA, MO.

Until recently, no very material advancement had been made in the methods of treating fractures of the long bones. It seems to be a subject to which little

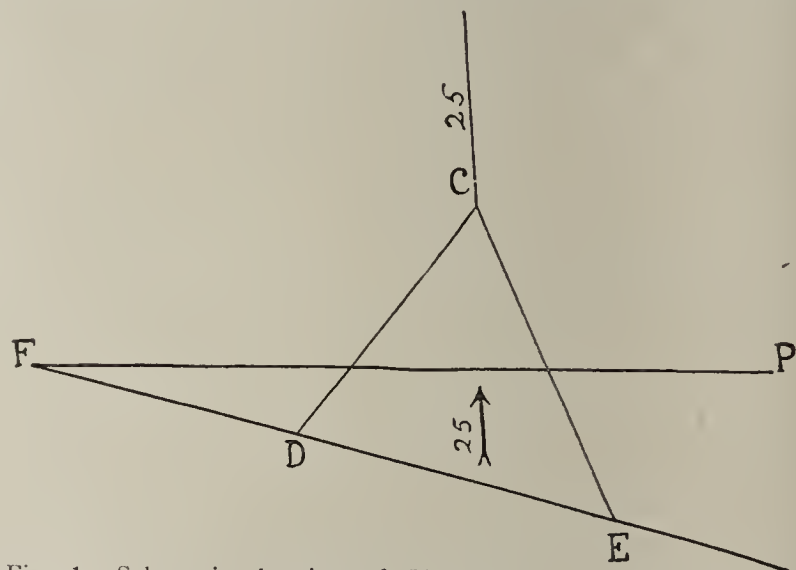


Fig. 1.—Schematic drawing of Hodgen splint vertical suspension. *FP* represents the limb; *F*, foot; *P*, pelvis; *EE* represents the splint; *C*, suspending cord, suspending vertically; *CD* and *CE*, cords suspending the splint. The vertical lift is 25 pounds, distributed evenly along the limb. This is the suspension force. There is no extension.

surgical thought has been given; the practice has been largely empiric. In this field, as distinct from other surgical fields, no very marked improvements have been made. Without particular reasoning, the law of precedent and custom has been followed religiously. Judgments from damage suits have, in this way, quite possibly been avoided to some extent; but the real

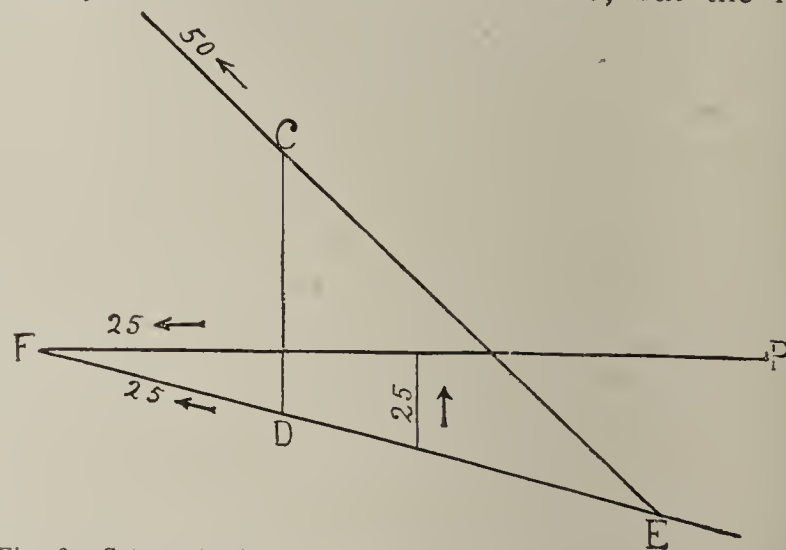


Fig. 2.—Schematic drawing of Hodgen splint extension and suspension. *FP* represents the limb; *F*, foot; *P*, pelvis; *EE* represents the splint; *C*, the suspending and extending cord; *CD* and *CE*, cords suspending the splint. A pull of 50 pounds at *C* still makes a suspension of 25 pounds and an extension at *F*, the foot, transmitted to the limb of 25 pounds. *FP* is the resultant force.

occasion for them has not been disposed of, for we have often been far from doing as well by the patient as we might. Our texts have handed down the methods of the fathers, without a clear appreciation of the basic principles involved in the treatment. Only one

* Read before the Section on Surgery, General and Abdominal, at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

clear idea is maintained throughout all texts, and that is the idea of fixation or immobility of the site of the fracture. To attain this idea, other principles of equal or of greater importance have often been sacrificed. To secure complete fixation and immobility, skin, muscle, nerve and vessel, as well as the patient as a whole, have frequently been overlooked, ignored or forgotten. Cumbersome appliances have been used that may well merit the name of instruments of torture.

More recently, however, the subject of fractures has had thoughtful attention, and great advancement in treatment methods is shown both in the operative procedures and in the external appliances now being used in war work.

When considering the proper appliances for treating fractures, it is well to note the several principles involved in the more rational kind of fracture

is immobilizing the site of fracture. In the femur, a long, heavy bone that usually fractures obliquely, with powerful muscles to shorten and displace the ends, a fracture will produce deplorable deformity and loss of function as an end-result, no matter how immobile the seat of fracture may be. Extension, therefore,



Fig. 4.—A modification of the Hodgen splint suitable for transport service. Inner arm is 40 inches long; outer arm is 46 inches long; lower end is 6 inches wide; upper end is 12 inches wide; openings at the upper end for a strap or padded cord.



Fig. 3.—Proper application of a Hodgen splint for a supracondylar fracture of the femur. The splint is bent at an angle of 45 degrees. The adhesive straps of the Buck extension overlap above the knee. This position relaxes the muscles of the calf, pulls down the extension muscles of the thigh, and lets the ends appose. See inset above.

treatment. More definitely, we may say that it is necessary to apply these several principles to the femur, since the femur is the strongest long bone, with the heaviest musculature. These principles are just as applicable to the humerus and other bones of the extremities, except that the application of them is modified by slightly different anatomic conditions and certain differences in function.

First, then, is the well-known principle of fixation. The value of fixation is, of course, unquestioned, for the site of fracture must, of necessity, be immobilized. But just because fixation is so absolutely essential, its value has often overshadowed other principles equally important for complete functional recovery. In fractures of the long bones, the femur particularly, the principle of extension is of no less importance than

is of prime importance, and for fractured femurs is more essential than for any other long bone. The application of extension by Buck's plaster, by Steinman's transfixion pin, or by whatever method used, is really made through the great fascia lata. The stretching of this fascia attached to the hip and knee, with intermuscular septums attached to the bone shaft, makes all soft parts, and the bone also, return to their proper positions. In the judgment of the British Fracture Committee, good form is almost synonymous with good function; and no other principle of treatment produces good form so well as the application of extension.

Extension, of course, implies counter-extension. Intelligent extension is made always with reference to the muscle pulls of the several groups which may not only produce longitudinal shortening but displacement outward, forward, inward or backward. A knowledge of mechanics, muscle attachments and roentgen-ray examinations are all very helpful in guiding the direction of extension and counterextension forces.

Suspension and mobility are important factors in fracture of the femur. The mo-

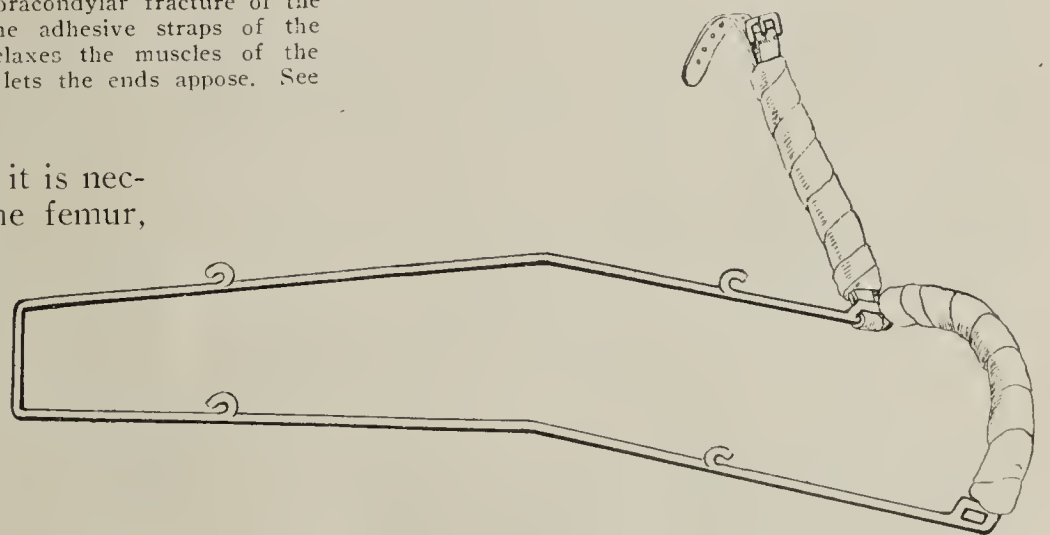


Fig. 5.—Transport splint open ready for application.

bility of the patient, especially the aged, is a principle of treatment that must be considered seriously. Moving about in bed, sitting up, and having the comfort and nursing care made easy, make chances for recovery much greater. This mobility is obtained in suspended splints, because the ball and socket hip joint, with its

wide radius of motion, allows a great latitude of movement of both the limb and the patient, without any danger of moving the fracture site, if the proper extension and immobilizing splint is applied. The principle of suspension is of great value when treating compound fractures and war wounds. It makes for easy exam-

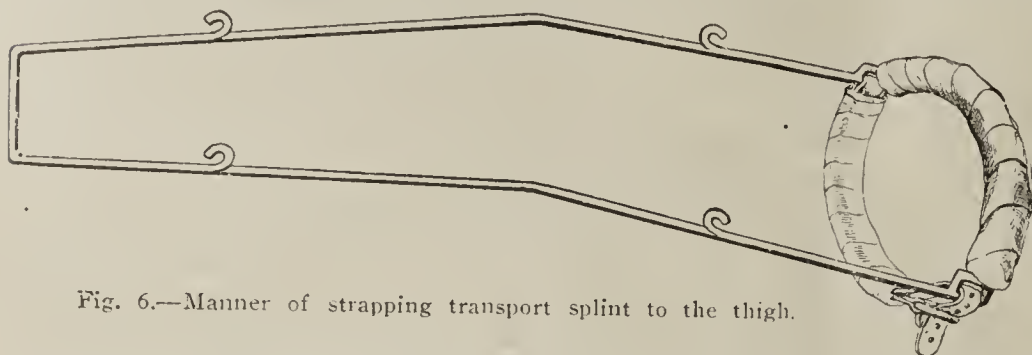


Fig. 6.—Manner of strapping transport splint to the thigh.

ination and dressings, and facilitates roentgen-ray examinations and irrigations of the wounds, all of which are of cardinal importance. The suspension makes possible also the free movement of both the leg and the patient, thereby contributing to his comfort and to ultimate good functioning.

Another important principle of treatment which is frequently forgotten or ignored is that of flexion of the limb in a position of physiologic rest. The position that is most restful is slight flexion. Hyperflexion and hyperextension produce muscle strain and much pain, with later results of a paralyzed muscle.

Too often a splint is applied with the hamstring muscle stretched and painful. Stretch the hamstring muscle by hyperextension, and observe how quickly it becomes painful. We are born flexed, and uniformly assume flexed positions when at rest. It is a great mistake to ignore this fact when using splints.

In fractures of the femur there is more or less damage done to the soft parts; and in war particularly the wounds are of the first importance. Any appliance that ignores the treatment and care of muscle and soft parts is faulty; and when fractures are compound and infected, such appliances are impossible. Massage and care of the skin and circulation are very important, even in simple fractures. An appliance that permits open treatment of a compound

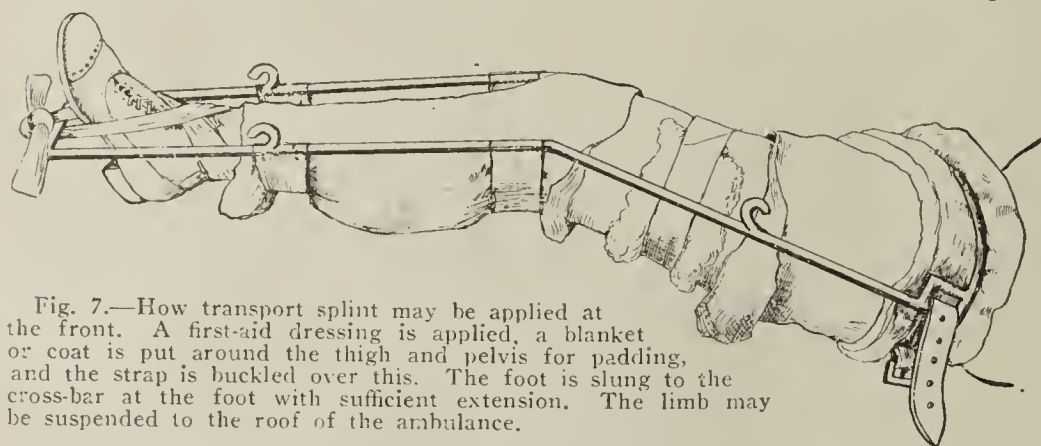


Fig. 7.—How transport splint may be applied at the front. A first-aid dressing is applied, a blanket or coat is put around the thigh and pelvis for padding, and the strap is buckled over this. The foot is slung to the cross-bar at the foot with sufficient extension. The limb may be suspended to the roof of the ambulance.

fracture is, of course, absolutely essential. The wire cradle, open type of splint has so far met this requirement most successfully.

These several principles mentioned are of relatively varying importance, it will be realized, according as to whether the patient is old or young, the fracture

simple or compound, and according to other varying conditions. Fixation and extension should always be secured if possible, and flexion should not be ignored. Open treatment, suspension and mobility are of such importance in many cases as to be absolutely essential. In the aged, in compound fractures, and in war wounds, these principles applied are of inestimable value.

Now, manifestly that appliance is the most valuable and efficient which incorporates the most of these several more or less essential principles of treatment.

In reviewing the several splints and appliances used for treating fractured femurs, one will see that, in proportion to the efficiency of the treatment, one or more of these principles of treatment have been fulfilled. Often only fixation has been used with coaptation splints of board or plaster; plaster of Paris with extension at the time of "setting"; coaptation splints with extension

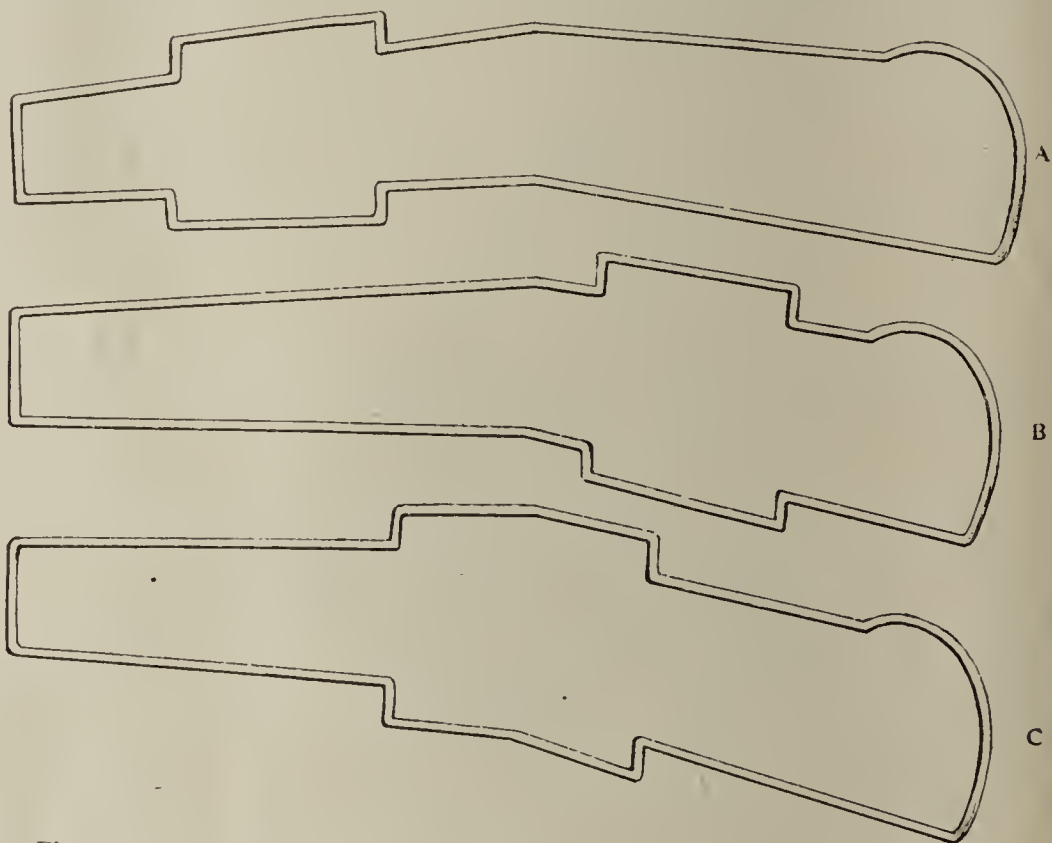


Fig. 8.—Model of modified Hodgen splints spread at the leg (A), thigh (B), or knee (C) to make more room for dressing compound fractures.

applied, such as Buck's extension; also the old Liston side splint with perineal counterextension; Hamilton's side splint, with weight and pulley extension; Nathan R. Smith's wire splint for suspension, and the wire cradle types of splint, with separate suspension and extension. After study, one will invariably conclude that the wire cradle type of splint embodies more of the essential principles of treatment than any other type. We shall readily see that it can be made to meet the indications of treatment of almost any condition. We shall see that this type is peculiarly a war splint, as is proved by its extensive use at present. The Thomas splint appears to be the most popular one in use just now.

It was the genius of a great surgeon of the west, John T. Hodgen, which during our Civil War produced the splint that bears his name. Now that the several most essential principles of fracture treatment are beginning to be recognized, may we not hope that this splint, which compasses all these principles, will

come to perform its true and legitimate function? It is a most perfect wire cradle type of splint, and is, therefore, peculiarly applicable for war service. Ex-

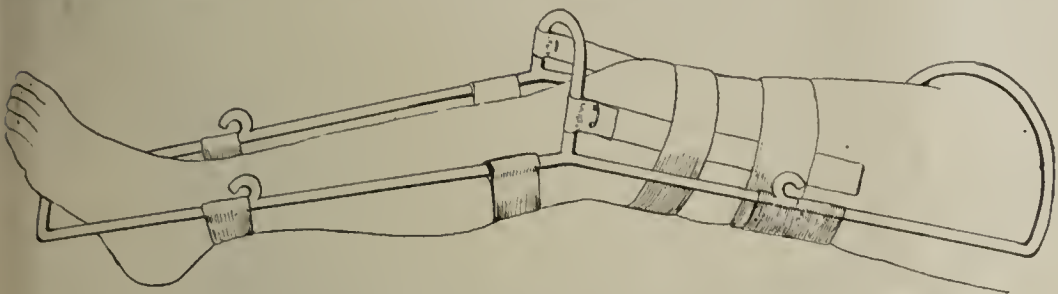


Fig. 9.—How extension by adhesive straps may be made at the knee.

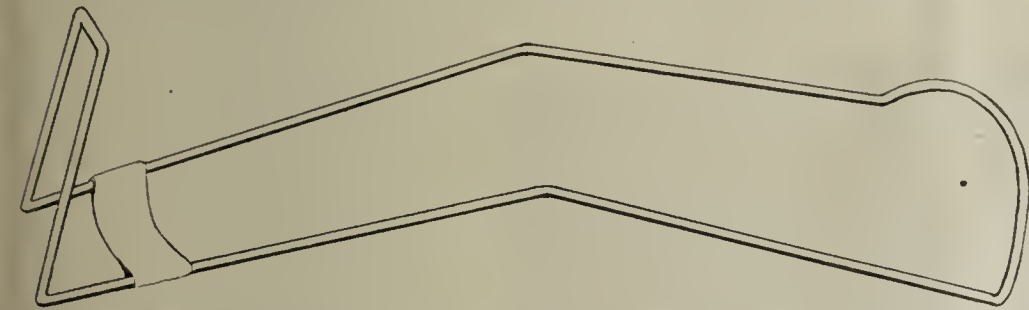


Fig. 10.—Modification with greater offset at the front for either adhesive or clamp extension from the knee. This splint should be of somewhat heavier iron than is necessary without the offset.

tension and counterextension, applied in any requisite amount and with the simplest elementary forces, are secured better than with any other splint yet devised. The inclination of the suspending cord will give any desired amount of extension. Counterextension is secured by gravity, simply by raising the foot of the bed a sufficient amount. Perineal and ischial pressure is avoided. Intra-extension is obtained, which is better than separate pulley and extension, as it leaves the mobility of the patient complete. The factors of mobility, suspension and physiologic flexion are all secured most perfectly. Nearly all modifications of the Hodgen splint have marred, rather than bettered it; but it may be modified in many ways to meet the varying indications for treatment. Such modifications do not deserve separate names, for they are all, in principle, the Hodgen splint. Any degree of flexion at the knee may be secured. The frame may be widened at any place to give more room for treating wounds. Suspension without extension or suspension with any degree of extension may be mea-

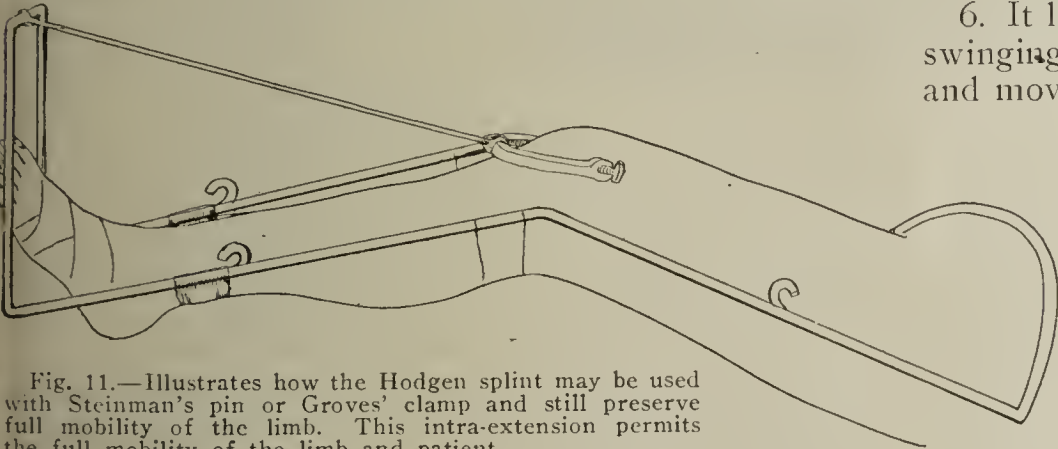


Fig. 11.—Illustrates how the Hodgen splint may be used with Steinman's pin or Groves' clamp and still preserve full mobility of the limb. This intra-extension permits the full mobility of the limb and patient.

sured by the inclination of the suspending cord. Intra-extension within the splint from the knee may be secured by a Buck's extension or a Steinman's pin, still preserving all the free mobility from the hip. For a transport splint, it may be easily modified by using a padded strap threaded through slots prepared at the

upper end of the splint, with the spreading arch to complete the circle around the hip. Extension may be made as usual to the cross bar at the bottom of the splint by a clove hitch to the foot or by a Buck's plaster extension. The splint may be suspended to the roof of the ambulance and will add much comfort in transport.

DISTINCTIVE VALUES OF THE HODGEN SPLINT

1. It immobilizes the site of the fracture most satisfactorily.
2. It gives any requisite degree of extension, with gravity counterextension. Extension is easily measured and controlled. Counterextension is not painful or injurious to the perineum and soft parts.
3. Abduction and adduction, with all the varying positions needed to secure bone apposition, are readily maintained.
4. Extension is within the splint (intra-extension), leaving the entire limb and apparatus mobile and free.

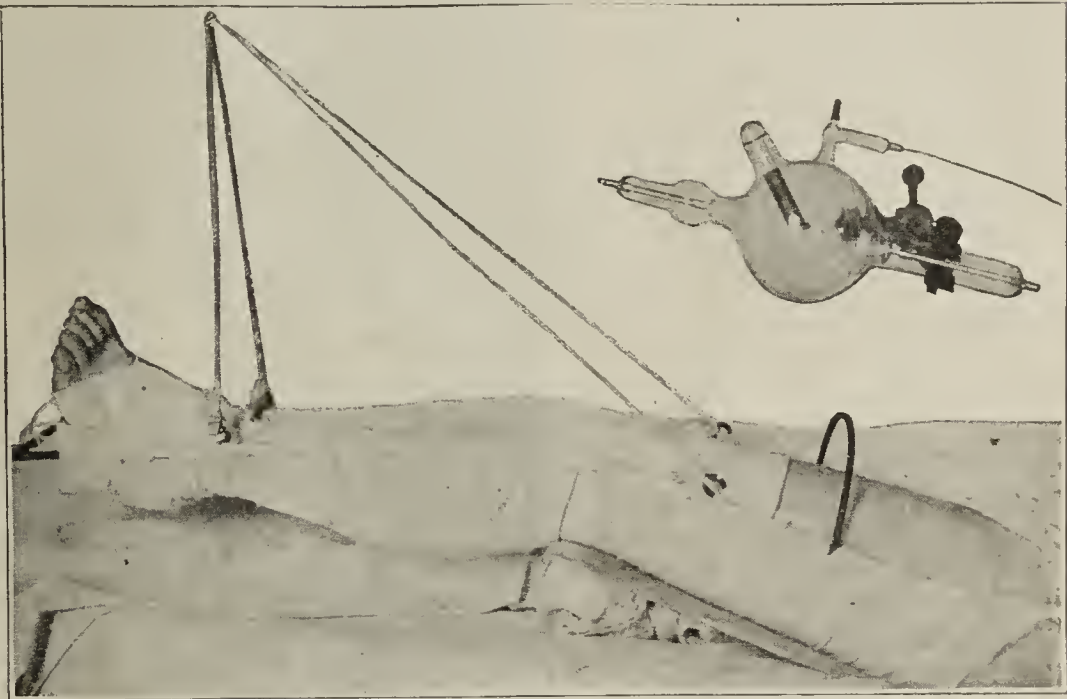


Fig. 12.—Roentgen-ray tube and plate. The ease with which roentgen-ray examinations are made is obvious.

5. Physiologic flexion is secured, thereby preventing hyperextension and muscle strain, with consequent bad functioning, and perhaps a paralysis.
6. It leaves the patient freely mobile, with the thigh swinging. It makes it possible for the patient to sit up and move about in bed, and therefore promotes comfort and good recovery.
7. An open wire cradle splint allows massage, inspection and the good care of the soft parts, which are great factors in getting functional recovery.
8. It is a splint easily modified to meet the indications for treatment of any fracture from the pelvis to the foot.
9. A modification is devised for transport service which is not yet excelled.

ABSTRACT OF DISCUSSION

DR. H. D. WOOD, Fayetteville, Ark.: One of the difficulties I had in making the Hodgen splint was in getting material to suspend the limb. At last I came to use a bath towel. This open weave material does not stretch. It makes the best suspension for the limb that I have found. Years ago I brought

out a splint for the treatment of the humerus. These splints can be used for any sort of case, and they will enable you to do the best work on compound fractures. They have been called orthopedic straight side apparatus. It is time to give the splint another and better name, say orthomelic appliances, straight limb appliances. The patients can be transported easier with these appliances on them than any other way.

DR. DANIEL N. EISENDRATH, Chicago: We must distinguish between the treatment of fractures in civil practice and in war practice. In civil practice the skin is usually intact; in war extensive destruction of the skin and soft parts and frequently comminuted fracture occurs. I am speaking especially of fractures of the femur. Nine men out of ten who are treating fractures in civil practice are treating them with the old method of Hamilton, long external splint with Buck's extension, or Buck's extension with plaster cast. It is folly to put on a plaster cast with extension. The majority of men are treating fractures of the femur in the horizontal position, perhaps elevating the foot of the bed to attain supposed counterextension. The Hodgen splint teaches us that you can put the fracture fragments into line. You do not get them into line if they are in the horizontal position on account of the pull of the muscles. The only modification of the inclined plane is in the lower third of the femur, where it is criminal to apply the old method of horizontal extension or even ordinary oblique extension, because the pull of the gastrocnemius and soleus pulls the lower fragment back so that you cannot get apposition. If you want the fragments in position you must put them up on a double inclined plane, otherwise you get the very serious sequel of pressure on the vessels or union in a bad position. I have never had quite the faith in the Hodgen splint, so far as extension is concerned. In my opinion no splint can make extension directly on the point of fracture. I believe you must make extension on the muscles and tissues around the seat of fracture. The roentgen ray has taught us that we must make extension on the envelop of tissues around the fracture. That contracts immediately, beginning after the fracture, and the contraction pulls the fragments apart. Unless you can keep up extension and pull long enough to tire the muscles and counteract the soft part contraction, the fragments are bound to slide past each other. In war we are obliged to adopt another principle, namely, extension on the long end of the femur. Here the Steinmann pin, the Besley bone peg, have served usefully because we cannot apply the Buck's extension. The majority of men in putting on the Buck's extension forget the comfort of the patient. They do not face the inside of the Buck's extension with something that will not come into contact with the ankle. And the majority of surgeons do not put the adhesive plaster on in such a way as to make direct extension on the soft tissues around the fracture. If you want to put it on properly you must put it on as high as the upper third of the thigh.

DR. F. L. REDER, St. Louis: The chapter on fractures of the femur will require the consideration of men in the practice of surgery for all time to come, because of the manifold diversity in exercising common sense in the treatment of these conditions. Has it occurred to you why this is so? If we revert a bit into history, we find that in 1819 Daniell of Savannah, Ga., applied the weight and pulley to obtain permanent extension. It was Vaningen of Schenectady, N. Y., who in 1855 elevated the foot of the bed to obtain counter extension, while to Sargent of Philadelphia is accredited the application of adhesive straps to the leg to obtain adequate support for extension. Dr. Sargent was good enough to say, however, that he derived the idea from Wallace of Philadelphia. These were really the first steps of progress in the suc-

cessful treatment of fractures of the thigh. They are mentioned to emphasize the value of the little things in connection with the treatment of this fracture. There have been three epochs in the history of the treatment of fractures of the femur. The first started with the earliest periods when fractures were treated and embraced the straight position. The second was instituted by Percival Pott, the distinguished English surgeon, during the eighteenth century, and held sway for nearly 100 years. This treatment was conducted on what Pott called his "physiologic doctrine," consisting in holding the leg in a flexed position, the patient being placed on his side. The doctrine was accepted in Great Britain, in France and on the continent generally. Dupuytren's decision as to the merits of this doctrine was instrumental in popularizing the method in France. Later, modifications began to show themselves, and instead of the patient lying on his side, he was placed on his back. The limb was supported on a double inclined plane. In this country this method of treating fractures of the thigh did not find much favor; the practice of Pott did not become popular. The third epoch, and it is the present epoch, is the one in which the treatment consists in again carrying the limb in the straight position. When Dr. Hodgen contrived his splint he had in mind the one problem, the influence of position on muscle relaxation. He reasoned that

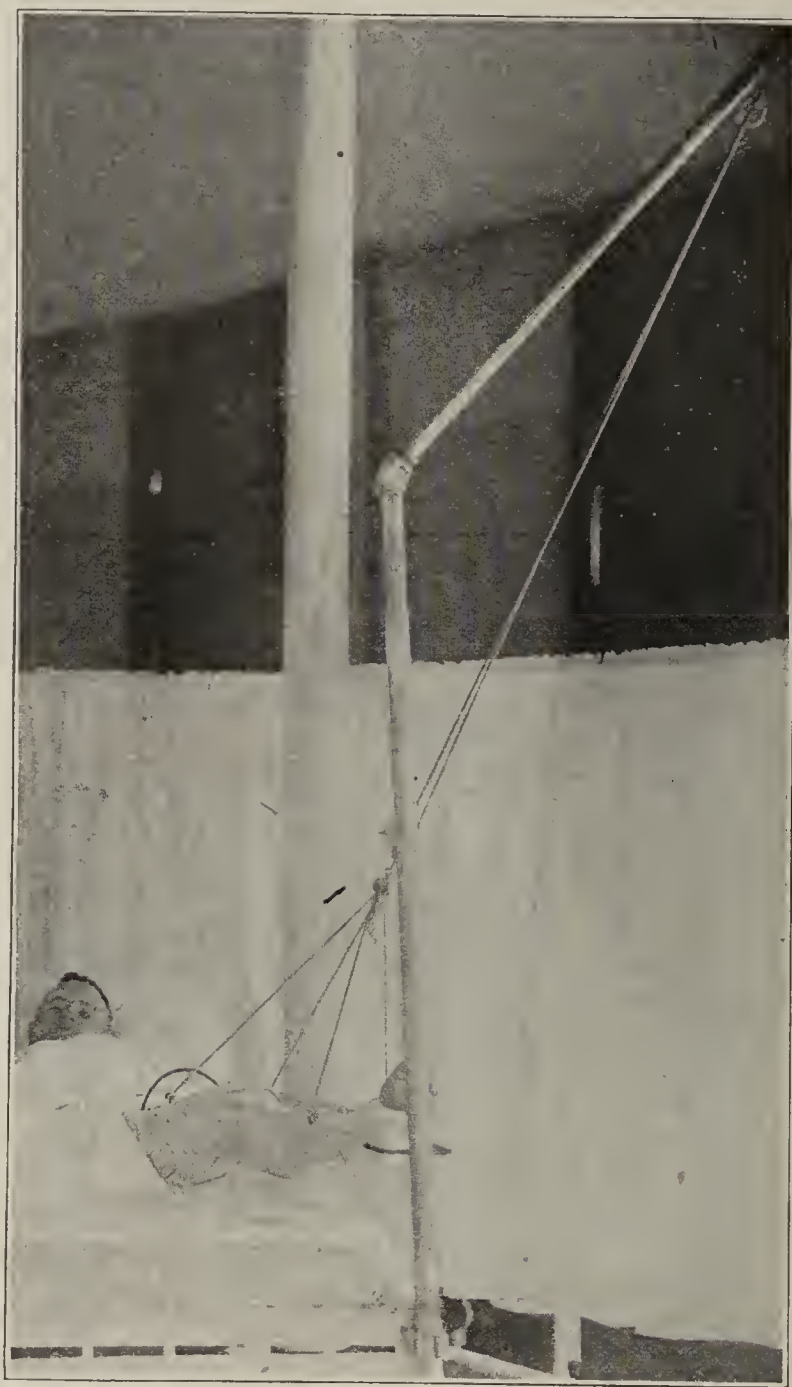


Fig. 13.—Use of the bed standard for suspension, extension and abduction. The abduction is made by the length of the inclining arm.

extension must be made in manner least likely to excite muscular contraction, i. e., in a direction that will not come in conflict with a position of the limb calculated to favor muscle relaxation. The outcome of this reasoning was the suspension splint so graphically described by the essayist.

DR. C. W. MORE, Eveleth, Minn.: I want to endorse the essayist's recommendation of the Hodgen splint in every particular. I have used the Hodgen splint in over 2,000 fractures of the lower extremities. I have tried to get away from it by using other methods, but have always gone back to the Hodgen. It gives the best results, allows inspection and dressing of the fracture without disturbance, is comfortable for the patient, allows the patient to move about in bed, and adjustment of the bed pan is a simple and easy matter. Its use is limited only by the ability of the surgeon to take advantage of its possibilities; one with knowledge of anatomy

and some mechanical ingenuity will obtain the best results. The Hodgen suspension is as useful in fractures of the long bones below the knee with displacement as with the fractured thigh. The more severe and complicated the fracture, the greater the indications for its use. Not only direct, but lateral and counterlateral extension can be obtained. My experiments gave me about 18 pounds direct extension with 45 pounds at the upper end of the pulley, which is a little less than that of the essayist. However, one can get all the extension necessary. The Hodgen can be made by any blacksmith.

DR. E. M. SANDERS, Nashville, Tenn.: I want to say a word for the old people in regard to this splint. Old people, 70, 75 and 80 years of age, can be treated more comfortably in this appliance than in any other, except the rolling chair. Occasionally nonunion occurs, but I put them back for another month, and usually union takes place in the second month. There are two or three little points to which objection is raised. As brought out in fracture of the lower third or fourth of the femur, deformity can be overcome by extreme flexion. Another objection is the heel pain. The patients complain of this pain more than any other pain in connection with the whole treatment of fracture after the first forty-eight hours. That pain can be relieved by padding the Achilles tendon with a big wad of cotton. Dr. Eisendrath has brought out the point of ankle prominence. We relieve this by a piece of tape. We have not used the Wallace pad or any other kind of complicated pad. We use the ordinary hospital pad.

DR. FRANK G. NIFONG, Columbia, Mo.: The principle of treatment I wish to accent most is extension. The fascia lata is the most important structure to be considered when applying the principle of extension. Extension, whether made through the shaft of the bone by Steinmann's pin or by a Buck's plaster, is, nevertheless, made through the fascia lata and the intermuscular septums attached to the linea aspera. Direct bone extension by pin or caliper would displace the lower fragment forward or backward, as the pull happened to be in front or behind the fulcrum or knee joint, if it were not for the fascia lata and soft parts. It is always the pull through the fascia lata and muscles that reduces the limb to normal contour and position and lets the displaced ends of bone come back into apposition. Extension is the most essential principle to be developed in the Hodgen splint. The Hodgen splint has no friction to deal with, and we can closely approximate the amount of extension pull we are making. We need not measure this accurately in pounds, but we need only to know we are getting length and symmetrical contour. Frequent examinations with fluoroscope, so easily done in a suspended splint, will indicate if we need more or less extension, abduction and the amount of flexion necessary to secure perfect apposition of the bones. We do not have to "set" the bone in the classical way. We do not wish to set the bone. In a very short time it will set itself if extension and suspension are applied properly with a Hodgen splint. It may not be the first, second or even the third day, but it comes back in good time. By this continuous even, smooth and not too violent pull, we gradually have muscle relaxation and apposition of the bones with all the soft parts coming back into normal contour. Too much extension puts the muscles in a spastic condition, and will not act as quickly as a lighter weight. Not over 10 or 15 pounds is sufficient, as a rule. Of course, the principles of suspension and open treatment are of great importance in war work. That is the reason for the popularity of the wire cradle type of splint at present.

The Hodgen splint is of exceptional value in treating fractures in the aged. It is with these old people that the principle of mobility counts for so much. Mobilizing them is next to getting them "up and out." To keep the old going and their functions all active is the most important principle in geriatrics. The Hodgen splint is of peculiar value not only in the aged, but in every case, because it permits the consideration of the patient as a whole. It considers his nerves, his vessels, his muscles, his skin and all his functioning organs. It permits the patient to be treated as a psychologic entity, and cares for him as a feeling human being.

Do not forget the importance of the splint being open, allowing for inspection, massage, measurements, etc. We see contour and symmetry of the limb and can compare it with the other at all times. Good contour is almost synonymous with good results. Ninety per cent., at least, are good results, according to the British Fracture Committee.

MUCODERMOID CYST OF THE PERICARDIUM*

JUAN BACIGALUPO, M.D.

BUENOS AIRES, ARGENTINA

Pericardial tumors occur rarely. In 5,700 necropsies made since 1906, we found them only twice. They are all secondary tumors. We have more frequently found tuberculous granulomas in miliary tuberculosis, although it is one of the less frequent localizations. Parasites, hydatidiform cysts, cysticerci, etc., have also been described.

This case is one of congenital cyst of the pericardium, and is the first, I believe, to be described.

Intrathoracic congenital tumors, though rare, have been found. Nandrot,¹ in a review of the literature of dermoid and mucoid cysts of the anterior mediastinum, did not find a single case that can be compared with our case. A

case observed by Nandrot was the fifty-seventh case recorded. In none of them did the tumor reach the pericardial cavity, and in only a few cases was the tumor adherent to the parietal layer of the pericardium. In one case a dermoid cyst was firmly adherent to the pericardium, the large blood vessels, and to the trachea. This tumor was the size of a fist.

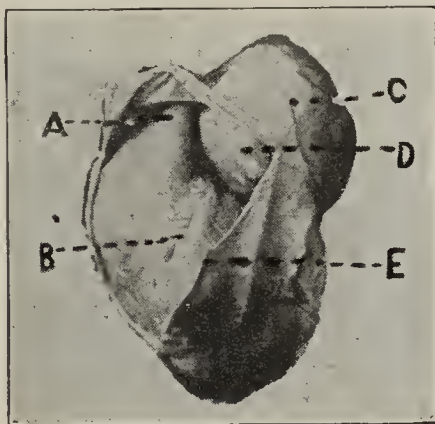


Fig. 1.—The heart: A, origin of pulmonary artery; B, anterior ventricular wall; C, phrenic nerve; D, tumor; E, parietal pericardium.

Pathology of Tumor.—On removal of the sternum a small elevation of the pericardial region was perceptible. When the pericardium was opened a tumor was observed in the region of the left auricle (Fig. 1 A). The phrenic nerve was visible on the anterior surface of the pericardium overlying the tumor.

When the pericardium was opened we found only slight adhesions at the level of the anterior pole of the tumor. After the pericardium was removed we proceeded to study the localization of the tumor and its connection with the heart, endeavoring at the same time to ascertain the modifications of the anatomic configuration of the heart.

The tumor was situated in the place usually occupied by the left auricle, causing a protuberance in front of the large vessels.

When the tumor was removed from its bed, the pulmonary artery (Fig. 2, 1), the left auricle (4), a part of the right auricle, the aorta, the base of the left ventricle, with the corresponding coronary artery were flattened to form the bed of the tumor.

The dissection was not difficult, because there were no adhesions between these structures and the tumor.

* From the Laboratory of Bacteriology and the Anatomic-Pathologic Institute of the Hospital de Niños.
1. Nandrot: Contribution à l'étude des kistes dermoïdes du médiastin antérieur, thèse de Paris, 1917.

except at the posterior pole, where the aorta and the pulmonary artery adhered to one another.

The tumor was pear shaped with its larger pole facing forward and its small pole backward. It was free in the pericardial cavity. It had a capacity of 35 c.c., and was of unequal consistency, being soft in some spots and hard in others. It weighed 30 gm.

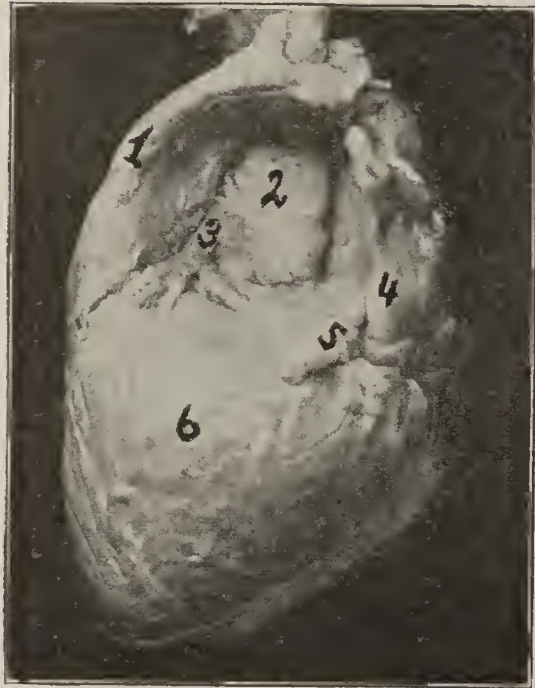


Fig. 2.—Cavity where tumor was placed; 1, pulmonary artery; 2, aorta; 3, coronary artery dissected; 4, left auricle; 5, small auricle (left); 6, left ventricle.

When the tumor was opened (Fig. 3), it was found that the larger pole was occupied by a single cavity; the remainder of the tumor had a honey-comb structure. The wall of the large cyst was smooth like that of all the teratomas. Numerous trabeculae divided the tumor into a large number of small spaces containing partly solid and partly semifluid material. The solid part consisted of ten small masses like grains of coffee, of different sizes (Fig. 4). They were soft and mushy, breaking up on the slightest pressure. They did not dissolve in acetic acid, or in a mixture of alcohol and ether. The fluid content was mucoid in character, precipitating on the addition of acetic acid but not dissolving in an excess of it.

The Heart.—The ventricles and the right auricle were in their proper position. The left auricle was flattened out and completely hidden between the lower surface of the tumor and the base of the ventricles on one side, and on the other, between the tumor and the perietal pericardium. Its walls were almost in contact.

The pulmonary artery, though very much flattened (Fig. 2), was not obstructed, because water injected into the right ventricle passed through it without any difficulty. The circulatory mechanism was normal anatomically, although slightly disturbed on account of vascular modifications.

Microscopic Anatomy of Tumor.—Microscopic examination of the contents of the tumor disclosed cellular elements, cubical and columnar, some of them ciliated containing roundish bodies (Fig. 4) of the size of a leukocyte and full of granulations. These bodies (Fig. 4) were homogeneous in structure, having no nucleus and no affinity for the usual stains. Hematoxylin stained them uniformly. Some of these masses contained bodies the size of a red blood cell with a center that stained more deeply with hematoxylin.

Sections embedded in paraffin and paraffin-celloidin showed that they were formed by two portions—a cortical layer and an internal epithelial mass.

The cortical layer was formed by a series of concentric layers or lamellae, as is generally observed in these tumors, probably on account of the pressure exerted by the contents.

Embedded in the fibrous tissue, without regular formation, are glandlike structures, some of which seem to be of the sebaceous type (Fig. 5). There are also vessels, though these are few in number. The cellular portion differs according to the places examined.

In some portions we found an epithelium resembling epithelium of the malpighian layer of the skin. In those portions we could not find papillae, which we know are not found in simple dermoid cysts. In other portions we found only endothelium, and in still other portions, layers of cubical cells, the inner layer being ciliated (Fig. 5).

Elsewhere, we found columnar cells, ciliated, in a single layer, and between them were embedded mucus or so-called goblet cells (Fig. 5).

Pathogenesis of Tumor.—I shall endeavor to explain the pathogenesis of the tumor, since, so far as I know, none exists. To do so, it is necessary to consider the embryology and study branchial development, which I consider as important as the arterial development.

THEORIES OF TERATOLOGIC FORMATIONS

But, first I wish to discuss the theories advanced to explain teratologic formations. I shall discard the old theories and consider only the dominant three theories. There is, first, the theory of diplogenesis formulated by Geoffrey Saint-Hilaire and now discarded, and it would be very difficult to explain our case on that theory. The second theory is that of parthenogenesis. This theory is applicable only to the cysts of the ovary.

The third theory is that of inclusion or embedding. This is the one that interests us most, because it is the one that explains the formation of the tumor in our case. According to this theory, at various periods of embryonic life epithelial fragments are isolated in atypical places, and later they may produce the dermoid tumor.

When the inclusion is of one branchia, for example, it may produce any one of three histologic formations:

- (1) a simple dermoid tumor (by the inclusion only

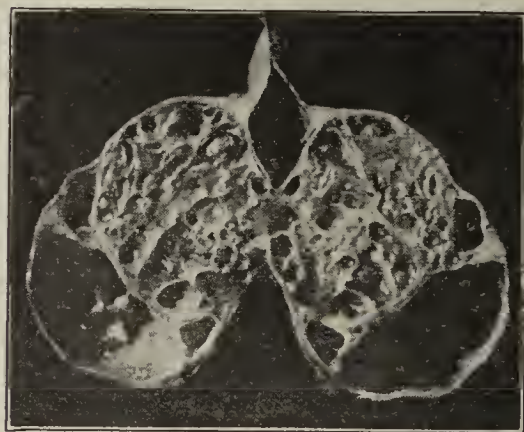


Fig. 3.—Tumor opened, showing thickness of wall and also all the partition walls and the cavities that these subdivide.

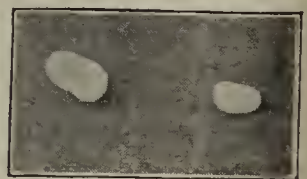


Fig. 4.—Small masses found in the interior of the tumor, showing size.

- of the ectoderm), (2) a simple mucoid cyst (by the inclusion of the endoderm), and (3) a mucodermoid tumor (as in our case) when both ectoderm and endoderm are involved.

In the developing human embryo four branchial fissures form, of which the first two appear when the embryo is from 2 to 3 mm. long, the third when it measures from 3 to 4.5 mm., and the fourth when it measures 5 mm. These fissures are formed in the walls of the pharynx. They are symmetrical and extend from before backward, one above the other. These fissures do not meet, in front, thus forming

the mesobranchial space in the anterior wall of the pharynx. In the upper part of this space is situated the lingual tubercle, also called the pharyngeal tubercle. The histology of these fissures is of great importance, as it will explain the case under consideration.

At this level the ectoderm and endoderm are separated by the mesoderm, which disappears gradually



Fig. 5.—Center of gland in the partition wall. Toward one and another cavity, a cylindric epithelium with vibratile cilia may be observed; Leitz objective 3; ocular 5; tube, 190.

until the two blastodermic layers are fused. There exists a fifth fissure which, however, is regarded by some authorities as being a diverticulum of the fourth fissure. The important fact is that the fissure occurs only in the endoderm, and for this reason its inclusion could not explain our case. These fissures separate the five branchial arches, each of which contains in its interior a branch of the aortic arch. An interesting fact is that it is connected with the position of the aortic bulb with respect to the branchial fissure. Its position would be between the third and fourth branchial arch over the anterior surface of the pharynx. When the embryology of the branchial fissures and arches is understood, it is comparatively easy to comprehend the pathogenesis of these cases. If a portion of the branchial fissure becomes adherent to the wall of the arterial bulb, this portion, in its descent and transformation into the aorta and the pulmonary blood vessels, would drag down with it the included epithelial fragment as soon as the division of the trunk takes place. This explanation supports the theory of the fifth fissure as being the location of the tumor. On the other hand, it would be difficult to explain the formation of a tumor of such unusual tissues, if it were not of a similar formation.

As to which branchial fissure would be involved, I am of the opinion that it would be the third or fourth on account of the embryologic localization, as well as its ultimate evolution in the embryo.

The fact of finding pavement epithelium in some of the cavities in our specimen is sufficient reason for discarding the theory of inclusion of the tissues of the branchial sinus.

In short, the mucodermoid cyst arises from a fetal inclusion in the third and fourth branchial fissures formed by epithelial cells displaced when the arterial bulb of a unique trunk transforms itself into the aorta and the pulmonary blood vessels.

1578 Gallo Street.

ADENOMA SEBACEUM

A REPORT OF FIVE CASES IN ONE FAMILY*

J. B. SHELMIRE, M.D.

DALLAS, TEXAS

The rarity of this disease, together with the large number of cases in one family, is sufficient reason for the presentation of this paper. During my twenty-two years' work in dermatology, these are the only cases which have come under my observation. Several authorities had described this disease before its true nature was recognized.

REVIEW OF THE LITERATURE

It has been stated that Balzer in connection with Menetrier and Grandhonne investigated the histopathology and gave to the affection the name of sebaceous adenoma. Sutton states that Rayer was the first to describe the disease that we now recognize as adenoma sebaceum, and that Pringle was the first to describe the histology of the lesions. In the majority of the cases described, the lesions consisted chiefly of hypertrophy of the sebaceous glands, as in Case 1 of this report. Crocker believes all the appendages of the skin are involved and regards the affection as a "pilosebaceous hidradenoma." In Case 2 there is an increase in the number of hair follicles. Hartzell, in his late work, states that a limited number of cases have been reported, but that it is quite certain that not all the cases reported under this or similar titles represent the same affection, some undoubtedly being examples of benign cystic epithelioma. In this country

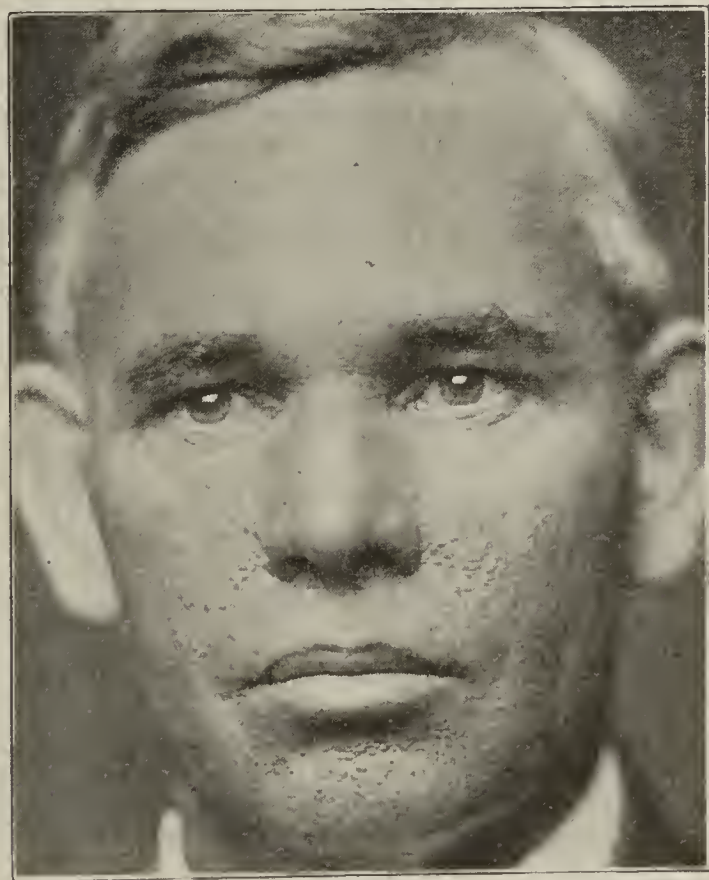


Fig. 1 (Case 1).—Symmetrical distribution of adenoma sebaceum. Pinhead to pea-sized lesions scattered over the face, being especially numerous on the chin, nose and adjacent surfaces.

cases have been reported by Pollitzer, Gottheil, Sutton and probably others. Pusey states that it is rare in America, but not uncommon in the pauper institutions of Europe. All authors lay stress on the fact that it

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

is more common among the poor, ill fed, and feeble-minded.

The cases which I wish to report occurred in country folk of more than average appearance and intelligence. While a few cases have been reported as developing in adults, the majority are congenital, the lesions usually appearing in the first decade of life. The dis-

eminence is a soft, elevated lesion, probably a fibroma (Fig. 3). To the right of the outer canthus of the right eye is an elevated, soft, dark brown growth, 2 by 3 cm. in size.

CASE 4.—A girl, aged 6 years, presents lesions, the character and distribution of which resemble those in Case 3, but are somewhat smaller. On the forehead is a linear, elevated lesion, probably a fibroma (Fig. 4).

CASE 5.—A boy, aged 3 years, in whom the eruption was just beginning to appear, had a few pinhead sized lesions of the color of the normal skin on the cheeks, and a linear, developmental defect on the forehead (Fig. 5).

HISTOPATHOLOGY

(Report by Dr. J. H. Black.)

Macroscopic Appearance.—The mass is roughly spherical in shape and approximately 5 mm. in diameter. Firm. The cut surface is smooth and somewhat translucent.

Microscopic Appearance.—The epidermis is thinned, and the interpapillary processes are very short or entirely absent over the greater portion of the mass. The corium is much thickened; the papillae are wide and blunt or entirely absent. The blood vessels are not increased in number or size. Occasional small areas of round-cell infiltration are seen. The sebaceous glands are increased in number and size and extend deeply into the corium (Fig. 6). Some of these show small cystic dilatations. The hair follicles also are much increased in number, particularly in the section from Case 2.

Treatment.—Radium, the roentgen ray, electrolysis and carbon dioxid snow were considered. The family lives 60 miles from Dallas. The father is a tenant farmer and of moderate means.

These facts had some bearing on the method of treatment selected, and consequently it was thought best to first try the carbon dioxid snow. As a preliminary report, it may be said that fair progress is being made in the destruction of the lesions by means of this agent. The oldest girl has been given seven treatments, the second six and the third five. The pigmented growths and other large developmental defects have

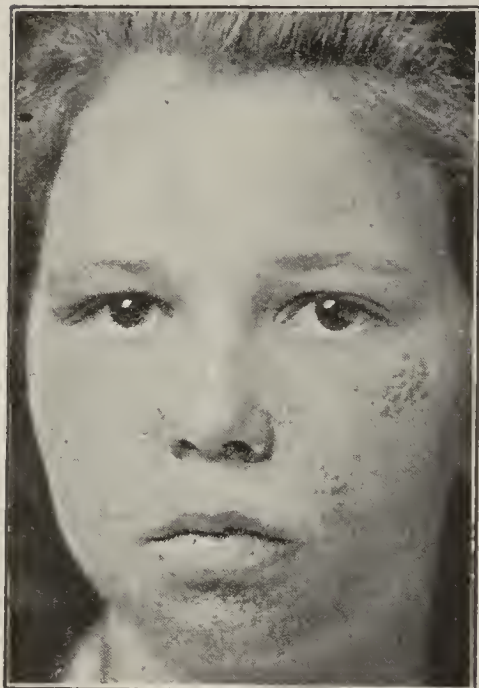


Fig. 2 (Case 2).—Wide distribution of the lesions which cover the chin and extend under the lower jaw down on to the neck. Over the left malar eminence the lesions are especially large.



Fig. 3 (Case 3).—Condition the same as that in Case 2. The large lesion on the left malar eminence is probably a fibroma.

ease may appear in family groups, Spofford Taylor having reported three cases in one family. I can find no record to match my report of five in one family.

REPORT OF CASES

CASE 1.—A white man, aged 42, married, stated that the eruption first appeared at the age of 6 years. The lesions are pinhead to pea-sized and symmetrically distributed over the face (Fig. 1). They are more numerous and larger on the chin, nose and adjacent surfaces, but a few are scattered over the forehead. While many of the lesions are of the normal color of the skin, some are of a deep purplish hue. Telangiectasis was fairly well marked. In some instances the lesions are confluent.

CASE 2.—A girl, aged 12, had an eruption that began at the age of 6 months. The lesions were more numerous and more widely distributed than in any of the other patients. They developed earlier in this case than in any of the others. The lesions are symmetrically distributed and most numerous about the chin and in the nasolabial folds (Fig. 2). There are many under the lower jaw, and quite a few on the neck. There are a fairly large number on the forehead, together with one large rounded lesion, which probably is a fibroma. In size they are from that of a pinpoint to that of a half-pea. While few are of normal skin color, most of them are pinkish. Over the left malar eminence the lesions are larger, aggregated, and a few are confluent, giving rise to an elevated patch 1 by 2 cm. in extent. On both upper eyelids there are numerous pinpoint lesions. There are a few brownish moles on the face; and on the floor of each nostril, near the entrance, are two small verrucae.

CASE 3.—A girl, aged 10 years, had an eruption that began at the age of 5 years. The history of this case is merely a repetition of that of Case 2, although the lesions are less numerous and not so widely distributed. On the left malar

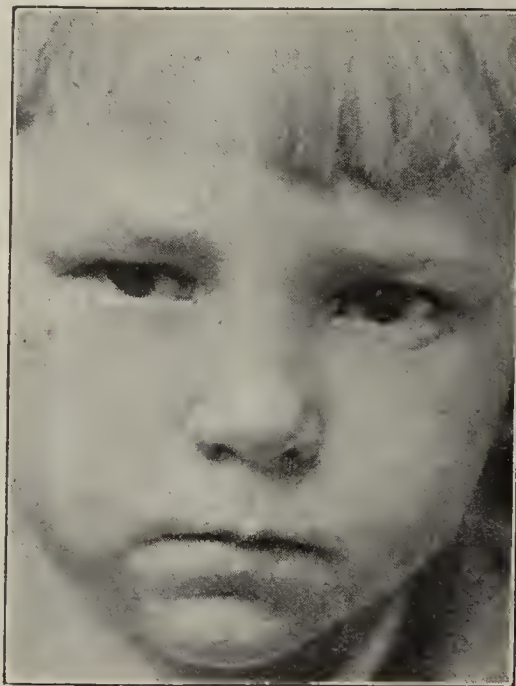


Fig. 4 (Case 4).—The lesions are somewhat smaller in this patient. The elevated patch on the forehead is a probable fibromatous growth.



Fig. 5 (Case 5).—The patient, aged 3 years, presents the eruption in its initial stages. The lesions are pinhead sized on the cheeks with noticeable linear marks on the forehead.

responded to this plan of treatment in a satisfactory manner.

Results.—Many of the sebaceous lesions have entirely disappeared. There has been practically no resultant scarring. I feel sure that in the course of time all of the little tumors can be successfully eradicated. On the very small ones I shall use electrolysis.

ABSTRACT OF DISCUSSION

DR. JAMES HERBERT MITCHELL, Chicago: Several years ago Dr. Ormsby and I saw three cases in one family. The patients were a Polish woman and two daughters, one aged 5 and the

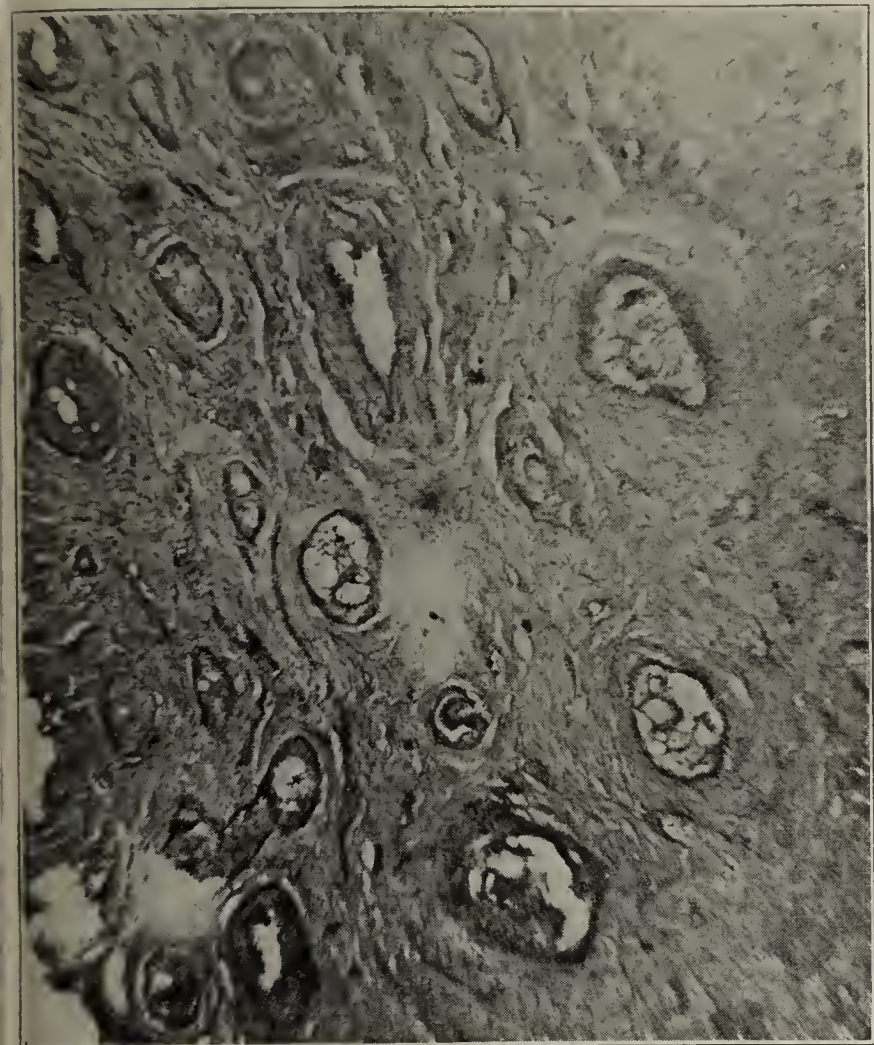


Fig. 6 (Case 6).—Microscopic section. The cross-section shows the increase in the hair follicles and sebaceous glands.

other 7. There were several other children in the family, but there was no opportunity of seeing them, so I do not know their condition. No treatment was given these patients because we could not get them to come again. The mental condition in this series was much the same as in the cases of Dr. Shelmire; that is to say, they were rather abnormally bright children. A few days ago a patient came for observation after a year's absence. The patient had been treated with roentgen rays and carbon dioxid snow, and he was remarkably improved.

DR. RICHARD L. SUTTON, Kansas City: I was interested in Dr. Shelmire's paper because of the large number of persons affected in one family and also because of the excellent results secured by the very simple method of treatment employed. I should hesitate to use the roentgen ray in such cases and electrolysis is extremely painful. The carbon dioxid snow apparently gave excellent results. Not many cases of adenoma sebaceum occur in this country, but it is a common affection in Great Britain. Often there is an associated molluscum fibrosum. This family group appears to be far more intelligent than the average patient afflicted with this disease.

DR. JESSE B. SHELMIER, Dallas, Texas: I was afraid to use the roentgen rays on these children. The lesions were very numerous and covered large areas. I have used the carbon dioxid snow in various affections without any bad results. This influenced me in using that method of treatment.

Military Hospitals in Italy.—In time of peace Italy had twenty-eight principal military hospitals and two auxiliary, with six convalescent stations and thirty-one infirmaries. In September, 1917, there were 948 *ospedali di riserva*, twenty-one convalescent stations, 146 Red Cross hospitals and one hospital of the Order of Malta, with several hundreds of thousands of *posti-letto*.

Clinical Notes, Suggestions, and New Instruments

AN ATYPICAL FIBROLIPOMA OF UNUSUAL SIZE

J. A. KING, M.D., TLAHUALILO, DURANGO, MEXICO

The unusual size and the difficulty of classification of this tumor make the case worthy of report.

In April, 1917, A. H., a nearly pure-bred Indian girl, aged 21, presented herself to me for treatment. She was well developed and with all organic functions apparently normal. She gave the history of having been born with a small nodule or induration of the skin immediately below the inguinal region in the left thigh, which soon began to increase in size and extend downward.

The entire left thigh was greatly increased in size as compared with the right. The epidermis of the skin covering the external aspect and the outer half of the posterior and anterior aspects was apparently normal, but the deeper layers of the skin were very much thickened and indurated and seemed to be continuous with the subcutaneous tissue; but beginning at the middle of the anterior and posterior aspects the skin assumed a pachydermatous nature and so continued, covering the whole of the tumor, which occupied, and was pendent from, the entire internal aspect of the thigh. Above, the tumor terminated abruptly just below the perineum, and below about an inch posterior to the inner condyle of the femur, thus forming a pedicle whose greater diameter was 13



Anterior view of tumor. Note roughened, pitted condition of skin.

inches and whose thickness was that of the thigh. The pendent mass hung nearly to the patient's shoe tops and was covered with a thick, roughly pitted pachydermis, an idea of which may be obtained from the accompanying illustration. The left labium majus was greatly thickened, enlarged and indurated, and had the appearance of elephantiasis. This

condition had been pronounced by other physicians as elephantiasis, and operation was discouraged; but as she was able to walk only with great difficulty, she gladly accepted my offer to operate. An incision 13 inches long was made along the inner border of the thigh; the skin was found to be very fibrous and an inch thick, and prolongations of this tough, hard, fibrous tissue were found to extend deeply into the tumor base of fat, and islands of it were found throughout the tumor. In fact, this fibrous tissue was nearly as prevalent as the fat, and was so tough that it was difficult to puncture it with a needle. There was nothing resembling a capsule, as in lipoma, but the fatty part of the tumor was permeated by a network of veins as in cavernous lipoma, although very few arteries were encountered.

Owing to the fact that for seven years we have been at the mercy of patriotic (?) revolutionists and for obvious reasons were loath to replenish our supply of instruments, I began the operation with a very deficient supply of hemostatic forceps, and having to ligate so many veins, it took me considerable time to complete the operation. The skin covering the posterior aspect of the tumor was the same as that of the anterior; and as the fibrous tissue was very much less vascular than the fatty tissue, the posterior flap became gangrenous and on the third day the patient was again anesthetized and about a pound of gangrenous tissue removed, whereupon she went on to a slow but steady recovery. The part of the tumor removed weighed 26 pounds.

At present, a year after the operation, the left thigh measures 29 inches in circumference at the middle third, while the right measures 17 inches at the same level.

This tumor, while not typical of any, had characteristics of the hard fibroma, the lipoma telangiectodes or cavernous lipoma, and the pachydermis would identify it with the molluscum fibrosum group. No microscopic examination of the tissue was made.

THE TRIAL FRAME FOR TEST LENSES, WITH DEMONSTRATION OF A NEW MODEL

WALTER L. PYLE, M.D., PHILADELPHIA

The ordinary trial frames and test lenses seldom conform to the modern standards of the skilful medical refractionist. In hospitals and dispensaries they are especially faulty, and often ludicrous. It is most important that the trial frame shall be firmly and snugly placed on the sides of the nose and

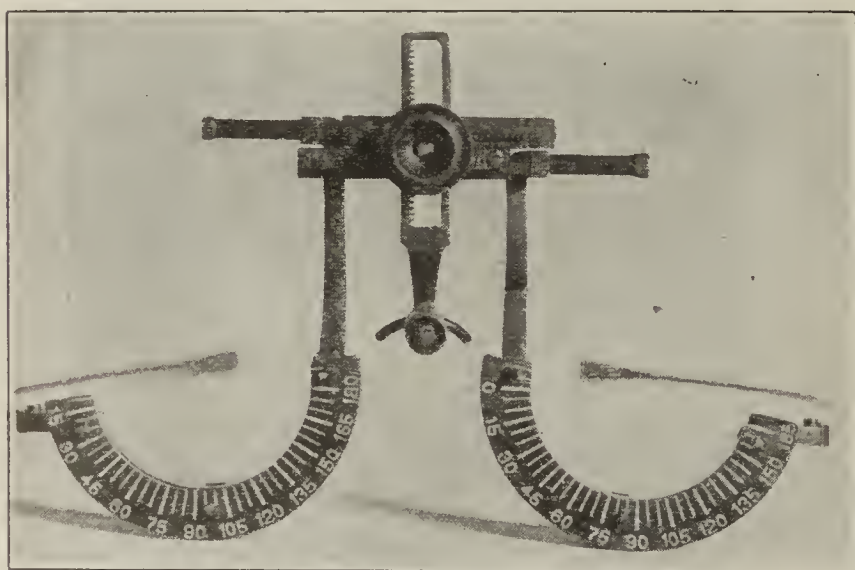


Fig. 1.—New model of trial frame, front view.

adjacent cheeks, in approximately the position in which the prospective spectacles or eye-glasses will be worn. In this respect all frames fixed to mechanical instruments, such as optometers, are at fault, often clumsy, and are signally deficient for accurate testing.

The prime requisites for a trial frame are rigidity, lightness, proper position on the face, and ease of general adjustment and manipulation of the trial lenses. There is also a necessity for individual adjustment of the two sides, to permit perfect binocular centering.

The test lenses, carefully centered, should be placed before the eyes, properly inclined, and just clearing the eyelashes. The bridge of the frame should not wound the skin or cause irritation or pain. Rotation of the cylindric lenses must be easy, silent and unnoticeable, to prevent even momentary diversion of the patient's attention. The frames should be grooved and slotted to allow rotation of the cylinders at least 180 degrees. The cells with the cylinders should have short handles, and the rotation should be effected by light contact



Fig. 2.—New model of trial frame, back view.

on these handles with the tip of the first finger. It is impossible to practice noiseless and smooth rotation, when using cells without handles. The placing of the trial lenses in the spring clips is awkward, disconcerting to the patient and trying to the oculist. Only by the use of a properly grooved and slotted trial frame can the ideal examination of the refraction be made.

For many years I employed the best types of the standard trial frames, with minor modifications suggested by Dr. George M. Gould and myself. For the last six years I have used one of three frames made under the direction of Dr. Gould. Generally speaking, this has been satisfactory, but it fails to permit bilateral individual adjustment. I showed a modification of this frame last year (1917) at the meeting of the Section on Ophthalmology of the American Medical Association, but this was lacking in the necessary central universal adjustment.

The trial frame which I present now has a universal vertical and horizontal adjustment by rack and pinion movement, permitting adaptation for any peculiar facial conformation. This adjustment is placed in the center of the frame. The frame is grooved for two lenses. The front groove, for the cylinders, is slotted to allow rotation of the cells with handles. A third test lens may be placed in front of the frame resting on three small hooks.

The bilateral independent adjustment is effected by two double screws operated on the upper outer side of the frame. The frame is placed on the face, quickly set by the universal adjustment, and supplemented when necessary by the movement of the independent double-screw adjustment, until the lenses are properly centered.

Broad shell coverings on the inner sides of the two cell holders permit the snug application of the frame to the sides of the nose and cheeks. The nose piece proper is used only to fix and maintain the proper position.

The graduated semicircles are enameled in dull black with distinct white lines and figures, allowing the maximal ease in reading the axes. The whole frame is finished dark and dull, to prevent annoying reflections.

1931 Chestnut Street.

Produce the Essentials.—As an ever increasing percentage of our manpower is drawn overseas, the problem of producing adequate amounts of essentials becomes increasingly difficult. There is no possible escape from a possible shortage of the necessities of life other than through a diversion of productive energy from the nonessential to the essential industries.—H. G. Moulton, *Economist*.

AN OPERATION FOR THE CORRECTION AND PREVENTION OF PARALYTIC GENU RECURVATUM

WILLIS C. CAMPBELL, M.D., MEMPHIS, TENN.

Professor of Orthopedic Surgery, University of Tennessee, College of Medicine; Orthopedic Surgeon, Memphis General, Lucy Brinkley, Baptist Memorial and St. Joseph Hospitals.

On account of the mechanical arrangement and location, the unstable paralytic knee remains a difficult problem, while



Union of lower third of patella to tibia, the upper two thirds forming a stop joint; also osteotomy of femur for genu valgum.

many operative procedures about the ankle and other joints have been most satisfactory.

In paralytic genu recurvatum I have employed a procedure which has been successful in one instance and applied in several others too recent for consideration. The object of the measure is to unite the lower third of the patella to the anterior aspect of the tibia just below the knee joint, leaving the upper two-thirds free but articulating with the femoral condyles in extension thus forming a stop joint and mechanically preventing hyperextension.

TECHNIC

A linear incision is made through the skin and superficial structures in the midline for 5 or 6 inches, exposing the patella and the ligamentum patellae. The tendon above the patella is incised by a Z-shaped plastic lengthening (commonly employed in lengthening the Achilles tendon). The capsule is next incised, making the patella and the parts of the joints easily accessible. The cartilage of the lower third of the patella is removed to the spongy bone; the periosteum is stripped one-eighth inch on the anterior surface. A cavity on the upper anterior aspect is now made in shape and size to receive the lower third of the patella. The patella is then inserted into the receptacle and the periosteum of the patella sewed to the periosteum about the margins of the cavity, thus

leaving the upper two thirds of the patella to act as a stop joint and preventing hyperextension. The patella tendon is now sewed at neutral tension, fascia and skin closed, and plaster applied in 20 degree flexion. After eight weeks, a brace is applied and worn for six months

COMMENT

The patella remaining attached to the periosteum and ligamentum patellae is in no sense a free graft, but has circulatory conditions obviously more apt to promote union. In fact, I have successfully applied the same principle in both paralytic and tuberculous cases when bony ankylosis was desirable, except that the entire posterior aspect of the patella was denuded and a corresponding portion of the adjacent femur and tibia.

REPORT OF CASE

A girl, aged 16, with genu recurvatum and genu valgum, was operated on, July 1, 1917, as described above, except that the genu valgum was corrected by supracondyloid osteotomy. The result three months later is indicated by the accompanying roentgenogram, which shows firm bony union of the patella to the tibia. Since operation one year has elapsed, and the condition remains unchanged.

MADURA FOOT: REPORT OF A CASE

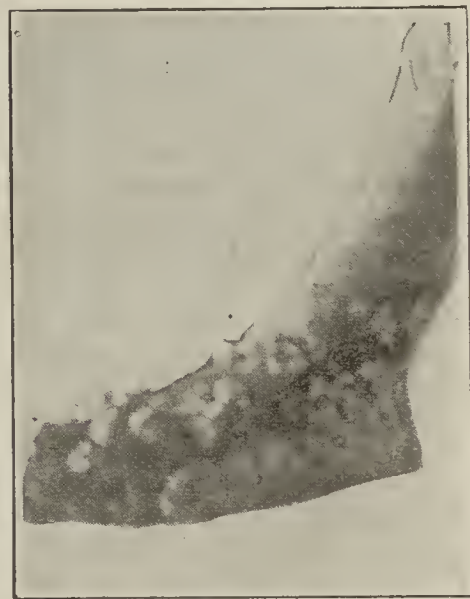
HORATIO NAVARRO, M.D., SANTA MARTA, COLOMBIA

J. C., Colombian laborer, in the employ of the United Fruit Company at Santa Marta, Colombia, admitted to the hospital with a diseased foot, had had measles, smallpox and occasional attacks of malaria. There was no history or indication of syphilis, or of any other serious illness. The family history was without interest. In general appearance the patient was healthy, with the exception of his foot and an acne rosacea.

He stated that the trouble with his foot began about a year before admission with small nodules appearing on the external portion of the dorsal surface. These grew in size and increased in number until almost the whole foot was involved, localizing especially at the toes. When the patient was admitted, the foot was greatly swollen and enlarged, particularly in the transverse diameter, being almost twice the size of the normal right foot. The first and second toes had lost their normal appearance, having been completely invaded by numerous nodules. A seropurulent fluid exuded from small, yellowish white granules on the surface of the foot. Some of the granules were as small as a pinhead, and others were fungating nodules as shown in the accompanying illustration.

It was possible to pass the probe through these nodules down to the bony structure without producing pain, and with very little bleeding. The exuding fluid from the sinuses and the fungating nodules was examined under the microscope, and yellowish looking mycelian elements were found to be present. They coincided in appearance with the fungus known as *Dyscomyces madurae*, belonging to the genus *Nocardia*, which is responsible for the comparatively rare condition known as Madura foot. Apparently the same variety was reported by Lindenberg in Brazil.

As a rule this disease begins in the sole of the foot, but in this case the first lesions were noted on the dorsal region and none were found on the under surface. As far as is known this is the first case of Madura foot reported in Colombia.



Madura foot.

The treatment consisted in the administration of maximum doses of the diarsenol brand of arsphenamin followed by large doses of potassium iodid; but no improvement was noted. Subsequently extensive incisions were made, the first and second toes amputated, and thorough curettement done in all the sinuses and incisions. After the surgical treatment the wounds were dressed with antiseptics, and the patient made an uninterrupted recovery, and was discharged from the hospital.

REPORT OF A CASE OF PRIMARY TUBERCULOSIS OF FAUCIAL TONSILS

T. E. OERTEL, M.D. (AUGUSTA, GA.), AND GEORGE A. GRIOT, M.D. (ST. LOUIS)

Major and Captain, Respectively, M. R. C., U. S. Army

CAMP LOGAN, HOUSTON, TEXAS

While tuberculosis is a very prevalent disease affecting practically all the tissues of the human body, being especially frequent in the glandular system, it is less often or seldom found as a primary infection of the faucial tonsils.

The following case occurred in the otolaryngologic service of the base hospital at Camp Logan, Texas.

REPORT OF CASE

History.—W. H. F., a well nourished and developed white male nurse of German nationality, aged 26, stated that two years before, for a period of six months, he had had charge of a tuberculous ward in a general hospital for soldiers, located in Wisconsin. The patients in his charge had principally advanced cases of pulmonary tuberculosis. He had been away from the hospital for one year. The family history was negative. In December, 1917, he had had an attack of tonsillitis of a type unknown to him, lasting about two weeks. He had not recovered completely from this attack, as a soreness had persisted in both tonsils, more pronounced in the left, until the time of consultation, March 7, 1918. Also he had noticed a swollen condition of the left tonsil which had persisted since the attack of tonsillitis in December, 1917. Four weeks previous to consultation, he had complained of hoarseness which would last for a few days, then subside for a day or two, and again recur. For the previous two weeks hoarseness had been constant, growing progressively worse. Eating sour fruits, such as lemons or grapefruit, caused irritation of the throat, but did not cause coughing.

Physical Examination.—The general appearance of the patient was that of a normal, healthy man. His appetite was good. He had had no night sweats and no loss of weight, and he slept well. He coughed very little, expectorating a yellowish material when clearing his throat, about two or three times an hour during the day. He did not cough up any pulmonary secretion. The skin was normal.

In the ears, both conchae were normal. The right canal was negative. In the left a small amount of mucopurulent material was found. The right membrana tympani was covered with a whitish and opaque deposit. The light reflex was absent. The left revealed the same condition as the right, except that it had a small perforation in the posterior inferior quadrant. The discharge had existed for fifteen years, dating from an attack of measles.

Examination of the gastro-intestinal system revealed the fact that the mouth was normal in contour and color, and the tongue, esophagus, stomach, liver and intestine negative.

Examination of the respiratory system beginning with the nose showed that the septum had deviated to the right and that the left inferior turbinate was hypertrophied. The nasopharynx and the sinuses were normal. A general anemia of the larynx was found.

The epiglottis was very much enlarged, about half an inch in thickness, and presented a large eroded area on the left side. It was anemic and covered with granular masses, the size of small birdshot, yellowish and semitranslucent. A mucopurulent secretion was noted, covering both the epiglottis and the structures of the larynx. The arytenoid cartilages were very much enlarged. The left was much larger than the right, having a distended appearance as though it were filled with

air. The left vocal cord was swollen, with a large ulcerated area near the middle and much elevation along the edge. The right cord was not much thickened and presented a small, ulcerated area where it approximated the ulcer of the left cord. The trachea presented a thickening of ring immediately below the left vocal cord. In the right lung, fine râles were audible in the suprascapular space after cough. In this region, over an area the size of a dollar, vocal and tactile fremitus was slightly increased. The left lung was negative.

The right tonsil was the size of a small hickorynut; the posterior third presented an ulcerous excavation, bandlike in form, with the surface roughened and studded with numerous little, yellowish, elevated nodules, the size of a mustard seed shot and extending from the upper to the lower pole, taking in the posterior third from the apex of the pillars to the base of the tonsils. This ulcerative process had eroded the parenchyma almost to the capsule. A small remnant of the parenchyma remained on the posterior pillar. The pillars showed no departure from the normal.

The left tonsil presented an ulcerated area triangular in form, covering the anterior two thirds of the tonsil below and leaving a small portion of tonsillar tissue posteriorly unaffected. The depth of the ulcer and its appearance were similar to those already described in the right tonsil, with this difference, that considerably more tonsil tissue was destroyed. Perhaps this would indicate that the infection had existed primarily in the left tonsil. The cervical glands were palpable on both sides and slightly enlarged. The submaxillary, axillary and inguinal glands were negative. The temperature ranged from normal to 99.2 F.

Both tonsils were removed, March 9, 1918, under general anesthetic by dissection and snare. There was very little hemorrhage, and the fossae presented a smooth appearance.

Laboratory Report (by Captain Stone).—The right tonsil was 1.5 by 2 by 0.8 cm. thick. It was irregular in outline. The capsule showed an uneven surface. The inner surface of the tonsil appeared uneven and granular, and of a mottled dark red, with points 1 mm. in size and almost white. The mucous membrane was apparently entirely eroded. The left tonsil resembled the right, but was not quite so thick. In the microscopic examination, tubercle bacilli were found in mucus recovered from the larynx.

The patient was sent to a tuberculosis sanatorium, March 12, 1918.

PRESERVATION OF COMPLEMENT

MEYER D. MOLEDEZKY, B.Sc., M.D., CHICAGO

A somewhat extensive series of articles have appeared relative to the preservation of complement, and many ingeniously worked out methods have been advocated. It is not the intention now to discuss the merits or demerits of other methods but to offer a method, simple, inexpensive and reliable, which I have used.

I have found that complement from freshly bled guinea-pig blood, centrifuged, is not so powerful as that which stands over night in the refrigerator and is permitted to separate from the slowly contracting clot. This has repeatedly been observed and corroborated in an extensive series of experiments covering a long period of time, by titrating the same complement shortly after obtaining the blood, and likewise the following morning, using the same amboceptor and sheep corpuscles.

For the preservation of complement, the worker needs a vacuum bottle into which finely cracked ice is dropped until the bottle is filled almost to the neck, and then covered with a small amount of ordinary bath or sea salt. The complement, pipetted into a test tube and corked, is now pressed into the bottle. A piece of string, tied to the tube just below the lip margin, is permitted to hang out of the vacuum bottle when corked, enabling ready access to the tube; the bottle is then placed in the refrigerator. In a short time the complement becomes frozen solid, and in this condition it retains its strength indefinitely, thus serving as a miniature refrigerating plant. It is necessary to remove the tube and empty the water from the bottle, replenishing the ice and

salt at least every forty-eight hours—preferably daily. In order to use the complement, the water from the vacuum bottle may be poured into a beaker or other receptacle and the frozen complement tube set into it to thaw. If the entire amount is not used, the balance may be treated as before and the complement in this manner may be preserved until the last drop is used. The preliminary titration of amboceptor, corpuscles and complement each time used should not be abolished because of the foregoing, as the former two may and do vary, even though complement does not. Caution is to be exercised in filling the vacuum bottle, not to pack the ice into it. The ice is to be dropped in gently, as otherwise it becomes too compact, and when the tube is inserted it may break the bottle; or the tube fits into a clumped ice pack which, instead of hugging the tube, because of salt and the fine ice particles keeping it frozen, forms a pocket into which the tube rests freely, and prevents freezing by liquefaction of the ice in immediate contact with it.

25 East Washington Street.

Military Medicine and Surgery

MIXED INFECTION (MENINGOCOCCUS AND PNEUMOCOCCUS) MENINGITIS

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B. E. F., FRANCE

There have recently appeared three communications dealing with the subject of meningococcus and pneumococcus infection of the meninges in persons in which the primary infecting micro-organism was the meningococcus. The first two, by Netter and Salanier,¹ placed on record a series of cases observed in children. Mathers² has also described a case which he observed in an infant. The relative frequency of this condition is not as yet precisely determined, though it is believed to occur in about 5 per cent. of cases.³ That it may occur more commonly than is at present supposed is possible, judging from recent work. In a series of twelve cases of meningitis (cerebrospinal fever) the pneumococcus as well as the meningococcus was found in three cases.

From such a limited number of cases it is impossible to draw any conclusions; but it is hoped that as a result of this publication it may be possible to direct the attention of other workers to the desirability of following the case of cerebrospinal meningitis in such a way that, if the pneumococcus appears in the cerebrospinal fluid during the course of the disease in a given patient, the fact may be duly recorded.

The study of cerebrospinal meningitis until very recently has often not been conducted with the idea of close correlation of clinical and laboratory observations. In this connection it is necessary to have in mind the fact that the laboratory examination of a few specimens of cerebrospinal fluid from a patient suffering from meningitis is not enough. Every sample of fluid withdrawn must be examined bacteriologically if we are to have exact information as to the number of persons with pure meningococcus

meningitis who subsequently show the presence of pneumococcus in the cerebrospinal fluid.

The statistics as to the value of antimeningitis serum in the treatment of epidemic meningococcus meningitis are all more or less open to this objection, because it is highly probable, if not certain, that not all the observers who have reported the results in large series of cases (including Flexner, Dopter, Sophian, Netter and Debré) have had the results of the bacteriologic examination of every specimen of cerebrospinal fluid withdrawn in all the cases in the series which they have reported. Similarly, the work of the Meningitis Division of the Research Laboratory of the Health Department of New York City, which is probably the best example of civilian endeavor to control meningitis, is hampered because the study of the cases from beginning to end, clinically and bacteriologically as well, has not been possible.

In a given case of meningococcus meningitis, when the outcome is fatal, unless every sample of fluid withdrawn is examined bacteriologically, the result cannot be counted as a failure in serum treatment. The progress of the patient clinically must be correlated with the laboratory finding.

It is recognized that in many hospitals, both in America and on the other side of the Atlantic, just such carefully correlated clinical and bacteriologic studies have been made in cases of meningococcus meningitis. This is a special plea for similar work in all cases in which it is possible. The importance of cerebrospinal meningitis from a military standpoint has stimulated renewed interest in the subject, and the special means devised in several of the Allied countries for dealing with the problem have laid the foundation for future civilian efforts. In England under the auspices of the Medical Research Committee, and under the direction of Lieut.-Col. M. H. Gordon, C. M. G., and his co-workers, a very complete organization for this purpose has been established.

The cases herein recorded were seen in a military base hospital in Canada. In nine of the twelve cases the infection was due to the meningococcus alone, and in all of these cases the patients recovered. Of the other three cases, one was a doubtful case of mixed pneumococcus and meningococcus infection:

CASE 1.—C. A. complained of headache on a Friday afternoon; he became quite ill during the night, and the next morning was removed to the hospital. A lumbar puncture was done, as he now showed other symptoms of meningitis. The cerebrospinal fluid was turbid, and many smears by Gram's method showed the presence of gram-positive and gram-negative diplococci. Cultures of the fluid were made, but only the pneumococcus was recovered in culture. The patient rapidly grew worse and died the next evening.

In this case the diagnosis of mixed infection rests on the smears made of the first specimens of cerebrospinal fluid examined; the patient died so soon after admission to hospital that complete cultural studies were not possible. It may be argued that in this case we were dealing with a pure pneumococcus infection. Such is not the opinion of those who have had the opportunity of studying the smear preparations.

In the other two cases fortunately the laboratory findings were more complete:

CASE 2.—H. G. R., aged 26, complained of severe headache and general malaise, Jan. 28, 1918. He was admitted to the hospital and it was found that there was considerable retraction of the head and rigidity of the neck muscles. A lumbar puncture was done and 10 c.c. of turbid fluid under consider-

1. Netter, A., and Salanier, M.: Bull. et mém. Soc. méd. d. Hôp. de Paris, June 28, 1917, p. 789; Arch. de méd. d. enf., September, 1917, p. 449.

2. Mathers, George: Mixed Infection with the Pneumococcus in Epidemic Meningitis, THE JOURNAL A. M. A., Nov. 24, 1917, p. 1778.

3. Gordon, M. H.: Personal communication to the author.

able pressure were withdrawn. The patient was at once transferred to the isolation section of the base hospital. Many pus cells and a few extracellular and intracellular gram-negative diplococci were found, from fluid withdrawn. Next morning the meningococcus was isolated in pure culture. Between January 30 and February 3, lumbar punctures were done every twelve hours and antimeningitis serum given intraspinally. During this time the patient's condition improved, and February 4, at 8 a. m., the temperature was normal for the first time since the patient's admission to the hospital. At that time his pulse was 80 and respiration 20. The examination of the spinal fluid withdrawn at 11:45 p. m., February 3, revealed a considerable number of pus cells, a few intracellular gram-negative diplococci, but no extracellular organisms. The next lumbar puncture was done at 11:45 a. m., February 4. The examination of the fluid withdrawn revealed the presence of many meningococci, and in addition, many gram-positive diplococci, which, when cultivated, were found to be pneumococci. At this time the patient's clinical condition was so satisfactory that only the laboratory findings warranted the bad prognosis which was given as soon as pneumococci were found in the cerebrospinal fluid. The patient became unconscious the next day, and gradually sank and died at 8 a. m., February 7, less than seventy-two hours after pneumococci were found for the first time in the cerebrospinal fluid.

In this case, after four or five doses of serum had been given, the patient's condition was so much improved, and the change in the character of the spinal fluid was such, that a favorable outcome was anticipated. It is a matter of further interest that the bacteriologic examination of the fluid afforded an indication of the probable fatal termination of the illness, some time before there was any marked change noted in the patient's general physical condition. The pneumococcus isolated in this case was a strain of Type I.

CASE 3.—R. B., aged 18, first complained of frontal headache, Feb. 10, 1918. On the morning of February 11, he had nausea and vomiting and headache. He became drowsy and unable to walk. When he was examined, marked retraction of the head, rigidity of the neck, and Kernig's sign were noted. A lumbar puncture was done and 25 c.c. of turbid fluid under considerable pressure was withdrawn. Later the same day, a second puncture was done and 60 c.c. of fluid withdrawn, and 30 c.c. of antimeningitis serum administered intraspinally. The examination of the cerebrospinal fluid showed many pus cells, a few extracellular and many intracellular gram-negative diplococci. Between February 11 and 16, nine lumbar punctures were done, cerebrospinal fluid was withdrawn and antimeningitis serum administered after each withdrawal of fluid. February 16, the fluid was only slightly turbid, and while pus cells were quite numerous in the film preparations, no extracellular or intracellular meningococci were found. Coincident with the disappearance from the cerebrospinal fluid of all meningococci, there was marked improvement in the patient's condition. It was noted, February 16, that the patient was much improved; only slight headache was complained of, the temperature was 98.2, the pulse 80, and respirations 20, at 8 p. m. The fluid withdrawn at 11 p. m. on this date also showed no micro-organisms.

February 17, the patient's condition suddenly became very grave; there was marked delirium, the pulse was 120, the temperature 102, and respirations 20. A lumbar puncture was done, and 85 c.c. of very turbid fluid were withdrawn; the film preparations showed great numbers of gram-positive diplococci which on culture were found to be pneumococci Type II.

The patient gradually sank, and died at 12:15 a. m., February 18, less than forty-eight hours after pneumococci were found in the cerebrospinal fluid.

All the cases found in the literature have resulted fatally, with the exception of those reported by Netter and Salanier in which recovery of three patients is

recorded.⁴ The use of Type I antipneumococcus serum is certainly indicated when the organism producing the mixed infection is a strain of this type of pneumococcus.

CHRONIC ENDOCARDITIS WITHOUT ACUTE ONSET

LOUIS M. WARFIELD, A.B., M.D. (MILWAUKEE)

Captain, M. R. C., U. S. Army

JEFFERSON BARRACKS, MO.

At no time have physicians had such a wonderful opportunity to examine thousands of supposedly healthy men as they are having today. Some of our ideas in regard to the relationship of certain infectious diseases to the development of chronic valvular heart disease have been abundantly confirmed, and other ideas have had to be modified.

We are having under observation in hospital men who, so far as they know, are well. Many times it falls to our lot to see the beginning of disease long before we should have seen it had the man waited for the development of symptoms before presenting himself to us for advice. In civilian life the latter is what happens, so that even our best textbooks detail symptoms that are not necessarily the very earliest, although they may be the earliest symptoms that made the patient consult a physician.

For years it has been taught that rheumatism and its associated diseases, chorea, tonsillitis, and growing pains in childhood, were responsible for most of the chronic deforming processes affecting the aortic and mitral valves in young persons. In men, disease of the aortic valves leading to aortic insufficiency was more common; in women, disease of the mitral valve leading to mitral stenosis was more common. Disease of the mitral valve leading to mitral insufficiency was about equally common in the two sexes. So far as I know, congenital syphilis has not been found to be a factor in producing aortic valve disease as acquired syphilis has.

The men who have been examined at the Recruit Depot, Jefferson Barracks, Mo., and on whom the statistics that follow are based, were for the most part men under 31 years old. About one fourth of the number were mere boys under 20. A few were as old as 39, but they were a very small percentage of the total number examined.

My attention was directed early in the work to the total absence of etiologic factors in cases of true mitral stenosis and of aortic insufficiency. Mitral stenosis is a lesion which is so definite that no mistake should be made in the diagnosis of the well marked cases. It has come to my attention, however, that many men have been given their discharge from the Army on account of supposed mitral stenosis. Careful reexamination of these both by myself and others has revealed absolutely normal hearts. Cases here reported as mitral stenosis were most carefully examined and no case was diagnosed as mitral stenosis which did not have definite presystolic thrill, presystolic rumble ending in a definite snappy first sound. The left ventricle in no case showed evidence of enlargement.

In spite of the most careful questioning there were instances in which there was no history obtainable of

4. Netter, A., and Salanier, M.: Arch. de méd. d. enf., September, 1917, p. 449.

any infection that presumably could have accounted for the disease of the heart valves. Syphilis could be ruled out in all cases except in the few older men who actually gave a history of syphilis.

My statistics include the records of the examination of 43,427 men between the ages of 18 and 39. About 15,000 of these were examined by me personally during the routine examination of the men. The suspected cases were noted and held for further study. The cases among the rest of the 43,427 men were those referred to me that were picked out of the routine examinations and given more extended study. In this way I feel that we caught all the heart lesions occurring among this group of men. There were 24,002 drafted men and 19,425 volunteers.

Condition	HEART LESIONS	No. of Cases
Aortic insufficiency		22
Mitral stenosis		29
Mitral insufficiency with hypertrophy of left ventricle.....		19
Mitral insufficiency with no hypertrophy of left ventricle.....		87
Total (0.38 per cent.).....		157

INFECTIOUS DISEASES	
Acute articular rheumatism	62
Tonsillitis	10
Chorea	1
Growing pains	11
Diphtheria	1
Pneumonia and typhoid (when 3 years old).....	1
Scarlet fever	4
Measles	2
Malaria	2
Smallpox	1

MITRAL STENOSIS, TWENTY-NINE CASES	
Rheumatism	8
Tonsillitis	4
Chorea	1
Growing pains	5
Diphtheria	1
Pneumonia and typhoid	1
Scarlet fever	1
Total	21

In eight cases (27.5 per cent.) there was no history of any infection.

AORTIC INSUFFICIENCY, TWENTY-TWO CASES	
Rheumatism	4
Syphilis	2
Tonsillitis	1
Measles	1
Smallpox	1
Scarlet fever	1
Total	10

In twelve cases (54.5 per cent.) there was no history of any infection. There was one basketball player, and there were several athletes, including one long distance runner. None had ever had symptoms.

MITRAL INSUFFICIENCY, ONE HUNDRED AND SIX CASES	
Rheumatism	50
Tonsillitis	5
Growing pains	6
Scarlet fever	1
Malaria	1
Measles	1
Total	64

In forty-two cases (39.6 per cent.) there was no history of any infection.

At the outset I am prepared to admit that some of these men who denied history of disease may nevertheless have had some infection in infancy. Every intelligent boy, however, can usually carry his history beyond the time he can remember, if he is not an orphan. Furthermore, it is doubtful if infections in infancy have as great a bearing on the development of chronic valvular disease as infections that occur in childhood or later in life.

I think it will be granted that the cases of mitral stenosis and aortic insufficiency were caused by definite changes in the valves leading to shortening, thickening and adhesions. With the cases grouped as mitral

insufficiency, the same cannot be said. Possibly the cases with hypertrophy were true lesions of the mitral valve. There are, however, so many varieties of systolic murmurs heard at the apex, many of which are not associated with any disease of the valve but are purely functional in type, that the determination of organic or functional cause is often impossible. Nor does it matter much what the character of the murmur is as long as there is no hypertrophy of the left ventricle and there is normal response to exercise with no history of symptoms.

It will be seen from the table that syphilis played little part in the history of the cases of aortic insufficiency. It must be remembered that these men were for the most part young men under 25 years of age. All our experience goes to show that the aortitis of syphilis is a rather late manifestation and usually is found in men after 30, in most cases after 40.

Although there was no history of infections obtained in some of these cases, it is hard to believe that there had not been some present so mild as to have escaped the notice of the victims. We recognize "walking typhoid," pneumonias so mild that the person does not seek advice and scarlet fever so mild that only the subsequent skin desquamation and the outbreak of other cases give us the clue to diagnosis. Have we not here evidence of endocarditis so mild in type that it does not make its presence known, yet the valves are being irreparably damaged? The mildest cases clinically recognized as such are not necessarily the very mildest due to any particular organism. The cases we see of endocarditis are those that have symptoms sufficiently severe to bring the possessor under medical care. We certainly may assume that there are still milder cases in which there are no symptoms.

SUMMARY

The figures presented in the foregoing show that typical physical signs of aortic insufficiency and of mitral stenosis are found in many young men who have never suffered any inconvenience on account of their heart lesion, and who can give no cause for the development of the cardiac lesion.

Possibly such cases are the very mildest cases of acute endocarditis, running a course absolutely symptomless, and found later accidentally only when a supposedly healthy man is examined.

Health of Glasgow Schoolchildren.—The *Glasgow Medical Journal* for July, 1918, gives in abstract some of the findings of the report of Dr. Andrew of the medical inspection of the schoolchildren of Glasgow for the year ending July 31, 1917. It was found that in no instance did the children come up to the standard of height and weight established by the Anthropometric Committee except in the case of the boys of 5 years whose average height was half an inch greater than the anthropometric standard. A considerable proportion were above the average in nutrition, but there were also a considerable number of undernourished children. Only 26.4 per cent. of the boys had sound teeth and 10 per cent. of the girls. Stammering was found to be more frequent among the boys, twenty-six cases being found among them as against eleven among the girls. Thirty-seven per cent. of the children were suffering from some disease or defect other than nits or vermin. Of those with physical defects, in 1909, there were 58 per cent. with rickets as compared with 29.5 in 1917. The proportion of underfed children was less than in the previous year. There was also an improvement with reference to tuberculosis, the percentage being 17.8 for 1909 and only 11.7 for 1917.

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PHYSICIANS UNDER THE SELECTIVE SERVICE LAW

THE JOURNAL has hoped that special regulations would be issued for the guidance of the Selective Service Boards in the placing of physicians. Up to this time no such special regulations have been promulgated and from present indications none will be promulgated. Hence physicians will go through the same procedures as other men. They will receive the questionnaires from their Local Boards, which they must fill out and return. Incidentally, no matter how many other questionnaires a physician may have received, or from what sources other questionnaires may have come, that sent by the local board is the one which he must fill out and return. This questionnaire is quite similar to that used for the registrants under the previous registration. In filling out the questionnaire the physician, as every other registrant, must indicate whether or not he desires deferred classification or exemption. If he waives exemption or deferred classification, the matter so far as he is concerned is settled, although others may intervene before the appeal board and ask exemption or deferred classification for him. It may be confidently expected that the number of physicians asking for deferred classification or exemption will proportionately be much lower than is the case with any other calling or profession.

There are three main grounds on which physicians may request exemption or deferred classification. (1) physical disability, (2) dependency, (3) community need.

(1) Comparatively few active practitioners in medicine will claim exemption on the ground of physical disability.

(2) The question of dependency is covered by Series X of the questionnaire. This is a very extended list of questions, and it is intended to secure accurate information regarding each registrant's financial status. In the past some of the selective service boards in considering this question of dependency have also considered the possibility that a physician might secure a commission and, therefore, a superior position in a

financial way over the private. On the other hand, many boards have regarded the physician in exactly the same light as other men.

(3) The important group from the physician's standpoint is that in which exemption is claimed under that portion of the law which warrants exemption of "persons engaged in . . . occupations or employments . . . found to be necessary to the maintenance of the military forces or the maintenance of national interest during the emergency," or in those groups specifically designated as exempt. The Provost Marshal-General has prepared an explanatory memorandum covering this point. According to this memorandum the local boards have authority, subject to the right of appeal to the district boards, to pass on claims of registrants who are engaged in the occupations or employments specifically designated by the law as exempted or entitled to deferred classification. Included in this classification are "medical students, county and municipal officials . . . such persons employed in the service of the United States as the President may designate, . . ." In other words, medical students, physicians holding national, county or municipal positions, of importance to the public health, or physicians employed in the service of the United States, for example, on the local boards, whom the President may designate as entitled to exemption, will be exempted by the local boards by making claim on this ground on the questionnaire and producing the necessary proof that they are so engaged.

The district boards have the authority to pass on claims for exemption on the grounds that any particular occupation or employment is necessary and whether or not the registrant is necessary therein. No individual, group of individuals or organization can usurp this authority. Only these boards can determine what persons — i. e., what physicians — are engaged in "occupations or employments . . . found to be necessary to the maintenance of the military forces or the maintenance of national interests during the emergency." In order to aid the boards in passing on such claims each district board is authorized to appoint three advisers; one is to be nominated by the Department of Labor, one by the Department of Agriculture and one by the district board itself. The law provides for additional advisers when more are required. These advisers are not members of the board, have no right to vote at any meetings, but have definitely advisory powers only. The regulations state, further, and this is a point which applies particularly to physicians:

"The necessity of not seriously interfering with certain occupations and employments, such as financial, commercial, educational, hospital work, care of the public health, or with the conduct of certain other activities necessary to the public welfare and the prosecution of the war, requires that the District Boards have the cooperation of such advisers so that persons necessary in such activities be not removed there-

from. To this end the adviser nominated by the District Board should bring to the attention of the District Board the questions as to whether or not individuals engaged in some particular industry, occupation, or employment are so necessary thereto as to outweigh the benefit to the Nation should they be drafted into the Army."

This paragraph indicates that the question as to whether a certain physician registrant is needed in a medical college, in a hospital, in civilian practice, in an institution, etc., will be investigated and reported on to the board by the "adviser" nominated by the District Board.

In defining the word "necessary" the boards are instructed that this word implies (1) that the registrant is actually and completely engaged in the occupation and that he is competent and qualified in that capacity; (2) that the removal of the registrant "would result in direct, substantial and material loss and detriment to the effectiveness of the . . . occupation," and (3) "that the available supply of persons competent in the capacity recited in the rule is such that the registrant cannot be replaced in such capacity without direct, substantial material loss and detriment to the effective operation of the industry, occupation or employment." The boards are especially asked to consider (1) the length of time the registrant has been engaged in such capacity, (2) the nature of the claims, study, training or experience and the extent and value of his qualification for the capacity in which he is engaged, and (3) the actual conditions which would result from his removal.

It is obvious that physicians, although not specially considered as a class, have been given special consideration in framing the regulations.

DENTAL BACTERIOLOGY IN RELATION TO DENTAL CARIES

If an attempt is made to bring some order out of the chaos in which the scientific aspects of dental caries seem to be involved, it appears not unlikely that several factors of unlike character are concerned. They have been fancifully represented as "defensive" on the one hand, and "attacking" on the other. Among the latter group, bacteria and carbohydrates probably deserve the foremost attention in the study of the etiology of decay of the teeth. The pioneer studies of Miller on the bacteriology of the mouth gave great weight to his views; hence even today his conception of dental decay still is prominent. Miller's idea was that lactic acid or similar acids produced by bacterial fermentation of the carbohydrates in the mouth are responsible for the decalcification of the enamel, and that the exposed dentin is further destroyed by the proteolytic ferments of the same or similar bacteria. But as Meyer¹ has pointed

out in a review of the present status of dental bacteriology, neither Miller nor any of the subsequent investigators has succeeded in finding any organisms strictly specific for caries.

The medical profession has scarcely yet become familiar with the more recent studies of Kligler² in this country on the microbiotic flora of the normal mouth and also the changes observed when dental caries occurs. All the families of bacteria are represented in the healthy oral cavity. Most predominant are the representatives of the cocci and streptothrica or tricomycetes group. On the healthy teeth the types of organisms and their relative abundance remain apparently constant, although with the changing conditions in the mouth there is a variation in the total numbers of bacteria. From the available data Meyer has gathered that the number under ordinary conditions in 1 mg. of deposit consists of about twenty-five million organisms, of which one million can be cultivated. In dirty mouths the counts were about twice as high. The growth of oral micro-organisms is just as much influenced by changes in the mouth as is the case for bacterial activity and growth in the soil or in the intestinal tract. The total number of bacteria increases during the night and immediately following a meal. Miller adds that the stagnant conditions in the mouth inducing concentration of fermentable carbohydrates causes a shift in the general relationship of the types to one another, a decrease of the cocci and increase of the forms characteristic for early stages of decay. The number of bacteria on unbrushed teeth were about four times as great as those on brushed teeth. Three times the number of organisms were found in dental deposits immediately after meals, in contrast with that present before meals. Brushing of the teeth or chewing tobacco removes about three fourths of the total number of bacteria.

The first stages of caries which, in the judgment of Kligler, can be considered a specific infection, show enormous counts and an entirely different flora from that of normal teeth. With the progress of decay the character of the dominant micro-organisms changes. As Meyer has summarized it, in comparison with the clean and normal mouth, there is a decrease of the streptococci in all stages of decay and a marked increase in the acidific bacilli. The medium of the mouth is poor in proteins and usually contains carbohydrate; therefore, it is unsuitable for proteolytic organisms. Only in such portions of the buccal cavity, like decayed teeth, where symbiosis with strongly aerobic organisms and cumulation of nitrogenous material produces a suitable soil, can strongly proteolytic anaerobic bacteria exist and develop.

Let it be clearly asserted that the relations of cause and effect are by no means clearly demonstrated in

1. Meyer, K. F.: The Present Status of Dental Bacteriology, Jour. National Dental Assn., 1917, 4, 966.

2. Kligler, I. J.: Jour. Allied Dental Soc., 1915, 10, 141, 282, 314.

the bacteriologic studies of decay made up to this time. But if one is justifiable, from such somewhat indefinite findings as are presented, in assuming that oral micro-organisms are in some way or to some degree responsible for dental decay, it is logically in order to attempt to eliminate the causal agents. As Meyer indicates, sterilization by chemical means is impossible; and the use of such procedures may actually be harmful to the tissues of the mouth cavity. There is something both novel and modern in the further suggestion of studies along chemotherapeutic lines leading to the possible discovery of highly parasitotropic and slightly organotropic substances in an attempt to gain mastery over the objectionable micro-organisms. The further existence of possible foci of systemic infection in the mouth cavity opens up still different problems. It seems likely, indeed, that bacteriology and the dental clinic will become more closely related to each other in the immediate future.

MEDICAL HELP IN THE UNDERNUTRITION OF CHILDHOOD—WHAT NEXT?

Some time ago we referred to the investigations of Osborne and Mendel¹ relating to the capacity to grow after prolonged suspension of growth. They found that when animals were stunted by a variety of methods that involved undernutrition or malnutrition, increment in size could be resumed, even after exceptionally long periods of suppression of growth, provided the diet was made suitable. In other words, the capacity to grow was not lost until it was actually exercised in growing. Another striking feature developed in the researches of the New Haven investigators was the surprising rapidity with which the subsequent gains were made after growth had been inhibited for some time. The rate of gain after enforced failure to grow was far beyond what individuals of the same size experience at the usual normal period of growth. That these results are not confined to the domain of experimental observation has been attested by Manny² of the New York Association for Improving the Condition of the Poor. Considerable experience, he states, is now available, from well conducted summer camps, all-the-year stations and from other special situations in which conditions of feeding, sleeping, exercises, etc., are carefully supervised, to prove that the growth of the majority of stunted children can be promoted with almost startling rapidity. The weight charts of the boys in truant schools, for instance, show almost perpendicular advances as soon as a chance for normal growth is afforded.

1. Osborne, T. B., and Mendel, L. B.: The Suppression of Growth and the Capacity to Grow, *Jour. Biol. Chem.*, 1914, **18**, 95; The Resumption of Growth After Long Continued Failure to Grow, *Jour. Biol. Chem.*, 1915, **23**, 439; Acceleration of Growth After Retardation, *Am. Jour. Physiol.*, 1916, **40**, 16. Mendel, L. B.: Abnormalities of Growth, *Am. Jour. Med. Sc.*, 1917, **153**, 1.

2. Manny, F. A.: Defective Nutrition and the Standard of Living, *Survey*, March 20, 1918.

The class method of improving defective nutrition, which was commented on in an earlier issue,³ has contributed evidence of a similar sort. Of course there are irremediable hereditary curtailments of growth, and children whom no amount of personal or dietary hygiene will convert into normal sized adults; but when once the immense possibilities of good in the nutrition clinics and classes are admitted,⁴ the desirability of organizing such agencies and articulating them with other possible factors for the welfare of childhood deserves serious consideration at a time when man power and woman power must be kept at its maximum.

There is a tendency to look on defective nutrition as the problem of the physiologist and physician solely. For its immediate aspects this is probably a proper view. The worker in home economics now brings additional help into the field, adding helpful social agencies to such factors as the school nurses, the physician, the milk stations, and the visiting nurses. But there is a limit to the powers of the food clinic and the dispensary. As Manny has pointed out, all these measures of relief are social makeshifts compared with the immense work of education and economic readjustment that lies ahead. After all, "what is the matter with the poor is their poverty." And, it may be added, what is the matter with the ignorant is their ignorance. As he says, unless we recognize that defective nutrition in childhood must ultimately be treated as only one aspect of poverty and only one aspect of ignorance and shape our social program accordingly, food clinics and the remedial work of social agencies may only increase the number of children reared in families too poor or too neglectful to be safely entrusted with the reproduction of the race.

THE UTILIZATION OF NUTS AS FOOD

The exigencies of war time have emphasized anew those properties of nuts as foods which remove them from the category of luxuries and place them on the list of substantial components of the day's ration. In considering to what extent nuts may actually be regarded as a good dietary investment, it should be remembered that, compared bulk for bulk, they belong among the most nutritive of foods ordinarily available. They differ from the staple cereal seeds used as human foods in their comparative richness in protein and fat; of the commonly available nuts the chestnut alone contains an abundance of carbohydrate, starch, in place of the nutrients just mentioned.

The reputation of nuts as desirable dietary components has suffered from the widespread belief that these foods are particularly difficult of digestion. Pro-

3. The Race for Life in Childhood, editorial, *THE JOURNAL A. M. A.*, July 20, 1918, p. 194.

4. Manny, F. A.: Nutrition Clinics and Classes, *Mod. Hosp.*, 1918, **10**, 129.

fessor Jaffa¹ of the University of California, who has furnished some of the best experimentally ascertained facts regarding the utilization of nuts, has remarked that if the true composition of these products were more generally appreciated and their appetizing qualities and food value better understood, they would lose their reputation for being indigestible. This view derives added support from the more recent studies of Cajori² at the Yale laboratory of physiologic chemistry. In digestion trials on man with almonds, peanuts, pecan nuts, pine nuts, English walnuts, coconuts, lichi nuts and Brazil nuts the "coefficients of digestibility" for diets including liberal allowances of these components fell essentially within the range of the basal mixed diet of the same persons. In general, says Cajori, the proteins, that is, nitrogenous components, and carbohydrates of the nuts studied were absorbed in large part; and in no case did the quantity of nitrogen or carbohydrate appearing in the feces indicate that these nuts are especially resistant to the digestive functions of the alimentary canal. This conclusion is especially emphasized when the nuts are fed in a finely divided form as nut paste or "butters." Here comminution is artificially obtained in a degree reached only by the most careful mastication.

In view of the growing popularity of so-called nut pastes or nut "butters," it is interesting to note, in Cajori's findings, the difference of digestibility between the peanut, fed as the whole nut and masticated, and peanut butter. The somewhat more favorable outcome with the latter suggests that the texture of the nut product finding its way into the stomach may not be without effect on the digestibility.

According to Cajori, it is doubtful whether cooking causes any marked change in the digestibility of protein-rich nuts. The raw almond appeared to be as completely utilized as the thoroughly steamed nut. In the case of the chestnut, with its abundance of starch, such culinary treatment is essential, as it is in the case of the somewhat comparable potato.

We have already directed attention to Hoobler's³ assertion that nut proteins may be the equal of animal proteins and superior to others of vegetable origin as components suitable for the elaboration of milk in the diets of lactating mothers. Cajori's studies lead him to the conclusion that if nuts are eaten properly and used in the diet as are eggs, meats and other foods rich in protein, they have "a physiological value on a par with that of more common staple articles of the diet." In harmony with this is the conclusion of the latest pronouncement of the experts of the U. S. Food Administration,⁴ pointing out that nuts should be counted

as part of the necessary food and not eaten as an extra. We are led to believe that "the occasional indigestion following injudicious eating of cheese and nuts is probably often due to forgetting that they are very substantial foods and eating them at the end of an already sufficient meal."

There are abundant indications that nuts which have long found a valued place in the dietary of the diabetic without detriment to his health will grow in popularity as foods for the well. The acreage of peanuts—legumes usually classed with nuts and forming the most valuable nut crop of the United States—increased 60 per cent. last year. A few years ago the importations of other nuts had already approached 100,000,000 pounds a year. This speaks promisingly for the progress of these meat substitutes.

A THEORY OF PERISTALSIS

What is the explanation of the orderly progress of the food residues along the alimentary tract? It is evidently dependent on a well regulated mechanism that provides for a downward movement from the stomach to the colon. According to the "law of the intestine" that is currently taught, a stimulus, such as is represented by the presence of a bolus of food, applied to any part of the intestine normally provokes a contraction above and a relaxation below the place of application. The result of this is a forward movement by propulsion of the food mass.

The phenomenon just outlined appears to be associated with a suitable reflex—the myenteric reflex, as it has been termed—which forms the basis for the control and proper sequence of the progressive peristalsis. A difficulty in accepting such an interpretation has arisen, however, because of the apparent lack of any nervous arc over which the regulatory impulses could travel. Furthermore, to quote a recent critic, if the reflex were always active the bowel would soon be emptied. Food once introduced into the duodenum would never stop in its rush to the anus. These and other considerations involving the insufficiency of the "law of the intestine" as an explanation of the peculiarities of intestinal activity have led Alvarez of the University of California Medical School to emphasize the unlike irritability of different parts of the small intestine as a possible explanation of the "downward progress" of food. He is convinced from extensive comparative studies of the irritability, tone, latent period, susceptibility to trauma and toxins, reactions to drugs, etc., of segments from different parts of the intestine that in the different regions there exist different muscles suited to different functions. In the latest researches,¹ not only gradients of irritability and rhythmicity but measurable differences in metabolism

1. Jaffa, M. E.: *Bulls.* 107 (1901); 132 (1903); 332 (1910), Office of Expt. Sta., U. S. Dept. Agr.

2. Cajori, F. A. The Utilization of Some Nuts as Food, *Jour. Home Economics*, 1918, **10**, 304.

3. Hoobler, B. R.: Problems Connected with the Collection and Production of Human Milk, *THE JOURNAL A. M. A.*, Aug. 11, 1917, p. 421.

4. Food Guide for War Service at Home, Prepared under the Direction of the U. S. Food Administration, New York, Charles Scribner's Sons, 1918.

1. Alvarez, W. C., and Starkweather, Esther: XI, The Metabolic Gradient Underlying Intestinal Peristalsis, *Am. Jour. Physiol.*, 1918, **46**, 186.

have been demonstrated in the intestinal muscle from the duodenum to the colon. These gradients are believed by Alvarez and Starkweather to determine the direction of peristalsis. Thus, they say, the feces could not lie quietly in the cecum or colon if the muscles there were as active and as responsive to stimuli as they are in the duodenum.

Whether this novel hypothesis will gain adherents remains to be seen. Accelerated metabolism may be the expression of greater activity in a muscle—an accompaniment rather than a forerunner or cause of it. The crux of the matter, in any event, is that the duodenum shows greater metabolism and greater activity, even in the form of isolated strips free from reflex nervous impulses, than do the succeeding portions of the bowel. It is not difficult to believe that changes in the "gradient of metabolism" affecting the performance of the intestine in certain localities might give rise to symptoms of disorder.² More facts are needed, however, to substantiate the theory.

Current Comment

THE CHEMISTRY OF THE PLACENTA

Tissue analysis has not as a rule yielded to the physiologic chemist that reward of significant information which such painstaking and somewhat arduous work deserves. Several reasons may readily be advanced to explain this. The methods for differentiating the various types of tissue components with quantitative accuracy are still far from satisfactory. Furthermore, wherever groups of cells are organized into larger structures, the fundamental components of cellular protoplasm will be found present in sufficient amount to overshadow, so to speak, incidental more specific constituents of the living matter and thus render their detection or exact determination more difficult. Finally, most tissues are so permeated with blood vessels and lymph spaces as to introduce extraneous fluids in sufficient amounts to complicate the analytic problem. In illustration of these comments we may refer to analyses of various human organs as published some time ago by Drummond³ of the Cancer Hospital Research Laboratory in London. Without mentioning details, it will suffice to note that the data represent the distribution of nitrogen in the various familiar types of derivatives of that element which make up the tissues. A comparison of the figures for the breast, liver, pancreas, spleen, kidney and both plain and striated muscle shows a surprising uniformity, giving no basis for the formulation of hypotheses respecting the avowedly unlike functions of such unlike body structures. In contrast with these findings, Harding and Fort⁴ of McGill University have reported a series of comparable analyses of mature human placentas which seem to show a high

yield of the diamino-acid arginin as a distinguishing feature of the placenta protein. The figures speak for double the content of this compound yielded by other human organs. Arginin has been asserted to have some relation to the formation of creatin and creatinin; and it has also been assigned a rôle in the synthesis of purin compounds and thus of new nuclear material. However suggestive this may be to the student of fetal growth, it is still too vague, and the experimental records are still too uncertain or contradictory of other findings to serve as the basis of more than interesting speculation. If we cite the Canadian biochemists' conclusion that, corresponding to the difference in arginin yield, there must be ascribed to the placenta a function differing from that of other organs, the vagueness does not vanish. When the further assertion is quoted, namely, that the placenta from a chemical standpoint cannot be regarded entirely as a passive organ, we reiterate a belief that has been voiced before, though on the basis of different evidence.

THE NEED FOR VOLUNTEERS

Thus far the medical profession has shown a splendid spirit of patriotism and self-sacrifice in volunteering for service in the Medical Department of the Army. The time for volunteering is not over. The new conscription act raising the age limit to include those under 46 does not end the call for volunteers. Further, it is now announced that the first call will include only those up to 36 years of age. So far as physicians are concerned, therefore, this will include only 4 years—32 to 35 inclusive. This will not supply a large number of medical officers—not sufficient to meet the demands that will soon be made on the Surgeon-General for medical officers. And even though the first draft included all up to 46, there would still be room for the volunteer. We are prompted to emphasize this point because of letters that have been received from physicians over 46 years of age who evidently are under the impression that there will be no opportunity now for them to offer their services; also because there is an immediate need for volunteers. Preparations are being made for a big army. This army may be so large as to require 40,000 physicians. In fact, the call for volunteers is almost as urgent today as it has been at any time since the war started. It might be well here to emphasize that under the new conscription law physicians will have practically the same status as they had under the former law: many who neglected to apply for commissions were inducted into the army as privates. In some instances they served as privates for a considerable period of time on account of the procedure involved in applying for and in issuing the commission.

The War and Physical Deterioration.—In a war of attrition such as this, physical deterioration of the masses of society in consequence of inadequate nourishment results in a serious decline in national morale; and this is a decisive factor in the outcome of the struggle. Food and other physical necessities will win the war. We must therefore not only conserve food and other necessities, but, more important, we must insure ample production of them through a lessening of the production of nonessentials.—H. G. Moulton, *Economist*.

2. Alvarez, W. C.: The Syndrome of Mild Reverse Peristalsis, *THE JOURNAL A. M. A.*, Dec. 15, 1917, p. 2018.

3. Drummond, J. C.: *Biochem. Jour.*, 1916, **10**, 473.

4. Harding, V. J., and Fort, C. A.: The Amino-Acids of Mature Placenta, *Jour. Biol. Chem.*, 1918, **35**, 29.

Medical Mobilization and the War

Relation of Volunteer Medical Service Corps to Members of Draft Boards and Other Physicians Registered Under Selective Service Act

The following is a telegram, dated September 17, from the Provost Marshal-General:

Membership in Volunteer Medical Service Corps is not service in the military establishment and does not therefore affect in any way the status of registrants before the Selective Service Boards. This statement cannot be made too emphatic. It is unfortunate that any impression has arisen to the contrary.

This matter is of particular importance to medical members of draft boards. Such members of draft boards may not continue to serve thereon after being commissioned in the Medical Corps of the Army or Navy. In view of the enormous labor involved in the physical examination of millions of men in the next few months, the Provost Marshal-General's Office feels very strongly that its needs are vital during the period covered by these examinations, and that it must retain the services of medical members of demonstrated efficiency. It has, therefore, requested the cooperation of the Surgeon-Generals of the Army and Navy and each one of these heads is cooperating by discontinuing for the present the commissioning of medical members of the draft boards in their respective arms of the service. The Surgeon-General of the Public Health Service is cooperating in a similar way. But no question of eligibility to continue to serve as a medical member of the draft boards arises in connection with membership in the Volunteer Medical Service Corps, and resignations of physicians on Selective Service Boards will not be accepted when based on membership in Volunteer Medical Service Corps. Instructions to this effect are going out today to all draft executives.

CROWDER.

For the Promotion of Medical Officers

Secretary Daniels of the Navy has appointed a board to recommend medical officers for promotion. The members of the board are: Rear Admiral Cary T. Grayson, U. S. Navy, president; Rear Admiral E. R. Stitt, U. S. Navy; Rear Admiral G. H. Basher, U. S. Navy; Capt. A. M. D. McCormick, U. S. Navy; Capt. L. W. Sprayling, U. S. Navy; and Lieut. A. C. Stanley, U. S. Navy, Ret., recorder. Two officers are to be recommended to the temporary rank of rear admiral, 7 to the permanent rank of captain, 15 to temporary captain and 41 to temporary commander. Promotion will depend on fitness. The board is to arrive at its conclusions as to which officers are best fitted for advancement without regard to the place such officers at present occupy on the list. Seniority among officers in the same rank relates to their comparative precedence, and has no bearing on their right to advancement.

War Department Permits Student Nurses to Render Army Service in France

In compliance with the wishes of the Medical Department in France, the fifty American hospitals which organized base hospital units for service overseas are to be permitted by the War Department to send a limited number of student nurses to France where they may both render service and complete their training under representatives of their own schools in base hospitals abroad. However, the War Department does not wish to interfere with the work of hospitals in this country and will leave the decision as to the adoption of the plan to the hospital authorities. Most of the pupils selected will be seniors and will be enrolled in the Army School of Nursing. After taking the oath they will be placed on duty under the nursing staff of their own base hospital overseas, each unit of twenty-five being in charge of a graduate nurse acceptable to the schools sending the students and to the Surgeon-General. The plan of using student nurses at the base hospitals in this country has resulted in response from more than 1,000 applicants who have been assigned to base hospitals at camps or who are awaiting assignment, and who after a year of training in this country will be eligible for assignment in American hospitals abroad. These students will receive an opportunity to learn

branches of nursing not taught in Army hospitals by spending a certain period in a civilian hospital, under a system of exchange to be worked out with civilian hospitals. This system will also make the civilian nurse eligible for the Army Nurse Corps after her graduation.

Women not eligible for admission to the Army School of Nursing or to civil hospitals may become "hospital assistants," being assigned to convalescent hospitals in this country where training units are to be established. Those not having completed the Red Cross courses in elementary nursing and hygiene, first aid to the injured and dietetics, will be required to take a similar course extending over a period of at least six weeks. The qualifications for admission are: married women between the ages of 21 and 40 whose husbands are overseas and who are free to give their service, and single women between 35 and 45. Candidates must have a high school education or its equivalent. Application should be made to the Division of Hospital Assistants of the Army School of Nursing through the division directors of the Bureau of Nursing of the American Red Cross, to the Army School of Nursing, Surgeon-General's Office, Washington, D. C.

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Charleston—Romine, T. E.
Spencer—Robertson, G. C.
St. Albans—Wilson, W. H.
White Sulphur Springs—Myles, W. E.

WISCONSIN

Elderon—Phelps, E. J.
LaCrosse—Zuercher, J. C.
Milwaukee—Hall, B. M.
McJunkin, F. A.

CORRECTION

In the issue of July 6 under the heading "Orders to Officers of the Medical Reserve Corps" appears the announcement of the resignation of Lieut. CHARLES H. BAILEY, of East Liverpool, O. An error was made in the transmission of this order since Dr. Charles H. Bailey is now a captain in the Medical Reserve Corps and is on duty overseas.

COMMISSIONS OFFERED AND ORDERS TO
DUTY ON ACCEPTANCE

Alabama

To Camp Beauregard, La., base hospital, Capt. S. G. GAY, Selma.
To Camp Lee, Va., Lieuts. J. R. CHANDLER, Ishkooda; J. D. ATKINS, Mobile.
To Camp Sheridan, Ala., Capt. A. H. OWENS, Ashland; J. S. GAY, Delta; Lieuts. L. A. COLEMAN, Abbeville; C. H. CLEVELAND, Anniston; J. S. HARMON, Elmore.
To Fort Oglethorpe for instruction, Major C. T. POLLARD, Montgomery; Capt. J. H. ASHCRAFT, Fayette; Lieuts. J. A. MILLER, Birmingham; G. B. COLLIER, Tuskegee.
To Montgomery, Ala., Lieut. D. H. THROATT, McFall.

Arkansas

To Camp Sheridan, Ala., Capt. J. C. WILKINS, Hot Springs; Lieuts. R. MARTIN, Warren; M. C. CRANDALL, Wilmet.
To Fort Oglethorpe for instruction, Capt. I. N. McCOLLUM, Conway, W. D. JUDKINS, Little Rock; B. H. HAWKINS, Mena; Lieuts. J. H. NEAL, E. M. THOMPSON, Fort Smith; G. L. HENDERSON, Greenbrier; J. T. MATTHEWS, Heber Springs; G. L. WILSON, Hermitage; J. H. STIDHAM, Hoxie; E. D. WALL, Marianna.
To Fort Riley for instruction, Lieuts. S. E. SMITH, Banks; J. L. BAIRD, G. E. PAULLUS, Marked Tree.

California

To Camp Fremont, Calif., base hospital, Capt. F. C. GERLACH, A. S. J. SMITH, San Jose.

To Camp Kearney, Calif., as assistant to the camp surgeon, C. F. METCALF, South Pasadena. Base hospital, Capt. M. P. BURNHAM, Burlingame; W. H. GILBERT, H. B. TEBBETTS, Los Angeles; G. T. POMEROY, Oakland; H. SPIRO, San Francisco; F. D. WALSH, Susanville; Lieuts. F. K. POMEROY, Fresno; D. H. RANSOM, Madera.

To Fort MacArthur, Calif., as tuberculosis examiner, Capt. C. C. BROWNING, South Pasadena.

To Fort Oglethorpe for instruction, Capt. T. S. COLLINS, A. H. JONES, Los Angeles; F. H. THIBODO, Placentia; C. E. HALLUTZEL, San Jose; Lieuts. W. H. WIMP, Haltville; R. A. SANDS, Venice.

To Fort Riley for instruction, Capt. J. H. TITUS, Ontario; V. D. BROWN, San Francisco; Lieuts. C. L. TERRILL, Farmington; W. ALBERT, B. M. FREES, Los Angeles; W. L. YAGER, Ludlow; H. J. DAVIS, Sacramento.

To San Francisco, Calif., Letterman General Hospital, Capt. E. M. PALLETTE, Los Angeles; C. A. BELL, Santa Barbara.

Colorado

To Fort Oglethorpe for instruction, Capt. C. J. LATTS, Haxtum; P. L. LEYDA, Lafayette; J. R. McCracken, Nederland.
To Fort Riley for instruction, Lieut. J. G. STEWART, Grover.

Connecticut

To Fort Oglethorpe for instruction, Lieuts. W. J. H. FISCHER, Milford; R. W. LOWE, Ridgefield.

District of Columbia

To Fort Oglethorpe for instruction, Capt. E. BARRY, W. T. H. PALLISTER, Lieut. F. T. CHAMBERLIN, JR., Washington.
To Washington, D. C., Lieut. C. F. X. LEIBELL, Washington.

Florida

To Camp McClellan, Ala., Lieut. M. R. MARKEY, Bronson.
To Fort Oglethorpe for instruction, Lieut. E. D. FRENCH, Jacksonville.

Georgia

To Camp Lee, Va., Lieuts. G. F. CHAMBERS, I. C. EVANS, Columbus.
To Camp Sheridan, Ala., Lieuts. W. B. HELLER, Lavonia; E. L. STURKEY, Lincolnton.
To Fort Oglethorpe for instruction, Capt. C. B. WALLING, Collins; J. R. YOUNG, Columbus; S. M. WITHERS, Moultrie.
To Hoboken, N. J., Lieut. G. W. BAGLEY, DeSoto.

Idaho

To New York, Neurological Institute, for instruction, Capt. J. L. S. STEWART, Boise.

Illinois

To Camp Custer, Mich., Capt. C. P. HORNER, G. T. SMITH, S. WICKS, J. ZABOKRTSKY, Chicago; D. L. HEDBERG, Lee; C. S. AMBROSE, Waukegan; Lieuts. H. J. HALVORSEN, H. P. MARTIN, H. W. MARTIN, Chicago; J. R. HIGGINS, Gillespie.
To Camp Grant, Ill., Capt. J. H. MURPHY, Geneseo; H. E. MONROE, Shelbyville; Lieut. R. E. MILTENBERGER, Spring Valley. To examine the command for nervous and mental diseases, Lieut. R. H. STENGER, Kankakee.
To Camp Shelby, Miss., base hospital, Lieut. H. R. BASINGER, Chicago.
To Fort Oglethorpe for instruction, Capt. C. A. ALBRECHT, L. A. BEATON, H. L. KRETSCHMER, J. B. STACKABLE, W. B. WHITAKER, Chicago; H. D. HULL, Crystal Lake; C. B. RIPLEY, Galesburg; R. L. TRUITT, Naperville; G. H. AYLING, St. Anne; F. L. GOURLEY, Waukegan; Lieuts. H. W. BRANN, Centralia; L. P. PIPER, Chicago; J. A. BOZARTH, East St. Louis; T. W. ROBERTS, Jopka; E. J. BURKE, LaSalle; J. L. TOMBAUGH, Odell; J. B. ROE, Oregon; J. B. WICKENSIMER, Steger.
To Fort Riley for instruction, Capt. F. H. MARTIN, Libertyville.
To Hoboken, N. J., Lieut. H. D. LUSE, Chicago.
To New Haven, Conn., Capt. H. J. CORPER, Chicago; E. MORRIS, Oak Forest.

Indiana

To Ann Arbor, Mich., State Psychopathic Hospital, for instruction, Capt. C. C. FUNK, New Albany.
To Camp Custer, Mich., Capt. M. A. AUSTIN, Anderson; T. M. STALEY, Bicknell; Lieuts. L. F. BILLS, Atlanta; E. G. BOUNELL, Hillsboro; F. E. JACKSON, Indianapolis; R. D. ARFORD, Middletown; H. W. MARKLEY, Redkey; C. S. CARMICHAEL, Seelyville; N. A. JAMES, Tell City; H. D. McCORMICK, Vincennes; E. A. SPOHN, Walton.
To Camp Grant, Ill., N. L. HELLER, Dunkirk.
To Camp Lee, Va., Lieuts. P. ARMSTRONG, Gilman; D. W. BELL, Otwell; E. R. GIBBS, Wilkison.
To Camp McClellan, Ala., base hospital, Capt. H. A. VAN OSDOL, Indianapolis.
To Camp Sheridan, Ala., Capt. H. L. MILLER, West Baden.
To Camp Sherman, Ohio, Capt. A. W. SCHREIBER, LaFayette; Lieuts. G. F. GREENLEAF, Hammond; C. S. BRYAN, Vincennes; G. B. DETAR, Winslow.
To Fort Oglethorpe for instruction, Capt. J. A. RAWLEY, Brazil; E. M. HOOVER, Elkhart; H. H. WHEELER, Sr., Indianapolis; M. N. THAYER, Linton; C. H. McCULLY, Logansport; W. J. MOLLOY, Muncie; Lieuts. F. G. KELLER, Alexandria; H. L. CUNNINGHAM, Ashley; O. A. DELONG, Azalia; E. E. SCHRIEFER, Cannelton; F. STACKHOUSE, Cates; D. S. STRONG, Dana; B. D. LUNG, Kokomo; J. H. HARE, Logansport; H. E. STEINMAN, Monroeville; E. E. HEATH, Napoleon; J. L. WILSON, South Bend; E. T. EDWARDS, Vincennes; C. A. ROARK, Waynestown.
To Fort Riley for instruction, Capt. W. R. DAVIDSON, Evansville; W. V. STANFIELD, New Town; Lieuts. N. STERN, Indianapolis; O. H. McDONALD, London; C. B. PAYNTER, Salem.

Iowa

To Camp Custer, Mich., Capt. E. F. TALBOTT, Grinnell; W. K. LONG, Hampton; Lieuts. J. E. BAKER, Maynard; G. H. BOETEL, Rock Rapids.

To Camp Dodge, Iowa, Lieut. H. F. MASSON, Washington. Base hospital, Capt. A. H. BLOCKLINGER, Dubuque; Lieut. L. E. HOOPER, Beech.

To Fort Oglethorpe for instruction, Capts. H. D. MERENESS, Delliver; M. J. MOES, Lieuts. O. A. BROWNSON, Dubuque; H. H. HAGEDORN, Sioux City; E. D. MILLER, Wellman.

To Fort Riley for instruction, Capts. S. A. HUBER, Charter Oak; C. B. ROGERS, Earlville; Lieut. F. P. WINKLER, Sibley.

To Fort Sam Houston, Texas, base hospital, Lieut. C. H. LAUDER, Grinnell.

Kansas

To Camp MacArthur, Texas, Capt. F. F. NETHERTON, Wellington. *To Fort Des Moines, Iowa*, Capts. J. T. FAULKNER, Lansing; C. E. ROSS, Wichita.

To Fort Oglethorpe for instruction, Capt. C. S. THIMBLE, Emporia; Lieut. C. B. BAILEY, Hawkinsville.

To Fort Riley for instruction, Capts. H. MORRISON, Smith Center; E. M. SEYDELL, Wichita; Lieuts. C. L. BROWN, Cawker; J. F. McNAUGHT, Girard; W. E. KNOX, Norcatur.

Kentucky

To Camp Lee, Va., Lieuts. G. L. DYER, Buechel; B. G. GRIBBLE, Louisville.

To Camp Sheridan, Ala., Lieut. J. S. GILBERT, Lancaster.

To Camp Zachary Taylor, Ky., Capt. A. P. MUELLER, Louisville.

To Fort Oglethorpe for instruction, Capts. W. F. ALVEY, Elizabethtown; C. C. DEWITT, Louisville; H. R. MILTON, Wickliffe; Lieuts. C. W. KELLY, JR., F. C. THUM, Louisville.

Louisiana

To Camp MacArthur, Texas, Lieut. R. L. ARMSTRONG, Pleasant Hill.

To Fort Oglethorpe for instruction, Capt. E. HOLLOWAY, Plaquemine; Lieuts. L. D. LAFARGUE, Effie; M. WOLF, New Orleans.

Maine

To Fort Oglethorpe for instruction, Capt. W. B. MOULTON, Portland; Lieuts. O. C. MOULTON, South Windham; N. BISSON, Waterville.

To Hoboken, N. J., Lieut. L. W. CARPENTER, Limerick.

Maryland

To Camp Lee, Va., Lieut. H. A. CANTWELL, North East.

To Fort Oglethorpe for instruction, Capt. W. H. HOPKINS, J. O. PURVIS, Annapolis; H. M. LANKFORD, Princess Anna; Lieuts. S. R. WANTZ, E. M. WHEELER, Baltimore; C. T. FISHER, Princess Anne; S. N. PILCHARD, Salisbury; F. E. SHIPLEY, Savage.

To Hoboken, N. J., Lieut. C. S. CROOK, Baltimore.

Massachusetts

To Camp Devens, Mass., as assistant to the camp surgeon, Capt. H. V. W. BOYD, Springfield. Base hospital, Capts. F. C. JILLSON, West Roxbury; J. W. CAHILL, Worcester. *To examine the command* for nervous and mental diseases, Capt. A. W. FAIRBANKS, Boston.

To Camp Meade, Md., base hospital, Capt. G. E. EMERY, Worcester; Lieut. H. H. FLAGG, Boston.

To Fort Oglethorpe for instruction, Capts. E. FLAGG, Boston; J. J. McNAMARA, Brockton; C. C. BURPOE, Malden; L. J. MASKELL, Newton; H. C. CHENEY, Palmer; R. S. BENNER, R. B. OBER, Springfield; A. L. NEWHALL, West Lynn; F. J. HANLEY, Whitman; Lieuts. A. J. J. SULLIVAN, Fall River; F. H. LALLY, Milford; C. G. YERBURY, Springfield; G. L. STEELE, West Springfield; C. B. KENNEY, Wichendon.

To Hoboken, N. J., Capt. R. T. STEARNS, Boston; Lieuts. D. J. HERLIHY, Cambridge; W. S. LYON, Fall River; R. A. TAYLOR, Waltham.

Michigan

To Camp Custer, Mich., Lieut. C. A. VAN DUSEN, Ogden Center.

To Camp Dix, N. J., base hospital, Lieut. R. L. COWEN, Detroit.

To Camp Dodge, Iowa, base hospital, Lieut. J. M. SUTHERLAND, Detroit.

To Camp Grant, Ill., Lieut. G. D. BRIGGS, Flint.

To Camp Sherman, Ohio, Lieuts. M. SACHNOVITZ, Detroit; I. W. GREENE, Richmond.

To Fort Oglethorpe for instruction, Capts. H. M. JOY, Calumet; E. M. CURRIE, G. P. MYERS, Detroit; J. W. ORR, Flint; H. W. DINGMAN, Grand Rapids; Lieuts. F. DWYER, A. C. HALL, G. H. HEALY, C. J. JENTGEN, Detroit; C. E. BOONE, Holland.

Minnesota

To Camp Custer, Mich., Lieuts. C. F. HOLST, Little Falls; R. C. RADABAUGH, Mazeppa.

To Fort Oglethorpe for instruction, Capts. A. E. BOOTH, Minneapolis; C. F. McNEVIN, L. A. NELSON, St. Paul; Lieut. F. A. OLSON, Minneapolis.

To Fort Riley, Lieut. A. R. ANDERSON, Barnum.

To New Haven, Conn., Lieut. L. G. GUYER, Waseca.

Mississippi

To Camp MacArthur, Texas, Lieut. J. M. GOLDEN, Lena.

To Camp Sheridan, Ala., Lieut. J. P. WHITE, Mount Olive.

To Fort Oglethorpe for instruction, Capts. J. B. STONE, Belen; E. R. McLEAN, Cleveland; T. H. SEAY, Laurel; Lieut. P. B. RUSSELL, Lena.

Missouri

To Camp Custer, Mich., Capts. S. V. BEDFORD, Jefferson City; C. F. WRIGHT, St. Louis.

To Camp Dodge, Iowa, Lieuts. J. D. TUNNELL, Reger; L. G. McKELLOPS, St. Louis.

To Camp MacArthur, Texas, Lieut. E. N. FRANKS, Harrisburg.

To Fort Oglethorpe for instruction, Capts. C. H. VAN RAVENSWAAY, Boonville; J. T. HICKERSON, Centralia; W. T. BISHOP, Hughsville; L. B. GREENE, Kansas City; B. T. QUIGLEY, Mound City; W. M. WHEELER, Sedalia; H. B. GETTYS, J. H. HUMPHREY, St. Louis; Lieuts. S. H. O. STRATTON, Lincoln; C. S. STRATTON, Roscoe; H. S. CONRAY, St. Joseph; F. E. CHASE, W. H. REIM, St. Louis.

To Fort Riley for instruction, Lieuts. L. E. MONROE, Bonne Terre; J. C. CALDWELL, LaCade; D. C. PERRY, Mound City.

To New Haven, Conn., for instruction, Lieut. W. CAMPBELL, Kansas City.

Montana

To Camp Grant, Ill., base hospital, Lieut. G. F. TURMAN, Missoula.

To Fort Oglethorpe for instruction, Capts. O. T. STRATTON, Cascade; J. H. DRAKE, Hardin; Lieut. J. T. HOLMES, Polson.

To Fort Riley for instruction, Lieuts. J. M. GRAYBEAL, Belgrade; C. L. SMITH, Simms.

Nebraska

To Camp Pike, Ark., base hospital, Capt. F. W. LAKE, Omaha.

To Fort Oglethorpe for instruction, Lieuts. R. W. FOUTS, Dawson; C. N. COE, Wakefield.

To Fort Riley for instruction, Capts. B. M. DEARDORF, Clatonia; C. K. GIBBONS, Kearney; C. L. FAHNESTOCK, McCook; F. P. REED, Weeping Water; Lieuts. J. M. McNALLY, Bellwood; G. E. PETERS, Bloomfield; H. D. LURVEY, Omaha; J. M. STOOPS, Scottsbluff.

New Hampshire

To Fort Oglethorpe for instruction, Capt. W. P. CRAIG, Walpole; Lieut. P. R. HOYT, Laconia.

To Hoboken, N. J., Lieut. E. R. B. McGEE, Berlin.

New Jersey

To Camp Dix, N. J., base hospital, Capt. D. B. STREETT, Jersey City.

To Camp Lee, Va., Lieuts. T. R. ADAMS, Califon; C. A. BIRD-SALL, Jersey City.

To Fort Oglethorpe for instruction, Capt. J. S. DOUGLASS, Cape May; Lieuts. C. B. KELLEY, Jersey City; M. E. STREEN, Newark; J. J. LEVY, Ocean Gate; H. N. WAIT, Roselle Park.

To Hoboken, N. J., Lieut. T. M. BRENNOCK, Jersey City.

New Mexico

To Fort Oglethorpe for instruction, Lieut. M. McCAHILL, Albuquerque.

To Fort Riley for instruction, Lieut. L. A. THOMPSON, Springer.

New York

To Camp Hancock, Ga., base hospital, Capt. H. G. DUNHAM, New York.

To Camp Lee, Va., Capts. W. F. FOWLER, Rochester; J. D. GEORGE, Verona; Lieuts. D. G. COOPER, Albion; S. BAUM, New York.

To Camp Meade, Md., base hospital, Capts. B. W. MABEN, Kingston; W. S. MILLS, New York.

To Camp Zachary Taylor, Ky., Lieuts. J. BIER, J. A. HYAMS, New York.

To Fort Oglethorpe for instruction, Major V. C. PEDERSEN, New York; Capts. V. M. RICE, Batavia; H. V. HOLCOMB, Bellmore; J. LONG, J. E. THOMPSON, Brooklyn; J. A. CONWAY, Hornell; L. F. CLELAND, Libbon; C. E. ELKINS, Massena; J. G. HOWARD, Ozone Park; A. S. ARMSTRONG, B. H. CAPLES, J. B. HADEN, P. W. ROBERTS, A. S. TENNER, New York; J. R. BROWNELL, Perry; F. J. FULLER, Potsdam; F. C. REED, Schenectady; J. A. AMES, West Henrietta; Lieuts. H. A. VOGEL, Albany; C. A. HARGITT, B. NEWMAN, Brooklyn; W. G. MILLER, Freeport; E. W. PRESLEY, Great Kills; J. F. LARKIN, Kingston; T. SMITH, Newburgh; M. R. BOOKMAN, T. HALPERN, C. H. HOWELL, R. L. KAHN, A. O. NICHOLSON, E. M. SCHWARTZ; H. L. SLOAN, L. STEINBACH, New York; J. F. BROWNE, Rochester; H. C. MONTGOMERY, Watertown.

To Hoboken, N. J., Capts. E. W. BANTA, M. ROSENFELD, New York; Lieuts. S. D. PIQUET, Brooklyn; S. H. LEVY, Buffalo; H. C. HOFF, New York.

To Lakewood, N. J., Lieut. A. T. MAYS, Brooklyn.

To New Haven, Conn., Lieut. M. GREENWALD, New York. Yale Army Laboratory School, for instruction, Capt. C. W. FIELD, New York.

To New York, Neurological Institute, Lieut. W. C. PORTER, Poughkeepsie.

To Plattsburg Barracks, N. Y., Lieut. M. E. COSTELLO, Branchport.

To Washington, D. C., Surgeon-General's Office, Major G. R. BUTLER, Brooklyn.

North Carolina

To Camp Lee, Va., Lieut. J. D. MAYNARD, Wadesboro.

To Camp Sheridan, Ala., Capts. J. F. MILLER, Ashboro; H. C. MENZIES, Hickory.

To Fort Oglethorpe for instruction, Capt. C. P. BOOLES, Wilmington; Lieuts. R. W. S. PEGRAM, Canton; T. W. CARMICHAEL, Rowland.

To Hoboken, N. J., Lieut. L. H. SWINDELL, Swan Quarter.

North Dakota

To Hoboken, N. J., Capt. T. P. MARTIN, Mayville.

Ohio

To Camp Custer, Mich., Lieuts. M. L. BATTLES, Norwalk; O. D. TATJE, Portsmouth.

To Camp Grant, Ill., Lieuts. C. H. HEFFRON, Metamora; S. B. HAYS, Newcomerstown.

To Camp Jackson, S. C., base hospital, Capt. M. MILLIKIN, Hamilton.

To Camp Kearney, Calif., Lieut. C. S. AMIDON, Cincinnati. Base hospital, Lieut. E. W. GARRETT, Cleveland.

To Camp Lee, Va., Lieut. G. W. CLARK, Maumee.

To Camp Sherman, Ohio, Capt. H. C. LISLE, Springfield; Lieuts. A. W. HOLMAN, Circleville; E. E. FURNAS, Englewood; C. I. KUNTZ, Fremont; A. A. BRINDLEY, Port Clinton; W. H. HARTUNG, Toledo; W. F. SEALOVER, Zanesville.

To Fort Oglethorpe for instruction, Capts. F. B. LIVERMORE, Barborton; B. C. WILLIS, Cincinnati; E. R. BONDY, W. E. BERNHARD, I. E. SEWARD, Cleveland; C. W. GINN, G. H. WELLBROCK, Dayton; E. O. BAUER, Middletown; J. P. DEWITT, New Canton; C. H. HARRIS, New Paris; E. W. FISHER, Portage; R. L. JOHNSON, Wadsworth; W. W. RYALL, Youngstown; Lieuts. D. W. FELLERS, Bloomville; D. A. PERRIN, Chillicothe; T. HULICK, Cincinnati; G. S. DUNBAR, J. R. THOMPSON, Cleveland; C. B. TANNER,

Columbus; J. I. NISBET, Eaton; F. R. TROUT, Jamestown; H. SILVER, Middletown; J. C. FOUNTAIN, Somerset; E. MILLER, Springfield; R. B. LEISTER, Tiffin; J. R. DAVIS, D. KAHN, Toledo; L. E. PHIPPS, Youngstown.

To Hoboken, N. J., Lieuts. E. W. SCHLEMMER, Cincinnati; L. O. SAUR, Norwood.

To New York, Neurological Institute, for instruction, Capt. M. E. BLAHD, Cleveland.

Oklahoma

To Camp Lee, Va., Lieut. J. M. ELLIS, Wapanucka.

To Camp MacArthur, Texas, Lieut. J. DAVIS, Garland.

To Camp Sheridan, Ala., Capt. S. J. FRYER, Muskogee; T. C. BURNS, Oklahoma; Lieuts. J. H. KAY, Durant; R. WOLFE, Hugo.

To Cleveland, Ohio, Lakeside Laboratory, Lieut. M. P. SPRINGER, Tulsa.

To Fort Oglethorpe for instruction, Capt. J. M. GORDON, Weatherford; Lieut. S. E. GAYMAN, Tryon.

To Fort Riley for instruction, Capt. K. L. COLLEY, Bigheart; Lieuts. W. P. RUDELL, Altus; J. A. NELSON, Centrahoma; A. W. NUNNERY, Granite; W. A. THOMPSON, Kusa.

Oregon

To Fort Riley for instruction, Lieut. H. H. HUGHES, Gresham.

Pennsylvania

To Camp Hancock, Ga., base hospital, Lieut. T. G. AIKEN, Berwyn.

To Camp Sevier, S. C., base hospital, Lieut. G. B. DUNKLE, Washington.

To Camp Sheridan, Ala., base hospital, Capt. R. F. RIDPATH, Philadelphia.

To Fort Oglethorpe for instruction, Major T. B. CARROLL, Pittsburgh; Capt. J. I. ZERBE, Franklin; J. B. JOHNSON, Ligonier; J. A. BROOKE, Philadelphia; W. C. BRYANT, V. S. GAGGIN, H. S. NICHOLSON, S. N. POOL, G. F. TUCKER, Pittsburgh; J. L. WAGNER, Reading; H. B. SUMMERVILLE, Rimersburg; W. J. SCANLAN, Shenandoah; W. L. DILLER, Springville; J. W. ROYER, Terre Hill; J. A. KNOX, F. S. ULLOM, Waynesburg; Lieuts. H. B. ROOP, Columbia; A. S. CANTOR, Dickson City; C. E. BORTNER, Hanover; J. H. KRIEDER, Harrisburg; G. N. SPROWLS, Imperial; G. W. CONRAD, H. R. MATHER, Johnstown; C. T. FARIES, Narbeth; C. CADWALLADER, Philadelphia; C. P. LEININGER, N. F. ROCK, Pittsburgh; F. J. GABLE, Reading; R. F. WEAVER, St. Clair.

To Hoboken, N. J., Lieuts. W. S. WALLACE, East Brady; C. V. HART, Harrisburg; M. M. THOMSON, Pitcairn.

To Mineola, N. Y., Hazelhurst Field, Capt. C. W. JENNINGS, Pittsburgh.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. K. CAREY, Philadelphia.

To Washington, D. C., St. Elizabeth's Hospital, for instruction, Capt. J. R. GORMLEY, Monaca.

Porto Rico

To Camp Custer, Mich., Lieut. J. A. HERNANDEZ, Jayuya.

To Camp Las Casas, P. R., Lieuts. R. R. AULET, Arecibo; J. J. NOGUERAS, Cayey; T. J. RAMIREZ, Mayaguez.

Rhode Island

To Fort Oglethorpe for instruction, Lieut. P. APPLETON, Providence.

To Williamsbridge, N. Y., Lieut. C. R. DOTEN, Providence.

South Carolina

To Camp Custer, Mich., base hospital, Lieut. D. V. MYERS, Spartanburg.

To Camp Lee, Va., Capt. W. EGLESTON, Hartsville; Lieut. J. D. BEARDEN, Central.

To Fort Oglethorpe for instruction, Capt. S. B. SHERARD, Gaffney; R. M. FULLER, McCormick; Lieuts. D. H. SMITH, Glenn Springs; C. D. ROLLINS, Lake City.

To Hoboken, N. J., Lieut. H. T. SCOTT, Cowpenc.

South Dakota

To Rockford, Ill., base hospital, Capt. B. T. GREEN, Brookings.

Tennessee

To Camp Lee, Va., Capt. J. K. P. BLACKBURN, Pulaski.

To Camp Sheridan, Ala., Capt. S. A. McEFFITT, Cornersville; T. W. FIELDS, Dresden.

To Fort Oglethorpe for instruction, Capt. W. L. SIMPSON, Memphis; R. W. DAKE, Nashville; Lieuts. R. K. BAKER, Eads; J. L. COOLEY, Lynchburg; C. P. MARSH, Petersburg.

To Fort Riley for instruction, Lieuts. W. W. KIMSEY, Ducktown; R. C. KIMBROUGH, Madisonville; P. H. WOOD, Memphis.

Texas

To Camp Kearney, Calif., Lieuts. W. A. BOYCE, Dallas; A. H. FORTNER, Sweetwater.

To Camp Lee, Va., Lieut. D. EDRINGTON, Avery.

To Camp MacArthur, Texas, Capt. S. M. ALEXANDER, Abilene; Lieut. J. H. CATON, Detroit.

To Camp Travis, Texas, base hospital, Lieut. W. NOBLE, Aransas Pass.

To Fort Oglethorpe for instruction, Capt. A. B. CRAIN, Belton; J. S. DAVIS, Dallas; B. F. STEVENS, El Paso; K. V. KIBRIE, Fort Worth; J. R. KIGHT, San Angelo; Lieuts. J. N. LIGHTSEY, Cotulla; J. O. ROGERS, Red Oak; C. C. SORRELLS, Royston City.

To Fort Riley for instruction, Lieut. C. A. SHAW, Pinehill.

To Fort Worth, Texas, base hospital, Lieut. R. R. ROSS, San Antonio.

Utah

To Camp Kearney, Calif., Capt. E. D. HAMMOND, Salt Lake City.

To Fort Oglethorpe for instruction, Lieut. T. C. HILL, Huntington.

Vermont

To Camp Lee, Va., Lieut. L. ABERNATHY, Bakersfield.

To Fort Oglethorpe for instruction, Capt. W. LINDSAY, Montpelier; Lieuts. W. M. HUNTINGTON, Rochester; C. P. MUNSSELL, South Royalton.

Virginia

To Camp Lee, Va., Capt. K. BRADFORD, Staunton; Lieut. C. L. BRADSHAW, Falmouth.

To Camp Wheeler, Ga., base hospital, Capt. J. W. WHITE, Norfolk.

To Fort Oglethorpe for instruction, Capt. C. T. PIERCE, Litwalton; J. W. WALTERS, Lynchburg; J. H. HIDE, Pungoteague; A. L. TYNES, Staunton; W. F. HARTMAN, Swoope; Lieuts. C. B. PRITCHETT, Danville; W. H. WHITEHEAD, Lowesville; F. O. PLUNKETT, Lynchburg; R. R. HOSKINS, Mathews; J. W. TURMAN, Richmond; W. S. SLICER, Roanoke; W. C. PETERSON, University.

To Hoboken, N. J., Lieuts. F. M. HORSLEY, Lovingson; H. C. GRANT, Norfolk.

Washington

To Camp Kearney, Calif., Lieut. R. E. AHLQUIST, Spokane.

To Camp Lewis, Wash., base hospital, Capt. E. A. LUPTON, Spokane.

To Fort Riley for instruction, Lieut. L. MOFFITT, Yakima.

To New York, Neurological Institute, for instruction, Major W. N. KELLER, Fort Steilacoom.

West Virginia

To Hoboken, N. J., Lieut. E. B. STALEY, Sherrard.

Wisconsin

To Camp Custer, Mich., Lieut. P. J. MAJERUS, Sullivan.

To Camp Lee, Va., Capt. T. E. FARRELL, Seneca.

To Camp Sherman, Ohio, Capt. J. GOMBER, Gillett.

To Fort Oglethorpe for instruction, Lieuts. O. E. A. WESTEDT, Loganville; W. J. MURPHY, Milwaukee.

To Fort Riley for instruction, Capt. E. A. KETTERER, Montford; Lieut. H. E. BURGER, Beloit.

To Fort Sheridan, Ill., Capt. T. L. HARRINGTON, Milwaukee.

To Milwaukee, Wis., as examiner, Capt. J. D. MADISON, Milwaukee.

Wyoming

To Fort Riley for instruction, Capt. O. P. HAMILTON, Sheridan.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. J. R. MORGAN, Heflin.

To Camp Beauregard, La., base hospital, from Camp Shelby, Capt. J. SHAHAN, Gadsden.

To Camp McClellan, Ala., from Camp Holabird, Capt. J. M. WHITE-SIDE, Anniston. Evacuation hospital, from Camp Wheeler, Capt. E. M. MASON, Birmingham.

To Fort Oglethorpe for instruction, Lieut. W. F. HAMILTON, Pell City; from Fort Barrancas, Capt. F. P. PETTEY, Albany; from the Surgeon-General's Office, Capt. W. A. SELLERS, Montgomery.

To Newport News, Va., base hospital, from Camp Lee, Lieut. B. B. EDWARDS, Union Springs.

Arizona

To Fort Douglas, Utah, from Camp Cody, Lieut. G. F. MANNING, Flagstaff.

To Hampton, Va., Langley Field, from Mineola, Capt. E. W. ADAMSON, Douglas.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. C. A. THOMAS, Tucson.

Arkansas

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Jefferson Barracks, Major W. K. READ, Texarkana.

To Rockefeller Institute for instruction, from New Haven, Lieut. J. C. SIMPSON, Hamburg.

California

To Camp Fremont, Calif., as orthopedic surgeon, from San Francisco, Lieut. T. R. CUNNANE, Los Angeles. Base hospital, from San Francisco, Lieut. C. A. CRAIG, San Francisco.

To Camp Greene, N. C., evacuation hospital, from Fort Oglethorpe, Lieut. W. L. DENTON, Randsburg.

To Camp Kearney, Calif., as orthopedic surgeon, from San Francisco, Lieut. J. SWANCOTT, Los Angeles.

To Camp Logan, Texas, base hospital, Capt. I. R. BANCROFT, Los Angeles.

To Camp Pike, Ark., evacuation hospital, from Camp Fremont, Major L. P. HOWE, San Francisco.

To Camp Sheridan, Ala., evacuation hospital, from Camp Kearney, Capt. J. H. PETTIS, Fresno.

To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. H. H. MCCOY, San Francisco.

To Camp Zachary Taylor, Ky., base hospital, from Army Medical School, Capt. T. H. T. WIGHT, Santa Monica.

To Fort Douglas, Utah, from Camp Fremont, Capt. A. L. BROWN, Riverside; from Camp Pike, Major W. C. CHIDESTER, San Mateo.

To Jefferson Barracks, Mo., base hospital, from Camp Lewis, Capt. H. W. SEAGER, Los Angeles; N. C. BISSELL, Modesto; Lieut. J. C. WILLIAMS, Fresno.

To report to the commanding general, Philippine Department, from Camp Lewis, Lieut. G. P. HALL, Sunnyvale.

To San Francisco, Calif., evacuation hospital, from Camp Fremont, Capt. W. L. ADAMS, Fresno. For instruction, and on completion to his proper station, from Camp Fremont, Capt. T. R. McNAB, Los Angeles; from Camp Kearney, Lieuts. B. W. JOHNSON, Dos Palos; G. T. BOYD, Los Angeles; R. G. VAN NUYS, Oakland; W. F. PRIESTLEY, Stockton.

Canal Zone

To report to the commanding general, Panama Canal Department, Lieut. W. W. COOK, Christobal.

Colorado

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Dodge, Lieut. W. H. HALLEY, Pueblo.

To Camp Dodge, Iowa, evacuation hospital, from Camp Logan, Lieut. R. A. PAINE, Denver.

To Camp Lewis, Wash., from Camp Kearney, Major A. J. MARKLEY, Denver. Base hospital, Capt. F. R. SPENCER, Boulder.
To Camp Wadsworth, S. C., base hospital, from Army Medical School, Capt. P. HILLKOWITZ, Denver.
To Fort Oglethorpe for instruction, Capt. C. D. McKENZIE, Denver.
To report to the commanding general, Philippine Department, from Camp Cody, Lieut. N. H. KNOCH, Denver.

Connecticut

To Camp Meade, Md., Lieut. M. J. FOLEY, Bridgeport.
To Camp Sevier, S. C., from Camp Lee, Capt. N. L. DEMING, Litchfield.
To Washington, D. C., from duty as medical aide to the governor of Connecticut, Capt. D. C. BROWN, Danbury.

District of Columbia

To Camp Greene, S. C., to examine the command for nervous and mental diseases, from Camp Devens, Lieut. C. B. COVEY, Washington.
To Fort Ontario, N. Y., base hospital, from Army Medical School, Lieut.-Col. G. H. SCOTT, Washington.
To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to his proper station, from Washington, Major R. Y. SULLIVAN, Washington.
To Walter Reed General Hospital, D. C., from Jeffersonville, Ind., Capt. W. J. MANNING, Washington.
To Washington, D. C., for instructions and on completion to New Haven, Conn., Yale Army Laboratory School, from Southern Department, Major J. S. SIMMONS, Washington.
To West Point, Ky., as camp surgeon, from Southern Department, Major A. S. WILDE, Washington.

Florida

To Camp Travis, Texas, from Douglas, Ariz., Lieut. B. H. PALMER, Tampa.
To Fort McPherson, Ga., Lieut. C. R. MARNEY, Tampa.
To Mineola, N. Y., Hazelhurst Field, for instruction, from Fort Oglethorpe, Lieut. M. A. LISCHKOFF, Pensacola.
To Washington D. C., Surgeon-General's Office, from Camp Hancock, Capt. R. E. BALDWIN, Tampa.

Georgia

To Camp A. A. Humphreys, Va., Lieut. H. J. CARSWELL, Waycross.
To Camp Devens, Mass., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. D. BLACKBURN, Atlanta.
To Camp Gordon, Ga., Capt. W. MATHEWS, Quitman.
To Camp Lee, Va., Lieut. T. M. VORBRINK, Savannah.
To Camp Sevier, S. C., Lieut. R. M. AVERY, Chiple; from Fort McPherson, Major G. D. HEATH, JR., Fort McPherson. Base hospital, from Fort Oglethorpe, Lieut. J. E. MORRISON, Savannah.
To Camp Sheridan, Ala., from Fort McPherson, Capt. H. J. ROSENBERG, Atlanta.
To Camp Wadsworth, S. C., Lieut. W. E. SIMMONS, Metter.
To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Lieut. A. SMITH, Atlanta.
To Fort Oglethorpe for instruction, Capt. H. B. ALLEN, L. F. GRUBBS, Americus.
To Hoboken, N. J., Major C. L. CHASE, Chickamauga.
To report to the commanding general, Eastern Department, Lieut. J. C. HARRIS, Collins.

Hawaii

To report to the commanding general, Hawaiian Department, Lieut. H. L. ROSS, Kealskekua.

Idaho

To San Francisco, Calif., for instruction, and on completion to his proper station, from Camp Lewis, W. S. TITUS, Boise.
To Syracuse, N. Y., from Fort Sill, Lieut. C. W. WILLIAMS, Laclede.

Illinois

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. W. E. SHACKLETON, Chicago.
To Camp Beauregard, La., base hospital, from Camp Jackson, Capt. O. T. SCHULTZ, Chicago.
To Camp Custer, Mich., from Central Department, Capt. W. F. GRAYSON, Granite City; Lieut. R. T. FARLEY, Chicago.
To Camp Devens, Mass., as orthopedic surgeon, from Fort Oglethorpe, Lieut. P. B. GREENBURG, Chicago.
To Camp Grant, Ill., base hospital, Lieut. F. H. FALLS, Chicago.
To Camp Jackson, S. C., evacuation hospital, from Camp Meade, Capt. F. W. BRODERICK, Sterling.
To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Lieut. G. L. McWHORTER, Chicago.
To Camp Las Casas, P. R., from Camp Lee, Lieut. H. S. BLESSE, South Chicago.
To Camp Lewis, Wash., as orthopedic surgeon, from San Francisco, Lieut. F. J. SCHICK, Chicago. Base hospital, from Portland, Lieut. O. H. CHRISTOFFERSEN, Chicago.
To Camp Logan, Texas, base hospital, from Fort Oglethorpe, Capt. H. A. WARE, Chicago.
To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Lieut. H. F. MOORE, Rockford. Evacuation hospital, from Cape May, Lieut. A. A. LEBEAU, Chicago.
To Camp Pike, Ark., from Fort Riley, Lieut. J. C. SMALL, Chicago.
To Camp Shelby, Miss., base hospital, from Fort Oglethorpe, Lieut. A. PEARMAN, Rockford.
To Camp Sheridan, Ala., evacuation hospital, from Baltimore, Major E. A. GRAHAM, Chicago.
To Camp Sherman, Ohio, as tuberculosis examiner, from New Haven, Lieut. G. K. FENN, Chicago Heights.
To Camp Travis, Texas, from Southern Department, Lieut. F. A. BLESSE, Chicago.
To Camp Upton, N. Y., as orthopedic surgeon, from Fort Oglethorpe, Lieut. G. L. VENABLE, Chicago.
To Camp Wheeler, Ga., base hospital, from Army Medical School, Lieut. F. C. CALDWELL, Chicago.
To Camp Zachary Taylor, Ky., base hospital, from Army Medical School, Capt. W. G. BAIN, Springfield.
To Fort Oglethorpe for instruction, Capt. T. H. PAGE, Peoria; Lieuts. D. N. EISENDRATH, Chicago; G. W. HUBER, Tuscola.

To Fort Riley, as tuberculosis examiner, from New Haven, Lieut. R. W. HARRELL, Chicago.
To Hoboken, N. J., from the Surgeon-General's Office, Lieut. W. R. WHITLEY, Chicago.
To Jefferson Barracks, Mo., from Camp Fremont, Major J. W. TURNER, Pleasant Hill. Base hospital, from Camp McClellan, Capt. W. H. MALEY, Galesburg.
To Lakewood, N. J., Lieuts. O. C. HYSLOP, A. SUMMERS, Chicago.

To report to the commanding general, Philippine Department, from Camp MacArthur, Capt. A. H. WEIS, Chicago.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Grant, Capt. C. C. CLARK, Chicago.

To San Antonio, Texas, Kelly Field, to examine the command for nervous and mental diseases, from Camp Cody, Lieut. L. M. OCHS, East Moline.

To Washington, D. C., for instructions, and on completion to Newport News, Va., from Hoboken, Capt. V. M. DALY, Pontiac. St. Elizabeth's Hospital, for intensive training, from Fort Oglethorpe, Lieut. H. M. ENGLISH, Marshall. Surgeon-General's Office, from Camp Dodge, Major J. L. MILLER, Chicago.

Indiana

To Azalea, N. C., from Camp Wadsworth, Lieut. A. M. WINKLEPLECK, Alfordsville.
To Camp Grant, Ill., from Fort Benjamin Harrison, Major T. C. STUNKARD, Terre Haute.
To Camp Hancock, Ga., base hospital, from Fort Oglethorpe, Capt. C. C. DUBOIS, Warsaw.
To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Lieut. O. O. MELTON, Hammond.
To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Capt. H. A. Ray, Fort Wayne.
To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. D. S. WIGGINS, New Castle.
To Camp Zachary Taylor, Ky., from Camp Grant, Capt. J. R. DILLINGER, French Lick.
To Fort Oglethorpe for instruction, Capt. C. E. ORDERS, Indianapolis; J. M. WALLACE, Ridgeville; G. W. ANGLIN, Warsaw; Lieuts. H. C. FRICK, Evansville; C. S. AUBLE, Indianapolis.
To Garden City, N. Y., from Lee Hall, Va., Lieut. G. W. KIMBALL, La Porte.
To Hoboken, N. J., Lieut. J. M. QUICK, Muncie.
To Lonoke, Ark., Eberts Field, from Lake Charles, La., Capt. D. D. JOHNSTON, Fort Wayne.

Iowa

To Camp A. A. Humphreys, Va., Lieut. B. L. TREY, Parkersburg.
To Camp Jackson, S. C., evacuation hospital, from Fort Oglethorpe, Lieut. W. J. FOSTER, Wellman.
To Camp Travis, Texas, from Southern Department, Lieut. R. V. HENRY, Hedrick.
To Fort Oglethorpe for instruction, Lieut. M. J. McVAY, Lake City.
To Fort Riley, as tuberculosis examiner, from New Haven, Capt. J. T. PADGHAM, Grinnell.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Dodge, Capt. C. S. JAMES, Centerville; from Camp Grant, Capt. I. E. NERVIG, Sioux City; from Camp Zachary Taylor, Lieut. A. E. ACHER, Fort Dodge.
To Rockefeller Institute for instruction, from New Haven, Lieut. M. T. MORTON, Iowa City.
To West Point, Ky., Lieut. G. GOULD, Iowa City.
To report to the commanding general, Philippine Department, from Camp MacArthur, Lieuts. G. BRAUNLICH, Davenport; A. D. SMITH, Mason City.

Kansas

To Camp Custer, Mich., base hospital, from Fort Oglethorpe, Capt. L. C. LEWIS, Kansas City.
To Camp Gordon, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. D. RODDA, Arma.
To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Fort Riley, Capt. C. J. McGEE, Leavenworth.
To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Capt. J. W. FAUST, Kansas City.

Kentucky

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. J. S. MCGINNIS, Lexington.
To Camp Zachary Taylor, Ky., Lieut. E. STUMBO, Smalley.
To Fort Caswell, N. C., from duty as a private, Lieut. O. N. BERGEMEYER, Dayton.

Louisiana

To Camp Lee, Va., base hospital, from Richmond, Major O. L. POTHIER, New Orleans.
To Fort Benjamin Harrison, as post surgeon, from Camp Wadsworth, Major R. HUNT, Shreveport.
To Fort Oglethorpe, evacuation hospital, from Camp Dodge, Lieut. P. E. WERLEIN, New Orleans. For instruction, Capt. W. B. CHAMBERLIN, Baton Rouge; Lieut. J. S. DUNN, New Orleans.
To New Orleans, La., with examining board, from the Surgeon-General's Office, Major I. DYER, New Orleans.

Maine

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. L. F. CARTER, Bangor.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. L. H. TRUFANT, Norway.
To Hoboken, N. J., from Camp Upton, Capt. A. H. LITTLE, Portland.
To Mineola, N. Y., Hazelhurst Field from Buffalo, Capt. W. E. WHITNEY, Bangor.

Maryland

To Camp A. A. Humphreys, Va., as tuberculosis examiner, from Camp Upton, Lieut. S. NEWMAN, Baltimore.
To Camp Greene, N. C., evacuation hospital, from Camp Grant, Lieut. J. J. CHISOLM, Baltimore.
To Camp Meade, Md., base hospital, from Camp Lee, Lieut. R. K. FOXWELL, Cambridge.

To *Camp Pike, Ark.*, from Fort Riley, Lieut. T. M. RIVERS, Baltimore.

To *Camp Sevier, S. C.*, base hospital, from Army Medical School, Lieut. R. M. HALL, Baltimore.

To *Camp Shelby, Miss.*, from Army Medical School, Lieut. R. S. CUNNINGHAM, Baltimore; from Camp McClellan, Major H. GROSS, Baltimore.

To *Camp Zachary Taylor, Ky.*, from Camp Hancock, Capt. T. R. PAYNE, Corbett.

To *Fort Oglethorpe* for instruction, Major R. P. BAY, Baltimore; from Camp Wadsworth, Lieut. V. H. CONDON, Baltimore.

To *New York City*, Neurological Institute, for instruction, and on completion to his proper station, from Camp Sheridan, Capt. G. O. SHARRETT, Cumberland.

To *Washington, D. C.*, St. Elizabeth's Hospital, from Camp Meade, Capt. D. D. V. STUART, JR., Baltimore; from Fort Oglethorpe, Lieut. W. C. CHANEY, Chancy.

The following order has been revoked: To *Camp Meade, Md.*, base hospital, Capt. S. McCLEARY, Baltimore.

Massachusetts

To *Boston, Mass.*, from duty as a contract surgeon, Lieut. G. H. POIRIER, Boston. Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. D. F. MURPHY, Beverly. To give orthopedic instruction, Major K. EMERSON, Worcester.

To *Camp Devens, Mass.*, base hospital, Major S. J. MIXTER, Boston.

To *Camp Forrest, Ga.*, to examine drafted men for nervous and mental diseases, and on completion to *Fort McPherson, Ga.*, from Fort Oglethorpe, Lieut. D. B. COLEMAN, Wellesley.

To *Camp Greene, N. C.*, as camp psychiatrist, from Camp Sheridan, Capt. H. L. STICK, Baldwinville. Evacuation hospital, from Camp Gordon, Capt. S. C. COX, Holyoke.

To *Camp McClellan, Ala.*, from Hot Springs, N. C., Lieut. C. S. NEISTADT, Fall River.

To *Camp Shelby, Miss.*, base hospital, from Fort Oglethorpe, Lieut. H. S. POMEROY, Peabody.

To *Camp Sheridan, Ala.*, evacuation hospital, from Camp Devens, Lieut. W. K. TURNER, New Bedford.

To *Camp Sherman, Ohio*, to examine the command for nervous and mental diseases, from New York, Lieut. G. VAN N. DEARBORN, Cambridge.

To *Camp Travis, Texas*, to examine the command for nervous and mental diseases, from Fort Oglethorpe, Capt. W. Y. SEYMOUR, State Farm.

To *Camp Wadsworth, S. C.*, base hospital, from Army Medical School, Lieut. L. C. HAVENS, Cambridge.

To *Colonia, N. J.*, from Walter Reed General Hospital, Lieut. E. KING, Boston.

To *Fort Douglas, Utah*, from Camp Lewis, Lieut. R. L. READLES, Coffeeville.

To *Fort Oglethorpe*, evacuation hospital, Major H. T. HUTCHINS, Boston. For instruction, Capt. T. W. MURPHY, Lawrence; Lieut. G. L. CHAFFIN, Boston; J. I. HILTON, Lawrence; S. C. EVELETH, Marblehead; E. D. RICHMOND, Reading.

To *Fort Riley*, base hospital, from Boston, Major M. H. ROGERS, Boston.

To *Garden City, N. Y.*, Lieuts. B. D. WETHERELL, Holyoke; J. J. TOPHAM, Lowell.

To *Jefferson Barracks, Mo.*, base hospital, from Camp Devens, Major D. F. JONES, Boston.

To *Newport News, Va.*, as orthopedic surgeon, from Fort Oglethorpe, Lieut. M. E. SIMMONS, Boston.

To *New York*, Neurological Institute, for instruction, from Camp Meade, Capt. H. E. MAYNARD, Winchester.

To *Rockefeller Institute* for instruction, from New Haven, Lieut. G. L. BUNNELL, Foxboro.

To *Walter Reed General Hospital, D. C.*, from Fort Oglethorpe, Lieut. A. F. SARGENT, Boston.

To *Williamsbridge, N. Y.*, from Camp Dix, Lieut. F. J. QUIST, Worcester.

Michigan

To *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Camp Devens, Lieut. H. L. KEIM, Ann Arbor; from Fort Oglethorpe, Lieut. C. E. TREUSDELL, Denton.

To *Camp Custer, Mich.*, base hospital, Capt. C. N. GAUSS, Palo.

To *Camp Fremont, Calif.*, from Camp Kearney, Lieut. H. B. McCRORY, Birch Run.

To *Camp Greene, N. C.*, evacuation hospital, from West Point, Capt. A. R. McKINNEY, Saginaw.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. L. H. TOWER, Battle Creek.

To *Camp McClellan, Ala.*, base hospital, from Fort Oglethorpe, Capt. W. T. PARKER, Cornum.

To *Camp Sherman, Ohio*, base hospital, Capt. F. J. SLADEN, Detroit.

To *Camp Upton, N. Y.*, base hospital, Capt. T. S. LANGFORD, Ann Arbor.

To *Fort Oglethorpe*, from Camp Meade, Major N. B. FOSTER, Ann Arbor.

To *Hoboken, N. J.*, from Camp Sherman, Lieut. C. W. OLSON, Escanaba.

To *Plattsburg Barracks, N. Y.*, from Fort Onatario, Lieut. H. A. REYE, Detroit.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to *Camp Grant, Ill.*, base hospital, from Fort Oglethorpe, Capt. R. J. E. ODEN, Cadillac.

Minnesota

To *Camp Custer, Mich.*, Lieut. F. B. MORRISSEY, St. Paul; from Camp Dodge, Capt. W. H. EATON, Duluth.

To *Camp Fremont, Calif.*, from Camp Kearney, Lieut. N. P. ANDERSON, Dunnell.

To *Camp John Wise, Texas*, from Camp Kelly, Lieut. S. R. FRAKER, Cass Lake.

To *Camp Pike, Ark.*, from Fort Riley, Capt. F. G. BLAKE, Minneapolis.

To *Cape May, N. J.*, from Ann Arbor, Major J. F. CORBETT, Minneapolis.

To *Fort Sam Houston, Texas*, base hospital, from Fort Oglethorpe, Major A. R. COLVIN, St. Paul.

To *New Haven, Conn.*, Yale Army Laboratory School, from Army Medical School, Lieuts. W. J. EKLUND, Duluth; W. J. CARSON, St. Paul.

To *Newport News, Va.*, base hospital, from Hoboken, Lieut. B. N. SOROSE, Detroit.

To *New York*, Neurological Institute, for instruction, Capt. H. A. BEAUDOUX, St. Paul.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Dodge, Capt. H. P. BACON, Milaca.

To *Rockefeller Institute* for instruction in the treatment of infected wounds, and on completion to his proper station, from Walter Reed General Hospital, Capt. E. M. JONES, St. Paul.

Mississippi

To *Camp Beauregard, La.*, base hospital, Capt. G. W. MONTGOMERY, Louin.

To *Camp Travis, Texas*, from Camp Head Springs, Lieut. C. M. SPECK, New Albany.

To *Fort Ontario, N. Y.*, to examine the command for nervous and mental diseases, Capt. J. H. FOX, Jackson.

To *Fort Riley* for instruction, Lieut. J. M. FOX, Jackson.

To report to the commanding general, Philippine Department, from Camp Bowie, Lieut. H. M. SMITH, Natchez.

The following order has been revoked: To *Camp McClellan, Ala.*, base hospital, from Fort Oglethorpe, Lieut. W. C. NORRIS, De Soto.

Missouri

To *Arcadia, Fla.*, Carlstrom Field, as flight surgeon, from Hampton, Va., Capt. F. C. SIMON, St. Louis.

To *Azalea, N. C.*, from Camp Bowie, Lieut. A. W. KOESSEL, St. Louis.

To *Camp Abraham Eustis, Va.*, camp hospital, from Army Medical School, Lieut. O. F. BRADFORD, Columbia.

To *Camp Beauregard, La.*, base hospital, from Fort Oglethorpe, Lieut. P. A. BRICKEY, St. Louis.

To *Camp Greene, N. C.*, evacuation hospital, from New York, Lieut. C. E. HYNDMAN, St. Louis.

To *Camp Jackson, S. C.*, evacuation hospital, from Fort Oglethorpe, Lieut. S. W. FAIR, Belton.

To *Camp John Wise, Texas*, from Camp Kelly, Lieut. P. C. DAVIS, Moberly.

To *Camp Joseph E. Johnston, Fla.*, base hospital, Lieut. C. C. KLEIN-SHMIDT, St. Louis.

To *Camp MacArthur, Texas*, base hospital, from Fort Oglethorpe, Capt. G. A. MELLIES, St. Louis.

To *Camp Pike, Ark.*, evacuation hospital, from Camp Bowie, Lieut. A. H. CLEVELAND, St. Louis; from Camp Kearney, Capt. R. D. STREETOR, Moberly; from Camp MacArthur, Capt. F. E. JACOBI, St. Louis; from Fort Riley, Major E. L. OPIE, St. Louis.

To *Camp Upton, N. Y.*, as orthopedic surgeon, from Fort Oglethorpe, Lieut. N. ROSENBERG, Kansas City.

To *Fort Oglethorpe* as assistant instructor, Capt. W. E. SAUER, St. Louis. For instruction, Capt. P. F. COLE, Ewing; M. G. GORIN, St. Louis.

To *Fort Riley*, base hospital, from Fort Sill, Lieut. J. H. ARMSTRONG, Glendale. For instruction, Lieut. H. N. DE MENIL, St. Louis.

To *Fort Wayne, Mich.*, Capt. D. H. BOKHOF, Kansas City; Lieut. R. E. GERSTENKERN, Kansas City.

To *Hoboken, N. J.*, evacuation hospital, from Camp Wadsworth, Lieut. Q. U. NEWELL, St. Louis.

To *Jefferson Barracks, Mo.*, base hospital, from Camp Dodge, Lieut. E. C. GRIM, Kirksville; from Fort Oglethorpe, Capt. M. W. MEYER, Columbia.

To *Mineola, N. Y.*, Hazelhurst Field, from Dallas, Lieut. S. E. ROBERTS, Kansas City. For instruction, from St. Louis, Lieut. H. W. LYMAN, St. Louis.

To *New Haven, Conn.*, Yale Army Laboratory School, from Army Medical School, Capt. R. BUHMAN, St. Louis.

To report to the commanding general, Philippine Department, from Camp Lewis, Lieut. A. J. SMITH, Boonville; from Camp Logan, J. B. WHITE, St. Louis.

To *Rochester, Minn.*, Mayo Clinic, for instruction, and on completion to their proper stations, from Camp Custer, Capt. C. L. COOPER, Kansas City; B. A. DUMBAULD, Webb City.

The following order has been revoked: To *Camp Pike, Ark.*, from Fort Riley, Lieut. B. H. EMERSON, Stockton.

Montana

To *Camp Custer, Mich.*, from Central Department, Major F. J. ADAMS, Great Falls.

To *Jefferson Barracks, Mo.*, base hospital, from Camp Lewis, Lieut. L. P. GAERTNER, Three Forks.

To *Rockefeller Institute* for instruction, from New Haven, Lieut. J. D. HOBSON, Missoula.

To *San Francisco, Calif.*, for instruction, and on completion to his proper station, from Camp Lewis, Capt. E. F. DODDS, Missoula.

To report to the commanding general, Philippine Department, from Camp Kearney, Lieut. W. I. FIREY, Roundup.

Nebraska

To *Camp Devens, Mass.*, base hospital, from Syracuse, N. Y., Capt. J. A. HENSKE, Omaha.

To *Camp Meigs, Wash.*, for instruction and on completion to *Camp Meade, Md.*, from Surgeon-General's Office, Capt. L. CRUMMER, Omaha.

To *Camp Sherman, Ohio*, as tuberculosis examiner, from New Haven, Capt. L. S. ROBINSON, Kearney.

To *Camp Wheeler, Ga.*, base hospital, from Fort Oglethorpe, Lieut. J. S. McAVIN, Omaha.

To *Fort Riley*, as tuberculosis examiner, from New Haven, Lieut. G. S. REEDER, Fremont.

To *Washington, D. C.*, St. Elizabeth's Hospital, for instruction, from Camp Wadsworth, Capt. S. J. STEWART, Hastings.

Nevada

To *Camp Fremont, Calif.*, Capt. J. R. CUNNINGHAM, Tonopah.

To *San Francisco, Calif.*, for instruction, and on completion to his proper station, from Camp Kearney, Capt. E. K. SMITH, Lovelock.

New Hampshire

To *Colonia, N. J.*, from Walter Reed General Hospital, Capt. F. S. TOWLE, Portsmouth.

To *Fort Oglethorpe* for instruction, Capt. F. M. N. ROBERTSON, Bristol.

The following order has been revoked: To *Camp John Wise, Texas*, from Camp Kelly, Capt. D. R. CHASE, Lebanon.

New Jersey

To *Camp Custer, Mich.*, base hospital, from Rockefeller Institute, Lieut. A. J. NEWMAN, Jersey City.

To *Camp Dodge, Iowa*, from Hoboken, Lieut. J. L. WILSON, Jersey City.

To *Camp Gordon, Ga.*, as orthopedic surgeon, Lieut. D. A. CURTIS, Paterson.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Capt. A. S. HARDEN, Newark.

To *Camp Jackson, S. C.*, base hospital, from Fort Oglethorpe, Major C. E. SUTPHEN, Newark. Evacuation hospital, from Camp McClellan, Capt. H. D. BELLIS, Trenton.

To *Colonia, N. J.*, from Camp Dix, Lieut. C. BROWNE, Princeton.

To *Fort Oglethorpe* for instruction, from Camp Upton, Lieut. L. D. WHITNEY, Belleville.

To *Mount Clement, Mich.*, Selfridge Field, from Mineola, Lieut. S. Z. ORGEL, Hackensack.

To *San Antonio, Texas*, Kelly Field, to examine the command for mental and nervous disease, from Montgomery, Lieut. M. DOBRIN, Montclair.

New Mexico

To *Camp Kelly, Texas*, from Mineola, Capt. W. MacLAKE, Silver City.

New York

To *Camp A. A. Humphreys, Va.*, Capt. W. G. BAETZ, Woodhaven. As tuberculosis examiner, from Camp Upton, Lieut. A. C. ABBOTT, Syracuse.

To *Camp Dix, N. J.*, Capt. H. G. GERMER, Canastota; from Fort Oglethorpe, Lieut. J. L. LINN, Brooklyn.

To *Camp Gordon, Ga.*, base hospital, from Camp Lee, Lieut. H. BAKWIN, New York.

To *Camp Greene, N. C.*, evacuation hospital, from Camp Upton, Lieut. J. L. WOZNIAK, Schenectady.

To *Camp Hancock, Ga.*, base hospital, from Army Medical School, Lieut. R. M. FERRY, New York.

To *Camp Jackson, S. C.*, from Williamsbridge, Capt. H. M. WEED, Buffalo.

To *Camp Joseph E. Johnston, Fla.*, base hospital, from Fort Oglethorpe, Lieut. A. A. J. JOHNSON, Brooklyn.

To *Camp Lee, Va.*, from Fort Slocum, Major I. A. ALLEN, Ludlowville. Base hospital, from Fort Oglethorpe, Lieut. N. C. MARVEL, New York.

To *Camp Pike, Ark.*, evacuation hospital, from Fort Ontario, Major M. RODENHEIMER, New York; from New York, Lieut. J. GOTTESMAN, New York.

To *Camp Sheridan, Ala.*, as division psychiatrist, from Camp Gordon, Capt. L. M. WILBER, Jasper. Base hospital, from Fort Oglethorpe, Lieut. T. J. SULLIVAN, Brooklyn. Evacuation hospital, from Biltmore, Capt. H. C. W. SCHULTZ-DE BRUN, New York.

To *Camp Sherman, Ohio*, base hospital, from Camp Wheeler, Lieut. G. W. WHEELER, New York.

To *Camp Wadsworth, S. C.*, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. C. O'NEILL, New York.

To *Camp Wheeler, Ga.*, from Rockefeller Institute, Lieut. S. H. CURTIS, Troy. From the Surgeon-General's Office, Major R. L. CECIL, New York. Base hospital, from Fort Oglethorpe, Lieuts. F. C. KELLER, G. F. SCUDDER, New York.

To *Fort Benjamin Harrison*, base hospital, from Camp Dix, Capt. F. G. SCHABLE, New York; from Camp Grant, Lieut. W. L. McCANTY, Buffalo.

To *Fort Douglas, Ariz.*, from Camp Travis, Capt. D. S. CHILDS, Syracuse.

To *Fort McPherson, Ga.*, Capt. F. W. RICE, New York.

To *Fort Oglethorpe*, evacuation hospital, from Camp Meade, Lieut. F. P. SCHENKELBERGER, Gowanda. For instruction, Lieuts. A. B. TAYLOR, Moores; F. M. FRANKFELDT, New York.

To *Fort Sheridan, Ill.*, base hospital, from Camp McClellan, Capt. H. E. MELENFY, Brooklyn.

To *Fort Snelling, Minn.*, base hospital, from Camp Devens, Lieut. J. A. WENTWORTH, Clifton Springs.

To *Hoboken, N. J.*, from Walter Reed General Hospital, Capt. R. L. J. KEMEL, New York. Evacuation hospital, from Army Medical School, Lieuts. W. H. JONES, J. P. LADUCA, Buffalo; from Camp Crane, Lieut. H. D. MacFARLAND, Westernville.

To *Lakewood, N. J.*, Lieut. A. TOWBIN, New York.

To *New Haven, Conn.*, Lieut. J. KAUNITZ, New York. Yale Army Laboratory School, from Army Medical School, Lieut. J. L. MANGANO, Buffalo.

To *Newport News, Va.*, as orthopedic surgeon, from Fort Oglethorpe, Lieut. M. H. NEWTON, Iilon.

To report to the commanding general, Philippine Department, from Camp Cody, Lieut. G. B. WALLACE, New York.

To *Rockefeller Institute* for instruction, from New Haven, Lieuts. D. JUNG, Buffalo; D. S. DOOMAN, C. H. HOCHMAN, New York. For instruction in the treatment of infected wounds, and on completion to *Fort Oglethorpe* for instruction, Lieut. R. V. FUNSTON, New York.

To *Williamsbridge, N. Y.*, Capt. C. C. JONES, New York; from Camp Upton, Lieut. M. J. LYNCH, New York.

North Carolina

To *Azalea, N. C.*, from New Haven, Capt. B. K. HAYS, Oxford.

To *Camp Abraham Eustis, Va.*, as sanitary inspector, from Camp Greene, Capt. D. C. ABSHER, Mount Airy.

To *Camp Beauregard, La.*, base hospital, from Fort Oglethorpe, Lieut. G. E. BOWDOIN, Wilmington.

To *Camp Logan, Texas*, as tuberculosis examiner, from New Haven, Lieut. W. T. LONG, Roxboro.

To *Camp Newton D. Baker, Texas*, base hospital, from Camp McClellan, Lieut. H. RAY, Raleigh.

To *Fort Oglethorpe* for instruction, Lieut. R. B. WILKINS, Raeford.

North Dakota

To *Fort Douglas, Utah*, from Camp Lewis, Lieut. W. ANDERSON, Grand Forks.

To *Rocheater, Minn.*, Mayo Clinic, for instruction, and on completion to his proper station, from Camp Grant, Lieut. W. H. WITHERSTINE, Grand Forks.

Ohio

To *Camp A. A. Humphreys, Va.*, Capt. F. J. WOOD, Lieut. O. H. RIEMENSCHNEIDER, Cleveland.

To *Camp Crane, Pa.*, base hospital, from Rockefeller Institute, Lieut. S. H. MILLER, Marble Cliff.

To *Camp Pike, Ark.*, from Fort Riley, Major A. W. FREEMAN, Columbus.

To *Camp Sheridan, Ala.*, evacuation hospital, from Camp Zachary Taylor, Lieut. G. A. GORSUCH, Bowling Green.

To *Camp Sherman, Ohio*, base hospital, from New Haven, Major P. GATH, Cincinnati.

To *Colonia, N. J.*, from Camp Lee, Lieut. H. S. SHAMANSKY, Cincinnati.

To *Fairfield, Ohio*, Wilbur Wright Field, from Columbus, Capt. A. H. SEEDS, Columbus.

To *Fort Oglethorpe* for instruction, Lieuts. W. R. KELLER, Canal Dover; N. J. SEYBOLD, Toledo.

To *Fort Sam Houston, Camp Travis and San Antonio, Texas*, from Camp Logan, Lieut. W. R. CHYNOWETH, Dayton.

To *Hoboken, N. J.*, base hospital, from Camp Devens, Lieut. A. B. BROWER, Dayton.

To *Jefferson Barracks, Mo.*, base hospital, from Camp Fremont, Capt. A. M. PAINTER, Youngstown.

To *Williamsbridge, N. Y.*, from Camp Crane, Lieut. J. A. MELLON, Columbiana.

Oklahoma

To *Camp Dodge, Ark.*, base hospital, Lieut. H. W. DOTY, Watonga.

To *Camp Joseph E. Johnston, Fla.*, base hospital, from Fort Oglethorpe, Capt. B. LOVELADY, Guthrie.

To *Camp McClellan, Ala.*, base hospital, from Camp Sherman, Lieut. J. W. NIEWEG, Duncan.

To *Camp Pike, Ark.*, evacuation hospital, from Camp Bowie, Lieut. O. R. GREGG, Wavvoka; from Fort Oglethorpe, Lieut. D. W. VINCENT, Oklahoma City.

To *Camp Sherman, Ohio*, base hospital, from Army Medical School, Lieut. O. J. WALKER, Oklahoma City.

To *Camp Wadsworth, S. C.*, Capt. H. H. CLOUDMAN, Oklahoma City.

To *Fort Oglethorpe* for instruction, Lieuts. L. A. MITCHELL, Frederick; C. A. JOHNSON, Kiswa.

To *Fort Snelling, Minn.*, base hospital, from Camp Devens, Lieut. W. LANGSTON, Oklahoma City.

To report to the commanding general, Philippine Department, from Camp Cody, Capt. R. E. WELLER, Pawnee.

The following order has been revoked: To *Fort Riley* for instruction, Lieut. E. D. JAMES, Miami.

Oregon

To *Camp Abraham Eustis, Va.*, from Western Department, Lieut. A. O. WALLER, Eugene.

To *Camp Pike, Ark.*, evacuation hospital, from Camp Lewis, Capt. J. L. MCCOOL, Portland.

To *Jefferson Barracks, Mo.*, base hospital, from Camp Lewis, Lieut. H. P. BELKNAP, JR., Portland.

Pennsylvania

To *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieuts. L. J. LIVINGOOD, Philadelphia; S. H. KELLER, Pittsburgh.

To *Camp A. A. Humphreys, Va.*, from Fort Oglethorpe, Capt. E. M. HALEY, Blossburg.

To *Camp Beauregard, La.*, base hospital, from Fort Oglethorpe, Lieut. Col. A. C. ABBOTT, Philadelphia; Lieut. A. B. SMITH, Wyoming.

To *Camp Crane, Pa.*, from Rockefeller Institute, Lieut. J. R. CONOVER, Philadelphia.

To *Camp Custer, Mich.*, base hospital, from Houghton, Mich., Lieut. P. N. HUNSICKER, Beaver Meadows.

To *Camp Forrest, Ga.*, from Central Department, Major H. TUCKER, Philadelphia.

To *Camp Gordon, Ga.*, Lieut. H. H. STEWART, Friedensburg. Base hospital, from Fort Oglethorpe, Capt. A. R. MATIENY, Pittsburgh.

To *Camp Hancock, Ga.*, base hospital, from Army Medical School, Capt. E. H. PERRY, Washington.

To *Camp Jackson, S. C.*, evacuation hospital, from Fort Oglethorpe, Lieut. H. W. OSTRUM, Philadelphia.

To *Camp Joseph E. Johnston, Fla.*, base hospital, from Fort Oglethorpe, Lieuts. G. S. HENSYL, Mahoney City; T. B. HERRON, Monesson.

To *Camp Lee, Va.*, Capt. L. FISHER, Philadelphia. Base hospital, Capt. C. L. PALMER, Pittsburgh.

To *Camp Logan, Texas*, to examine the command for nervous and mental diseases, from Camp Wadsworth, Lieut. G. A. PARKER, South Bethlehem.

To *Camp Upton, N. Y.*, Capt. B. P. STEELE, McVeytown.

To *Camp Wheeler, Ga.*, to examine the command for nervous and mental diseases, from Camp Wadsworth, Lieut. M. H. WEINBERG, Pittsburgh.

To *Colonia, N. J.*, from Camp Devens, Lieut. L. W. KOHN, Philadelphia.

To *Fort McPherson, Ga.*, from Fort Oglethorpe, Capt. R. L. McNEER, Philadelphia.

To *Fort Oglethorpe* for instruction, Capt. W. G. EYMAN, Pittsburgh; Lieuts. J. G. KOSHLAND, Cassville; H. J. WILLIAMS, Germantown; G. HAY, Johnstown; W. D. BARRY, Philadelphia; H. C. GRIM, Trumbauersville.

To *Jeffersonville, Ind.*, Lieut. Z. R. SCOTT, Pittsburgh.

To *Lonoke, Ark.*, Eberts Field, from Lake Charles, La., Lieuts. J. D. JACKSON, Erie; S. L. WINGRADE, Philadelphia.

To *New Haven, Conn.*, Yale Army Laboratory School, for instruction, Lieut. L. W. WRIGHT, Williamsport.

To *Newport News, Va.*, base hospital, from Hoboken, Capt. M. SOLIS-COHEN, Philadelphia; Lieut. F. L. ALEXAITIS, Wilkes-Barre.

To New York, Neurological Institute, for instruction, Lieuts. C. A. BEHNEY and R. C. BUERKI, Philadelphia.

To Rockefeller Institute, from Camp Upton, Capt. J. V. KLAUDER, Philadelphia. For instruction, from New Haven, Lieuts. G. A. DAPP, Harrisburg; O. R. ETTER, Philadelphia; N. D. GANNON, Pittsburgh.

Porto Rico

To Camp Las Casas, P. R., base hospital, from Army Medical School, Lieut. L. A. SALIVA, Rio Fiedras.

Rhode Island

To Camp Wadsworth, S. C., from Camp Custer, Lieut. R. METCALF, Providence.

South Carolina

To Camp Hancock, Ga., base hospital, Capt. L. C. SHECUT, Orangeburg.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. W. L. PRESSLY, Due West.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. J. K. WICKER, Newberry.

South Dakota

To Camp Joseph E. Johnston, Fla., base hospital, from Boston, Lieut. L. J. BROCKMAN, Vermilion.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Dodge, Capt. J. D. WHITESIDE, Aberdeen; Lieut. R. G. STEVENS, Sioux Falls; from Camp Grant, Lieut. H. SPRAGUE, Huron; from Fort Riley Lieut. D. W. CRAIG, Sioux Falls.

Tennessee

To Biltmore, N. C., Lieut. H. C. WYSONG, Beech Grove.

To Camp Crane, Pa., from Camp Grant, Lieut. J. F. BINKLEY, Nashville.

To Camp Custer, Mich., from Central Department, Capt. J. D. HENDERSON, Knoxville.

To Camp Dick, Texas, from Dallas, Major V. K. EARTHMAN, Murfreesboro.

To Camp Hancock, Ga., base hospital, from Army Medical School, Lieut. R. V. DePUE, Knoxville.

To Camp Jackson, S. C., evacuation hospital, from Fort Oglethorpe, Capt. J. B. SHOUN, Hampton.

To Camp Las Casas, P. R., Lieut. L. P. BROOKS, Chattanooga.

To Camp Logan, Texas, as tuberculosis examiner, from New Haven, Lieut. W. O. BAIRD, Memphis.

To Camp McClellan, Ala., from Atlanta, Capt. E. D. WATKINS, Memphis.

To Camp Sheridan, Ala., from Fort Oglethorpe, Lieut. C. T. WATERS, Memphis.

To Camp Zachary Taylor, Ky., Lieut. M. S. DAVIS, Fayetteville.

To Fort McPherson, Ga., Lieut. H. B. PARRISH, Nashville.

To Fort Oglethorpe, evacuation hospital, from Camp Upton, Major H. H. SHOULDER, Nashville. For instruction, Lieut. L. S. McMULLEN, Knoxville.

To report to the governor of Tennessee as medical aide, Capt. P. DEWITT, Nashville.

To Washington, D. C., Surgeon-General's Office, from duty as medical aide to the governor of Tennessee, Major W. D. HAGGARD, Nashville.

The following order has been revoked: To Fort Oglethorpe for instruction, Lieut. T. W. RHODES, Whiteville.

Texas

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Devens, Lieut. H. SHANNON, Dallas.

To Camp A. A. Humphreys, Va., Lieut. R. E. STACK, Erwin.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. J. CAMP, Pacos.

To Camp Custer, Mich., from Camp Meade, Lieut. A. J. MYNATT, Houston.

To Camp Greene, N. C., evacuation hospital, from Camp Gordon, Capt. C. C. GREENE, Houston.

To Camp Jackson, S. C., evacuation hospital, from Camp Logan, Lieut. F. N. HAGGARD, San Antonio.

To Camp MacArthur, Texas, base hospital, Capt. T. J. WALTHALL, San Antonio.

To Camp Pike, Ark., evacuation hospital, from Camp MacArthur, Lieut. O. S. McMULLEN, Victoria.

To Camp Travis, Texas, Lieut. C. T. DUFNER, Yoakum; from Camp Head Springs, Capt. F. O. BARRETT, El Paso; Lieut. R. E. PRIDGEN, Oakland; from Douglas, Ariz., Capt. F. H. SHAW, Marlin. Base hospital, Capt. O. EHLINGER, College Station; Lieut. J. E. HARRIS, Brazoria.

To Dallas, Texas, from Call Field, Capt. H. J. REGER, Vernon.

To Fort Oglethorpe for instruction, Capt. H. B. PEDIGO, Beaumont; F. P. HERFF, San Antonio; Lieut. S. ISRAEL, Houston.

To Hoboken, N. J., base hospital, from Camp Dix, Lieut. H. L. BROWN, Sherman. Evacuation hospital, from Fort Oglethorpe, Lieut. J. W. GOODE, San Antonio.

To report to the commanding general, Philippine Department, from Camp Travis, Lieut. C. K. ARNOLD, Bibbes.

To Rochester, Minn., from Fort Myer, Lieut. R. ATKINSON, Pleasanton.

To Rockefeller Institute for instruction, from New Haven, Lieut. J. D. MARTIN, Cal.

The following order has been revoked: To Camp John Wise, Texas, from Camp Kelly, Capt. T. P. BRYAN, Dublin.

Utah

To Camp Pike, Ark., evacuation hospital, from Western Department, Lieut. C. A. NYVALL, Salt Lake City.

To New Haven, Conn., Yale Army Laboratory School, for instruction, from Fort Riley, Lieut. J. J. GALLIGAN, Salt Lake City.

Vermont

To Atlanta, Ga., Georgia School of Technology, from Fort Oglethorpe, Capt. G. ROBERTS, Chester.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. D. R. BROWN, Lyndonville.

To Carlisle, Pa., from Camp Devens, Capt. O. V. HEFFLON, Wardsboro.

To Rockefeller Institute for instruction, from New Haven, Lieut. A. L. FOGG, Underhill.

Virginia

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. L. N. HARRIS, Harrisonburg.

To Camp Beauregard, La., base hospital, from Fort Oglethorpe, Lieut. C. C. CARR, Toms Creek.

To Camp Lee, Va., Lieut. F. F. RIGHTER, Richmond.

To Camp Upton, N. Y., Capt. H. R. DREWRY, Norfolk.

To Fort Oglethorpe for instruction, Capt. M. C. SYCLE, Richmond; Lieut. W. H. RE MINE, Lodi.

To Newport News, Va., from Army Medical School, Lieut. J. O. FITZGERALD, Richmond. Base hospital, from Hoboken, Lieut. P. E. TUCKER, Buckingham.

Washington

To Camp Dodge, Iowa, from Vancouver Barracks, Capt. G. W. PHILLIPS, Bridgeport.

To Camp Lewis, Wash., base hospital, from duty as a contract surgeon, Capt. H. G. LAZELLE, Seattle.

To Camp Travis, Texas, from Camp Newton D. Baker, Major E. BAILEY, Mansfield.

To Jefferson Barracks, Mo., base hospital, from Camp Lewis, Lieuts. W. L. JACKSON, Burlington; S. A. DE MARTINI, Tacoma.

To San Francisco, Calif., for instruction, and on completion to his proper station, from Camp Lewis, Capt. E. L. INGERSOLL, Spokane; Lieut. C. D. HUNTER, Tacoma; from Letterman General Hospital, Capt. E. E. BECKETT, Seattle.

West Virginia

To Camp Cody, N. M., base hospital, from Camp Bowie, Lieut. F. C. HODGE, Huntington.

To Camp Custer, Mich., from Central Department, Capt. N. R. PRICE, Marlinton.

To Camp Lee, Va., Capt. H. D. CAUSEY, Fairmont.

To Camp Sevier, S. C., base hospital, Capt. L. C. MORRISON, Milton.

To Camp Upton, N. Y., Lieuts. A. T. GORDON, Reedy; W. L. Y. CURREY, Sandyville.

To Edgewood, Md., base hospital, Lieut. B. S. PARKS, Spencer.

To Fort Oglethorpe for instruction, Capt. H. H. STAATS, Spencer; Lieuts. E. D. WELLS, Hinton; G. W. ABERSOLD, Wheeling.

To report to the commanding general, Philippine Department, from Camp Lewis, Capt. C. G. WILLIS, Kingston.

Wisconsin

To Azalea, N. C., Capt. E. W. SMITH, Madison.

To Camp Dodge, Iowa, base hospital, Lieut. A. T. SHEARER, Edgerton.

To Camp Joseph E. Johnston, Fla., base hospital, from Fort Oglethorpe, Capt. V. F. MARSHALL, Appleton.

To Camp McClellan, Ala., with the board examining the troops for cardiovascular diseases, from Washington, Lieut. D. H. WITTE, Hartford.

To Camp Meigs for instruction, and on completion to Camp Meade, Md., from the Surgeon-General's Office, Major J. R. McDILL, Milwaukee.

To Camp Pike, Ark., evacuation hospital, from Camp Sherman, Lieut. C. E. STOLZ, Milwaukee; from Fort Oglethorpe, Capt. A. S. WHITE, Rice Lake; Lieut. H. L. GARNER, Rhineland.

To Camp Sheridan, Ala., evacuation hospital, from Camp Shelby, Lieut. G. M. SMITH, Chippewa Falls.

To Camp Upton, N. Y., Lieut. C. A. WILSKE, Milwaukee.

To Fort Oglethorpe for instruction, Lieut. G. J. FLANNAGAN, Kaukauna.

To report to the commanding general, Philippine Department, from Camp Travis, Lieut. C. D. MARTIN, Wauwatosa.

To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Grant, Capt. P. A. FOX, Milwaukee.

To Washington, D. C., Surgeon-General's Office, from Milwaukee, Major G. V. I. BROWN, Milwaukee.

Wyoming

To Camp Sheridan, Ala., base hospital, from Fort Oglethorpe, Capt. W. A. STEFFEN, Sheridan.

To Camp Travis, Texas, from Southern Department, Lieut. H. O. BROWN, Sheridan.

Economic Cost of Syphilitic Mental Diseases to the State of New York.—The total number of patients of this description, including cases of general paralysis, cerebral syphilis and tabes dorsalis, in civil state hospitals, hospitals for criminal insane and in private licensed institutions on June 30, 1917, was 1,554. The number of those first admitted during the fiscal year, 1916-1917, was 965. The per capita cost of support of all patients under treatment in the civil state hospitals was \$303.68. Assuming the cost to be no less in the other institutions, this gives the sum of \$471,918.72 as the cost of maintenance of the 1,554 patients with syphilitic insanity for the year. To this cost is added the loss of earnings. Assuming that the period of productivity ends at the close of the sixty-fifth year, that the average earnings are the same throughout the years of productivity and amount to \$500 above the cost of maintenance in the case of males, and to \$100 in the case of females, one gets the staggering figure of \$4,926,726.27 as the year's loss of earnings on the part of these patients, and therefore, a sum of \$5,398,644.99 as the total loss to the state.—*Mental Hygiene*.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ALABAMA

Free Typhoid Inoculation.—Dr. Judson D. Dowling, health officer of Birmingham and Jefferson County, announces that free typhoid inoculation will be administered by his officials. The serum will be furnished by the United State Public Health Service.

Crusade Against Social Diseases.—Dr. Samuel W. Welch, state health officer of Alabama, Montgomery, announces that a crusade against social diseases in the state will be launched, September 2, under the direction of Prof. W. C. Blasingame, who will undertake to establish in every county a free clinic for the treatment of venereal diseases. For the support of this work about \$23,000 has been appropriated to the state by the United States government, and it is expected that the state will contribute the remainder of the amount necessary for the successful conduct of this crusade.

CALIFORNIA

Unlicensed Practitioners Arrested.—"Dr." Chew Yuen, a Chinese herb doctor of Red Bluff and "Drs." Walter C. Hoyt and Lindsay, Manton, are said to have been arrested, August 21, on the charge of having practiced medicine without a license.

The Stehman Memorial.—The eighth annual report of the La Vina Sanatorium, Millard Canyon, sets forth the great and unselfish service rendered sufferers from tuberculosis by the late Dr. Henry B. Stehman, Pasadena, founder and president of the institution until his death. As a suitable memorial to Dr. Stehman, and to insure the permanency of La Vina, it has been decided to raise \$200,000 by popular subscription as a Henry B. Stehman Memorial Fund. At present there is an investment in land, buildings, and equipment of more than \$125,000, and the endowment fund amounts to more than \$42,000.

Hospital Items.—The new San Diego County tuberculosis hospital, San Diego, which is known as the Vaclain Home, in honor of the late J. V. Vaclain, who by his will left \$16,000 for the upkeep of a hospital for patients suffering from tuberculosis, was opened to receive patients, September 3.—A building has been donated to the Cottage Hospital, Santa Barbara, by George Owen Knapp, C. K. G. Billings, Clarence A. Black and Frederick P. Peabody, to be used as a clinical building by Dr. Nathaniel Bowditch Potter of the Carnegie Foundation for medical research work. The building will be two stories in height and equipped with every essential for the successful carrying out of this important work.

Personal.—Dr. Henry G. Watters, Watsonville, has resigned as assistant physician of Santa Cruz County to enter the military service.—Dr. Peter C. Remondino has been reelected president of the San Diego Board of Health. Since 1876, Dr. Remondino has been for more than twenty-one years a member of the board and is now entering on his seventh term as president.—Dr. Viola Lantz, San Jose, has started for France under the auspices of the American Red Cross.—Dr. John H. Seiffert, San Diego, who was arrested by a representative of the state board of pharmacy, September 3, on two charges of having sold cocaine to a habitual user, is said to have pleaded guilty and to have been fined \$200 for each offense.

COLORADO

License Revoked.—The Colorado State Board of Medical Examiners, at a recent meeting, is reported to have revoked the license of Dr. Alfred Ephraim Max of Denver. Five other cases were dismissed. Charges reported against the physicians were for the use of drugs, malpractice and immoral conduct.

Personal.—Dr. John Smitts, Leadville, who had been charged with disloyalty and pro-Germanism, has been completely exonerated by the Delta County Council of Defense, which found the charges unwarranted and unsubstantiated.—Dr. William P. Harlow, Boulder, head of the School of Medicine of the University of Colorado, has been appointed a major in the

Medical Corps, and has been placed in charge of General Hospital No. 21, Aurora.

ILLINOIS

Illegal Practitioner Fined.—Mrs. W. M. Rybicki, Chicago, is reported to have been fined \$50 and costs for treating patients without having a license.

State Seals Well.—As the result of the investigation conducted in Moline by the state board of health the McGovern well has been ordered to be sealed by a lock. It has been determined by the board that this well was the source of the typhoid fever epidemic in the west end of the city.

The Prevention of Blindness.—September 6, two midwives were prosecuted before Judge Fry in the municipal court for failure to observe the requirements of the Act for the Prevention of Blindness from ophthalmia neonatorum. Both were convicted, and the minimum fine of \$10 was imposed in each case, as it was their first offense. A vigorous prosecution of midwives and physicians who do not observe the requirements of the law in the care of the eyes of the newly born has been begun by Attorney-General E. J. Brundage through his assistant, Charles E. Bartlett.

KENTUCKY

Personal.—Dr. William L. Davis, Martinsburg, is said to have been taken before the United States commissioner at Glasgow, August 16, charged with making unpatriotic utterances. He was held to the federal grand jury a bond of \$5,000.—Arthur L. Nelson, for four years secretary and assistant superintendent of the Louisville City Hospital, and for thirteen years connected with the institution, has resigned to accept a position with the United States Public Health Service.—Dr. Florence Meder, for eighteen years a member of the staff of state hospitals for insane in Kentucky, has resigned as second assistant physician at the Central State Hospital, Lakeland, and will engage in sanatorium work in Louisville.—Dr. Isaac D. Winston, Sturgis, is reported to be critically ill in Evansville, Ind.

State Society Meeting.—At the sixty-eighth annual meeting of the Kentucky State Medical Association, held in Louisville under the presidency of Dr. James S. Lock, Barbourville, the following officers were elected: president, Dr. John G. South, Frankfort; vice presidents, Drs. Hugh W. Gates, Calhoun, Hugh L. McLean, Wilmore, and Robert W. Frey, Trenton; secretary, Dr. Arthur T. McCormack, Bowling Green (reelected); treasurer, Dr. William B. McClure, Lexington (reelected); delegates to the American Medical Association, Drs. Daniel M. Griffith, Owensboro, and Lewis S. McMurtry, Louisville; orator in surgery, Dr. William B. Owen, Louisville; orator in medicine, Dr. Thompson F. Wickliffe, Jackson; councilor for the fifth district, Dr. Ben C. Frazier, Louisville, and councilor for the third district, Dr. William H. Neel, Bowling Green.

MARYLAND

Personal.—Lieut. Charles W. Myers, Baltimore, who has been at the front for several months, has been given the Distinguished Service Medal.—Evacuation Hospital No. 16, which is in command of Major Page Edmunds, Baltimore, has arrived safely overseas.—Capt. Frank J. Powers of Baltimore, who is connected with Evacuation Hospital No. 12, has arrived in France.

New Ward at Fort McHenry Opened.—The first of twenty-five wards recently authorized by Congress was formally opened, September 12, at the U. S. Army General Hospital No. 2, Fort McHenry. This new ward with sixteen others was started about two weeks ago. All of them are two stories in height and are built of tile. Each is arranged to accommodate at least ninety-six patients.

Board of Medical Officers Named for Unusual Duty.—Major-Gen. Jesse McL. Carter, commander of the Lafayette Division at Camp Meade, has announced the appointment of a board of three officers of the Medical Corps to "examine into, determine and report on the sanity of four soldiers accused of violating certain articles of war." The board is composed of Capts. Andrew C. Gillis, Baltimore; Theodore I. Townsend, Binghamton, N. Y., and George F. Sargent, Towson, Md. The men will be held under observation sufficiently long to enable the board to report on their mental condition.

MICHIGAN

Personal.—Dr. Worth Ross, medical supervisor for the Detroit Children's Aid Society, has been appointed a member of the American Red Cross Tuberculosis Commission to Italy.

—Dr. Charles H. Oakman, Detroit, has been appointed inspector of the House of Correction.

Drug Law Violators Punished.—"Dr." G. C. Smith, Detroit, charged with the violation of the Harrison Narcotic Law is said to have been found guilty, August 16, fined \$4,000 and sentenced to imprisonment for two and one-half years in the federal penitentiary, Fort Leavenworth, Kan.—Dr. John S. Dohany, Detroit, charged with a similar violation of law, is said to have pleaded guilty and to have been fined \$6,000.

Sterilization Law Unconstitutional.—The Michigan law providing for the sterilization of mental defectives or insane persons in institutions has been declared unconstitutional by the supreme court of Michigan on the ground that it is class legislation. The law provided that only those persons confined in institutions at public expense were to come within the operation of the law, and did not include all mental defectives or insane persons. The court did not pass on the constitutionality of the principle of sterilization.

MINNESOTA

Infantile Paralysis Checked.—Executive officers of the state board of health announce that there are no cases of poliomyelitis in the state excepting three cases in Minneapolis, which are believed to have been imported. He states also that the reports to the effect that there are a large number of cases in Minnesota are erroneous.

Medical Society Cares for Its Members.—In addition to its free work among soldiers and the entry of seventy-five of its members into the Medical Corps of the Army, the Hennepin County Medical Association is giving free care to the families of soldiers, and has also established a fund of \$15,000 to cover the necessary expenses incurred in this care. Since the association has been doing this work, nearly 200 cases of illness among the members of soldiers' families have been treated.

Sanatorium Betterment.—A get-together meeting to formulate plans for closer cooperation between various sanatoriums of the state was held at the State Sanatorium, Walker, recently. Dr. Robinson Bosworth, St. Paul, executive secretary of the advisory commission, and representatives of nine sanatoriums were present.—A tuberculosis clinic was held at the Riverside Sanatorium, Granite Falls, September 7, by Dr. Abraham P. Terk, medical director of Riverside Sanatorium, under the auspices of the sanatorium commission.

Venereal Disease Report.—During August, 1918, 127 physicians and institutions of the state reported to the Minnesota State Board of Health on syphilis, gonorrhea and chancroid, giving the location of the disease and the source of infection, in accordance with the regulations for the reporting of venereal diseases. For the diseases, syphilis, gonorrhea and chancroid, in the order named, the numbers of cases reported from the state at large were 33, 49 and 2; for Minneapolis, 228, 95 and 5; for St. Paul, 43, 42 and 0; total, 304, 86 and 7, or a grand total for the three diseases of 497.

Tuberculosis Survey.—A survey of Roseau County for tuberculosis is being made under the auspices of the state board of health by Dr. Ray D. Gardner, Eveleth, epidemiologist of the state board of health; Dr. William H. Fortin, representing the advisory commission of the State Sanatorium for Consumptives, and a trained nurse from the health department. The work will occupy a month. An endeavor is being made to locate and examine every tuberculous individual in the county, to supervise the method of living of the individual if he remains at home, to refer him to the county sanatorium if he belong there, and to examine and exercise strict supervision over other members of the family if the tuberculous patient resides at home.

Weekly Health Journal.—The Minnesota Public Health Association has begun what is called "Experiment Number One" in the publication of a weekly journal called the *Minnesota Public Health Association Journal*, the first number of which appeared, September 5. This has followed the reorganization of the administrative staff of the association, which now operates through its board of directors of sixty members, its officers, and its executive committee of seven members. Dr. Hibbert W. Hill, St. Paul, executive secretary of the association, is editor, and he bespeaks the support of all persons in making the weekly a success. The first number contains eight pages of interesting editorials and articles, including an interview with Dr. Arthur T. Laird, Duluth, who describes in an interesting manner some features of the work in tuberculosis among French soldiers and refugees in France, where he spent eight months previous to June, 1918.

NEW YORK

Hospital Offered to Government.—The superintendent of the Albany Hospital has formally offered the institution to the government as a reconstruction hospital for crippled soldiers.

Personal.—Dr. Harold L. Palmer, who has been superintendent of the Utica General Hospital since 1899, has resigned on account of ill health. His resignation will take effect April 1, next.—Dr. William Warren Britt, Tonawanda, has been appointed secretary of the Western New York Medical Society, to succeed Dr. Lyman C. Lewis, Belmont, who has resigned to enter the military service.—Dr. William H. Murray, Albany, has been nominated as postmaster of Albany to succeed himself.—Dr. Claude R. Woods, Delhi, fractured his right arm near the wrist while cranking his motor car, August 26.—Dr. Archibald T. Banning, Mount Vernon, who had charge of the isolation hospital during the smallpox epidemic in June, has submitted a bill for services for \$4,800, or at the rate of \$100 a day. During the epidemic there were six cases under treatment.

New York City

New Hospital at Camp Mills.—In connection with the conversion of Camp Mills, Long Island, from a temporary to a permanent cantonment, work has been begun on a new base hospital which will furnish accommodations for 2,000 patients.

Medical Society Dissolves.—The application of the directors of the American Association of Medical Jurisprudence for dissolution has been granted by the supreme court. The society goes out of existence because of an alleged loss of interest on the part of its members. It has no creditors and no obligations.

Women Motor Ambulance Corps Reviewed.—The Women's Motor Corps of the New York Chapter of the American Red Cross, which is in charge of forty ambulances in this city, went through a stretcher drill and unit formation in Central Park, September 14. They were reviewed by the corps surgeon who highly commended the work of these volunteers.

Women Doctors Decorated.—Three women surgeons from New York have been decorated by the French government and commissioned lieutenants in the French army. They are Drs. Caroline S. Finley, Anna I. Von Sholly and Mary Lee Edward. The commissions and decorations were given for excellent surgical work and treatment of the wounded during heavy bombardment in a hospital near the French front.

Personal.—Dr. Arnold Sturmdorf has been appointed consulting gynecologist at the Manhattan State Hospital.—Dr. Dudley H. Morris has been appointed police surgeon, to succeed Dr. Archibald Smith, Brooklyn, who has resigned.—Dr. Gustav F. Boehme, Jr., has been appointed temporary police surgeon, to succeed Dr. Edward T. Higgins, who has resigned to enter the military service.

Health Department Gives First Aid Lectures.—Dr. Royal S. Copeland, health commissioner, has arranged a series of lectures on first aid and similar topics for the employees of the health department and the public generally. The first of these lectures was delivered, September 11, the subject being "First Aid from the Fire Prevention Engineer's Viewpoint." The subject of the second lecture, September 18, in the Municipal Building, was "First Aid Resuscitation."

Pneumonia and Not Influenza.—Pneumonia and other bronchial diseases and not the so-called Spanish influenza are said to be responsible for the illness of the majority of the persons who were reported to be ill with the disease on steamships recently arriving from England. Of eleven patients who arrived on one steamer, and who were alleged to be suffering from the disease, it was ascertained that the illness was pneumonia or bronchitis and that no indications of influenza were present.

New York Oysters Free from Typhoid.—The Merchant's Association, which for several years has been interested in preventing the sale of infected oysters, has called the attention of Health Commissioner Copeland to the need of protecting the oyster beds in the vicinity of the city. In reply Dr. Copeland has issued a statement announcing that the danger of typhoid infection by the consumption of oysters has been practically eliminated through the inspection of the oyster beds, shipment and places of sale. No case of typhoid fever has been traced to oysters in New York City so far this year.

Exposition of Chemical Industries.—The fourth national exposition of chemical industries will be held in the Grand Central Palace during the week beginning September 23.

Arrangements have been made for the display of more than 350 exhibits, and nearly all of these have a bearing in one way or another on the production of war materials. Although the federal authorities have made an agreement whereby they are to take over the Grand Central Palace within a few days, for the purpose of converting it into a war hospital, they have waived this right in view of the importance of the exposition.

Nurses Needed for Insane.—One thousand women nurses are needed in the state hospitals for the insane to replace nurses and attendants who have gone into national service. In making this announcement the State Hospital Commission calls attention to the fact that the New York State hospitals have arranged with the federal government to receive all mental cases developing in citizens of this state with the Army and Navy forces. A considerable number of such cases have already been received. The state hospitals also train male nurses, and applications are invited from men who are not available for military duty. The state hospitals also provide a shorter course of instruction in practical nursing for attendants, covering about six months. The training school classes start October 1. Further particulars and application blanks may be obtained from the State Hospital Commission, Albany.

OHIO

Personal.—Dr. William C. Heintz, Columbus, has been appointed coroner of Franklin County, to succeed Dr. Louis M. Herskowitz, who has resigned to enter the military service. —Dr. Joseph L. Johnson, Columbus, has been nominated by the President as Minister Resident and Consul-General to Liberia.

State Laboratory Work.—More laboratory examinations for the diagnosis of syphilis are being made by the laboratory of the state department of health than for the diagnosis of any other disease. Between April 1 and September 1, 2,115 such examinations have been made. The examinations for tuberculosis amounted to nearly this number, and diphtheria ranked third.

Notification of Venereal Disease.—The regulations requiring reports on venereal disease to the state board of health became effective, July 1. During July and August notifications were received by the state department of health of 535 cases of gonorrhea and 561 cases of syphilis. In the corresponding months of last year only 181 cases of gonorrhea and 142 of syphilis were received. Physicians in many communities have not yet been aroused in aiding the health authorities in the control of venereal infection.

PENNSYLVANIA

New Hospital.—Physicians of Bethlehem have purchased the Sigma Chi Fraternity House for \$25,500, and after alterations and remodeling will open the building as a city hospital.

Green Crosses on Motor Cars.—The mayor of Harrisburg has requested physicians to place a green cross on the windshield of their automobiles, to enable traffic policemen to distinguish them from other machines so that they may be granted prompt right of way.

State Society Meeting.—The Medical Society of the State of Pennsylvania will hold its annual meeting in Philadelphia, September 24 to 27, under the presidency of Dr. Walter F. Donaldson, Pittsburgh. War and the reconstruction period will be the principal topic for discussion.

Sanatorium for Incipient Cases of Tuberculosis.—The Rush Hospital for Consumption and Allied Diseases is building a new pavilion at their country branch, Malvern, for forty incipient cases. It is the intention of the board of trustees, after its completion, to offer this pavilion to the government.

Typhoid at Hastings.—The impure water situation in Hastings is believed to be responsible for forty-eight cases of typhoid fever in the town, with new cases constantly developing. Twenty-eight of these cases are under treatment at the Miner's Home Hospital, Sangler. The state inspector of health has found that house sewage is drained into one of the two springs from which the water supply of the town is derived.

Infantile Paralysis.—Infantile paralysis is said to exist in eighteen counties of the state, but no locality has assumed alarming proportion with the exception of Franklin County where there are twenty-six cases, of which fifteen cases are in the borough of Chambersburg. The local board of health has forbidden the opening of schools until the disease is under control, and has given orders to exclude all persons of less than 18 years from public gatherings.

Personal.—Dr. A. Hamilton Stewart, Indiana, deputy coroner of Indiana County, fractured his collar-bone and a rib in the overturning of his automobile, recently. —Dr. J. Frank Donehoo, Washington, has been appointed local surgeon for the Pennsylvania system, to succeed Dr. David H. Lewis, resigned. —A genito-urinary dispensary has been opened at Scranton by the state board of health, with Dr. Frank C. Garvey in charge. This is the eleventh dispensary thus far established by the state health department. —Dr. Paul G. Weston of the staff of the State Hospital, Warren, underwent operation at the Warren General Hospital, August 26, and is reported to be doing well. —Dr. Sue S. Moyer, East Pittsburgh, has been made medical officer of the Westinghouse Electric and Manufacturing Company, Pittsburgh. —Dr. Christopher H. Shearer, Reading, is reported to be seriously ill with septicemia at the Reading Hospital.

Philadelphia

Personal.—Dr. William L. Clark has been elected president of the American Electro-Therapeutic Association. —Dr. Jay F. Schamberg, professor of dermatology and syphilology, delivered the address at the opening of the ninety-fourth annual session of the Jefferson Medical College, September 23, on "Medicine—Then and Now." —Dr. Maurice Brown has been appointed assistant medical inspector of the board of health. —Drs. J. Handley, Florence M. Gottshall and Effie C. M. Paul have been appointed school medical inspectors. —Capt. William F. Guilfoyle, assistant surgeon of the 111th Infantry, has been severely gassed in France. He is now in Base Hospital No. 31 in a very serious condition.

Department of Diagnosis Formed.—Wider utilization of the science of medicine in the administration of justice, as well as in the care of probationers, has been assured in the formation of the various medical agencies of the municipal court of Philadelphia into a department of diagnosis. Dr. Charles B. Penrose is director of the department and cooperating with him are Drs. Daniel J. McCarthy, Charles S. Potts, Seymour W. D. Ludlum, John C. Da Costa, Jr., Thomas A. Shallow and James H. Baldwin. The plan is eventually to coordinate all the medical work of the court under a medical director who will devote his entire time to this service. The administration headquarters will be at the southwest corner of Twentieth and Summer streets.

WEST VIRGINIA

State Society Meeting.—The annual meeting of the West Virginia State Medical Association will be held in Martinsburg, October 1 to 3, with headquarters at the Hotel Berkeley.

Senior Student Killed.—Boyd Wallace Knight, Williamsburg, a senior student in the University of Louisville, Ky., attached to the Emergency Hospital, Nitro, was killed, August 24, in a grade-crossing accident in which a freight car backed into the hospital ambulance demolishing it and killing both the driver and the attendant.

WISCONSIN

Hospital for Merrill.—A. H. Stange has offered to donate \$50,000 toward the building of a hospital at Merrill and to furnish a site providing the town will assume the care and maintenance of the institution.

Personal.—Dr. Gustave Windesheim has accepted the position of commissioner of public health of Kenosha. —Dr. Fred W. Sachse, Hartford, who was taken ill with gallstone colic, August 23, and who has been under treatment in St. Mary's Hospital, Milwaukee, is reported to be improved.

Physician Fined and Sentenced.—Dr. John G. Barnsdale, Superior, convicted, August 9, for violation of the Harrison Narcotic Law, is reported to have been found guilty of all eight counts in the indictment and to have been sentenced to imprisonment for three years in the federal penitentiary at Fort Leavenworth and to pay a fine of \$6,000.

TEXAS

Antityphoid Inoculation.—The free typhoid clinic of the Public Health Service Bureau of Fort Worth has given antityphoid inoculations to more than 18,000 citizens of Fort Worth.

Personal.—Dr. David E. Rouse, San Antonio, formerly field director for the Texas Board of Health has been appointed public health officer for Des Moines, succeeding Dr. William C. Witte. —Dr. Nelson O. Brenizer, Austin, has been commissioned major in the M. C., Texas N. G., and has been

assigned to duty with the Eighth Regiment.—Dr. William Hale, Jr., Dallas, has been appointed health officer of Dallas County to succeed Dr. Taylor C. Gilbert, who has resigned to enter the military service.—Dr. Tristram B. Hamer, Richardson, was seriously injured by the overturning of his automobile and is under treatment at St. Paul Sanitarium, Dallas.—Dr. Osear Davis, Anderson, has been appointed assistant health officer to succeed Dr. Addeson L. Lincecum, who has resigned to enter the military service.—Dr. William W. Greer, Cameron, has been appointed assistant physician at the Austin State Hospital.

CANADA

New Officers.—Dr. George H. Murphy, Halifax, N. S., has been elected president of the Medical Society of Nova Scotia, and Dr. James R. Corston, Halifax, has been reelected secretary-treasurer.—The Medical Council of Canada has elected the following officers: president, Dr. R. Eden Walker, New Westminster, B. C.; vice president, Dr. James C. Connell, Kingston, Ont., and registrar, Dr. Robert H. W. Powell, Ottawa (reelected).

Personal.—Prof. Louis de L. Harwood, Montreal, has been appointed dean of the medical department of Laval University.—Dr. Frederick A. Cleland, Toronto, is going with the Canadian forces to Siberia.—Dr. Harry B. Anderson, Toronto, has been appointed by the Hon. Dr. Cody, minister of education for Ontario, chief medical referee for the Ontario Branch of the Inspectors' and Teachers' Superannuation Fund Commission.—Capt. T. Harold Crews, Woodstock, has been transferred from the Imperial Army to the C. A. M. C., owing to the great demand in Canada for returned medical men with overseas experience. He has just returned to Canada from France.

Public Health.—Dr. Willis B. Moore, Kentville, N. S., has been elected president of the Association of Medical Officers of Nova Scotia. Despite the absence of the many physicians who are in active service, the attendance at the annual meeting was a success.—Venereal control in the Halifax Military District will be under the care of a cooperative committee. Capt. William H. Hattie, M. O. H., Halifax, N. S., will be the chairman. It is said that the venereal incidence in enlisted men is now very small in that district, but in those just called to service numerous cases of infection have revealed themselves.—The seventh annual convention of the public health services of the province of Quebec was recently held in Quebec City. Industrial hygiene and public health in the province of Quebec, venereal diseases, tuberculosis, and other similar questions were fully discussed.

Hospital News.—Notre Dame Hospital, Montreal, has been conducting a relief fund campaign. The result totaled \$267,153.50. The directors of the hospital subscribed \$10,000; and as the fund amounted to more than \$150,000, Sir Rodolphe Forget will give \$100,000.—British Columbia hospitals held their first convention during the past month. Practically all of the seventy-two hospitals in that province sent delegates. Dr. C. H. Gatewood gave the opening address, and Dr. Malcolm T. MacEachern, superintendent of the Vancouver General Hospital, gave the address to the delegates. Many subjects of interest to hospitals were discussed.—Lieut. E. R. Rutherford, M. C., Ottawa, is now commandant of Mowat Hospital, Kingston, Ont. The hospital is under the Soldiers' Civil Re-Establishment Commission.—Dry Island, near Morrisburg, Ont., owned by a New York millionaire, Mr. J. W. Corrigan, will likely be accepted by the Militia Department of Canada for use for convalescent soldiers. It is said to be well adapted for hospital purposes.

GENERAL

Tuberculosis Conference.—The sixth annual meeting of the Mississippi Valley Conference on Tuberculosis will be held at the Planters Hotel, St. Louis, October 2 to 4.

Information Concerning Women in Industry.—The Pennsylvania Department of Labor and Industry is circulating a questionnaire among industrial physicians in order to secure adequate data on employment of women in industry due to the war emergency. Copies of this questionnaire may be secured by addressing the chief of the Division of Industrial Hygiene and Engineering, Francis D. Patterson, Third and North streets, Harrisburg.

Cumberland Valley Medical Association.—The sixteenth annual meeting of the Cumberland Valley Medical Association was held at Waynesboro, Pa., September 5, and the following officers were elected: president, Dr. Jephtha E. Pits-

nogle, Hagerstown, Md.; vice presidents, Drs. William D. Campbell, Hagerstown, Md., Samuel E. Mowrey, Mechanicsburg, Pa., and David F. Unger, Mercersburg, Pa.; secretary, Dr. John J. Coffman, Scotland, Pa. (reelected), and treasurer, Dr. John C. Gilland, Greencastle, Pa.

Sanitation and Housing.—The Committee on Welfare Work of the Committee on Labor, Council of National Defense, has made a report on village and public sanitation, which is published in *Public Health Reports*, Sept. 6, 1918. The committee consists of Dr. George M. Kober, Dr. John W. Kerr, Lawrence Veiller, Charles H. Verrill and Dr. William C. Woodward. This report, which is illustrated by plans and pictures, contains much valuable and practical information with reference to the housing and sanitation of rural workmen's areas. It should prove especially useful as a textbook for beginners in welfare supervision. The details set forth in the report should serve as a guide to executives in welfare work who have not specialized in rural sanitation.

Army Medical Experts Speak.—At a meeting of the American Academy of Political and Social Science at Philadelphia, September 20 and 21, rehabilitation of the wounded was discussed and the speakers included Dr. William W. Keen, Lieut.-Cols. Charles W. Richardson, Harry E. Moek, and James Bordley, Jr., M. C., U. S. Army, James P. Munroe, vice chairman of the federal board for vocational instruction; Brig.-Gen. Robert E. Noble, Major J. D. Todd, board of pension commissioners for Canada; T. B. Kidner, vocational secretary, invalided soldiers commissioner of Canada; Wallace Buttrick, president of the New York general education board; Douglas C. McMurtrie, director of Red Cross Institute for Crippled and Disabled Men; Michael J. Dowling, president of the Olivia State Bank, Minnesota, and James C. Miller of the federal board for vocational education.

Bequests and Donations.—The following bequests and donations have recently been announced:

Society for the Relief of the Destitute Blind, and Post-Graduate Hospital, New York City, \$10,000; New York Eye and Ear Infirmary, New York Society for the Relief of Widows and Orphans of Medical Men, and Tuxedo Home, Tuxedo Park, N. Y., each \$5,000 by the will of Marie Louise Tillotson.

Rush Hospital for Consumptives and Allied Diseases, Philadelphia, \$10,000; and Children's Seashore Home, Atlantic City, N. J., \$2,500, \$1,000 of which is to be used endowing a free bed in the home, and \$1,500 to endow a room for a woman and child, by the will of Annie Fassitt.

For the endowment of a bed in a hospital as a memorial to her mother and father, a dwelling located on Henley Street, Philadelphia, a small savings accumulation, a railway bond for \$1,000, a \$50 Liberty Loan bond and fifteen shares in a building and loan association, by the will of L. E. Koenig.

New York Physician's Mutual Aid Association, \$500 by the will of Dr. Sidney L. Spiegelberg, New York City, who died recently in France.

Child Labor Bill.—Representative Keating of Colorado has introduced in Congress a bill, H. R. 12,767, to take the place of the federal child labor bill recently declared unconstitutional by a close decision of the United States Supreme Court. The bill was prepared by the National Child Labor Committee and the American Federation of Labor, and has the endorsement of President Wilson. The bill, it is said, embodies the standards of the old law very closely, prohibiting the labor of children of less than 14 years at any time, of children between the ages of 14 and 16 years for more than eight hours a day or at night in factories, and of children of less than 16 years in mines and quarries. The new law is based on the war power of Congress of conserving the man power of the nation, while the old law was based on the power of Congress to regulate interstate commerce. This bill, if it becomes a law, will prohibit the employment of children during the war and for a period of six months thereafter. It is said that the friends of federal protection for children are preparing a measure intended to be a permanent successor to the bill just introduced.

No Red Cross Seal Campaign.—According to the *Bulletin of the National Tuberculosis Association* for September a new form of financing tuberculosis work for the coming year has been arranged between the National Association and the Red Cross, by which the Red Cross Christmas Seal Campaign will be abandoned. This has been done in deference to the wishes of President Wilson and the Council of National Defense. The new plan of raising money for the Tuberculosis Campaign is to be by grant from the Red Cross amounting to \$2,500,000, and the money is to be raised in a joint campaign for a universal Red Cross membership to be known as the Christmas Roll Call. An attempt will be made this fall to

make this membership in the Red Cross as nearly universal as possible. The National Tuberculosis Association has been designated by the Red Cross as the agency through which the \$2,500,000 fund will be distributed, and each state will be given as minimum an amount equal to the gross sale of Christmas seals for 1917. The Red Cross Christmas seal is still to be a distinctive feature, however, and each subscribing member is to be given a special packet containing educational literature on tuberculosis and ten Red Cross seals.

American Association for the Study and Prevention of Infant Mortality.—The report of the eighth annual meeting of the association, which was held in Richmond in 1917, is now being distributed. It is a volume of 327 pages divided into four parts, relating to pediatrics and obstetrics; eugenics and vital and social statistics and public school education; rural communities, nursing and social work and propaganda; and the reports of affiliated societies, with membership list and index. The articles, reports and discussions have been influenced largely in their welfare aspects by the war, and have increased significance and importance on that account. Some of them describe legislative and other governmental action of the allied countries, as well as of our own country, relating to infant welfare, and the work of the Children's Bureau and the other Red Cross activities in Paris, France, and Italy. The tone of the meeting throughout emphasizes more strongly than ever the extreme importance of the welfare of our future citizens on account of conditions brought about and to be brought about by the war. The volume should have a wide distribution. It may be obtained for \$3 from Gertrude B. Knipp, executive secretary of the association, 1211 Cathedral Street, Baltimore.

BUENOS AIRES LETTER

BUENOS AIRES, Aug. 6, 1918.

Special Conference on Plague

The Sociedad de Higiene, Microbiología y Patología recently devoted a special session to study of plague in Argentina. Since this disease was introduced in 1899 there have been cases from time to time, but these were as a rule not very serious. The results obtained with antiplague serotherapy throughout the country have been good. Between 1900 and 1905 there were 204 cases thus treated, with 14.2 per cent. mortality. From 1905 to 1912 there were 664 cases, with 12.5 per cent. mortality. The highest death rate from plague was in 1906, amounting to 23 per cent., the lowest in 1912, with 7.3 per cent. mortality. The treatment employed was that which Penna has been advocating since 1900, which consists in a daily injection of 100 c.c. of antiplague serum, by the vein, until recovery. The results obtained with serums made from living bacilli do not seem to be any better than those realized with killed bacilli; with the latter, for instance, in 232 cases, 7.8 per cent. terminated fatally. There were only six cases of fulminating pneumonic plague. Bacteriologic examination gave positive findings only in from 12 to 16 per cent. of all the cases, but in the latest series in 34 per cent. The examinations were made by puncture of ganglia or by biopsy. It was demonstrated that the focus for the cases observed was in certain zones of the port, and this emphasizes the necessity for intensifying the campaign of destruction against rats until the disease is stamped out. Occasionally foci of plague have appeared in the interior of the country. Some of the cases were of the grave pneumonic type, but these foci were readily brought under control and the disease never spread.

Death of Professor Ayerza

Dr. Abel Ayerza, professor of clinical medicine at the Facultad de Medicina of Buenos Aires succumbed recently to a brief illness. He was known especially for his study of *Cardiacos negros*. He gave this name to patients who developed progressive cyanosis in the course of chronic bronchitis or emphysema, and finally presented phenomena of asphyxia. Necropsy generally revealed lesions of sclerosis in the pulmonary artery. His latest work was on endemic regional chronic arsenic poisoning.

Pneumonia in Northern Argentina

Flourishous lobar pneumonia has a very low death rate in most of the country, but in the northern provinces the death rate from it is high, reaching 20 or 30 per cent. As a number of cases have occurred recently in the 20th regiment in garrison at Jujuy, the Departamento Nacional de Higiene decided to send a commission to study the disease on the spot, under the leadership of Professor Kraus.

Public Health Service Sends Commission to Study Epidemics

The commission sent by the National Public Health Service to study epidemic diseases in northern Argentina is under the leadership of Professor Kraus, director of the Instituto Nacional Bacteriológico. The other members of the commission are Drs. de la Vega, Battaglia, Barbara, and Fischer, with several bacteriologists, *guardas sanitarios* and attendants. The epidemic of pneumonia at Jujuy has almost completely died out, but the mortality reached 30 per cent.

In the Galpon and Molinos districts there have been cases suspicious of bubonic plague and the commission is to investigate these foci. A large squadron is equipped for rat destruction at these places.

The main interest for the expedition, however, is the investigation of typhus, for exanthematous typhus has never been reported before in Argentina. The suspicious cases which the commission is to study have occurred at Iruya, near the frontier of Bolivia, in a poor, mountainous zone with little communication with the outside.

South American Conference on Hygiene, Microbiology and Pathology

The committee of organization for this approaching scientific gathering, to be presided over by Professor Couto, has decided on Rio de Janeiro for the inaugural session. It will convene Oct. 15, 1918. The previous meeting was held at Buenos Aires in September, 1916, and the works presented have been published in a volume. All the South American countries have been invited to the approaching conference.

Reform in the Statutes of the State Universities

The movement for reform in the management of the universities, for which the professors and students of the universities have been keeping up an agitation, has culminated in a bill presented by the president of the republic to congress for deliberation and action. The bill coincides in general with the demands of those contending for reforms. It provides that the dean shall be elected by the professors, he shall serve four years and cannot succeed himself. The election will be by a council of seven members, one representing the professors, one the students, one the alumni, and the others the professors. A time limit for service is imposed, and the subject of free lectureships, the *docencia libre*, is to be regulated.

Gliosis of the Retina

In the June issue of the *Revista de la Asociacion Medica Argentina*, Dr. R. Argañaraz calls attention to the fact that the disease known as diffuse teleangiectatic gliosis of the retina was described by Dr. P. Lagleyze in the *Revista Argentina de Oftalmologia practica*, 1883, 1, 3. His communication was accompanied by a colored plate. The disease is credited, as a rule, now to von Hippel.

Ozena

The microbe described by Perez as the causal agent of ozena was studied four or five years ago by Hoffer of Vienna. He confirmed the characteristic fetid odor of the cultures of this germ, and after intravenous injection in rabbits, refound the germ in the nostrils of the rabbits. Some of the animals presented thereafter atrophy of the turbinates, and all showed an intense congestive reaction in the turbinates.

On the basis of these researches, Dr. S. Mazza in Buenos Aires has been experimenting with vaccination against ozena. The first results seemed to have been good as the odor disappeared, the amount of crusts seemed much reduced, and some of the patients were cured. In 1916, Dr. Perez repeated his early experiments, but although the turbinates in the rabbits showed intense congestion after intravenous injection of cultures of his microbe, he was unable to detect any atrophy of the turbinates. Trophic lesions developed in the ears, but these, of course, are not specific. Dr. Perez, and later Dr. Zanolli, isolated from the nasal fossas of ozena patients a certain number of germs with similar cultural characteristics, fetid odor, etc., but they could all be distinctly differentiated. They called these germs para-ozena microorganisms.

Repeated tests of vaccine therapy by means of Perez' microbe resulted in a very limited number of cures, and the improvement noted in other cases proved briefly transient, even when such large doses were injected that congestion and epistaxis followed.

Taking into account that Perez' microbe is found only in a small percentage of ozena patients, and that the nasal reac-

tion in the rabbits can be obtained with other micro-organisms, it seems difficult, to date, to assign formal importance to this bacterium as the causal agent of ozena.

As to vaccine therapy, it would be better to try it on a large scale with not only the Perez microbe but with the parazoëous and other bacteria encountered in ozena.

LIMA LETTER

LIMA, PERU, Aug. 24, 1918.

Influenza in Peru

The famous "Spanish grip" has been manifesting itself in some of the mining districts of the interior. The principal centers of the epidemic have been at Smelter, Cerro de Pasco and Morococha, important mining centers in the hands of powerful North American companies. The epidemic was so general that the mining and smelting works had to be shut down. More than 5,000 presented the disease, but the mortality reached only 0.75 per cent.

Bubonic Plague in Peru

There seems to be a recrudescence of bubonic plague along the coast, principally in Callao and Trujillo. There have been a total of 11,905 cases of bubonic plague in Peru since 1902, with 6,156 deaths. They were all in the coast provinces, and the largest numbers of cases, 4,444, and 2,176 were in the northern province of which Trujillo is the capital, and in the Lima province, but none of the coast provinces were entirely exempt. From a total of 172 cases in 1903, the numbers progressively increased to 1,169 and 1,700 in 1907 and 1908, and then gradually decreased to 892 in 1912, and since then to 444 in 1917, the mortality keeping very close to 50 per cent. each year.

Infant Welfare Work in Peru

Parliament is deliberating at present on more comprehensive legislation for protection of infants. The prevailing opinion is in favor of creating a fiscal fund to provide an income which will be distributed among the public institutions of the country, run by the Beneficencia publica, for the purpose of establishing "dispensaries for infants," on the type of the "Drop of Milk" stations. Half a million soles (about \$250,000) is to be set apart for this object.

Scarcity of Drugs

As a consequence of the scarcity of drugs, determined by the war, the lack of medicines has begun to be appreciably felt at Lima and elsewhere throughout Peru. The infant industry of drugs "made in Japan" is taking advantage of the opportunity to conquer the place, and at present many products are coming from Japan which formerly used to come from Europe and even from the United States. Among them are quinin, the salicylates and benzoates, glycerin, and many more. There is a recrudescence of malaria along almost the entire coast and the price of quinin is so high that arrangements should be made to render this product more easily procurable.

LONDON LETTER

LONDON, Aug. 20, 1918.

Influenza Epidemics

The influenza epidemic described in recent letters has completely disappeared. The health officer to the London County Council, Dr. Hamer, in his annual report deals with the influenza epidemics of the past. He points out that ever since the institution of registration, influenza, bronchitis and pneumonia as causes of death have shown increases from time to time, as though in response to the stimulus of an epidemic influence; in other words, the great influenza outbreak of 1847-1848; the succeeding minor prevalences of 1851, 1855, 1858, 1862-1863, 1869 and 1875; the following pandemic of 1890, with the subsequent epidemic waves of 1891, 1892, 1895, and 1900, and the lesser waves of 1908-1909 and of more recent years have all been accompanied by an increase in the number of deaths returned as due to bronchitis and pneumonia. In addition to the well-known type with respiratory complications, influenza has presented from time to time gastro-intestinal and nervous types, and during recent years, in London, the welling up in each first quarter of the year of deaths attributed to influenza and to respiratory diseases has been accompanied by a corresponding increase in the number of deaths ascribed to cerebrospinal fever. There has been apparent in London for some years past an approxima-

tion or merging into one another of the prevalences of illness attributed in the earlier months of each year to cerebrospinal fever and later in the summer months diagnosed as poliomyelitis. The question thus arose and has been discussed in the annual reports for 1914, 1915 and 1916, as to the need from an epidemiologic point of view for associating the prevalence of influenza not only with illness in which respiratory and gastro-intestinal complications are present, but also with illnesses in which disturbances affecting the central nervous system predominate. It has, in fact, become apparent that it is now necessary to consider the desirability of enlarging the present connotation of the term "influenza." Dr. Hamer is inclined to attribute to influenza the recent epidemic of acute encephalitis (THE JOURNAL, June 22, 1918, p. 1963); but the view advocated by Prof. Arnold Netter given in the Paris letter (p. 1964) has been gaining ground: that this epidemic is a new disease in this country, though previous outbreaks, such as that in Italy in 1890, have been recorded.

Australian Fund for Physicians Disabled in the War

The Australian branches of the British Medical Association are considering how to raise a fund to assist the dependents of members who become disabled or who are killed on active service, and also to assist the disabled members themselves. The results of the war so far have shown that the majority of physicians return to their practices without grave disability. But they have suffered large pecuniary loss by leaving, and many have had difficulty in reinstating themselves. The loss of the men who have become disabled is, of course, a very different one. It is estimated that about 1,000 Australian physicians have joined the army. The number killed exceeds sixty. Of those who have received incapacitating wounds, no figures are at present available. It seems that when the mortality of men serving in the field is high the disablement rate is low. It has been suggested that each member of the British Medical Association in Australia be asked to contribute \$75 a year for three years. If 2,000 physicians would contribute this amount, the fund would be large enough to place \$1,500 at the disposal of 100 men, and the interest payable would provide \$500 a year for fifteen disabled men or the widows of men who have been killed.

Colored Physicians and the War

One of the effects of the war has been a great increase in two classes of physicians that previously formed only a small minority of practitioners—women, and foreigners of various kinds, including colored persons. Owing to the great shortage of British physicians, a considerable proportion of the resident staff of the hospitals are Indians or other persons of color. A recent appointment is that of Miss Martha Hunter Hoa Hing, a Chinese medical woman, who has been chosen house surgeon at the Alexandra Hospital for Children, Brighton. Miss Hoa Hing has been in England for seven years, and has a brother in the British army. She took the diplomas L.R.C.P., and L.R.C.S., Edinburgh, and L.R.F.P.S., Glasgow, in 1916. The circumstances in which institutions now find themselves when a vacancy on the medical staff arises is typified by the case of Shoreditch, a London borough. In answer to their recent advertisement for an assistant medical officer, all the applications received, apart from a Chinese, were from colored medical men.

Allied Food Plans

The committee of representatives recently established by the Inter-Allied Food Council (consisting of the food controllers of France, Italy, the United Kingdom and the United States) is thus constituted: chairman, Sir John Beale, United Kingdom; Major the Hon. W. Astor, M.P., and Mr. W. H. Beveridge, C.B., and Capt. J. R. Brooke; United States, Mr. J. P. Cotton and Mr. L. P. Sheldon and Mr. G. S. Jackson; France, Major R. Fillieux, M. Genestal and M. Destombes; Italy, Commendatore Professor Attolico, C.B., Signor Nimmo and Lieut. Amadio. The secretary is Mr. Franklyn L. Turner, C.B., and the offices are at Trafalgar House, Waterloo Place, London, S. W. This committee may be regarded as one of the first fruits of Mr. Hoover's recent visit to London. The whole question was thoroughly discussed at the conference of the Allied food controllers, and the result has been the setting up of an organization to provide for more coordination in securing the food supplies of this country and our European allies. Instead of isolated methods of purchase for each individual country, without regard to the requirements of its neighbors, one general program of purchase and importation for all the countries will be evolved which will

take into account on one side the needs and home production of each country and, on the other, shipping facilities, financial arrangements and the actual supplies of food likely to be available for export to Europe. Executives representing France, Italy, the United Kingdom and the United States were already in existence for the purpose of scheduling the Allied requirements of the principal foodstuffs, such as cereals, meat and fats, oils and oil seeds, and sugar. These executive organizations will remain, but they are now placed under the control of the new committee of representatives, which will coordinate the different programs into one general scheme and will be responsible for carrying it into effect.

Bubonic Plague in the Thames

The steamship *Hector* arrived at Gravesend from Calcutta with four members of the crew suffering from bubonic plague. Another member of the crew is ill, but the nature of his illness has not yet been determined. All the patients have been removed to the London Port Sanitary Authority's Isolation Hospital at Denton. Several dead rats had been found in a store room on the ship during the voyage. The crew has been temporarily removed from the vessel, the quarters fumigated, and all clothing and bedding have been disinfected. The vessel will be disinfected, all rats destroyed, and the cargo discharged into lighters under supervision of the health officer of the Port of London Sanitary Authority.

The Canadian War Museum

The opening of the war museum at the Royal College of Surgeons was described in *THE JOURNAL*, Nov. 10, 1917, p. 133. A section belonging to the Canadian Army Medical Corps has been opened by Sir Robert Borden, prime minister of Canada. Sir George Makins, president of the Royal College of Surgeons, in welcoming Sir Robert, said that at the beginning of the war they were very ignorant of the kind of injuries they would have to treat, as collections and drawings had not been kept in earlier wars. The government had taken an interest in this matter, and the army medical collection of war specimens had been arranged by the conservator, Prof. Arthur Keith, with the assistance of Prof. S. G. Shattock and Mr. Cecil Beadles. They had now a record of this war which would be of the greatest assistance to the army medical corps. It was intended that Canada should possess an equally representative collection.

Sir Robert Borden said we should not fulfil our duty in the war without gathering its lessons in surgery. He had observed three years ago that in British and French hospitals very careful case records were kept, which would be of great future service to the medical profession. In the collection he had inspected that day he saw these records in another form. It was a source of great gratification that the Canadian Army Medical Service had been of such assistance. The matter had been brought to his attention about a year ago, and the Canadian government had encouraged this work. He was glad to know that at the end of the war Canada would have as good a collection as the whole war museum he was now inspecting.

PARIS LETTER

PARIS, Aug. 8, 1918.

Antitoxic Serum for Gas Gangrene

A very interesting discussion was held on this subject at a recent meeting of the Société de chirurgie de Paris. Drs. Pierre Duval and E. Vaucher cited the results which they obtained from the use of serums prepared by Weinberg and Séguin: antiperfringens serum; antiedematiens serum, and antivibron septique serum. These serums were used for the first time in 1917 in fifty cases. Of these fifty patients, twenty-five died within the first twenty-four hours after being wounded as the result of severe multiple wounds, but without presenting any signs or symptoms of gas bacillus infection. The remaining twenty-five patients lived and were watched for from eight days to four weeks. When they left the sanitary formation, all danger of gas bacillus infection was passed. As a rule, the serum was injected in from five to six hours after the wounding; sometimes more time elapsed. The serum was administered in 10 c.c. doses.

After the last battle in Flanders, Duval and Vaucher injected thirty-seven wounded soldiers. These men were seen not later than six hours after being wounded, and they were at once given an injection of from 30 to 100 c.c. of a mixture of equal parts of the three serums mentioned above. On the basis of their experience, Duval and Vaucher are convinced

that this prophylactic treatment is wholly justifiable. The injections should be made as soon as possible after the wound. The injections should not be made at the level of the traumatized muscles (because these muscles are no longer vascularized, hence the serum cannot penetrate them), and serum therapy never should take the place of or delay surgical treatment of the wound. It seems advisable that prophylactic serum therapy should be adopted in the army; the preventive injections of mixed serums should be given at the *postes de triage* in the same manner as antitetanus injections are given.

Dr. Pierre Delbet reported a case in which the use of an antigangrene curative serum was followed by a cure. The soldier reached Delbet's service twenty-four hours after being wounded, with the gas gangrene fully developed (toxic form) in one of his arms. Prophylactic serotherapy is still more effective. Its use has been interfered with, however, by a series of quarrels among the laboratories and because of poor technic.

Dr. L. Bazy insisted on the difficulty of making a bacteriologic diagnosis at the time. It is a lengthy procedure but, nevertheless, a necessary one as clinical differentiation of the various forms of gas gangrene is impossible as yet. The result is that in order to make serotherapy effective, a serum must be used which contains the antitoxins of all the bacteria which may be the cause of gas gangrene. As a matter of fact, it is sufficient to consider only the principal causes of gas gangrene, namely, the vibron septique and the perfringens, making a mixture of these two serums. The action of such a serum would be still stronger if there could be added to it antipyrogenic serums, especially antistreptococcus serum, because these pyogenic organisms create conditions in the wound which are favorable to the subsequent development of gas gangrene. It is this idea which led Leclainche and Vallée to make their polyvalent serum.

Interallied Medical Society at Tours

An interallied medical *cercle* has been formed at Tours. The first meeting was held July 9.

Canadian Mission in France

A mission headed by Colonel Combe and Dr. Lure has been sent to France by the Canadian government for the purpose of studying the measures that have been taken in reconstruction work among the maimed and the invalided.

Cultivation of Medicinal Plants

The *Comité des plantes médicinales* recently visited the places where medicinal plants are grown and prepared for pharmaceutical use. At the farm de Vintre, near Etretchy, and at Milly (departement de Seine-et-Oise) the committee, under the direction of M. Gabriel Bertrand, professor in the Faculté des Sciences de Paris, saw most interesting experimental cultivations, testifying to the remarkable efforts made by French scientists and scientifically trained agriculturists to free France from the quasi-monopoly which the enemy had arrogated to itself before the war. New centers of cultivation, created in the abandoned territory, are in process of organization, some in the central region, others in the southwest.

Bombardment of an American Hospital

The hospital of the American Red Cross at Jouy-sur-Morin (departement de Seine-et-Marne) was bombarded, July 15. Two men attached to the sanitary service were killed; nine persons were injured.

The Milk Supply

In order to assure a sufficient supply of fresh milk for the civil population, especially the children, the old and the sick, during the coming winter, M. V. Boret, minister of agriculture and food commissioner, has taken certain measures. The shortage of milk is due almost entirely to the intensive production by the industries which transform milk to some other product, such as butter, concentrated milk, cheese, etc. The cheese manufacturers have not ceased to extend their production, using more and more milk all the time, thus sending the prices higher and higher for a food of prime necessity. It seems inevitable that the cheese-making industry must be regulated in order to conserve the supply of fresh milk and to keep the price within normal limits. Therefore, M. Boret has asked the prefects to advise him of the quantity of milk that is needed by each *centre de consommation*, those which seem to be assured for the next winter, and those which must be provided for by the limitation of the use of milk by the local factories.

Marriages

LIEUT. EARLE CERENTIUS WINSOR, M. C., U. S. Army, Rockwell's Mills, N. Y., on duty at Barron Field, Fort Worth, Texas, to Miss Savalla O. Cornell, also of Rockwells Mills, July 20.

GEORGE WILLIAM HAWK, Sayre, Pa., to Miss Helen Victoria Brown, at Tilsonburg, Ont., July 29.

PERRY H. WESSEL to Miss Vera May Cooper, both of Moline, Ill., September 4.

Deaths

Meyer L. Heidingsfeld, Cincinnati; Medical College of Ohio, Cincinnati, 1895; aged 46; a Fellow of the American Medical Association; and secretary of the Section on Cutaneous Medicine and Surgery in 1907; formerly president of the Cincinnati Society for Medical Research, and chairman of the Dermatological Section of the Ohio State Medical Association; a member of the Mississippi Valley Medical Association; professor of dermatology and syphilis in the University of Cincinnati; dermatologist and head of the department in the Cincinnati General and Jewish hospitals; died in the Jewish Hospital, Cincinnati, September 3, from abscess of the spleen following typhoid fever.

Emmanuel Persiliar Lachapelle, Montreal, who died last month, aged 73, was dean of the medical department of Laval University, and also president of the board of public health for the province of Quebec since its organization in 1887. He was a graduate of the University of Victoria College, Coburg, Ont., in 1869; took an active part in the organization of the profession in his district and was one of the founders and editors of the *Union Médicale du Canada*. In 1894 he was elected president of the American Public Health Association, and was the representative from Canada at various international medical congresses.

John Dallas Erdman, Allentown, Pa.; University of Pennsylvania, Philadelphia, 1872; aged 68; at one time a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; at one time president of the Lehigh County Medical Society; president of the Allentown school district, and later of the board of education; died in the Sacred Heart Hospital, Allentown, September 6, from injuries received by being run down by an automobile, August 27.

Capt. Hoddie Wilbur Daniels, M. R. C., U. S. Army, Elkins, W. Va.; Baltimore Medical College, 1894; aged 46; a Fellow of the American Medical Association; for eleven years a member of the city council of Elkins, and health commissioner of the city; a specialist in anesthesia; who was on duty on the Western Front is reported to have been killed in action.

Capt. Samuel Oscar Brumbaugh, M. R. C., U. S. Army, Huntingdon, Pa.; University of Pennsylvania, Philadelphia, 1886; aged 53; a Fellow of the American Medical Association; is reported to have committed suicide in the office of a physician in Baltimore, September 6, by severing an artery in the wrist.

Edmund Townsend, Fairport, N. Y.; University of Buffalo, N. Y., 1885; aged 57; recently a surgeon on a steamer in the merchant service; who was operated on at the Primrose Hospital, Batavia, N. Y., in the early spring; died in Washington, D. C., September 4, from carcinoma of the stomach.

James Robert Ware, Greenville, S. C.; Jefferson Medical College, 1895; aged 45; at one time a Fellow of the American Medical Association; a member of the South Carolina Medical Association; for two terms a member of the city council; died at his home, September 1.

Peter Byrnes, Chicago; Jenner Medical College, Chicago, 1906; aged 58; formerly a member of the Illinois State Medical Society; at one time a member of the staff of St. Elizabeth's Hospital; died on a street car in Chicago, September 11, from cerebral hemorrhage.

Edward B. Weston, Chicago; Rush Medical College, 1873; aged 72; for many years well known as a practitioner of

Chicago, and head of the local archery association; died in the Home for Incurables, Chicago, September 14, from chronic interstitial nephritis.

Leon L. Love, Tacoma, Wash.; Missouri Medical College, St. Louis, 1888; aged 62; a Fellow of the American Medical Association; and in 1912 president of the Washington State Medical Association; once health officer of Tacoma; died at his home, September 1.

Harry S. Kiskadden, Detroit; College of Physicians and Surgeons, Chicago, 1885; aged 61; who was seriously injured in an automobile accident at French Landing, August 30; died from his injuries at Bayers Hospital, Ypsilanti, Mich., September 2.

Aaron Shelmon Warner, Baltimore; College of Physicians and Surgeons, Baltimore, 1881; aged 62; once coroner of the twelfth district of Baltimore; died at his home in Highlandtown, Baltimore, September 5, from tuberculosis of the spine.

John Aloysius Chard, Jersey City, N. J.; New York University, New York City, 1897; aged 54; a member of the Medical Society of New Jersey; physician to the City and German hospitals, Jersey City; died at his home, August 31.

Anne Wilson Nixon, Pasadena, Calif.; Cooper Medical College, San Francisco, 1892; aged 76; a Fellow of the American Medical Association; formerly physician to the Hollenbeck Home, Los Angeles; died at her home, recently.

Edward L. Carlton, Columbus, Ohio; Starling Medical College, Columbus, Ohio, 1865; aged 79; a member of the Ohio State Medical Association, and a veteran of the Civil War; died at his home, September 5, from heart disease.

Horace Lester Kutchin, Columbus, Ohio; University of Tennessee, Nashville, 1884; Rush Medical College, 1886; aged 62; died in Mount Carmel Hospital, Mount Gilead, Ohio, September 2, after a surgical operation.

G. J. Stapleton, Lockney, Texas; Memphis (Tenn.) Hospital Medical College, 1889; a member of the State Medical Association of Texas; died in Lockney, September 2, after a surgical operation.

Fletcher Armitage Gary, Vernon, N. Y.; Detroit Medical College, 1870; aged 71; for three terms president of the village of Vernon and for several years school trustee; died at his home, August 30.

Franklin T. Beattie, San Ana, Calif.; formerly of Shushan, N. Y.; University of Vermont, Burlington, 1887; a member of the Medical Society of the State of New York; died at his home, August 18.

John Lephakis, San Francisco; National University, Athens, Greece, 1899; aged 40; was found dead from a gunshot wound of the head, August 30, on a road between San Mateo and Half Moon Bay.

Joseph B. Johnston, Graniteville, R. I.; Baltimore Medical College, 1896; aged 58; health officer of Johnston, R. I.; for many years a druggist of Providence; died at his home, about September 3.

Carl Wagner, Milwaukee; University of Würzburg, Germany, 1892; aged 53; a Fellow of the American Medical Association; died suddenly in Chicago, August 30, from heart disease.

Willlets S. Cossitt, Detroit; Wisconsin College of Physicians and Surgeons, Milwaukee, 1896; aged 59; died in a street car in Detroit, August 25, from acute dilatation of the heart.

Oscar C. Whitacre, Springfield, Ohio; Eclectic Medical Institute, Cincinnati, 1896; aged 61; died in Springfield, August 26, from cerebral hemorrhage.

Chapman W. Jones, Appomattox, Va.; College of Physicians and Surgeons, Baltimore, 1894; aged 49; died in Greensboro, N. C., August 23, from diabetes.

Belmont W. McBee, Paw Paw, W. Va.; University of Louisville, Ky., 1894; aged 52; died at his home, about August 18, from peritonitis.

James Thomas Gault, Atlanta, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1898; aged 41; died in Atlanta, August 23.

T. P. Johnston, Everton, Ark. (license, Arkansas, 1903); aged 60; died at his home, September 2, from cerebral hemorrhage.

Maria Vincent Maxwell Scollay, Brooklyn; Eclectic Medical College of the City of New York, 1896; died, September 3.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CAMPETRODIN AND CAMPETRODIN NO. 2

Report of the Council on Pharmacy and Chemistry

The following report on Campetrodin and Campetrodin No. 2 has been adopted by the Council and its publication authorized.

W. A. PUCKNER, Secretary.

The following report of the A. M. A. Chemical Laboratory on "Campetrodin" and "Campetrodin No. 2," sold by the A. H. Robins Company, Richmond, Va., was submitted to the Council by a referee of the Committee on Pharmacology:

Campetrodin and Campetrodin No. 2, Double Strength, are called "ethical medicinal specialties" by the A. H. Robins Company, Richmond, Va., which sells them. An advertisement in the *Maryland Medical Journal* (December, 1917) contains the following claim for composition:

"CAMPETRODIN (Made in Two Strengths of Iodine). This preparation is an Oleaginous Solution of Iodine in Camphor."

A booklet describing the "specialties" of the Robins Company contains the following in reference to Campetrodin: "Composition: Camphor, Iodine Element, Oleaginous Solvent." From this it appears that the preparations are claimed to contain elementary (free) iodine in an "oleaginous solvent." Since free iodine, as is well known, readily combines with fats, it was decided to determine the form in which the iodine was present in these preparations. The examination demonstrated that both preparations contained but a trace of free iodine. On steam distillation there was obtained from both preparations a distillate amounting to about 35 per cent. by volume which had an odor strongly suggestive of turpentine, while the residue contained the iodine and had the characteristics of an iodized fatty oil.

Quantitative determinations indicated that Campetrodin contained approximately 0.03 per cent. of free iodine and 1.3 per cent. of iodine in combination with the fatty oil. Campetrodin No. 2, Double Strength, contained approximately 0.03 per cent. free iodine and 2 per cent. of iodine in combination with the fatty oil.

Thus, contrary to the published statements, Campetrodin is *not* a preparation of free (elementary) iodine and Campetrodin No. 2, Double Strength, does *not* contain twice as much iodine as Campetrodin.

The report of the Chemical Laboratory shows that the statements made in regard to the composition of Campetrodin and Campetrodin No. 2 are incomplete in some respects and false in others. In view of the Laboratory's findings it appears superfluous to inquire into the therapeutic claims made for the preparations: It is evident, however, that a solution containing practically no free iodine is not, as claimed by the Robins Company, "adapted for use wherever . . . iodine is indicated externally. . . ."

It is recommended that Campetrodin and Campetrodin No. 2 be declared inadmissible to New and Nonofficial Remedies because of false statements as to chemical composition and therapeutic action, constituting conflicts with Rules 1 and 6.

The Council adopted the recommendation of the referee and authorized publication of this report.

EATONIC

"Eatonic" is "distributed" by the Eatonic Remedy Co., Chicago. If one believes the claims of the Eatonic concern—and we do not recommend this—"the Advanced Scientific Thought of the Medical World has been called upon to produce Eatonic"! Here are some of the claims made for Eatonic in newspaper advertisements, which, by the way, are

not subject to the penalties which control claims made for medicinal products on the trade packages:

"INSTANTLY relieves HEARTBURN, BLOATED, GASSY FEELING, STOPS acidity, food repeating, and stomach misery."

"Aids digestion; keeps the stomach sweet and pure."

"Eatonic is the BEST remedy . . ."

"Sponge up the excess acids and poisonous fluids from the stomach by chewing these compressed compounds—stomach pains guaranteed to leave at once."

"Removes Indigestion, Bloat, Heartburn, etc."

In the trade-package the claims are more cautious. We do not find there that it "instantly relieves heartburn, bloated, gassy feeling," etc., but we do find:

"Intended for the relief of . . . Heart Burn . . . Gassy, Windy, Bloated Stomach . . ."

Which, of course, is different! The Eatonic Remedy Co. might say with equal safety that their tablets were "intended for" the reduction of the national debt, or the repairing of automobile tires. There is nothing to prevent a manufacturer from declaring what his product is "intended for." And who could resist the lure of this:

"Be a good liver—while you live. You don't have to live on a Death Diet, but eat what you like and be normal. Remember, Eatonic drives the gas out of your body—and the bloat goes with it. It stops the super-acidity—that is, too much acid—that causes nearly all stomach trouble."

At the request of the Propaganda Department, the Chemical Laboratory of the A. M. A. took up Eatonic for investigation. Here is its report:

CHEMISTS' REPORT

Eatonic is in the form of black, uncoated tablets, having a mintlike odor, and a sweet and mintlike taste. Each tablet is stamped "Eatonic" and each weighs about 27.4 grains. A qualitative examination showed Eatonic to contain calcium, magnesium, carbonate, sugar, charcoal and silica or a silicate. The odor and taste suggested peppermint. As no soluble carbonate could be detected, the calcium and carbonate are probably present as calcium carbonate. The qualitative examination indicates that Eatonic is composed of calcium carbonate, charcoal, sugar, and oil of peppermint as flavoring. From this examination, and from the quantitative determinations carried out, we conclude that Eatonic is essentially calcium carbonate 20 parts, sugar 55 parts, charcoal 12 parts in a hundred. The remainder is flavoring, and material undetermined. Each tablet contains approximately 5.5 grains calcium carbonate, 15 grains sugar, and 3.25 grains charcoal.

This, then, is the best that the "Advanced Scientific Thought of the Medical World" could do:

Calcium carbonate (chalk)	5½ grains
Sugar	15 grains
Charcoal	3¼ grains

Surely the labors of such a mountain have brought forth a ludicrously insignificant mouse! Summed up, it may be said that "Eatonic" is a simple and innocuous tablet of the antacid type. It will do nothing that cannot be done equally well by the well-known "sodamint tablets." The latter, being non-proprietary, and therefore competitive, are sold at a fraction of the cost of "Eatonic" while the incentive to force them on the public under false and misleading claims is reduced to a minimum.

Health Standards and Care of Immigrants.—The Carnegie Corporation has undertaken a national study of the methods of Americanization of immigrants in the United States. The work is to be done by ten divisions, and of these the division on health standards and care is under the direction of Michael M. Davis, Jr., director of the Boston Dispensary. The aim of this division is to learn what the health agencies throughout the country are doing to keep the immigrants up to American standards of health. The division desires the cooperation of individual physicians, hospitals, dispensaries, health departments, nursing and medical associations, industries, and all other national organizations working to promote the public health. Information is sought concerning health conditions and problems among the foreign-born of different races in different localities.

Correspondence

ORIGIN OF THE TERM "NEUROCIRCULATORY ASTHENIA"

To the Editor:—An article by Drs. Morris and Friedlander in *THE JOURNAL* (Aug. 3, 1918, p. 375) calls my attention again to a misunderstanding arising out of an error in publication. The article that appeared under my name in the *Military Surgeon* (1918, 42, 409) was written by the American medical officers who were then attached to this hospital. They were Capt. B. S. Oppenheimer, Lieut. M. A. Rothschild, Lieut. S. A. Levine, Lieut. F. Wilson, Lieut. R. Morison and Lieut. St. Lawrence. The article was sent to press under their names, but at their request I added a short "foreword." Through an editorial blunder, as I am informed, the article appeared wrongly under my name. Though I am in agreement with the main arguments of the writers, as indicated by the foreword that I wrote, I naturally cannot assume responsibility for statements which are in reality theirs; that would be unfair both to the real authors and to myself. Thus the term "neurocirculatory asthenia," which is used by them to describe the condition of certain invalided soldiers, is not of my making. Let me not be misunderstood; I express no objection to nor criticism of the term; at the same time I do not adopt it to designate the condition.

THOMAS LEWIS, M.D., Military Heart Hospital,
Colchester, England.

VOLUNTEER MEDICAL SERVICE CORPS

[Two weeks ago *THE JOURNAL* (September 7, p. 845) published in Queries and Minor Notes letters and answers relative to the Volunteer Medical Service Corps. These prompted the correspondence that follows:]

FROM PHILADELPHIA

To the Editor:—There are two things about your reference in the issue of September 7 regarding the Volunteer Medical Service Corps: one is the publication of letters over initials only of the writers without specific address, and the other is your unfavorable reference to the idea of a corps of this character. I am not in a position to know, but would regard your strictures as based on some personal or collective feeling in the matter. However, I am wearing a button and have felt happy in the thought that at my age [61] I have agreed to do any service to the government in the medical or surgical line it is commanded that I shall do during the war. Your fault finding with the plan makes me a little unhappy. I agree so generally with *THE JOURNAL* in its views that I must protest against this apparently grouchy complaint of yours. Evidently the plan has met with the approval of the Medical Department of the Army. Why, therefore, this condemnation? Perhaps more elucidation on your part will satisfy my curiosity as to how it is, as one correspondent, "W. E., Michigan," says, "Martin and his elements seem to be pushing things with a high hand," etc.

GORDON M. CHRISTINE, M.D., Philadelphia.

FROM ST. LOUIS

To the Editor:—As a Fellow of the American Medical Association who takes due pride in the organization, I am constrained to express my regret at the tone of your correspondents' notes and your answer concerning the Volunteer Medical Service Corps (*THE JOURNAL*, Sept. 7, 1918, p. 845).

At any other time, the expression of personal pique against Dr. Franklin H. Martin might be either sublime or ridiculous, according to the point of view. At present, when combined with your attack on the Council of National Defense, it constitutes at least betrayal of the loyal attitude of the membership of the American Medical Association, if it does not actually give aid and comfort to the enemy.

You should know that the Volunteer Medical Service Corps was originated to give some degree of recognition to the physicians who must remain at home. We find here that Illinois physicians are as anxious for this distinction as are those in other states where the Medical Section, Council of National Defense, is fully organized.

May we hope for some expression that will remove the disgrace caused by your thoughtless reply?

W. H. LUEDDE, M.D., St. Louis.

FROM ELMIRA, N. Y.

To the Editor:—The "Volunteer Medical Service Corps" merits much plainer discussion than *THE JOURNAL* has seen fit to devote to it.

In Elmira, for example, we had only a handful of doctors in the Medical Reserve Corps, U. S. Army. We needed stimulation or something. So Major C. A. L. Reed was sent here to enable any physicians so inclined to be examined for commissions without inconvenience to themselves. The local representatives of the Volunteer Medical Service Corps gave out to the press, and there was duly published, a statement that all physicians were compelled to apply for commission or enroll in the stay-at-home-and-wear-a-button corps. The chairman of the local committee of the Volunteer Medical Service Corps called a meeting of physicians, and in his address stated emphatically that the matter of applying for a commission or enrolling in the organization was "not an invitation, but a command." He gave to the press a signed statement declaring that he had "received orders from the Office of the Surgeon-General to place the matter before the physicians of this community."

Most of the physicians swallowed hard, and believed they had no choice in the matter. The papers next announced to the public that "only one Elmira physician had failed to enroll, although enrolment is compulsory, and his name will be forwarded to Washington."

His name has been forwarded to Washington, all right, but not in the unpleasant way the Volunteers to Stay At Home would have it. I think—I fear, I should say—that I am the one who put the question mark after the first word of the title of this Wear a Button and Ease Your Mind Corps. At least I frothed at the mouth to a considerable extent in the public prints in "a foul, pro-German effort" to make it known that there is nothing compulsory about applying for a commission in the U. S. Army or about joining an organization of those who are going to stay home as a large and enthusiastic body of patriots.

Every doctor with any self respect ought to be competent to decide for himself what his duty is at present. And surely no physician in America would require the counsel, advice or command of any organization, or even its insignia or moral support, to make him jump at the opportunity of rendering any service which his government might ask of him, at home or abroad.

The Volunteer Medical Service Corps' activity in Elmira adds weight to the argument of experienced Army men that it is unwise to grant medical officers too much rank. Here we have a quasi-official organization actually attempting to conscript the medical profession and control each individual's conduct for the duration of the war and afterward. It looks to me as though the illustrious Martin and his numerous brood of FACSImiles are seizing the present time to promote a great scheme to gain control of the medical profession.

As a private citizen I can still criticize high officials, and from the way in which the Surgeon-Generals and the Surgeon-Generals' Offices are being used to lend an air of authority to the promoters of this Volunteer-Compulsory Guild—well, I should think the Surgeon-Generals would have enough to do without wasting time and energy pattering with a sunshine circle.

The other day an Elmira doctor, 34 years of age, received his commission in the Medical Reserve Corps, U. S. Army, and left for camp.

The newspapers announced the fact, and tacked on the item this flattering comment: "Dr. ——— applied for his commission at the time enrolment of physicians became compulsory."

That makes a man hesitate about accepting a commission just now. It no doubt pleases the FACSImiles to see how well the Volunteer Medical Service Corps is working out its problems.

THE JOURNAL should handle this question without gloves. This gratuitous organization is working a great deal of harm, and beyond any doubt its quasi-official rulings as to eligibility encourage many a doctor, who is wavering, in the belief that it is not his duty to get into the service. Its entire program is harmful to the best interests of the country and of the profession, in precisely the same way that the Red Cross is injured by the type of woman that wears the uniform of the Red Cross nurse for show purposes. Just now it is merely a question of button, button, who's got the button—or rather who hasn't. But if the thing goes on, first thing we know the doctor who stays at home because he must or will is going to have a lovely uniform to wear as evidence of his great sacrifice.

WILLIAM BRADY, M.D., Elmira, N. Y.

FROM WALDOBORO, MAINE

To the Editor:—In July, immediately after the request from the President of the American Medical Association to do so, the writer undertook through the presidents and secretaries of the county medical societies of this state a survey of the medical situation. This has been done so far as appears possible up to the present, but final results cannot yet be made. This canvass met a whole-hearted response from many of those requested to aid and an equally whole-hearted criticism from many more. My personal view was that it was not, in this state, necessary, and that inasmuch as it carried no authority from the War Department it was more likely to do harm than good.

However, this and my visits to ten county societies have resulted in a very definite opinion being formed so far as the volunteer system of securing physicians for the Army is concerned, and community needs. For the former it has secured a fair percentage, but very much at the expense of the needs of the country—farming—population so that now, even, there is developing a condition which is most likely to become serious as difficulties of cold weather travel develop, and it seems to me that no one in the American Medical Association, including yourself, has any authority to remedy it.

Your comments on the Volunteer Medical Service Corps appear to ignore the fact that the Surgeon-Generals of the Army, Navy and Public Health Service and the Provost Marshal-General head the list of the Central Governing Board and Council of this body, and that it therefore bears their approval, and that the work must be done in order to fill a definite need which they foresee.

It seems to me that, as good soldiers, a request from these men should receive all the strength of a command and that we are making a very serious mistake if we in any way block the work which they are trying to do. If we are to have unity in the medical profession now and in the future, criticisms of this sort in the official organ of the Association of the work of those at the head of the medical work of our forces should be curtailed. It seems to me that if the leaders in the work of THE JOURNAL disagree with the methods and criticize the work of this body, the least they can do is to publish at the same time the plan and scope of the work and the names of the officers.

It should be enough for any man to know that these men in their official capacity ask this, for every physician in the country to immediately respond and place his services at the disposal of the government, leaving the work of selection to the members of the organization in their counties and state to whom the work has been delegated subject to their right of appeal to the Surgeon-Generals and Provost Marshal-General as heads of this body.

GEORGE H. COOMBS, M.D., Waldoboro, Maine.

FROM CHICAGO

To the Editor:—There has been brought to your attention, as evidenced in Queries and Minor Notes of last week's issue, a letter and questionnaire that have been sent out over the signature of the chairman of the Medical Section of the Advisory Commission of the Council of National Defense. I believe these demand consideration and discussion in THE JOURNAL.

While one is reading these documents many questions spring to mind, chief of which concern the inferred inefficiency or insufficiency of the Surgeon-Generals' Offices and the Provost Marshal-General's Office; the purpose and necessity of this new organization; its relation to the above mentioned offices, and its relation to the profession and of the profession to it and to the government. For an answer to these we read with interest, if not with enlightenment, the "pledge," the "scope and purpose," the "object of the corps," the "working plans" and the "operating system." Throughout we gather the impression of the implied lack of foresight and of breadth of vision, of inefficiency and insufficiency of the Surgeon-Generals and other government officials, and therefore the need of such a wise governing body as the Medical Section of the Council of National Defense. Like the proficient Irishman, its efficiency does not need to be proved; it admits it.

Among other things, the Volunteer Medical Corps places on record all medical men and women in the United States. How more so than the present government information as gained from the American Medical Association and other sources? Are other sections similar to the Medical Section of the Council of Defense belittling their respective trades and professions? In what respect are, and at what times have, the medical men shown themselves less loyal than other professions or trades that they should be thus treated?

The "working plans" and "operating system," for sheer autocracy, should commend themselves to His Imperial Majesty, Wilhelm. The applicant finds his organization thoroughly manned with officers and executives awaiting only his humble self. Provision is made for a perfectly good set of officials, hand-picked and responsible only to the Medical Section of the Advisory Commission. By this same Medical Section we find that the applicant has his rules and regulations all cut and dried for him. To these he promises to conform. If the Central Board tells him to apply for a commission he must do so, whether the Surgeon-General wishes it or not; it is imperative that he comply with any request for service at any time at any place made by the Central Governing Board; for all of which he finds no provision for himself or family, although he may be sent to the ends of the earth for service. In fact, the whole matter presents the appearance of a one-sided agreement so poorly trumped up as to be not even plausible; to be presuming on the work of the Surgeon-Generals and of the Provost Marshal-General and breaking up a service which is logically unified in the Surgeon-Generals' Offices. Unfortunately, there are many men who have taken it seriously and have sent in their applications, some thinking it was a command from the Provost Marshal-General and others that it may relieve them from such active military duty as would remove them from their homes.

It would seem that THE JOURNAL would serve an excellent purpose by giving this matter extended consideration and explaining matters to its great democratic constituency.

HUGH NEIL MACKECHNIE, M.D., Chicago.

To the Editor:—I wish you might think it advisable to enlighten the profession as to the alleged Voluntary Medical Service Corps as the latest Chicago Medical Society *Bulletin* has done. We need the information.

WILLIAM T. BELFIELD, M.D., Chicago.

FROM IOWA

To the Editor:—I wish to thank you for the information concerning the Volunteer Medical Service Corps. I do not like the methods pursued. The circular letter received with the application blank was an imperative one, saying, "Sign this and return at once." Another thing that has crept in is the signing of this blank by men over age not acceptable

under any circumstances, and to put the very few like myself who did not sign the blank in a "slacker" minority. This, with the newspaper publicity, makes conditions both trying and embarrassing. I resent being put in a situation whereby those who are too old or physically incapacitated who can flaunt a button and use it as a whip to compel me to do something that, as you say, is "of indefinite and undeterminate value to the welfare of the nation." I do not approve of stampede methods in any crisis, and much less in such a one as this. If the civilian population is to be looked after, let it be considered honorable to do it, and not place the civilian doctor dependents in a class by publishing lists of those who join the society, one half of whom in some counties are too old to qualify for any service, and a certain percentage of whom are physically incapacitated. This is not to be published over my name in case you use it.

J. C. C., Iowa.

PHYSICIANS CLAIMING EXEMPTION ON GROUNDS OF DEPENDENCY

To the Editor:—It has been stated in THE JOURNAL that some local boards have refused to allow the claims of physicians to exemption or deferred classification on the ground that they are eligible for commission as officers in the Medical Reserve Corps.

There has been no draft of doctors as such. This is not a draft of doctors. It is a civilian draft. All physicians under the age of 46 have been required to register just the same as all other citizens, have the same rights as all other citizens and are entitled to the same treatment that all other citizens receive.

Does the fact that a man is a physician take away any of the constitutional rights which he enjoys in common with every other citizen?

Every physician who can possibly see his way clear to do so should be proud to hold a commission in the Medical Reserve Corps, but no physician is compelled or can be compelled in the matter. Under the law, enlistment in the Corps is, and always has been entirely voluntary, and no draft board can give a commission in it nor guarantee that the government will do so.

Suppose if, for the best of reasons, or for no reason at all, a physician does not apply for a commission, what then? Why then the law distinctly says that if he is a man with wife or children mainly dependent on his labor for support he belongs in Class IV, physician or no physician. There is nothing ambiguous or mysterious in this language; it is as plain as daylight. It does not say men, *except* physicians.

What the boards you refer to are evidently trying to do is to enforce enlistment in the Medical Reserve Corps, a thing that cannot be done, and is an attempt at coercion which a government with a well balanced sense of justice ought promptly to suppress.

If the above observations are erroneous, then my whole conception of the draft system, the Medical Reserve Corps and the draft legislation enacted by Congress is at fault.

R. S. CONE, M.D., Westwood, N. J.

Industrial Employment and Infant Mortality.—It will be seen that in the homes where acute poverty exists there is a marked falling off in the average weight of the baby whether the mother is industrially employed or not. It seems pretty certain that industrial employment has a bad effect on the infant mortality, principally because it interferes with breast feeding. For this reason employment in a factory is more harmful than employment at home. But the influence of industrial employment is quite small when compared with the influence of acute poverty. It would seem therefore that in so far as the mothers' employment reduces the acuteness of the poverty, it may even tend to improve the infant mortality. At any rate, it is doubtful whether any further interference with the employment of married women would be at all beneficial as long as the acute poverty remains.—Report of Dr. Jessie Duncan on Infant Welfare in Birmingham.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

CIVIL RIGHTS OF PERSONS IN MILITARY SERVICE—PERMISSION TO WITHDRAW FROM SERVICE

To the Editor:—1. I have been unable to ascertain just what the moratorium covers in regard to the physician who enters the service. I know in a general way that it is supposed to take care of his debts; specifically, I should like to know what disposition could be made in a matter as follows: A lease was taken in 1918 for a period of five years at a rental of \$75 per month, together with an option to purchase. The option expires in the fall of 1918. Now what I should like to know is whether or not on entering the service I could extend this option and also the obligation of the rental? How does the moratorium operate in regard to notes and mortgages?

2. Can a medical officer resign in case of sickness to family or self?
J. C. A.

ANSWER.—1. There is no moratorium specifically covering physicians who enter the service. The Chamberlain bill for the protection of the civil rights of soldiers and sailors, approved March 8, 1918, concerns debts, notes, mortgages and insurance of all men in the service of the government. Under this act, protection is extended to persons in the military service of the United States in order to prevent prejudice or injury to their civil rights during their term of service and to enable them to devote their entire energy to the military needs of the nation. The second article of the act provides for general relief, its purpose being to protect the rights of the man in military service in any action brought against him in court, causing the court either to permit the defendant to appear in person or by an authorized attorney, or to appoint an attorney to represent him, who has not, however, the power to waive any right of the person for whom he is appointed, or to bind him by his acts. The person in military service is given an opportunity to reopen the case at any time within ninety days after judgment is rendered, and the court is also permitted at any time during the period of military service to stay execution of judgment and to vacate or stay any judgment or garnishment of property, money or debts in the hands of another. Such stay of action may be ordered for the period of military service and three months thereafter.

LEASES, MORTGAGES, ETC.

Article 3 provides that no eviction shall be made during the period of military service in respect to any premises for which the agreed rent does not exceed \$50 per month, occupied chiefly for dwelling purposes by the wife, children or other dependents of the person in military service, except on leave of court granted on application therefor. The court is permitted to stay proceedings for not longer than three months. Section 301 of Article 3 provides that no person who has received or whose assignor has received, under a contract for the purchase of real or personal property or of lease or bailment with a view to purchase of such property, a deposit or instalment of the purchase price from the person who after the date of payment of such deposit has entered military service, shall exercise any right or option under such contract to rescind or terminate the contract or resume possession of the property for nonpayment of any instalment falling due during the period of such military service, except by action in a court of competent jurisdiction. On the hearing of action the court may order the repayment of instalments or deposits as a condition of terminating the contract, or may in its discretion on its own motion, and shall on application to it by such person in military service or some person on his behalf, order a stay of proceedings, or it may make such other disposition of the case as may be equitable to conserve the interests of all parties. The provisions apply to obligations originating prior to March, 1918, secured by mortgage, trust deed, etc.

INSURANCE AND PREMIUMS

Article 4 concerns insurance and premiums. Persons in the military service should apply on a form prepared in accordance with regulations prescribed by the Secretary of the Treasury for modification of the terms of his original contract of insurance. The original of such application is

sent by the insured to the insurance company and a copy to the Bureau of War Risk Insurance. The benefits of this application are available to any person in military service in respect to contracts of insurance in force up to but not exceeding a face value of \$5,000 irrespective of the number of policies held or whether held in one or more companies, when such contracts were made and premium was paid before September 1, but not in cases in which no premiums have been paid for a period of more than one year. This act provides that no policy which has not lapsed for the nonpayment of premium before the commencement of military service of the insured, and which has been brought within the benefits of this article, shall lapse or be forfeited for the nonpayment of premium for the period of such service or for a period of one year after the expiration of such period. It provides that the insurance companies shall send to the Bureau of War Risk Insurance each month a list of the policies coming under the act on which application has been made. The Bureau of War Risk Insurance then deposits bonds with the insurance company covering the defaulted premiums, these bonds to be held by the insurance company as guarantee of payment of future premiums. To indemnify it against loss, the United States has the first lien against any policy receiving benefits under this article. In the event that the military service of any person being the holder of any policy receiving the benefits of this act is terminated by death, the amount of any unpaid premiums with interest at the rate provided for in the policy for policy loss shall be deducted from the proceeds of the policy and is included in the next monthly report of the insurance company to the United States as premiums paid. If the insured does not within one year after the termination of his period of military service pay to the insurance company all past due premiums with interest thereon, the policy shall at the end of that year lapse and become void, and the insurance company becomes liable to pay the cash surrender value.

This is taken from the booklet of "Information Regarding Medical Service in the United States Army," published by the American Medical Association.

2. A medical officer can resign only with the consent of the Surgeon-General.

HOW MUCH A MEDICAL OFFICER CAN SAVE—ENLISTMENT IN THE MEDICAL DEPARTMENT

To the Editor:—1. How much can a medical officer save from his salary and allowance for the support of his family? Of course this depends on the person's habits; but if possible make a statement, based on experience of physicians who have had actual experience in the matter, as to the necessary expenses of a medical officer. I have heard conflicting reports. One is that when abroad a medical officer requires his entire pay for his own support; another, that if an officer is careful he can almost live on his "allowances" and thus devote his salary to the support of his family. I believe that it would be very helpful for many of us who have families dependent on us and who have been practicing too short a time to have accumulated anything, to know how much of the pay and allowance may be reserved for the use of a dependent wife and children.

2. I understand that enlistment is closed since the passage of the new draft law. Does this apply to the medical service? Please omit my name.

J. M. E., Illinois.

ANSWER.—1. The lowest salary which a medical officer receives is that of a first lieutenant—\$166.66 a month. If he maintains a residence for dependents, he receives in addition, commutation of quarters, heat and light, averaging about \$42 a month. If the officer is abroad, he receives also 10 per cent. additional pay, the total for lieutenant approximating \$225 a month. The average expense of an officer in camp varies from about \$40 to \$75 a month, including his mess bills and incidental expenses.

2. Enlistment is not closed in the Medical Department.

THE CADUCEUS AND THE EMBLEM OF THE MEDICAL PROFESSION

To the Editor:—What was the significance of the caduceus that it should have become emblematic of the medical profession?

L. J. S., Idaho.

ANSWER.—The caduceus, the rod surmounted by the extended wings and entwined by the two serpents, though regularly used in that connection, is not especially the emblem of the medical profession. According to the Century Dictionary the caduceus is a symbol of peace and prosperity, and in modern times figures as a symbol of commerce. The rod

or wand is supposed to be the wand of Mercury, the god of commerce.* The rod represents power; the serpents represent wisdom, and the two wings, diligence and activity. As stated by Dr. Samuel P. Gerhard (*THE JOURNAL*, April 24, 1909), the true ancestral symbol of the healing art is the knotty rod and serpent of Esculapius, the device adopted for the emblem of the American Medical Association. The significance of this device is much the same as that ascribed to the caduceus, but as Dr. Gerhard has shown from history and mythology, the serpent as the representative of wisdom has been from time immemorial linked up with the healing art. Dr. Gerhard says:

Esculapius was always pictured with a knotty rod in his hand, the knots indicating the many difficult problems of physics to be solved in the treatment of the ailments of mankind. Therefore, applying these thoughts to the symbol, we have in the entwined serpent, power, wisdom and health, together with the protection and support against disease and the difficulties to be overcome by the knotty rod. With this historical symbol the sanctity of medicine can be pictured and the doctor is shown in his true light, not only as a laboratory scientist and as a practitioner, but as a teacher and adviser to the patient, the family and the community in all the difficult problems that arise concerning health and disease.

PHYSICAL DISABILITY IN A PHYSICIAN WISHING COMMISSION—CLASSIFICATION UNDER SELECTIVE SERVICE

To the Editor:—1. I have been placed in Class V by the local board on account of entire loss of hearing of one ear due to a radical mastoid operation, and chronic suppurative otitis media of the other ear with impaired function. Would I be accepted for the Medical Reserve Corps? 2. Would I be accepted for the Red Cross? 3. Do you think the board may change my classification and send me to camp as a private?

M. G.

ANSWER.—1. Probably not. It is impossible from the written description of the condition to state in most instances whether or not the physical disability is sufficient in character to disqualify the applicant for membership in the Medical Reserve Corps. Those who are in doubt should apply before the nearest examining board, which will pass on the physical condition.

2. The Red Cross does not submit its physicians to a physical examination, and any physician who can qualify physically for general practice would, no doubt, be able to qualify for the work of the Red Cross. Address Dr. Alfred E. Shepley, Director, Medical Personnel Bureau, American National Red Cross, Washington, D. C.

3. It is impossible to say what a board will do. The regulations concerning professional men, when issued, may have some bearing on such a case.

COMMUTATION OF QUARTERS FOR WIVES OF OFFICERS

To the Editor:—My husband received his call to service, reporting at Fort Oglethorpe last October and sailing in January for duty overseas. Before going abroad he had a certain portion of his salary allotted to me, the allotment being sent to a bank in this city. I should like to know if my son and self, as dependents, are not entitled to something from the government for commutation of quarters. What is the amount allowed each month? Can I make application for same to the Quartermaster-General, or should my husband do so?

Mrs. D. M. N., Connecticut.

ANSWER.—The wives of officers are not entitled to collect any extra allowance for commutation of quarters. If an officer maintains a residence for dependents he is entitled to make notation to that effect on his monthly pay check, and the sum allowed is paid to the officer himself. The amount varies from about \$42 a month for a lieutenant to \$55 a month for a captain and \$70 a month for a major.

SUPPLY OF APPARATUS TO MEDICAL OFFICERS

To the Editor:—I have recently enlisted in the Medical Reserve Corps. My practice is confined to general surgery and my information so stated. I have devoted considerable attention to bone and joint surgery, and am equipped with the necessary instruments for such work, including an electromotor outfit, electric sterilizer oven, etc. If I should be ordered to active service abroad, would my surgical armamentarium be acceptable for my use there, or is the supply angle and is one required to use only instruments and apparatus furnished by the department? To whom should I refer for detailed information? Please omit my name.

S. P. A., Iowa.

ANSWER.—Medical officers in our Army are supplied with all instruments, apparatus, drugs, etc.

Medical Education and State Boards of
Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.
CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.
COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.
DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.
GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.
IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.
ILLINOIS: Chicago, Sept. 24-27. Mr. F. C. Dodds, Supt. of Registration, Springfield.
KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.
MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.
MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.
MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.
MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.
NEVADA: Carson City, Nov. 4. Sec., Dr. S. L. Lee, Carson City.
NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlester, 438 E. State St., Trenton.
NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.
NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 24-27. Mr. H. J. Hamilton, New York Dept. of Education, Albany.
OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.
RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.
UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Arizona April Examination

Dr. Allen H. Williams, secretary of the Arizona Board of Medical Examiners, reports the written examination held at Phoenix, April 2-3, 1918. The examination covered 10 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 8 candidates examined, 5, including 1 osteopath, passed, and 3, including 1 osteopath, failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
College of Phys. and Surgs., Los Angeles	(1912) 84.9; (1917)		79.5
State University of Iowa College of Hom. Med.	....(1903)		79.2
Washington University	.....(1903)		91.7
FAILED			
Detroit College of Medicine and Surgery	.....(1916)		69.6
Syracuse University	.....(1887)		59

Georgia June Examination

Dr. C. T. Nolan, secretary of the Georgia State Board of Medical Examiners, reports the written examination held at Atlanta and Augusta, June 4-5, 1918. The examination covered 10 subjects and included 100 questions. An average of 80 per cent. was required to pass. Of the 31 candidates examined, 30 passed and 1 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Birmingham Medical College	.....(1915)		80.9
Emory University (1918)	85.5, 85.8, 87.6, 88.1, 89.2, 89.2, 89.6, 89.6, 90.5, 90.9, 91.8, 94.3, 94.1, 94.9, 95		
University of Georgia (1918)	86.3, 86.9, 90, 90.2, 90.5, 90.8		
Chicago Coll. of Med. and Surg. (1915)	91.3; (1916) *; (1917)		87.7
Columbia University	.....(1917)		90.6
Chattanooga Medical College	.....(1899)		80.9
Meharry Medical College	.....(1914) 83; (1918)		88.6
Vanderbilt University	.....(1917)		86.7

FAILED			
Southern College of Medicine and Surgery	.....(1913)		77.8
* No grade given.			

Indiana June Examination

Dr. W. T. Gott, secretary of the Indiana State Board of Medical Registration and Examination, reports the written examination held at Indianapolis, June 13-15, 1918. The examination covered 16 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 41 candidates examined, 40, including 1 osteopath, passed, and

1 failed. Eleven candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Loyola University	.....(1918)		94.5
Rush Medical College	.....(1917)		90.6
Indiana University (1918)	84.4, 85.1, 87.6, 87.9, 88.1, 88.1, 88.5, 88.8, 88.9, 89.3, 89.4, 89.5, 89.9, 90.2, 90.6, 91, 91, 91, 91.1, 91.4, 91.8, 91.8, 91.8, 92, 92, 92.1, 92.4, 92.5, 92.7, 92.9, 93.3, 93.4, 94.8, 95.1		
Louisville National Medical College	.....(1908)		83.2
Eclectic Medical College	.....(1918)		91.1
Meharry Medical College	.....(1916)		85.6

FAILED			
University of Nashville	.....(1900)		84*
*Fell below minimum percentage in a major subject.			

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Bennett Coll. of Eclectic Med. and Surg.	.....(1901)		Illinois
Chicago College of Med. and Surg.	.....(1914)		Illinois
University of Louisville	.....(1917)		Kentucky
University of Michigan Medical School	.....(1909)		Michigan
Washington University	.....(1910)		Missouri
Miami Medical College	.....(1897)		Kentucky
Jefferson Medical College	.....(1909)		Ohio
Meharry Medical College	.....(1913)		Tennessee
Vanderbilt University	.....(1893)		Kentucky
University of Vermont	.....(1914)		Maine
University of Virginia	.....(1907)		Virginia

Louisiana June Examination

Dr. E. W. Mahler, secretary of the Louisiana State Board of Medical Examiners, reports the written examination held at New Orleans, June 6-8, 1918. The examination covered 11 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 45 candidates examined, 41 passed and 4 failed. Three candidates were licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Bennett College of Eclec. Med. and Surg.	.....(1906)		75.7
Tulane University (1917)	77.2, 83.6; (1918) 75.1, 78, 78.5, 80.2, 80.8, 81.9, 82.7, 83, 83.4, 83.8, 84.1, 84.2, 84.7, 85.1, 85.5, 86.1, 86.3, 86.7, 87.1, 87.2, 87.3, 87.8, 88.1, 88.2, 88.6, 88.8, 88.9, 89.2, 89.4, 89.5, 89.5, 89.5, 89.6, 90.2		
Woman's Med. Coll. of N. Y. Inf. for Women & Child.	(1899)		78.6
Starling Medical College	.....(1882)		75
Memphis Hospital Medical College	.....(1903) 78; (1907)		75

FAILED			
Eclectic Medical Institute	.....(1879)		50.4
College of Phys. and Surg., Memphis	.....(1911)		62.3
Memphis Hospital Medical College	.....(1911) 70.1; (1912)		71

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	.....(1903)		Illinois
State University of Iowa College of Medicine	.....(1907)		Iowa
University of Louisville	.....(1908)		Georgia

New Jersey June Examination

Dr. Alexander MacAlister, secretary of the New Jersey State Board of Medical Examiners, reports the written examination held at Trenton, June 18-19, 1918. The examination covered 9 subjects and included 90 questions. An average of 75 per cent. was required to pass. Fifteen candidates, including 1 osteopath, were examined, all of whom passed. Fifty-six candidates were licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
University of Maryland	.....(1916)		84.2
Tufts College Medical School	.....(1917)		85.4
Hahnemann Med. Coll. and Hosp. of Philadelphia	....(1917)		90.4
Jefferson Medical College	.....(1917)		86, 93.8
University of Pennsylvania (1917)	75.3, 79.7, 80.5, 85.7, 86.4		
National University, Athens	.....(1898)		76.1
University of Naples	.....(1893) 78.3; (1908) 75, 75		

College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
George Washington University	.....(1914)	(1917)	New York
Howard University	.....(1910)		Dist. Colum.
Hahnemann Med. Coll. and Hosp. of Chicago	.....(1908)		New York
Baltimore Medical College	.....(1905) Maine; (1905)		Maryland
Johns Hopkins University	.....(1915)		Connecticut
University of Maryland	....(1915) North Carolina; (1916)		Maryland
College of Phys. and Surg., Boston	.....(1907)		Mass.
Tufts College Medical School	.....(1907)		Mass.
University of Michigan Medical School	.....(1902)		Ohio
Washington University	.....(1914)		Missouri
Columbia College in the City of New York	(1895) (1896)		New York
Columbia University (1901)	(1903) (1905) (1906) (1908)		
.....	(1911) (1917)		New York
Fordham University	.....(1916)	(1917)	New York
Long Island College Hospital	.....(1905)		Maryland
.....	(1907) (1915)		New York
New York H. Med. Coll. and Flower Hosp.	.....(1914)		Maryland
.....	(1914) (1915) (1917) New York; (1917, 2)		Delaware
University and Bellevue Hosp. Med. Coll.	.....(1917)		New York

University of the City of New York.....	(1890)	New York
Woman's Med. Coll. of N. Y. Infirmary for Women and Children	(1898)	New York
University of Oregon	(1917)	New York
Hahnemann Med. Coll. and Hosp. of Philadel.	(1903)	Penna.
Jefferson Med. Coll.	(1901) (1902) (1908) (1915)	Penna.
Medico-Chirurgical College of Philadelphia	(1915)	Mass.
.....	(1916)	Penna.
University of Pennsylvania (1897) (1899) Penna.; (1902, 2)		New York
Woman's Med. Coll. of Pennsylvania	(1901) (1913)	Penna.
University of Vermont	(1905) Vermont; (1914)	Illinois
University of Virginia	(1913)	New York
University of Naples.....	(1914)	New York

Book Notices

DIET AND HEALTH WITH KEY TO THE CALORIES. By Lulu Hunt Peters, A.B., M.D. Cloth. Price, \$1 net. Pp. 105, with illustrations. Chicago: The Reilly and Britton Company, 1918.

By its title this booklet assumes to be a parody on the guide of a well known religiomedical cult. This, however, appears only slightly in the text in the form of a few of the side headings. The book is intended primarily for the lay public. It contains some good advice in simple language. It explains to the layman the meaning of the calory and the value of this knowledge in choosing diet for the treatment both of obesity and of undesirable thinness, if in a person otherwise normal the latter condition may be said to exist. The book is not serious in tone, but in spots quite facetious; in fact, in some places the humor is even a little forced. Regardless of the financial success of various books for instructing the obese how to become sylphlike and efferescent, it is likely that the personal touch of the instructor with the ambitious disciple is the primary factor. So far as any book is able to maintain this personal touch with the reader, it will be successful in accomplishing its aim. Dr. Peters' book distinctly reflects her personality.

THE STEREOSCOPE IN OPHTHALMOLOGY, WITH ESPECIAL REFERENCE TO THE TREATMENT OF HETEROPHORIA AND HETEROTROPIA. Designed to Accompany the Phoro-Optometer Stereoscope and the Wells Selection of Stereoscopic Charts. By David W. Wells, M.D., F.A.C.S., Professor of Ophthalmology, Boston University Medical School. Cloth. Price, \$2 net. Pp. 145, with 31 illustrations. Boston: Globe Optical Company, 1918.

This is a plea for the more frequent use of the stereoscope in overcoming heterophoria and heterotropia. It is supplementary to the phoro-optometer and the Wells stereoscopic charts. The author discusses heterophoria and its treatment, lays special stress on the beneficial results to be obtained by means of the systematic use of the stereoscope, and explains his own methods. In heterotropia the same treatment is advocated, but if unsuccessful, should be replaced by operation, preferably musculocapsular advancement. As a post-operative measure, he advocates the use of the stereoscope in training the fusion faculty. Several pages are devoted to the discussion of the Hartz binocular location of scotomas by means of the stereoscope, and the adaptability of the phoro-optometer to the Hartz and Bissel charts.

MILITARY SURGERY. By Dunlap Pearce Penhallow, S.B., M.D., Chief Surgeon, American Women's War Hospital, Paignton, England. With introduction by Sir Alfred Keogh, K.C.B., Director-General, Army Medical Service. Original drawings by the author. Second edition. Cloth. Price, \$6. Pp. 555, with 226 illustrations. New York: Oxford University Press, 1918.

Penhallow has partly rewritten his book to meet the demands made on physicians and surgeons who are called to treat the war wounded in military or in civil hospitals. He has embodied much of the available material that has resulted from the treatment of all manner of war wounds, thus bringing the text up to date. The Carrel treatment of wounds is described in detail. The author considers it a most important advance, but designates the method as applying "in a scientific manner the treatment which had been advocated sixty years previously by Lister, namely, the treatment of infection by antisepsis." Other methods of treatment are also described. The book is well arranged, well written and illustrated to good purpose.

Social Medicine, Medical Economics and Miscellany

Pyogenic Diplococcus Found in Skin Infections

In various skin infections and infected gunshot wounds seen by Krumbhaar and his associates in a military hospital in France, they found a diplococcus in apparently pure culture that does not seem to correspond with any coccus described in textbooks. In smears from pus and in earlier cultures it is partially or wholly decolorized by Gram's method, so that, on account of its possible occurrence in the spinal fluid in cases of traumatic meningitis, it must be recognized as distinct from the meningococcus. In one case of gunshot wound of the spine, in fact, it was cultivated from the spinal meninges at necropsy, but was differentiated from the meningococcus by agglutination tests as well as the differing sugar actions. The diplococcus in question was first grown from an infected scratch on the finger of one of the workers in the laboratory. In spite of ordinary antiseptic dressing, the infection persisted for over a week, with a tendency to burrow under the skin at the periphery of the infected area. Before its disappearance this produced a slightly raised, rather vesicular circle, with a healing center. During the next two weeks similar infections occurred in scratches on three other fingers, all containing the same Gram-negative diplococcus. Since that time an apparently identical organism has been obtained in another hand infection and in various smears and cultures from infected gunshot wounds. If it should eventually prove to be a new variety, the name *Cuticoccus* (or *Diptococcus cutis*) is suggested.—*Military Surgeon*, 1918, 42, 502.

Decision on Federal Child Labor Law

By a vote of five to four, the Supreme Court of the United States has decided that the federal child labor law is unconstitutional and invalid. The majority judges were Justices White, Day, Van Deventer, Pitney and McReynolds. Justices Holmes, Brandeis, Clarke and McKenna rendered a dissenting opinion. The law provides that goods manufactured in establishments employing children under 14, or children between 14 and 16 years of age, who work more than eight hours a day, or more than six days a week, or after 7 p. m. or before 6 a. m., may not be shipped in interstate commerce. On the question of whether Congress in regulating commerce among the states had the right to prohibit the transportation of goods manufactured under the condition named, the majority opinion by Justice Day holds:

The power of the states to regulate their purely internal affairs by such laws as seem wise to the local authority is inherent and has never been surrendered to the general government. To sustain this statute would not be, in our judgment, a recognition of the lawful exertion of congressional authority over interstate commerce, but would sanction an invasion by the federal power for the control of a matter purely local in its character, and over which no authority has been delegated to Congress in conferring the power to regulate commerce among the states.

In our view, the necessary effect of this act is, by means of a prohibition against the movement in interstate commerce of ordinary commercial commodities, to regulate the hours of labor of children in factories and mines within the states, a purely state authority. Thus the act in a twofold sense is repugnant to the Constitution. It not only transcends the authority delegated to Congress over commerce, but also exerts a power as to a purely local matter to which the federal authority does not extend.

The far-reaching result of upholding the act cannot be more plainly indicated than by pointing out that if Congress can thus regulate matters intrusted to local authority by prohibition of the movement of commodities in interstate commerce, all freedom of commerce will be at an end, and the power of the states over local matters may be eliminated, and thus our system of government be practically destroyed.

It is pointed out that the making of goods or the mining of coal are not in themselves commerce, even though the goods were afterwards to be shipped in interstate commerce. If the mere manufacture or mining were part of interstate commerce, it is contended that all manufactures intended for interstate shipment would be brought under federal control to the practical exclusion of the authority of the states, a

result, it is said, certainly not contemplated by the framers of the constitution when they vested in Congress the authority to regulate commerce among the states.

The dissenting opinion by Justice Holmes denies entirely that the principle of the rights of the states enters into the question and says:

The act does not meddle with anything belonging to the states. They may regulate their internal affairs and their domestic commerce as they like. But when they seek to send their products across the state line they are no longer within their rights. If there were no Constitution and no Congress, their power to cross the line would depend on their neighbors. Under the Constitution such commerce belongs not to the states, but to Congress, to regulate. It may carry out its views of public policy, whatever indirect effect they may have on the activities of the states.

The public policy of the United States is shaped with a view to the benefit of the nation as a whole. The national welfare as understood by Congress may require a different attitude within its sphere from that of some self-seeking state. It seems to me entirely constitutional for Congress to enforce its understanding by all the means at its command.

* The case on which this decision was rendered was that of Dagenhart against the Fidelity Manufacturing Company of Charlotte, N. C., the petitioner having sought an injunction to prevent the company from discharging his three children. The federal court for the western district of North Carolina held that the petitioner's contention that the law was unconstitutional was well founded.

Medicolegal

Physician at State Hospital Testifying as to Results of Examination

(*Casson v. Schoenfeld et al.* (Wis.), 166 N. W. R. 23).

The Supreme Court of Wisconsin, in this action for fraud on one Brickman in the exchange of property, had the question as to whether the examining physician of the male patients who were committed to a state hospital for the insane might properly be permitted to testify as to results of his personal examination of Brickman at the time of his commitment following the exchange of property. The court says that by Section 561q of the Wisconsin Statutes the duties of superintendent of such a hospital are specified, and among the duties prescribed it is provided that such superintendent shall be responsible for the care, health and treatment of the inmates; shall cause to be kept a daily record of each inmate, and shall report monthly to the state board of control the name of each patient during the preceding month with a brief statement of his or her mental and physical condition and form of insanity. The physician examined as a witness in this case, although not the superintendent, was in charge of the male patients of the institution, and all examinations of such patients were made by him, and a report was made by him or under his direction of such examination. Over objection he was permitted to disclose that from the physical examination and the test made of the spinal fluid of Brickman he ascertained that Brickman was suffering from a disease of the brain induced by a serious affliction, that it must have been of from ten to twelve years' standing, and that from the nature of such disease and the condition he then found him in, Brickman must have been deranged and incompetent to transact business affairs for a year at least prior to the transaction in question.

Section 4075 of the Wisconsin Statutes reads, "No person duly authorized to practice physic or surgery shall be permitted to disclose any information which he may have acquired in attending any patient in a professional character, and which information was necessary to enable him to prescribe for such patient as a physician or to do any act for him as a surgeon," etc. This court sees no reason why Section 4075 did not squarely meet the situation in this case and exclude the testimony of one situated as was this physician and prohibit him from giving such information as he did, being the result of his examination, just as well as though he had been called in as a private physician to treat Brickman. It was, as he said, part of his duty to classify

the inmates, study their insanity, the cause of it, and their condition to determine whether they were treatable and recoverable and what kind of treatment they were to receive, if any. Even were there no such testimony here, it is manifest that the commitment of individuals to such an institution is for the purpose of treatment and care, and the present high standard of such institutions could not be upheld and maintained if their sole purpose and object was merely to detain such patients, and not give them care and treatment tending to alleviate, if possible, their unfortunate condition. Almost this precise question has been passed on by this court in the case of *Mehegan v. Faber*, 158 Wis. 645, 149 N. W. R. 397, wherein the records kept by the superintendent of the Wisconsin Tuberculosis Sanatorium were held to be properly excluded under Section 4075.

The court, therefore, holds that the public official who, as a physician or surgeon learns in that capacity information concerning a patient committed to his care or to him for examination in order that such physician or surgeon may be able to determine what treatment, if any, should be had, or whether any treatment is possible tending to cure, benefit or alleviate that patient, shall not be permitted to give such information to any one unless by consent of the patient. That a public record is required to be kept by such physician or institution does not affect the rule. A legislative provision for the filing of certain documents as public reports by physicians is not a legislative declaration that the secrecy of Section 4075 as to physicians has been relaxed.

Barring of Actions for Negligence

(*Harding et al. v. Liberty Hospital Corporation* (Calif.), 171 Pac. R. 98).

The Supreme Court of California says that, notwithstanding the conflict of authority from other jurisdictions, this court is satisfied that it has become the settled rule in California that actions for injuries caused by the negligent acts of another or his agent must be commenced within the period of one year from the date of the alleged injury, and that the fact that the parties stand in contractual relation to each other does not operate to change the rule or extend the time for the commencement of such actions. Here was an action for damages brought by a woman and her husband, who contended that the cause of action set forth in their complaint was one arising out of the breach of the former's contract with the defendant, such breach consisting in the defendant's failure to furnish adequate and competent surgical treatment for her injured limb. But, notwithstanding the elaboration with which the plaintiffs undertook to set forth the terms and provisions of their contract, the court is of the opinion that the gravamen or burden of this action consisted in the alleged negligent acts of the chief surgeon of the defendant, consisting in his unskilful setting of the plaintiff's injured limb, by reason solely of which the plaintiff's alleged injury and damage arose. For this reason, and because of the rule stated above, the court affirms a judgment in favor of the defendant after its demurrer had been sustained to the plaintiffs' amended complaint on the ground that their cause of action as set forth in the complaint was barred.

Waiver of Privilege by Applicant for Insurance

(*Sovereign Camp, Woodman of the World v. Farmer* (Miss.), 77 So. R. 655)

The Supreme Court of Mississippi, Division A, in reversing a judgment obtained by Mrs. Farmer, the plaintiff, on a beneficiary certificate issued by the defendant, for her benefit, to her husband, holds that the privilege created by Section 3695, Code of 1906 (Hemingway's Code, Section 6380) is personal to the physician's patient, and may be waived by him either before or at the trial, and, since one of the considerations on which the policy or certificate sued on was issued was the waiver by the applicant of such privilege, it followed that his physicians were competent witnesses, although they obtained their knowledge of his condition while treating him professionally. This evidence, however, must be confined to facts tending to prove the insured's state of health after his application for the certificate was made, for, under another statute, the insurer

could not at this time deny the truth of the statements contained in the application, and because of the statute the case in all respects must be tried on the theory that the insured was in good health when the application was made. The testimony of the physicians, therefore, was competent so far as it dealt with matters occurring after the making of the application, but not so far as it dealt with matters occurring prior thereto. However, since the objections to this testimony were not limited to the incompetent portions thereof, they should have been overruled.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Delaware State Medical Society, Wilmington, Oct. 2.
Indiana State Medical Association, Indianapolis, Sept. 25-27.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Pennsylvania State Medical Society, Philadelphia, Sept. 23-26.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Harpers Ferry, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

MINNESOTA STATE MEDICAL ASSOCIATION

Annual meeting, held at Duluth, August 28-30, 1918

The President, DR. ARTHUR J. GILLETTE, St. Paul,
in the Chair

Prostatic Calculi

DRS. E. S. JUDD and J. L. CRENSHAW, Rochester: In eight and one-half years we have seen and treated or advised treatment in twenty cases of prostatitis in which prostatic calculi were present, and also eleven cases in which it was necessary to operate for the removal of false prostatic stone. In most instances the false stones were removed by intra-urethral methods. Cases of prostatic calculi may be divided into three distinct groups. In two of these groups are cases of true prostate stone as they are formed immediately within the substance of the gland. In the third group the stones are formed elsewhere, usually in the kidney, sometimes in the bladder, possibly in a diverticulum of the urethra, and from there are passed into the prostatic urethra. These are known as false prostatic stones.

The symptoms are those of a severe prostatitis, and often the patient is treated for the inflammation, unaware of the fact that stones exist. If the stones project into the urethra, there will usually be urinary obstruction. In some of the cases, stones have passed through the urethra, and sometimes there is a history of hematuria, although these features are not at all diagnostic. The treatment of all types of prostatic calculi is to remove the stones and remedy the accompanying condition.

DISCUSSION

DR. F. A. DUNSMOOR, Minneapolis: The first patient on whom I operated for bladder trouble was a man who had fallen from a steeple. He had been previously operated on for stone by the crushing method. When I operated on him I found a prostatic stone as described by Dr. Judd. Whenever I have made a diagnosis of prostatic stone I have approached it from the perineal side, and have dislodged the stone and removed it through the urethra.

Derangements of the Semilunar Cartilages of the Knee Joint

DR. M. S. HENDERSON, Rochester: A semilunar cartilage should not be molested unless there has been more than one attack of locking. The term "loose cartilage" is not correct. A ripped or torn internal semilunar will be found in the majority of cases. There is no uniform type of tear, but there are two common types, namely, the middle three fifths, torn longitudinally and placed in the intercondylar notch, the

"bucket-handle" tear, and the anterior extremity torn longitudinally and hanging as a loosely attached body readily nipped between the joint surfaces. The symptoms that should be present are: history of trauma, usually indirect; pain; disability; locking of the joint; effusion, and a negative roentgenogram. In atypical cases, operation should be done only after very careful consideration.

DISCUSSION

DR. R. E. FARR, Minneapolis: The knee joint can be opened easily under local anesthesia. As to the danger connected with the operation, if a patient can get along without operation, it is better for him because sometimes with the greatest care and aseptic precautions infection may take place.

DR. EARLE R. HARE, Minneapolis: No part of the body should be approached with more care, so far as asepsis is concerned, than the knee joint. As Dr. Farr said, if a patient can get along without an operation he is much better off than if he has an infection of the joint, which almost invariably results in a bony ankylosis that cannot be treated easily.

DR. M. H. HENDERSON, Rochester: The danger of infection of the knee joint has been somewhat overrated.

Transrectus Incision in the Upper Abdomen

DR. ROBERT EMMET FARR, Minneapolis: Above the navel the transverse incision offers the most adequate exposure of the various pathologic conditions. The gallbladder, stomach, and even the appendix, if not adherent in the pelvis, can readily be dealt with. In most instances retraction of the abdominal wall, both upward and downward, is possible so that good exposure is usually obtained. By supplementing this incision with the near midline vertical incision when necessary, one is afforded the most ideal exposure it is possible to obtain. In the matter of choosing incisions, a great deal can be done by varying the size and direction according to the pathologic condition anticipated. In closing the incision the relaxation afforded by the proper posture of the patient makes it possible to unite the edges of the transverse cut in a relatively short time. The transverse incision always comes together more easily than the vertical.

DISCUSSION

DR. J. W. LITTLE, Minneapolis: I have not been wedded to the transverse incision. I seldom need it for lower abdominal work. For upper abdominal work it is of advantage at times. As a routine practice, the transverse incision is too much surgery.

DR. W. H. MAGIE, Duluth: I have done quite a little work in the upper abdomen through the transverse incision for at least eight or ten years. This incision is particularly advantageous in some cases of gallbladder trouble or diseases of the ducts; also in diseases of the stomach and pylorus, when one is not sure of the diagnosis. It gives splendid access to the organs in the upper abdomen. My experience with this incision has been very satisfactory.

Ectopic Pregnancy

DR. C. B. LEWIS, St. Cloud: I have had thirty-three cases of ectopic gestation in the past ten years, occurring in twenty-nine patients. Thirty-one cases were subjected to operation with the loss of two patients, a mortality of 6 per cent. Two patients were in a dying condition when first seen, surviving the severe hemorrhage and shock only one and two hours, respectively. Abdominal pain was present in all cases, varying from the classical crisis with the following shock from hemorrhage to the more or less continued abdominal distress, which brought the patient for examination. The former condition with its clearcut evidence of intraperitoneal hemorrhage is not usually mistaken, but the slow process with its distress from tubal distention or slight rupture is very confusing. In a case of irregular bleeding and abdominal pain, one must have constantly in mind three conditions, namely, intra-uterine pregnancy with threatening abortion; inflammatory tubal disease, especially hydrosalpinx and pyosalpinx, and extra-uterine pregnancy.

Recurrent Inguinal Hernia

DR. J. C. MASSON, Rochester: In looking over the statistics of the Mayo Clinic from 1907 to 1918 I find that 5,364 inguinal herniotomies have been done. Included in this number were 330 operations for recurrence; seventy of these were for recurrence following operation done here, and the remaining 260 were operations done elsewhere. This included twenty-nine bilateral recurrences, which were counted as fifty-eight operations. In 330 operations for recurrent inguinal hernia, 258 patients had had one previous operation; forty-four had had two previous operations; twenty had had three previous operations, and eight had had four previous operations. In 256 cases in which the time of recurrence is recorded, 189 recurred in the first six months; twenty-six recurred between six and twelve months; nineteen recurred between one and two years, and twenty-two recurred between two and eight years.

The operation I perform is a slight modification of the Andrews, which in turn is a combination of the Halstead and Bassini principles. The only exceptions I ever make to this technic are: (1) to follow the Ferguson technic in all hernias associated with undescended testes, and in a few infants (2) to utilize the rectus muscle, according to Bloodgood, in all cases in which the internal oblique is not sufficiently strong, (3) in a very few cases to follow the Halstead technic, and (4) in extra difficult cases, in old men, occasionally to cut all the structures of the cord at the internal ring, close the canal much the same as in the treatment of a ventral hernia, and perform an orchidectomy.

Fractures of the Head of the Radius

DR. L. E. DAUGHERTY, St. Paul: Fractures of the head of the radius occur frequently. The treatment of the two most common types of fracture, that is, the splitting of the bone and the impaction of the anterior lip, is simple. The elbow is put at rest in a right angle splint, and this is done more to prevent rotation than flexion. The splint should remain in place at least three weeks. Recovery with complete function has been good. In case portions of the head are broken off and act as foreign bodies, they will sooner or later have to be removed. In old neglected fractures of this character in which there is a distinct limitation of motion, we need not be afraid to resect the radial head, for it can be done without loss of function and with no deformity.

The Surgical Importance of Abdominal Adhesions

DR. WILLIAM R. BAGLEY, Duluth: The elimination of adhesions following operative work should be the earnest consideration of the surgeon. To accomplish this, one should first make as small an incision as possible; should get more of the sutures covered, especially those not of plain catgut; should utilize the omentum in covering all raw surfaces, and should keep the small intestine as remote as possible from the field of operation. In hysterectomies a long flap of the peritoneum should be made on the anterior surface of the uterus, and all raw surfaces covered. A frequent change of position in bed should be encouraged, not overlooking the raising of the foot of the bed in pelvic cases when permissible. The abdominal dressing has an important bearing on the formation of adhesions.

Paraffin Treatment of Burns

DR. ARTHUR N. COLLINS, Duluth: In dressing my burn cases for the first time no attempt at cleansing the surface is made beyond spraying lightly with a 3 to 5 per cent. solution of dichloramin-T over which the paraffin is painted. Blisters are punctured but not removed at the first dressing. At subsequent dressings, any loose or sloughing skin is trimmed off with sharp scissors. The secretions are removed by spreading smooth sheets of sterile gauze over the surface and blotting by gentle pressure. A cotton pad with a twisted pedicle for a handle may be used for this pressure. The surface is then ready for drying. This is done thoroughly with an electric hair drier or blower. Where there is infection or sloughing skin with accompanying foul odor, the dried surface is then sprayed with dichloramin-T. In some places this may cause

pain. If this is immediately covered with liquid petrolatum, the pain is relieved. For this purpose two atomizers are held in the left hand while the spraying bulb is operated with the right. One atomizer contains the dichloramin-T in an oily solution, and the other contains sterilized liquid petrolatum. If at any time during the application of the dichloramin-T the patient complains of pain, the liquid petrolatum may immediately be sprayed on at that point. The surface is then ready for the paraffin crust. Ordinary paraffin with 2 per cent. of liquid petrolatum to increase flexibility is used. The mixture is heated in a double boiler and is brushed on. It may be used in a paraffin atomizer with a water jacket, if preferred. It may be cooled down until a few drops on the back of the hand or wrist are not uncomfortably hot. It is daubed on gently at first. Much stroking with the brush over the raw surface seems to cause pain. The raw surfaces are covered thinly at first. If the patient complains of the heat, an assistant may apply the electric blower or drier to cool the freshly coated surface following the brush. After the burned surface has been coated gently and is hardened, a second coat is applied and extended outward for 1 or 2 inches on the surface of the healthy skin. Before this dries, thin sheets of cotton fiber are spread over the soft crust and are brushed over with the paraffin, which impregnates the fiber with the crust. When this is hardened, absorbent cotton is placed thickly over the most dependent edges to absorb secretions, which commonly leak out. The dressings over large body burns may be held in place by a band, swaths, slit nightshirt or other device which may later be cleaned, sterilized and used again, thus contributing to a large saving in bandage material. The dressing is renewed in twenty-four hours.

Surgical Treatment of Traumatic Epilepsy

DR. A. C. STRACHAUER, Minneapolis: In cases of traumatic epilepsy operation should be done as early as possible after the incidence of the convulsive attacks, that is, before epileptogenic changes occur in the brain. The likelihood of betterment diminishes in inverse ratio to the duration of the epilepsy. In well established cases, even though the attacks are not stopped entirely, they are apt to be lessened in severity and the interval between their occurrence prolonged, provided the operation results in the removal of a definite macroscopic lesion. Scarred and adherent dura, when extensive, would better be removed entirely. Small adhesions may be separated carefully without sacrificing the dura. Cysts should be evacuated and the sac removed or at least partially removed. A cortical scar, when present, should be excised clean and smooth, down to the white matter, if necessary. Foreign bodies, such as a bullet or piece of metal, should be removed carefully, and when necessary through a clean cut incision into the brain cortex rather than through laceration of the cortex. Edema of the pia is frequently present, and may be relieved by numerous small needle pricks. Cases of persistent headache, dizziness, changed character and mental derangement following trauma have been improved and cured by the operation of decompression.

Therapeutic Effects of Overfeeding in Pernicious Anemia

DR. T. A. PEPPARD, Minneapolis: Three cases of pernicious anemia have been studied with reference to the effect of forced feeding. In two cases, possibly in all three, a positive nitrogen balance was secured without difficulty. During the gain in weight, symptomatic improvement took place, and there was a distinct betterment in the blood picture.

Hemolytic Icterus: Report of Two Splenectomies

DR. J. P. SCHNEIDER, Minneapolis: These two cases were of the acquired type. Both exemplify very well the splenic crises, such as headache, prostration, vomiting and deeper jaundice. In one patient the presence of gallstones was announced by biliary crises distinctly more painful and sharp in nature. It is important to keep the distinction in mind. Pregnancy added to the liver's burden with the resulting toxemia. In both patients the high duodenal pigment values confirmed the diagnosis. In the second patient we anticipated considerable disease in the liver itself because of very high

values of urobilinogen. This patient is regenerating liver cells rapidly, but even after sixty days following ablation of the spleen, the damage has not been repaired entirely, for while urobilinogen has fallen from 16,000 to 600 units, its presence even in this amount indicates a residual pathologic condition of hepatic cell function. It is conceivable that this patient, if left unrelieved, would in time have developed a biliary cirrhosis. Urobilin, the pigment characteristically increased in the bile in hemolytic icterus, shows normal values in the first patient the second week and the second eight weeks after splenectomy.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

August, 1918, 8, No. 8

- 1 Health and War. I. Fisher, New Haven, Conn.—p. 559.
- 2 Rat and Infantile Paralysis. M. W. Richardson, Boston.—p. 564.
- 3 Life Table for City of New Haven. L. I. Dublin, New York.—p. 580.
- 4 Inexpensive Field Plating Outfit for Bacterial Examination of Milk. F. O. Tonney and J. L. White, Chicago.—p. 582.
- 5 Chemical Analyses of Bacteriologic Bouillons. F. C. Cook and E. LeFevre, Washington, D. C.—p. 587.
- 6 Survival of Typhoid Bacilli in Sour Milk. P. Marsh.—p. 590.
- 7 Efficient State Health Program against Venereal Diseases. H. G. Irvine.—p. 594.
- 8 Professional Instruction in Public Health in United States and Canada. E. C. Howe.—p. 600.
- 9 Typhoid: Its Nature, Mode of Spreading and Prevention. W. Budd.—p. 610.
- 10 Simple Automatic Thermostat for Use in Electric Incubator. F. O. Tonney, Chicago.—p. 584.

Annals of Surgery, Philadelphia

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- 11 Industrial Medicine and Health Insurance. T. W. Huntington, San Francisco.—p. 113.
- 12 *Value of Transfusion of Blood in Treatment of Wounded in War. A. Primrose, England.—p. 118.
- 13 *Rôle of Evacuation Hospital in Care of Wounded. D. F. Jones, Boston.—p. 127.
- 14 Relation of Orthopedics to General Surgery. G. G. Davis, Philadelphia.—p. 133.
- 15 Malignant Tumors of Jaws. A. J. Ochsner, Chicago.—p. 136.
- 16 *Recurrent Dislocation of Lower Jaw. J. B. Blake, Boston.—p. 141.
- 17 Two Cases of Enlarged Thyroid Producing Suffocation by Displacement Beneath Sternum. H. B. Delatour, Brooklyn.—p. 146.
- 18 Application to Empyema of Principles Underlying Use of Antiseptics. E. K. Dunham, New York.—p. 148.
- 19 Hemorrhage from Aneurysm of Internal Carotid Artery, Following Septic Sore Throat. J. Ransohoff, Cincinnati.—p. 152.
- 20 *Postoperative Thoracic Drainage. W. Meyer, New York.—p. 156.
- 21 *Treatment of Diseases of Costal Cartilages; Report of Cases. A. V. Moschcowitz, New York.—p. 168.
- 22 *Surgical Treatment of Cirrhosis of Liver and Their Complications. W. J. Mayo, Rochester, Minn.—p. 183.
- 23 Cholecystitis. F. G. N. Starr and R. R. Graham, Toronto, Canada.—p. 188.
- 24 *Method of Permanent Gastrostomy. F. T. Stewart, Philadelphia.—p. 194.
- 25 Spastic Ileus (Spasmodic Intestinal Obstruction); Report of Case. L. Freeman, Denver.—p. 196.
- 26 *Right Colectomy. G. W. W. Brewster, Boston.—p. 203.
- 27 Fistula of Colon. C. H. Mayo, Rochester, Minn.—p. 211.
- 28 Treatment of Direct Inguinal Hernia in Adults. L. W. Hotchkiss, New York.—p. 214.
- 29 *Ligation of Abdominal Aorta; Ligation of First Portion of Left Subclavian. C. A. Hamann, Cleveland.—p. 217.
- 30 Use of Pedunculated Flap in Reconstructive Surgery. J. S. Davis, Baltimore.—p. 221.
- 31 Case of Hereditary Osteopsathyrosis. W. I. Terry, San Francisco.—p. 231.
- 32 Amputations of Leg. I. Olmstead, Hamilton, Ont.—p. 235.
- 33 Results Obtainable in Treatment of Fractures. W. L. Estes, and others.—p. 238.

12. Transfusion of Blood in War.—Primrose has mainly employed a modification of the syringe and cannula method introduced by Lindeman and in one case found the two-way stopcock apparatus of Unger answered admirably. Primrose has frequently transfused 1,000 c.c. and in one case 1,140 c.c.

from one donor. In none of these instances has the donor suffered other than very temporary inconvenience. The desirable amount must be determined in the individual case, but in hemorrhage one aims at from 600 to 700 c.c. as a minimum while in the majority of instances of severe hemorrhage it would appear that a larger amount, say 1,000 c.c., is more effective. At the last meeting of the Interallied Surgical Congress at Paris, in March, 1918, it was concluded that the results obtained by the transfusion of blood justify its being looked on as the method of choice in the treatment of serious hemorrhage, both primary and secondary. It was agreed that the method of transfusion employed should make it possible to measure the quantity of blood transfused. Regarding the danger of hemolysis it was concluded that at advanced posts it is justifiable to resort to transfusion even if it be impossible to test the agglutination, as the risk of serious results is relatively small, but it should be tested in all other units.

13. Rôle of Evacuation Hospital.—From experience at a base hospital, Jones is convinced that the evacuation hospitals and mobile units should first be equipped with staffs of surgeons of well known ability and experience, after which the base hospitals should receive their 40 per cent. of experienced surgeons, if it is possible to get them.

16. Recurrent Dislocation of Lower Jaw.—Tying up the coronoid process or the tissues inserted on it to the zygoma, is suggested by Blake as an operation in these cases. This procedure is less difficult than any careful and accurate work on the joint itself, and further it acts to a much greater mechanical advantage, in that the coronoid is 3 or 4 cm. in front of the joint and is by so much in a better position to withstand trauma tending to dislocation. A case is cited in which this procedure was employed successfully. An incision was made along the lower border of the zygomatic arch and the fibers of the masseter separated from it. This incision was well above Stenson's duct and parallel to the facial nerve fibers. With some difficulty, the coronoid process was reached; it was much deeper than had been anticipated, and Blake was not able to do what he had originally planned; this was to drill through the tip of the coronoid, thread a piece of silver wire through the hole and lace this over the zygoma. He therefore looped the wire first over the zygoma and then brought it down and carried it through the insertion of the temporal muscle, and the periosteum on the front of the coronoid, twisted the ends together, flattened it, and closed the wound without drainage. The wire loop was long enough to allow the jaw to open for 2 cm., or 1 inch between the incisors. The masseter was carefully sutured to its origin; bandages held the jaw closed, and the wound healed by first intention. The jaw was immobilized three weeks. More than a year after the operation, his jaw is normal and reliable in every way, the excursion being about 4 cm. at the incisors.

20. Postoperative Thoracic Drainage.—Meyer is convinced that the successful issue of surgical work within the thorax seems best assured by combining immediate, complete closure of the incision with an efficient method of simple and safe drainage of fluid and air—without allowing the latter to regurgitate into the chest. Kenyon's method of draining empyema in children has been found to be useful also for postoperative thoracic drainage in general. It is simple, safe and easy of execution. It permits of satisfactory observation of the quality and quantity of the effused fluid. Kenyon's method of postoperative drainage fulfils Sauerbruch's demand that the thorax be closed air-tight and water-tight after intrathoracic operations. Yet, it permits of draining off, in an efficient manner, the secretions of the pleura, which follow the majority of intrathoracic operations, and usually are not sterile. The introduction of Kenyon's method of drainage, therefore, bids fair to mean a long step forward in the evolution of thoracic surgery. It greatly adds to the safety of intrathoracic surgical work, and should, for the present at least, be employed after every operation on the thorax in which the free pleural cavity, particularly a "virgin-pleura," had to be traversed.

21. Treatment of Diseases of Costal Cartilages.—Five cases are cited and analyzed by Moschcowitz. Diseases of the

costal cartilages may be caused by any one of the pus-producing germs. The infection is caused most frequently by the tubercle bacillus; next in frequency appears to be the typhoid bacillus. Cartilage exposed in an infected wound does not heal, and practically always forms a sinus. Given the same conditions, that is, exposed cartilage, plus infection, a relapse is almost certain to occur, even if a portion of the diseased cartilage has been excised, apparently well beyond the infected area. If the conditions are favorable, that is, in the absence of infection, or where only slight infection exists, the operating surgeon may take the risk and close the wound entirely; under no circumstances should a wound of this nature be drained, and least of all with gauze. The most certain procedure is to remove the offending cartilages throughout their entire extent, so that not even a trace of exposed cartilage is visible in the wound. If any portion of the sixth, seventh, eighth, ninth or tenth costal cartilages is diseased, it is necessary to remove all these cartilages in toto, in order to bring about healing. Moschowitz sounds a warning that some of these patients do not stand operations well. In a number of cases the operation had to be terminated rather abruptly, because the patient went into a condition of shock, even when there was no untoward accident, such as perforation of the pleura or pericardium or unlooked for hemorrhage.

22. Surgical Treatment of Cirrheses of Liver.—Mayo calls attention to splenectomy and similar procedures as a ready means of reducing the portal circulation for the purpose of relieving the subnormal liver of its overload.

24. Method of Permanent Gastrostomy.—Stewart makes an incision from a point just below and to left of the ensiform cartilage downward parallel to the median line for 3 or 4 inches. About 2 or 2½ inches to the left of this incision a second cut is made, the upper end of which is on a level with the upper end of the first incision, the lower end of which is on the level with the lower end of the first incision. The lower extremities of these incisions are connected by a transverse incision. The rectangular cutaneous flap thus outlined is dissected free from the subjacent deep fascia as far as its base, and the two long margins sutured together with catgut over a catheter, the eye of which remains uncovered below the lower end of the flap. The catheter with its enveloping skin is drawn to one side, the underlying rectus muscle split longitudinally, and a portion of the anterior wall of the stomach drawn from the abdominal cavity. A small transverse opening is made in the exposed gastric wall, the inferior extremity of the catheter pushed into the stomach through the opening, and the rim of the lower end of the dermal tube enveloping the catheter sutured with catgut to the edges of the opening in the stomach. The lower half of the dermal tube is buried in the wall of the stomach in the same manner as the catheter is buried in the Witzel operation. The upper end of the canal thus formed by the inversion of the anterior wall of the stomach is sutured to the abdominal wall, and the split rectus muscle approximated with catgut around the upper half of the dermal tube. The skin about the raw surface which remains is undermined, and, beginning at the lower left corner of the oblong defect, sutured, the sutures being inserted farther apart on the right than on the left, until the lower margin of the external orifice of the dermal tube is reached, when the suture line bifurcates to embrace the new stoma. The scar thus resembles a Y, the long tail of which is slightly convex toward the median line. The catheter is fastened to the skin with a catgut suture and should remain in place until the completion of healing, after which it may be withdrawn, to be reinserted only at the time of the feedings.

This method of gastrostomy is designed for those patients, usually suffering from irremovable esophageal carcinoma, who must for the rest of their lives be nourished through an artificial opening in the stomach. Stewart performed the operation five times. One patient died at the end of ten days from pneumonia. Three lived for periods ranging from three to six months. One lived one year, dying of suppurative cholangitis. This patient had an ulceration of the gullet which was diagnosed as carcinoma. After several months of esophageal rest, however, the ulcer healed and swallowing

became easy. The gastrostomy was therefore no longer kept in use and its lumen gradually contracted, so that at the end of a year only a fine probe could be introduced.

26. Right Colectomy.—A preliminary report is made by Brewster of the results in a series of nineteen operations in which the right colon was excised for relief of symptoms which were attributed to blocking of feces in the cecum. In summing up the result of the operations in the nineteen cases, Brewster is convinced that in cases of right-sided obstruction with stasis in the cecum or ileocecal region the result of mechanical or apparently mechanical causes, if unrelieved by any palliative method of treatment, may be successfully cured by resection of the right colon. The immediate result of the operation shows it is an operation which can be done without undue risk: twenty cases reported by Mayo, twelve by Johnson, and this series of nineteen, without a mortality, but it is too serious to be undertaken except for very definite conditions of incurable partial obstruction. The indications for excision are dilatation of the cecum, extreme mobility, presence of adhesions in patients unrelieved by any palliative treatment and whose symptoms lead to chronic invalidism.

29. Ligation of Abdominal Aorta.—Case 1.—Ligation of the abdominal aorta, just above its bifurcation, for a pelvic tumor, mistaken for an aneurysm; survival of patient for six months without gangrene of the extremities. Death due to hemorrhage from a bed sore. The main points of interest in this case seem to be the following: First, the fact that the patient lived six months after ligation of the abdominal aorta just above the bifurcation, without the appearance of gangrene of the extremities. Second, the partial restoration of the lumen of the vessel, after apparent complete obliteration by a firmly tied silk ligature. Third, the reappearance of the femoral pulse on the third day. Inasmuch as the aorta was not found to be completely obliterated, in this case, Hamann believes it can hardly be said that proof is afforded that collateral circulation can develop after ligation of the aorta to a sufficient extent to prevent gangrene. It is his belief that ligation of the aorta below the origin of the inferior mesenteric is a justifiable procedure in cases of iliac aneurysm, for instance, and that it affords fair chances for recovery and cure.

Archives of Internal Medicine, Chicago

August, 1918, 22, No. 2.

- 34 *Frequency of Lead, Turpentine and Benzin Poisoning in Four Hundred Painters. L. I. Harris, New York.—p. 129.
- 35 Practical Identification of Endothelial Leukocytes in Differential Blood Counting. F. A. McJunkin and A. Charlton, Milwaukee.—p. 157.
- 36 *Blood Sugar in Thyroid and Other Endocrine Diseases. N. W. Janney and V. I. Isaacson, New York.—p. 160.
- 37 Influence of Thyroidectomy and Thyroid Diseases on Protein Metabolites. N. W. Janney and V. I. Isaacson, New York.—p. 174.
- 38 Studies in Thyroid Therapy. N. W. Janney, New York.—p. 187.
- 39 Nitritoid Crises After Arsphenamin Injections. L. Berman, New York.—p. 217.
- 40 *Clinical Report of Nonspecific Protein Therapy in Treatment of Arthritis. R. G. Snyder, New York.—p. 224.
- 41 Serologic Localization of Organic Brain Lesions. J. M. Retinger, Chicago.—p. 234.
- 42 *Treatment of General Paresis. C. A. Neymann and N. H. Brush, Baltimore.—p. 245.

34. Lead, Turpentine and Benzin Poisoning in Painters.—This study of painters was undertaken by Harris to obtain a more concise idea of the extent to which actively employed workers, most of whom thought themselves in excellent health, gave evidence of damage inflicted by lead paints. One hundred and sixty-three of the active cases of lead poisoning were found among the 402 painters examined. All of these showed definite clinical signs of plumbism; seventy-two of the active cases were found to have lead in the urine in addition to clinical evidence. Thirty-five were found to have lead in the urine without manifest clinical signs. At least 70 per cent. of all those examined gave a fairly clear and recognizable history of one or many attacks, and 142 painters gave a history of recent severe intoxication.

Varnish removers containing acetone and benzol were reported to have caused severe air hunger. Most of the painters were emphatic that benzin had caused them more discomfort and illness than all the other volatile agents; its

effects seem to be more lasting. Most painters when overcome were quickly relieved when taken into the open air.

Practically 60 per cent. of the recent cases of turpentine and the related type of intoxications were found among the 163 active and thirty-five latent lead poisoning cases. Forty-seven of the 142 recent cases had suffered from frequent and moderately painful urination. Occasionally, symptoms that indicated strangury with bloody urine were described. Twenty-three of this group complained of frequent attacks of vertigo.

A comparatively small number survive as active members of the trade after having attained the age of 50 years. Sixty-three negative cases were engaged at the painter's trade for a period of from ten to nineteen years. Most of these were less than twelve years at this work. A satisfactory history with reference to the use of alcohol was obtained in only 304 cases. More than 21 per cent. were total abstainers, an almost equal number drank excessively, while about 55 per cent. drank very little and only occasionally. Alcoholic indulgence, therefore, did not seem to be a marked predisposing factor toward lead poisoning, as it so frequently has been found.

Under the head of precautions against lead poisoning may be mentioned the drinking of milk before and during work. Harris found that while forty-five painters were in the habit of regularly taking one glass a milk per day, and eighty-one regularly drank from a pint to a quart per day, the remaining 276 were extremely lax in this particular. Eighty-seven painters of all the active cases of plumbism gave a history of recent colic. One hundred and seventeen of the active cases of plumbism suffered from marked and persistent constipation. Seventy-five of the active cases complained of frequent and severe headache, usually in the frontal region. The blue line on the gums was found in a total of twenty-two, or a little less than 14 per cent. of all active cases, in only one of the latent cases, and in a little less than 6 per cent. of all the painters examined.

Of the 162 positive or active cases of plumbism, seventy-five gave a definite reaction showing lead in the urine. The blood of 209 persons was examined for basophilic red cells, with the result that this sign, like the lead line, was found to be of limited practical value. A marked secondary anemia was found in eighty-six active cases, fourteen latent cases, twenty-four borderline cases and forty-seven negative cases. Evidence of arteriosclerosis was found in sixty-three persons, or 26 per cent. of those in whom blood pressure observations were made. Twenty persons showed by the presence of albumin, casts and other physical signs the presence of chronic interstitial nephritis. Backache was mentioned by ninety-one of the 162 active cases. Of the 162 patients who had active manifestations of plumbism, only ten gave a positive Wassermann reaction; in four a doubtful reaction was reported.

Loss of weight and muscular strength was a surprisingly common complaint. Pains in various joints were mentioned by fifty-one of the 162 men who showed evidence of active plumbism, and fifty-five complained of a dull pain in the chest. Thirty gave a history of having frequently had a distinct metallic taste in the mouth.

Of all cases of chronic bronchitis 59 per cent. were found among the cases of active lead poisoning. In two of the active cases of plumbism the men had moderately advanced pulmonary tuberculosis with tubercle bacilli in the sputum. The total of advanced and incipient cases was twenty, and inclusive of suspected cases thirty. Seventeen cases of bronchial asthma were found in this series; eight of these were cases of active plumbism. Acne, especially on the back and face, and chromophytosis were very frequent. Ninety painters had a fairly marked pyorrhea alveolaris, and 104 showed marked decay of the teeth and lack of care. Chronic pharyngitis was found in 127 painters; hypertrophic rhinitis in twenty-eight cases, and marked deviation of the septum in 147 painters. In only fifteen was marked hypertrophy of tonsillar tissue found.

36. Blood Sugar in Endocrine Diseases.—Experimental proof that hypoglycemia results from hypo-endocrine function

was obtained in the case of the thyroid gland, where hypoglycemia regularly developed after thyroidectomy. Explanation is thus afforded for the low blood sugar value observed in myxedema, cretinism, Addison's disease and pituitary disease and other less clearly defined endocrine conditions such as muscular dystrophy. The increased tolerance to glucose as determined by testing the urine in such diseases of the ductless glands is probably to be best explained as due to the hypoglycemia present in these conditions. Delay in the assimilation of glucose from the blood was found to follow thyroidectomy in animals by employment of a blood glucose tolerance test. The same change was demonstrated in cretinism, exophthalmic goiter, and hypophysial disease. Determination of the fasting blood sugar value and the blood glucose tolerance test are useful in the diagnosis of endocrine diseases.

40. Nonspecific Protein Therapy in Treatment of Arthritis.—Typhoid vaccine from the laboratories of the board of health was used. The decision in this matter was influenced by the consideration that it would be easy to make this method of treatment accessible to the general practitioner in the future if the initial success should prove to be of permanent character. This was contrary to the advice of Miller and Lusk, who said that they were unable to obtain reliable results from stock vaccines. They used their own freshly prepared vaccine. The dose of vaccine was administered in 10 c.c. of freshly prepared physiologic sodium chlorid solution. One hundred and ten patients were treated. In about 60 per cent. of the cases, one injection abruptly terminated the acute attack. A large majority of them had been unsuccessfully treated by the usual rheumatic remedies before coming to the hospital. Thirty per cent. required from one to five injections. The greater number of these obtained immediate relief from pain, although the permanence of the cure has not been established. Ten per cent. were unimproved. After repeated injections, marked improvement was obtained in 50 per cent. of the subacute cases, considerable improvement in 25 per cent., and only slight improvement in the remaining 25 per cent. The greatest improvement follows the first dose. It was frequently noted that intractable or obstinate cases did not improve until doses sufficiently large to produce a severe reaction were given. Sometimes one severe reaction was sufficient; at other times it required several marked reactions to effect a definite improvement in the patient's condition. In the chronic cases, those which have persisted for periods lasting from one to ten years, even those with marked ankylosis, a moderate improvement in the mobility of some of the joints was noted in almost all cases. This increased mobility was particularly noted in the joints of the upper extremities.

42. Treatment of General Paresis.—Twenty-four cases of general paresis, treated alternately once a week with arsphenamin serum and mercurialized serum, are described by Neymann and Brush. Six patients were so markedly improved that five of them were able to resume their occupations. All of them gave practically negative serologic findings. The average duration of the present status is fifteen months. The authors consider these are arrested cases. Six others were somewhat improved, four resuming their occupations, while two are continuing their treatment. All of these were somewhat improved serologically. Six showed no clinical or serologic improvement, except in one case. This is undoubtedly a clinical remission; the serologic status remained unchanged. The last six were harmed by the treatment. One developed a paraplegia; two became incontinent; one died of acute arsenical poisoning and one developed an arsenic neuritis; finally, one died in convulsions, possibly as the result of the treatment. Whenever the serologic findings tend to become negative, they usually change in the following order and manner: The cell count is first reduced to normal. The Wassermann reaction then becomes negative. The paretic colloidal gold curve changes to an atypical or negative one. The globulin tests became less marked, but traces of globulin usually remain. Twenty-three per cent. of all the paretic patients examined show negative blood Wassermann reactions.

Arkansas Medical Society Journal, Little Rock

August, 1918, 15, No. 3

- 43 Toxemias of Pregnancy. J. T. Altman, Jonesboro.—p. 45.
 44 Danger of Delay where Submucous Resection of Nasal Septum is Indicated. Technic Involved. L. H. Lanier, Texarkana.—p. 48.
 45 Common House Fly. O. L. Howton, Osceola.—p. 51.

Boston Medical and Surgical Journal

Aug. 29, 1918, 179, No. 9

- 46 Relation of Food Idiosyncrasies to Diseases of Childhood. F. B. Talbot, Boston.—p. 285.
 47 Clinical Study of Four Hundred Patients with Bronchial Asthma. I. C. Walker, Boston.—p. 288.
 48 *Present Status of Immunization in Hay-Fever. J. L. Goodale, Boston.—p. 293.

48. **Present Status of Immunization in Hay-Fever.**—Goodale advises patients to report, if possible, ten weeks before the expected onset of their attacks, although a shorter period is usually sufficient. The ordinary course of procedure is to inject from 1 to 3 minims of the 1:50,000 dilution of pollen extract of the following plants: willow, poplar, maple, birch, oak, grass, rose and ragweed. This causes in nearly all cases subcutaneous swelling ranging from 1 to 3 cm. in transverse diameter, lasting from one to three days. After the reaction from the first injection has subsided, one may then double the amount, and a few days later give twice the amount of the second injection. The next higher strength of 1:5,000 is taken, and three injections of this are given, ranging from 3 to 7 or 8 minims. Next a similar quantity in three doses is given of the 1:2,000, and finally the full strength of 1:500, in doses ranging from 5 to 10 minims. The number of injections required during the first year has ranged from 6 to 15 depending on the rapidity with which the dosage can be increased.

If the person reports at the beginning of his hay-fever, Goodale has adopted the method of giving small daily injections, without waiting for a subsidence of the reactions, the successive injections being made in the forearms and upper arms, respectively. A large proportion of patients so treated have had the symptoms disappear in the course of a week, which would ordinarily have persisted for six weeks. With the omission of treatment the sensitization slowly and progressively returns, until at the beginning of the following years the skin tests show the same degree of intensity which they did originally. Since the spring of 1914 Goodale has examined 330 cases of hay-fever. Of the true anaphylactic type, ninety were from grasses, 237 from ragweed, five from maple, four from roses, three from oak, one from willow and five from birch. Of these patients, 123 have received desensitizing treatment for two or more years.

No improvement was noted in seven cases. Improvement as compared with previous years, but showing, nevertheless, troublesome symptoms for a short time was observed in forty-six cases. Very definite improvement, apparently beyond criticism, was observed in fifty-nine cases. Five patients showed no hay-fever for two or more years.

Florida Medical Association Journal, Jacksonville

July, 1918, 5, No. 1

- 49 Civil Responsibility of Medical Man. J. F. Glenn, Tampa.—p. 1.
 50 Cooperation. B. L. Arms, Jacksonville.—p. 6.
 51 Neglected Points in Management of Communicable Diseases. W. W. MacDonell, Jacksonville.—p. 9.

Maine Medical Association Journal, Portland

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- 52 Nonspecific Arthritis from Genito-Urinary Infections. C. N. Peters, Portland.—p. 1.
 53 Indiscreet Remarks by Physicians in Malpractice Cases. H. T. Weston, Hartford, Conn.—p. 7.

Medical Record, New York

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- 54 Some Points in Management of Diseases of Heart. E. E. Cornwall, Brooklyn.—p. 353.
 55 *Place of Ipecacuanha in Treatment of Auricular Diseases of the Heart. L. F. Bishop, New York.—p. 356.
 56 Clinical Study of Variable Therapeutic Potencies of Galenicals, and Their Inherent Unreliability. H. Beates, Jr., Philadelphia.—p. 357.
 57 *Therapeutic Action of Ouabain Strophanthin Gratus. E. Zueblin, Cincinnati.—p. 359.

- 58 Prodromal Symptoms of Nervous Form of Arteriosclerosis. H. Climenko, New York.—p. 366.

- 59 Improved Operation for Internal Hemorrhoids. W. L. Secor, Kerrville-on-the-Guadalupe, Texas.—p. 370.

55. **Ipecac in Treatment of Diseases of Heart.**—In disorders of the auricle, which Bishop believes are very often of toxic origin, ipecacuanha seems to be a valuable adjunct to digitalis. He prescribes one-half grain of powdered digitalis, and one-eighth grain of powdered ipecacuanha. Nausea is not hastened, and the effect of the digitalis seems to be improved. In a person with an untreated fibrillation, the pulse being very rapid and irregular, Bishop orders powdered digipuratum, gr. xviii, and powdered ipecac, gr. v, made into twelve powders. One every four hours until four are taken; one every six hours until four are taken; and one every eight hours until four are taken. Ipecacuanha is a drug with active physiologic and therapeutic qualities. It has definite relations to the functions of the blood vessels. In large doses it is capable of doing much harm. It has certain analogies to digitalis which suggest it as an adjuvant.

57. **Therapeutic Action of Ouabain Strophanthin Gratus.**—The ouabain preparation used by Zueblin in his study were the sterile ampules containing the crystallized substance in a dilution from 1:4,000 of sterile saline. The contents of the ampules, assayed pharmacologically corresponded to 0.0005 gm. of the active crystalline body; the injected dose varied from 1 to 2 c.c., given intramuscularly or intravenously. With the exception of one case, the injection was in all instances well borne. In one instance a perivascular infiltration was noticed for several days much complained of by the patient on account of pain and swelling. As a rule the patients were kept at absolute rest in bed, with liquid diet in restricted amounts, keeping the patient as far as possible from exertion or nervous or other excitement. As in other publications on ouabain therapy, Zueblin's study deals with cases of valvular, endocardial, and myocardial insufficiency.

Among the immediate obvious changes to be expected after ouabain injection is the improvement of the blood pressure which before could hardly be obtained by the palpatory method and frequently for the systolic value only, once the remedy had been given we could ascertain with the auscultatory method the systolic as well as the diastolic threshold. Under favorable conditions a distinct rise in the diastolic pressure occurs within the first twenty-four hours, which rise ought to persist for several days over the initial figure. The change in the diastolic pressure is less conspicuous but apparently a reduction in that value may be looked on more favorably than a rise. Where a tachycardia becomes less, or approaches more normal figures, and where a bradycardia equally approaches the normal rate, this ought to be interpreted favorably. Considering the cardiac activity, cases with a high pulse rate and a low pulse pressure frequently are unfavorable as to the final outcome.

In instances of cardiac hypertrophy and dilatation a considerable reduction in the extent of the relative cardiac dullness can be anticipated, but such a reduction does not mean a constant result nor a definite promise for the effectiveness of the cardiac medication. With reference to the heart sounds reduplicated sounds may disappear and extrasystoles may equally vanish, while cardiac murmurs are not liable to change in character. The nature of the pathologic lesion, whether endocardial, associated with marked hypertrophy and tending toward dilatation, or due to an already degenerated myocardium, has a great bearing on the final results. The first mentioned instances appear favorable for the use of ouabain medication, particularly when haste is required to stimulate the contraction of the dilated and distended cardiac muscle previous to the effect of digitalis medication which requires a longer time to become manifest.

Missouri State Medical Association Journal, St. Louis

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- 60 Plea for Renaissance of Hodgen Splint. F. G. Nifong, Columbia.—p. 281.
 61 Private and Affiliated Hospital Organization. L. Rassieur.—p. 285.
 62 Kitchening of Food Supplies in Public Catering Places and Effect on General Health and Life. G. Homan, St. Louis.—p. 287.
 63 Operative Treatment of Fractures. E. Fischel, St. Louis.—p. 291.
 64 Surgical Aspect of Bronchiectasis. H. G. Mudd, St. Louis.—p. 293.

Neurological Bulletin, New York

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- 65 Spongioblastoma with Unusually Rapid Growth Following Decompression. I. Strauss and J. H. Globus, New York.—p. 273.
- 66 Case of Hemiplegia with Hemianesthesia, all Qualities of Sensation Involved. H. Howe, New York.—p. 282.
- 67 Tumor of Posterior Cranial Fossa. H. Howe, New York.—p. 285.
- 68 Case of Possible Anterior Poliomyelitis Revealed by Subsequent Occupation. O. S. Strong, New York.—p. 289.
- 69 Sacral Tabes or Cerebrospinal Syphilis. I. S. Wechsler, New York.—p. 292.
- 70 Case Showing Clinical Manifestations of Progressive Lenticular Degeneration. M. Osnato, New York.—p. 297.
- 71 Studies on Morphology of Gray Matter in Brain Stem of Vertebrates by Reconstruction Method. R. Hoyt, New York.—p. 302.

New Orleans Medical and Surgical Journal

August, 1918, 71, No. 2

- 72 Dietetic Treatment of Liver Diseases. A. Eustis, New Orleans.—p. 59.
- 73 Radium Treatment of Fibroid of Uterus. E. C. Samuel.—p. 69.
- 74 Simple Surgical After-Treatment. E. L. Sanderson, Shreveport.—p. 74.
- 75 Function of Gallbladder; Experimental Study. F. C. Mann, Rochester, Minn.—p. 80.
- 76 Important Factors Relative to Tuberculosis in Army and Civil Practice. W. J. Durel, New Orleans.—p. 92.
- 77 Acute Nephritis in Childhood. S. G. Wilson, New Orleans.—p. 100.
- 78 Clinical Phases of Case of Dermal Myiasis. I. Dyer, New Orleans.—p. 105.
- 79 Case of Dermal Myiasis Caused by *Lucilia Seratica*. W. V. King, New Orleans.—p. 106.

New York Medical Journal

Aug. 31, 1918, 108, No. 9

- 80 Pasteur's Relation to Medicine and Surgery. W. C. Borden, Washington, D. C.—p. 358.
- 81 Fracture Depression of Laminae of Fifth and Sixth Cervical Vertebrae. J. J. McGrath and J. Byrne, New York.—p. 363.
- 82 Rhythmical Breathing. I. H. Hance, Lakewood, N. J.—p. 366.
- 83 Some Phases of Medical Inspection in Public Schools. G. M. Retan, Syracuse.—p. 368.
- 84 Can Flat Foot Be Cured? J. M. Taylor, Philadelphia.—p. 373.
- 85 Systematic Development of Roentgen Ray Plates and Films. M. B. Hodgson, Rochester.—p. 374.
- 86 Thrombosis and Embolism. H. R. Coston, Birmingham, Ala.—p. 374.
- 87 Milk as Galactagogue. L. S. Palmer and C. H. Eckles, Columbia, Mo.—p. 375.

Philippine Journal of Science, Manila

July, 1918, 13, Sec. B, No. 4

- 88 *Cryptoplasmic Infection. Development of *Cryptococcus* in Cultures from Unclassified Chronic Philippine Ulcer. H. W. Wade, Manila.—p. 165.
- 89 *Treatment of Yaws with Castellani's Mixture. L. E. Guerrero, E. Domingo and M. Argüelles, Manila.—p. 191.
- 90 Reconstruction of Two Sets of Duck Twins, with Special Reference to Early Embryonic Development of Vascular System. E. S. Ruth, Manila.—p. 201.

88. **Studies on Cryptoplasmic Infection.**—There has been found in one district of the Philippine Islands a type of lesion, invasive, and usually more prominently ulcerative, of undetermined etiology. On clinical grounds it seems very possibly mycotic. No parasite of any type, protozoal, bacterial, or fungous, can be demonstrated in the lesion. Fragmentation of the nuclei of polymorphonuclears into separate rounded masses ("chromolysis") is sometimes interestingly prominent. In certain cultures on special media, of tissues excised from the lesion, the nuclear bodies of leukocytes have undergone modification to produce clear-cut, intensely staining basic forms. From each of two cases, in one culture only, there has developed a *cryptococcus* of very low cultivability and of cultural requirements suggesting high parasitism. This is thought not to be a contaminator but, in the absence of any recognizable precursor, possibly to be a development of the basic forms. This suggested evolution can be explained only on the basis of the hypothesis that the infecting organism may have assumed a cryptoplasmic state on adapting itself to animal parasitism, followed by the invasion and utilization of the tissue cells, particularly the polymorphonuclears.

89. **Treatment of Yaws with Castellani's Mixture.**—Castellani's formula consists of: 0.065 gm. of tartar emetic; 0.65 gm. sodium salicylate; 4 gm. potassium iodid; 1 gm. sodium bicarbonate, and 30 gm. water. This is given in one dose, diluted in 4 ounces of water, thrice daily, for adults and for children over 14 years of age; half doses to children 8 to 14

years of age; one-third doses or less to younger children, and not more than half doses to Europeans. The authors have used this treatment in more than forty-three cases. Of thirty-six cases that continued the treatment, twenty-four completely recovered, seven showed improvement of symptoms, seven showed no improvement at all, and five had relapses in from two to five months after the lesions had entirely healed. Guerrero and his associates are convinced that the treatment of Castellani undoubtedly exerts a curative influence on the various manifestations of frambesia. The relapses and incomplete recovery observed in some cases are ascribed to an incomplete medication, due to the suspension of treatment before the destruction of *Spirochaeta pertenuis* was complete.

Public Health Journal, Toronto

August, 1918, 9, No. 8

- 91 Plea and Plan. W. H. Hattie, Nova Scotia.—p. 349.
- 92 Venereal Disease Problem. G. Bates.—p. 354.
- 93 Public Health Service in Small Towns and Rural Municipalities. J. J. Harper.—p. 360.
- 94 Management of Child Welfare Week in Small Cities and Towns with Results. M. Power, Toronto.—p. 362.
- 95 Ethics of Commerce. G. S. Brett, Toronto.—p. 364.
- 96 When Should Financial Federations Be Started? W. C. White, Milwaukee, Wis.—p. 373.

Southern Medical Journal, Birmingham, Ala.

August, 1918, 11, No. 8

- 97 Importance of Malaria from Public Health and Economic Standpoint. W. S. Leathers, University, Miss.—p. 541.
- 98 Modern Aspects of Malaria Problems in Peace and War. F. L. Hoffman, Newark, N. J.—p. 545.
- 99 Malaria Control in Environment of Cantonments. J. A. LePrince, Washington, D. C.—p. 551.
- 100 Some Results of Malaria Control by Control of Insect Host; Public Health and Economic Aspects. R. C. Derivaux, Washington, D. C.—p. 556.
- 101 Bearing of Malaria on Railroad Operation. H. W. Van Hovenberg, Tyler, Texas.—p. 562.
- 102 Geologic Surveys and Eradication of Malaria. T. W. Vaughan, Washington, D. C.—p. 569.
- 103 Malaria Campaign. W. C. Johnson, Memphis, Tenn.—p. 572.
- 104 Memphis' Malaria Problem. B. Smith, Memphis, Tenn.—p. 574.
- 105 What the Cotton Belt Railway Company Is Doing for Prevention of Malaria. H. H. Smiley, Texarkana, Ark.—p. 576.
- 106 Chronic Acidosis; Etiology, Prophylaxis and Treatment. G. C. Mizell, Atlanta, Ga.—p. 578.
- 107 Treatment of Tropical Abscess of Liver. J. S. Helms, Tampa, Fla.—p. 582.
- 108 Mixed Tumor of Lachrymal Gland. A. O. Pfingst, Louisville, Ky.—p. 587.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

August, 1918, 26, No. 8

- 109 Syphilitic Pneumonia. G. H. Hoxie, Kansas City, Mo.—p. 169.
- 110 Laboratory Methods: Collection and Shipment of Specimens and Material. B. F. Friedlander.—p. 176.
- 111 Surgical Pathology of Right Upper Abdominal Quadrant. F. H. Clark, El Reno.—p. 179.

Southwestern Medicine, El Paso

July, 1918, 2, No. 7

- 112 Use of Obstetric Forceps. B. E. Galloway, El Paso.—p. 1.
- 113 Dakin's Solution and Chlorazene; Report of Cases. A. C. Carlson, Jerome, Ariz.—p. 5.
- 114 Diaphragmatic Pleurisy; Report of Case. E. B. Rogers, El Paso.—p. 12.

Tennessee State Medical Association Journal, Nashville

August, 1918, 11, No. 4

- 115 Acute Osteomyelitis. E. M. Sanders, Nashville.—p. 133.
- 116 Report of Committee on Social Medicine. W. Krauss.—p. 141.
- 117 Institutional Care of Infants. R. H. Perry, Nashville.—p. 147.
- 118 Detection of Feigned Blindness and Deafness. H. Ezell, Nashville.—p. 150.
- 119 Kaiserism and Medical Profession. W. F. Clary, Memphis.—p. 152.

Texas State Journal of Medicine, Fort Worth

August, 1918, 14, No. 4

- 120 Question Mark or Easy Mark. E. P. Lyon, Minneapolis.—p. 159.
- 121 Truth About Traumatic Hernia. B. Saunders, Fort Worth.—p. 164.
- 122 Modern Methods of Health Administration. W. A. King, San Antonio.—p. 167.
- 123 Original Investigations Regarding Cause of Hay-Fever and Its Proper Treatment. A. Woldert, Tyler.—p. 169.
- 124 Method of Repair for Corneal Injuries. J. H. Burleson, San Antonio.—p. 172.
- 125 Activities of Bureau of Rural Sanitation. P. W. Covington, Austin.—p. 173.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

Aug. 10, 1918, 2, No. 3006

- 1 *Treatment of Wounded in Aid Posts and Field Ambulances. S. M. Smith.—p. 127.
- 2 *Gunshot Wounds of Head. T. O. Graham.—p. 129.
- 3 *Traumatic Aneurysm of Left Subclavian Artery. J. S. White.—p. 131.
- 4 *Blood Pressure in War Traumatisms. E. F. Cyriax.—p. 132.
- 5 The "Man Value" of Working Class Diets. Greenwood and C. M. Thompson.—p. 133.

1. **Treatment of Wounded in Forward Areas.**—The general principles which govern forward unit work are summarized by Smith as follows: 1. Get the wounded back to the clearing station as soon as you can. 2. Dress the wound once carefully; afterward do not disturb the dressings unless they have slipped or unless there is bleeding. 3. Take measures to avoid shock; if it has already supervened, take measures to treat it. 4. Efficiently splint all fractures. 5. Arrest hemorrhage. 6. Take any special measures needed in special cases. Rapid evacuation calls for qualities of organization, and endurance, devotion and courage. A wounded man passes through one of the larger units in much the way that a piece of metal passes from department to department of a factory till it emerges the finished article. Records have to be taken, antitoxanic serum given, food or drink administered, the wound dressed, splints applied, the patient warmed and packed up for transport. Often this has to be done under circumstances of almost intolerable difficulty. The difficulties can only be surmounted by organization of the machine beforehand, so that each man does his job and confusion is avoided. "Team work" is essential. Smith says: "To see a Thomas' splint applied to a fractured femur by a well drilled team is a revelation to the inexperienced."

Dressings must be ready beforehand. The field or shell dressing will have been applied usually by unskilled hands. It is liable to be dirty and tight. Therefore remove it and do one careful dressing. It is not possible to have clean hands. Rubber gloves are out of the question, but with sufficient practice forceps can do the whole work without hands having to touch either the wound or the dressings which are to be in immediate contact with it. Pairs of sterilized forceps standing in glasses of antiseptic should be at each dressing "dump." The wound itself is temporarily covered with gauze; the skin around is then washed and painted with picric acid (3 per cent.) in alcohol. (Iodin is liable to blister, and when combined with cyanid gauze causes serious burns.) The wound is then uncovered, obvious dirt or foreign bodies are removed, and the surface of the wound swabbed over with eusol. No attempt should be made to clean out the depths of the wound or to syringe or irrigate. Attempts to delay or avoid infection by the injection into wounds of fluids or pastes are futile. The wound is finally covered with gauze and wool and bandaged.

Shock is caused by cold and exposure, lack of food and drink, hemorrhage, pain and disturbance. The warm stretcher is used in many aid posts. Improvised hot-water bottles are widely employed, and ambulance cars are warmed by the exhaust pipe. When circumstances allow, and it is possible to do it in reasonable warmth, and shelter, the wet clothes may be changed. Hot drinks should be given. With a view to combating acidosis, a teaspoonful of bicarbonate of soda is sometimes added. Of all factors concerned in shock, hemorrhage is, perhaps, the most potent. Every effort must be made to reduce it to a minimum. Every change of dressing starts oozing afresh. In the avoidance of pain, the importance of efficient splinting cannot be overrated. Morphine is of great value. It should not, however, be given indiscriminately, and the dose needs careful regulation. A dose of one-fourth grain should seldom be exceeded. Transport with fractures imperfectly splinted is a great feature in increasing and producing shock. Every fracture should be immobilized as far forward as possible. This is very often possible at the aid post. Failing this, it should be done at the advanced

dressing station. The fewer and simpler the varieties of splints used the better.

As for hemorrhage, Smith says, that properly used, the tourniquet at times saves a life. Improperly used, it is a frequent cause of loss of life and limb. Its use is seldom justifiable, and then only as a temporary measure for the arrest of serious bleeding until the wounded man can be got to a place where the arrest of hemorrhage by the recognized surgical methods can be carried out. In patients getting back as far as the clearing station with tourniquets applied, death of the limb from interruption of the circulation is almost invariable. Even if this does not occur, the cutting off of the blood supply from an area of smashed muscle provides all the ideal conditions for the development of gas gangrene. Other measures than the tourniquet should therefore be adopted, and if for some reason a tourniquet has been applied it is the duty of every medical officer through whose hands the patient passes to remove it.

In most cases there will be no bleeding. If, however, bleeding recommences, then the following methods should be employed: 1. In many cases the obvious source is exposed in the wound and may be seized with pressure forceps and ligatured. This is the ideal. 2. In other cases blood may be seen welling from a deep recess of the wound. Pressure forceps are applied in that area and the bleeding ceases. It is best to leave the forceps on and pack round with gauze. The patient is sent on with the forceps in situ. 3. If neither of these methods is applicable pressure must be obtained by packing the wound. But it is essential that the pack really presses on the bleeding point. The pack must be cone shaped, with its apex at the source of hemorrhage. If the wound aperture be small it must be enlarged by slitting up the skin and fascia. No anesthetic should be used. The pain caused is not great, particularly if the incision be made in a distal direction where the nerve supply has been interrupted by the injury. Gauze is then packed firmly into the wound and a pad placed over it. Firm pressure is made with a bandage, but a wide wooden splint should always be applied to the opposite side of the limb before the bandage is applied, in order to avoid constriction of the extremity.

Cases of penetrating abdominal wounds should be sent by the shortest route to the clearing station. In penetrating chest wounds an injection of morphine should be given. This lessens the respiratory distress. The patient should be placed in the position of greatest comfort, which is usually the semi-recumbent posture. In dressing the wound, it is important to avoid the interference with the free play of the uninjured side of the chest caused by an encircling bandage. Use strapping when possible. There is one class of chest wound that needs special attention. The wound in the parietes may remain open so that air is sucked in and out with respiration, or the blood collected in the pleural cavity may be leaking away through the external aperture. "Sucking pneumothorax" and "leaking hemothorax" are convenient terms for these conditions. In the first the respiratory embarrassment is extreme, and the patient's condition desperate from the start. In the latter, so long as there is a free external leak, internal bleeding is likely to continue. In both infection is certain if the condition continues. In both types of case the wound should be closed before the patient is sent on. Great care must be taken to splint all cases in which joint injury is suspected. Failure to splint favors bleeding, effusion and distention.

2. **Gunshot Wounds of Head.**—Nearly 500 cases of gunshot wounds of the head have passed through Graham's hands. In about 50 per cent. of those cases in which the dura was opened by depressed or indriven fragments of bone, by the missile, or subsequently opened at operation, death ensued. In the cases in which trephining had to be resorted to, the mortality was less than 10 per cent. where the dura was intact, and just over 50 per cent. in those in which the dura was penetrated. Graham operates under local anesthesia in nearly all cases. He lays down the following fundamental principles: 1. Two stereoscopic roentgenograms are essential for accurate localization. 2. Careful neurologic examination will often elicit signs and symptoms which will guide in operative treatment. 3. All cases should be operated early,

before marked sepsis has intervened. 4. The dura should be treated with respect, and the risk of hernia cerebri and meningitis when the dura is opened always borne in mind. The dura should be incised only when urgent symptoms demand it, and not merely to avoid phantom symptoms which may never arise. Headache and a mild degree of optic neuritis, unless increasing in intensity, are not necessarily indications by themselves. 5. An attempt to remove foreign bodies should be made only in the case of those easily accessible, those which can be removed without producing greater damage to the brain than that already created by the entry of the missile.

3. **Traumatic Aneurysm of left Subclavian Artery.**—White cites a case in which he did a successful ligation at the junction of the first and second portions.

4. **Blood Pressure in War Traumatisms.**—Cyriax is convinced that there is a possible source of error in estimating the blood pressure in cases of war traumatisms, namely, that in a certain proportion of unilateral traumatisms the pressures in the two arms may show wide differences. Not only is this so, but the readings on one day may be higher in one arm than in the other, but the reverse a day or two later. When differences occur they generally diminish as improvement proceeds and disappear some time before complete recovery. Thirty-six cases were examined by Cyriax; in twenty-six no difference, or only a slight difference (2 to 4 mm.), was found; such differences were considered negligible. In six cases differences of 6 to 8 mm. were found, which sank to about half this amount about three days later, and disappeared at the end of the week.

Edinburgh Medical Journal

August, 1918, 21, No. 2

- 6 Training of Student of Medicine: Essentials of Surgical Teaching. G. G. Turner.—p. 68.
- 7 Id.: Teaching of Clinical Surgery. F. M. Caird.—p. 77.
- 8 Id.: Systematic Surgery, That Is, That Outside Hospital and Away from Patients. A. Thomson.—p. 80.
- 9 Id.: Teaching of Surgery. A. Miles.—p. 83.
- 10 Id.: Diseases of Children; Suggestion for Preliminary Course in Clinical Medicine. J. S. Fowler.—p. 98.
- 11 Id.: Teaching of Surgical Diseases of Children. J. Fraser.—p. 104.
- 12 Id.: Dispensary Practice as Part of Medical Training. J. Orr.—p. 106.
- 13 Id.: Teaching of Vaccination. W. G. A. Robertson.—p. 111.

Journal of Tropical Medicine and Hygiene, London

Aug. 1, 1918, 21, No. 15

- 14 Pellagra. A. Viswalingam.—p. 153.
- 15 Congenital Defect of Abdominal Wall. W. A. Young and E. J. Wright.—p. 158.

Lancet, London

Aug. 10, 1918, 2, No. 4954

- 16 Celiac Disease. G. F. Still.—p. 163.
- 17 *Bacillary Dysentery. G. S. Buchanan.—p. 166.
- 18 *Instinct Distortion or War Neurosis. D. E. Core.—p. 168.
- 19 *Disappointments of Vaccine Therapy. H. G. Adamson.—p. 172.

17. **Bacillary Dysentery.**—An outbreak of bacillary dysentery studied by Buchanan presented the following features: (a) sudden onset and brief duration; (b) evidence that the infection was water-borne; (c) Shiga's bacillus as the infecting agent in all cases; (d) evidence of the persistence of Shiga's bacillus when experimentally introduced into water and food; (e) noteworthy results of agglutination tests when applied both to dysentery convalescents and to those who had presumably been exposed to infection but had escaped illness.

18. **Instinct Distortion or War Neurosis.**—The diagnosis of the instinct distortion, or war neurosis, Core says, is, as a rule, easy. In the absence of signs of organic disease it may be made in the case of any patient who shows symptoms of nerve irritability and in whom, at one time or another, the element of fear is present. In the event of such symptoms existing in a patient who shows no signs of fear, either in his waking hours or in his dreams, one of two conditions may be present—the war neurosis in the late or habit stage, in which there will be a history of terror dreams at the beginning of the illness; or a suggestion hysteria, in which case no such history is obtainable. Leading questions should not be asked; the patient should merely be asked if he sleeps

well, or if he slept well at the time of onset of the breakdown. It sometimes happens, though not in Core's experience very commonly, that an instinct-distortion neurosis and a pure hysteria exist in the same patient.

The treatment of the instinct-distortion neurosis is, in its essence, simpler than that of the hysterics, and more satisfactory. Two fundamentally important principles in treatment should always be kept in mind. The first is that the patient must be removed as quickly as possible from the environment which was responsible for the condition—he ought to be taken right away from any focus of fighting; and the second is that from the very beginning he ought to have it impressed on him that he is going to get completely cured. The removal from the combatant atmosphere is so obvious and so usual that its importance as a method of treatment as well as the light it throws on the origin of the condition is in danger of being overlooked. When such a patient has arrived at the ultimate base wherein the remainder of his treatment is to be effected, if he is still in the active stage he should be kept for the most part in bed and in a ward that is quiet. It is inadvisable that he should be alone. Here he should stay until he is able to sleep without being waked up frequently by his dreams. In the early stages, when he is unable to sleep at all, Core has found the best results with 10 grains of sulphonethylmethane, with or without acetylsalicylic acid, and diminished gradually as the tendency to sleep improves.

During this period it is well to make him realize that he has power over his legs by making him take a few steps every day in the ward, but as long as he is definitely "ill" with his condition he ought to spend most of his time in bed. He should be seen frequently by the medical officer in charge and should be constantly reassured as to his complete curability and encouraged to look on himself as improving from day to day. As the sleep improves and the dreams lessen in intensity he should be made to leave the ward for a short time each day and mix with the other patients, and then the more detailed treatment may be instituted.

These patients manifest one, some, or all of the following disabilities: speech defects, tremors, disorders of gait, mental depression, irritability of the sympathetic nervous system. As regards speech defects and disorders of gait the principle treatment is "careful and painstaking reeducation." Tremors also should be treated with exercises of precision. Mental depression calls for special treatment only when it does not yield to the general treatment. The tachycardia and other signs of irritability of the sympathetic nervous system are best treated by graduated exercises.

19. **Disappointments of Vaccine Therapy.**—The tendency to employ vaccines indiscriminately in all sorts of complaints is deprecated by Adamson because we are not in a position to know when we may do good and when we may do harm by this treatment, since we have no means of estimating its effects in a person whose reactivity has been altered, perhaps profoundly altered, as the result of previous microbic infection. The almost equally prevalent use of vaccines in diseases of nonmicrobic origin is perhaps of less consequence, but it is apt to delay the employment of a treatment more suited to the case and more efficient.

Sei-I-Kwai Medical Journal, Tokyo

July, 1918, 37, No. 7

- 20 Relation of Heat Hemolysis and Blood Serum. Y. Kuno.—p. 25.
- 21 Experimental Study of Heat Stroke. C. Koidzumi.—p. 26.
- 22 Hyperemesis Gravidarum. N. Kuji.—p. 27.

Archives Médicales Belges, Paris

March, 1918, 71, No. 3

- 23 *Wounds of Joints. C. Willems.—p. 225.
- 24 *Traumatic Effusion in the Knee. J. de Cacstecker.—p. 247.
- 25 *Researches on Syphilis. J. E. R. MacDonnagh.—p. 263.
- 26 *Tear Sign of Death. A. Lecha-Marzo.—p. 271.
- 27 Roentgenoscopy in Internal Pathology. M. van de Waele.—p. 279.

23. **Immediate Active Mobilization of Joints After War Wounds, etc.**—Willems' views in regard to the necessity for exercising an injured joint from the very first were summarized in the Paris Letter, p. 842. He evacuates the effusion or pus in the joint at once, and the cure was so complete in some of his knee cases, reexamined several months

later, that the men were unable to recall which knee had been punctured. Even with fracture of the patella, he ties silk-worm gut around it and sets the patient to using his knee in five or six days. At first the patient bends his knee very little as he walks, but in less than a month the gait may be entirely normal although the knee may be still swollen a little. In Belgium, France and Germany this method of immediate active mobilization found many adherents for industrial accident cases, and hundreds of cases with constant success were reported and no mishaps. Then came the war, and Willems found that this method could be applied to war wounds, even those with intra-articular fractures and purulent arthritis. Of course immediate walking is out of the question with a destructive war wound of the knee, but active mobilization is possible and imperative.

He rejects passive exercise of the joint as doing more harm than good. When you tell the patient to move his joint as soon as he comes out from under the anesthetic, he declares he cannot do it. He has to be persuaded that he is mistaken and that he can move the joint. He must then be urged to push the muscular movement to the maximum, constantly increasing the effort until the play of the joint approximates normal. It is essential for success that the joint must never be left absolutely still. Fear of fatigue should not deter, as fatigue does no harm. The man does not keep up the effort unless he is reminded and urged frequently to it, under constant surveillance of a personnel skilled in the method, able to teach the men how to exercise the special muscles involved without waste of energy. The movements are always a little more difficult in the morning; the joint seems stiffer. Sometimes sudden pain develops and the man is unable to move the joint. Examination reveals some effusion, and when this is evacuated, the pain and impotence disappear with it. Willems insists that, whatever the extent of the lesion, mobilization is always possible, although of course the extent of the movements possible varies with the character of the injury.

The immediate exercising of the joint is not painful in the true sense of the word unless it displaces large fragments of bone; then active mobilization of the joint should be postponed until this is corrected. Immediate active mobilization is not painful but it is laborious. The limb feels heavy, and the patient has to make an effort to move it. Actual pain is quite exceptional, and then is transient. The patient, however, may pretend that the movements are painful, in order to escape the exertion. On the other hand, many of the wounded affirm that if the joint grows painful during repose, the best means to banish the pain is by starting to exercise the joint. It is in purulent arthritis that early active mobilization gives the most surprising results. At each bending and straightening of the joint the pus is expelled, and thus there can be no retention of secretions, and the joint is thus effectually drained.

24. Traumatic Effusion in the Knee.—Caestecker describes the application in forty-two cases of Willems' method of puncture, followed by immediate walking, using the knee. The puncture is made under stovain local anesthesia, as he describes in detail, the knee prepared as for a major operation. The operator stands on the patient's right side, whichever knee is to be operated on. With his left hand he pushes the fluid forward until it lifts the patella and the lateral culdesacs protrude. With the right hand, the bistoury is introduced close to the edge of the patella, about half way up. As the bistoury enters the cavity, it is moved for a quarter of a circle, to make the incision gape. Then the operator manipulates the joint to force all the fluid out through the puncture hole, held open by the bistoury. Then the bistoury is straightened and withdrawn; a small loose dressing is applied, and the patient begins to walk as soon as he gets off the table. At first he is afraid to use his knee, but as soon as he can be persuaded to take a few steps, he finds that it does not hurt him and he is turned loose with the advice to keep on walking, almost without stopping, even to the point of fatigue. With simple hemarthrosis, the blood does not clot for several days. Whenever clots are found, this indicates some lesion in bone or cartilage. The twenty-five hemarthrosis cases are described in detail. The cure is very

rapid, all objective findings returning to normal in three or four days, and the last trace of the subjective disturbances vanishing by the end of the first or second week. No tendency to atrophy of any muscles was observed in any instance. The effusion returned in 23.5 per cent. of the seventeen hydrarthrosis cases and in 40 per cent. of the others, but they yielded to a second puncture. He insists that there is no exception to the rule that every case of effusion in the knee should be punctured and the knee used at once.

25. Research on Syphilis.—McDonagh's article appears to be practically a translation of one published in the *Journal of Cutaneous Diseases*, 1917, **35**, 222.

26. Diagnosis of Actual Death.—Leeha-Marzo reviews the various means for distinguishing between real and apparent death, and reports constantly reliable findings with his own test, the tear test. Tears have an alkaline reaction in the living. The reaction was invariably alkaline in 542 men and 537 women, as also in 1,104 hospital inmates, including fifty-six with blepharitis, thirty-six with lacrimal fistulas, and forty-nine with iritis. After death, the reaction veers to acid; the secretions of the eye never give an acid reaction during life. The simplest way to apply the test is to insert a piece of litmus paper between the eyelids, placing it on the eyeball and pressing the eyelids lightly down on it. In the living subject a blue spot appears on the paper; in the cadaver there is no change of tint, or the pink tint becomes still pinker.

Bulletin de l'Académie de Médecine, Paris

July 16, 1918, **80**, No. 28

- 28 *Normal Parasitism and Microbiosis in Muscles. V. Galippe.—p. 43.
- 29 *Migration of Projectiles in Blood Stream. C. Achard and L. Binet.—p. 72.
- 30 *Medical Victims of Hypochondriac Murderers. Dupré.—p. 78.
- 31 *Cancer and War. E. Forgue.—p. 84; L. Bérard.—p. 103.
- 32 *Prophylaxis of Pulmonary Tuberculosis. Vidal.—p. 91.
- 33 *Treatment of Congenital Dislocation of Hip Joint. F. Calot.—p. 107.

28. Normal Parasitism of Muscles.—Galippe refers to his previous communications on the presence of living elements in the normal muscle tissue. Time and experience, he says, have confirmed his assertions that a healthy muscle is not aseptic; it would be impossible for the muscle to function without this normal parasitism and microbiosis. There could be no autolysis of muscle tissue without them. In a war wound, the devitalized muscle tissue may transform the normal into a virulent parasitism, as surgeons all recognize now. Hence surgeons strive not only to clear out as rapidly as possible all the devitalized tissues, but also to refrain from manipulation of the sound tissue left. Galippe discusses the subject of normal parasitism and microbiosis mainly in regard to cold storage of meats.

29. Migration of Projectiles in Blood Stream.—Achard and Binet conclude from their clinical and experimental experience that the force of the stream in the arteries—but not in the veins—is enough to move some projectiles along. Before an operation, the projectile should be located anew and the part placed so that gravity will not aid in the change of position of the projectile.

30. Medical Victims of Hypochondriac Murderers.—Dupré describes a special type of insanity in regard to which physicians should be on their guard, as these insane are homicidal and they select their victims among medical men. The recent assassination of Professor Pozzi was of this type. Their hypochondriac theme is almost invariably the genital or perigenital region, some impairment of function for which they seek medical aid and insist on an operation. The physician operates on a hydrocele, a varicocele, a chronic epididymitis or anal fistula or urethral stenosis. After the operation, the pains, impotence, disturbances in local sensibility and the *idée fixe* persist the same as before. The man besieges the physician with letters, calls and more and more pressing claims to the effect that he had aggravated the impotence and the pain, and had ruined the man's health and reason for living. The man insists on his claim to the cure which the operator in all good faith had assured him. The next step from this hypochondriac revindication is that the man

becomes a "persecuted persecutor." The physician thus hounded by the man finally shuts his door to him, paying slight heed to the mental trouble which he regards as of no consequence, thus failing to recognize the most dangerous of the mentally unbalanced. The physician's death sentence has been pronounced, as any alienist knows who has studied the evolution of this psychosis to its tragic outcome. In course of time, usually several years later, the hypochondriac, despairing of recovery and repulsed as a nuisance by the one he considers responsible for his physical deterioration, decides to take justice into his own hands. Providing himself with a knife or a revolver he proceeds to a final interview, and unhesitatingly and coolly kills his victim.

The list of martyrs thus murdered by these homicidal hypochondriacs contains names of obscure and of world known physicians. Dupré says, "I regret to confess that this is passed over in silence in most of the modern manuals of psychiatry. Several of them give no reference at all—a grave omission—to this psychosis and the laws of its homicidal reactions."

Dupré enumerates a number of such cases, mentioning the names of Drs. Gray, Oronge, Recoulet, Bleyne, Leclerc, and the quite recent cases at Paris of Guinard and Pozzi. Pozzi's assassin committed suicide at the same time, and necropsy showed the scar of Pozzi's operation on the scrotum, probably for varicocele. Dupré adds that the only case of this hypochondriac "persecuted persecutor" type of delirium in a woman was encountered recently, the patient being on the point of shooting Drs. Massary and Mauclair in turn when her pistol was taken from her. He emphasizes that mental diseases run a regular course according to laws as fixed as those governing the best classified internal and superficial diseases, adding, "Psychiatry recognizes well established laws in diagnosis and prognosis, and although they do not always suffice to insure the cure of the mental disease, yet they permit classification and prognosis, and enable us to foresee the patient's acts."

31. Cancer and War.—Forgue's tabulated details show that a connection between active service and the development of a cancer has been admitted in 297 cases. In nineteen cases a war wound was accepted as having been the predisposing factor; in all the others, the circumstances of the service were regarded as having conditioned the development or the aggravation of the cancer. In only 486 cases to date is cancer supposed to have developed among the soldiers, and the data were incomplete in all but 297 cases. Almost 50 per cent. of these cases were in men between 40 and 45. Bérard relates that in seventy-one cases of cancer in men on active service, seven of the men had a history of trauma affecting the region where the cancer developed.

32. Prophylaxis of Tuberculosis.—Vidal suggests among other measures that every moving picture show on Sundays and holidays should be compelled to run some educational film in this line.

33. Congenital Dislocation of Hip Joint.—Calot presents evidence to show the perfect results obtained in treatment of congenital dislocation when the principles he advocates are scrupulously applied. (They were described in *THE JOURNAL*, Aug. 17, 1918, p. 605.)

Bulletins de la Société Médicale des Hôpitaux de Paris

May 3, 1918, 42, No. 15

- 34 *Pyloric Incontinence. P. Carnot and H. Maubau.—p. 407.
- 35 *Alkaptonuria. A. Lahille.—p. 418.
- 36 *Mitral Stenosis of Tuberculous Origin. Barbier.—p. 422.
- 37 *Lethargic Encephalitis. P. Sainton.—p. 424.
- 38 *Venesection after War Wounds of Chest. G. Blechmann.—p. 427.
- 39 *Serotherapy in Acute Poliomyelitis. A. Netter.—p. 431; G. Etienne.—p. 432.

34. Incontinence of the Pylorus.—There may be insufficiency of the pylorus of organic or functional nature, with resulting disturbances as the food is passed along too soon for adequate digestion in the stomach. The organic cases can be differentiated by the lack of any modification when the subject drinks something hot, or acid, or ice cold. This causes the pylorus to contract if it is capable of contracting. Incontinence of the pylorus is probably a factor in certain forms of diarrhea.

35. Alkaptonuria.—Lahille reports a case of alkaptonuria in a soldier, accompanied by pain in the lumbar region, and modified by sleep and repose. There was no alkaptonemia.

36. Mitral Stenosis of Tuberculous Origin.—The mitral stenosis developed under Barbier's eyes, the girl of 13 being under treatment for pulmonary tuberculosis. Necropsy showed it to be of a specially fibrous type.

37. Lethargic Encephalitis.—Sainton reports a typical case in a man of 51, previously robust. Headache, a chill and somnolency, with subdelirium, developed suddenly, with tremor and death the tenth day with bulbar phenomena, but no symptoms on the part of the ocular muscles, and none pathognomonic of meningitis. From the very first, the man held his head on one side, and Hontang noticed this deviation of the head in a case in a man of 68, likewise fatal.

38. Asphyxia and Hypertension After Wounds of Chest.—Blechmann calls attention to the extremely high blood pressure and tendency to asphyxia frequently noted after war wounds of the chest, and to the life-saving influence of venesection. He cites five typical cases to illustrate the great relief that follows withdrawal even of 125 gm. of blood.

39. Serotherapy in Acute Myelitis.—Netter relates that he now has a record of sixty-two cases of acute poliomyelitis given serotherapy with serum from convalescents. In a case reported by Etienne, the injection of serum was not made until the seventh day and only one injection was made, recovery following on it at once. The great difficulty, Netter remarks, is in obtaining the serum from persons who have already had the disease; it is hard to persuade them to give up their serum. He mentions that Neustaedt and Bantz have succeeded in obtaining an effectual antiserum from horses injected with the products of autolysis of the nerve centers from men and monkeys that had succumbed to poliomyelitis. In Etienne's case the serum used came from a girl whose paralysis from the disease dated from about thirteen months before. Only 5 c.c. had been injected, and about 25 c.c. of limpid spinal fluid had been released, under high pressure, just before. The man had had a temperature of 41.2 C. at first but it had dropped to normal two days before the injection, and the paralysis, total at first, had shown slight indications of subsiding.

Paris Médical

June 22, 1918, 8, No. 25

- 40 *War Psychoneuroses. M. Villaret.—p. 481.
- 41 Skin Grafts for Extensive Wounds. L. Moreau.—p. 488.
- 42 *Malformation of Jaws. P. Robin.—p. 492.

June 29, 1918, 8, No. 26

- 43 *Auscultation in Sphygmomanometry. L. Tixier.—p. 497.
- 44 *Plastic Operations on Skull. L. Dufourmentel.—p. 503.
- 45 Scurvy and Dysentery. G. Schreiber.—p. 508.

40. Treatment of War Psychoneuroses.—Villaret has succeeded in having his ideas carried out in respect to the segregation in a special neurologic center of the men with war psychoneuroses, so that they can be given the isolation and special reeducation they require. Before this was realized, the men discharged as cured by one hospital would apply to others in turn, their psychoneuroses growing more and more inveterate until they obtained proper treatment. This has to be a combination of physical, psychic, pedagogic and other methods—all under strict medical surveillance. He seeks out the cases in the different hospitals in the region, visiting each every two weeks. The men are not allowed to leave the institution except as they are given brief good-conduct leave. The men who are improving are made monitors over the others, and are given leave of absence more often. The life in the hospital is carried on with military precision, by bugle calls. No crutches or canes are allowed, but two tall Alpine stocks are given those who feel they must have support. As they are so inconvenient, the men soon discard them.

The men are kept systematically busy all the time; a third of the day may be given up to different forms of treatment, another third to reeducation, and one third is always given to agricultural or vocational training and sports or military

exercises. Special emphasis is laid on training the will power. The outcome has been the recovery or great improvement of two thirds of the men, but there are about fifty whose painful functional disturbances have lasted for over a year, rebellious to all measures. These *persévérateurs* should be sent back close to the front, he thinks, and be subjected to further study. A year ago the 450 beds were always filled, but now from 200 to 250 are empty. A year ago from 40 to 50 per cent. of the men with nervous disturbances presented psychoneuroses, but in his latest tour of inspection he found only three cases among the 298 men examined in the various hospitals of the district.

42. Malformations of Jaws and Teeth.—Robin has found in many cases that some malformation of the jaw or teeth or cheek in children was responsible for inadequate mastication or inadequate intake of air. His illustrations and clinical histories confirm the importance of correction as the first step in causal treatment of disease in stomach, bowel or chest.

43. Auscultation in Sphygmomanometry.—Tixier here concludes a series of articles on the advantages of systematic auscultation as a simple and practical method of measuring the blood pressure. He is confident that it will "soon become indispensable to practitioners as they learn to appreciate how immense are its results for diagnosis, prognosis and treatment of their patients." Charts are given showing the comparative findings with the different methods in vogue for estimating the blood pressure, and normal standards are cited.

44. Plastic Operations on the Skull.—When a flap of cartilage is used, and it is fitted in over the brain, under the edges of the bone, then any blow on this cartilage flap is transmitted directly to the brain. On the other hand, a metal plate on the bone, next the scalp, leaves a dead space below which fills up with tough scar tissue. Dufourmentel describes with illustrations a technic which avoids these disadvantages. A wax cast is taken of the gap in the bone and a plaster cast made from this. Over this, a light metal plate is made to fit as an inlay in the defect itself and over the edge of the bone all around. It adapts itself to every irregularity, and thus it is held firm in place even before the scalp is sutured over it.

Presse Médicale, Paris

July 18, 1918, **26**, No. 40

46 Extraction of Projectiles under Screen Control. P. Maucclair. —p. 366.

47 *Induced Anti-Anaphylaxis. J. Danysz.—p. 367.

47. Antianaphylaxis in Treatment of Asthma, Certain Skin Diseases and Gastro-Intestinal Mischief.—Danysz reiterates that recent research has confirmed that certain symptoms in diseases are the result of the anaphylaxis induced by microbes, living or dead, or by some foreign albumin, incompletely digested, which have found their way into the blood and tissues. The resulting anaphylactic sensitization has to be overcome, and the means for this do not have to be specific. He remarks that all the methods employed to date in the line of vaccine or bacteriotherapy, serotherapy and chemotherapy owe what success they have attained to their efficacy in combating this anaphylactic sensitization. This feature common to them all has not been fully recognized hitherto. Vaccine therapy, serotherapy, etc., have been developed individually, without appreciation of this common basis on which all are founded, namely, the combating of the anaphylactic hypersusceptibility. All induce reactions of the same nature, and the therapeutic methods derived from them can and should be grouped under the one heading; namely, antianaphylactic treatments or methods.

In experimental anaphylaxis in the guinea-pig, there has to be, he says, the antigen, that is, some substance introduced into the blood and the tissues of the organism in a colloidal state. The period of incubation is the time it takes for the production in excessive proportions of the antibody which normally is in a strictly useful amount. Under the influence of the antigen, it is produced in abnormally excessive amounts. The "*déchaînant*," the unchainer or the exploder, is the substance which provokes the anaphylactic shock or crisis when it comes in contact with this excess of antibodies. This hypersensitization always responds with a reaction to

the antigen which induced it, but this reaction may occur with other antigens or other sensory or psychic stimuli. For example, an attack of asthma, tachycardia or diarrhea may occur in consequence of the impression produced by cold, or by an odor, or even by an emotion. In the majority of cases, the digestive apparatus is the focus of the production of antigens—of microbic or alimentary origin. Some accidental or permanent congestion in the mucosa allows the antigen to pass into the blood and tissues. Hence we must seek in the intestinal flora for the antianaphylactic treatment of gastrointestinal, pulmonary or cutaneous disturbances.

A preparation of microbes isolated from the intestinal flora, sterilized by heating, was injected subcutaneously in a man of 47 with asthma and dyspnea every night and morning until 10 a. m. The first injection relieved him, and after the series of ten he was apparently cured of the asthma which had tormented him for five years. A skin disease of fourteen years' standing subsided in the same way in another man under two series of ten injections. Fully 75 per cent. of the effects of this treatment was realized in the first twenty-four hours.

The same mechanism is responsible for paroxysmal hemoglobinuria, Danysz says, and explains the cure under repeated injections of autoserum, acting as an antichainer. In applying this principle of antianaphylaxis in treatment of chronic gastro-intestinal derangement, etc., all that is necessary, he reiterates, is to cultivate on ordinary gelose, in isolated colonies, all the aerobic microbes which develop under these conditions, mix them in proportions approximating those in which they occur in the feces, sterilize this emulsion by heating, and administer it to the patient by subcutaneous injection or by the mouth.

Correspondenz-Blatt für Schweizer Aerzte, Basel

July 20, 1918, **48**, No. 29

48 *Typhus. T. Hitzig.—p. 961.

49 Lipomas in Large Intestine. P. F. Nigst.—p. 966.

50 Orthopedic Apparatus (Zur Frage der Schienenhülsen-Apparate.) H. v. Salis.—p. 970; H. Hössly.—p. 973.

48. Typhus.—Hitzig describes his clinical experience with typhus in the city of Mexico. He adds that when one is bitten by a probably infected louse, it may be possible to ward off typhus by an immediate injection of a solution of phenol at the spot bitten, followed by a course of quinin, about 0.5 gm. daily, hoping thus to check the growth and proliferation of the microbes in the blood. Arsphenamin has also been recommended for the purpose, but the decision as to the efficacy of such measures is possible only when they fail. In any event, it is well to refrain from alcohol and nicotin, and keep the bowels open. In treatment he has never witnessed any influence from drugs on the course of the disease, but it is extremely important to supply an adequate amount of fluid. Typhus patients are seldom able to swallow, and the fluid may have to be given by the drop method in the rectum. He also made it a rule to give digitalis regularly after the first week in the severer cases, to sustain the heart during the last three or four days of the disease, which are exceptionally dangerous. With severe brain symptoms, lumbar puncture may prove an actual life-saving measure. Hypostatic pneumonia is warded off by frequently changing the patient's position. Two trained nurses, one for the night, must keep close watch over the patient during the critical days, for any sudden collapse or arrest of the respiration, or attempt at flight in the delirium.

Gazzetta degli Ospedali e delle Cliniche, Milan

June 6, 1918, **39**, No. 45

51 *Rapid Cytologic Diagnosis of Malaria. G. Cremonese.—p. 447.

June 9, 1918, **39**, No. 46

52 *The Official Decree on Tuberculosis in the Army. Ministero dell'Interno.—p. 453.

53 Calcium Chlorid in Treatment of Tuberculosis. C. Rubino.—p. 456.

54 Wounds of Limbs without Bone Lesions. A. Venturi.—p. 461.

June 13, 1918, **39**, No. 47

55 *Wounds of the Spine and Cord. O. Ortali.—p. 465.

51. Rapid Diagnosis of Malaria.—Cremonese dries 2 or 3 drops of blood on a slide, leaving it for not less than two

hours. A drop of distilled water is allowed to fall on the slide, and the hemoglobin becomes dissolved in a few minutes. The fluid is then poured off and the specimen is rinsed under a very gentle stream of running water, holding the slide so that the water does not fall directly on the blood specimen. This washes out all the hemoglobin in two or three minutes at most. What is left on the slide is dried in the air and stained with the Giemsa. It is then easy to see whether the specimen is positive or negative for malaria, but the special type of the parasites cannot be distinguished. For this a smear has to be made, and he usually prepares two slides at the same time, one with the drop and the other with the smear method.

52. Tuberculosis in the Italian Army.—The substance of this official decree has already been given in these columns, in abstracts on pages 154 and 232. The practical effect amounts to compulsory notification of every case of tuberculosis in men of all ages throughout the entire country, as all were mobilized and the result of their physical examination recorded. The decree states in addition: "Each province is to have its antituberculosis committee which will be called on for a complex and continuous action of initiative, vigilance, propaganda and welfare work. And therefore it is necessary to call on for this service those who from a sense of duty, official responsibility, philanthropic spirit and convictions as to the possibilities for good in the work, can usefully aid in the service with intelligence and sympathy." The committee thus will include ex officio the government and provincial officials, the professors of hygiene in the nearest university, the public health officials, a representative of the medical corps of the army (and navy, in seacoast provinces), a delegate from the Italian Red Cross and one from the provincial board for rehabilitation of disabled soldiers. These members of the committee are to be appointed by the chiefs of the state departments to which they belong, and five additional members are to be appointed by the prefect of the province. It is expected that the committee will appoint subcommittees to take charge of different branches of the work, housing, propaganda, etc. A report of the work of the committee in each province is to be presented quarterly to the minister of the interior department. The committee is to meet at the headquarters of the prefect and at his call. Provisions are made for the committee to receive donations and legacies, etc.

55. War Wounds of Spine.—Ortali describes the symptoms from a war wound of the spinal cord at different levels, and the indications for operative intervention. He advocates an operation when the projectile is still in the spinal cavity, even when the symptoms testify to complete severing of the cord because it is impossible to tell whether these symptoms may not be merely the result of pressure. An operation is also called for with fracture of the posterior arch of a vertebra, with sinking in of the fragments, as they are liable to compress the cord. Operative intervention is promising also when motor and sensory functioning are not entirely abolished. A few typical cases are described, one of complete recovery after removal of a splinter of bone from the fractured vertebra which had been pressing on the cord. In another case some motor function was regained after suture of the half severed spinal cord.

Annaes Paulistas de Medicina e Cirurgia, S. Paulo

March, 1918, **9**, No. 3

56 Urinary Stones in Children. R. Puech and G. P. Souza.—p. 49.
To be continued.

57 *Fatal Typhoid Meningitis. U. Cintra.—p. 64.

57. Fatal Typhoid Meningitis.—Cintra's patient was a man of 33 and the typhoid bacilli were in pure culture in the spinal fluid.

Gaceta Medica de Caracas

May 31, 1918, **25**, No. 10

58 Principles of Medical Ethics. L. Razetti.—p. 101.

59 *Code of Medical Ethics. Academia Nacional de Medicina.—p. 105.

June 15, 1918, **25**, No. 11

60 First Operative Case of Spina Bifida in Venezuela. D. A. Calatrava.—p. 113.

61 Intestinal Parasites in Venezuela. E. P. de Bellard.—p. 115.

59. Code of Ethics Adopted by the Profession in Venezuela.—The state of Venezuela in founding the National Academy of Medicine in 1902, specified that it should draw up a code of ethics for the medical and allied professions. Various attempts at this have been made but nothing satisfactory was produced until recently, when the Academy formally adopted the *Codigo de Moral Medico*. There are twelve chapters and an appendix, the latter entitled "Precepts recommended for the guidance of the public in their relations with the profession."

The code on the whole follows the "Principles of Medical Ethics" of the A. M. A. but goes beyond it in several points. An honor court is provided, the Consejo de Disciplina Profesional, which can impose the penalty of exclusion from medical meetings (*las juntas medicas*) for a period not exceeding four months for the first infraction. The council is to be composed of five members, elected by the academy for a two year term by secret ballot, three to be members of the academy and the two others qualified physicians residing in Caracas but not belonging to the academy. The decisions of the council after approval by the academy are to be communicated to all the physicians in the town where the accused resides, to all the members of the academy, and to all the medical faculties in the country.

The provision that a physician is free to choose whom he will serve is limited by the obligation to attend another physician who has need of his services, or when there is no other qualified physician in the locality where he lives. In the section on advertising, it is stated that it is unprofessional to announce or publish in any manner that a physician is giving his services or medicines free to the poor; to invite lay persons to witness operations; to establish an office or consulting room in the same building in which there is a drug store; recommend publicly or privately any special pharmacy, and to treat gratuitously wealthy persons, without justified cause, in order not to injure the interests of other members of the profession. Section 15 states, "It is the duty of physicians to combat *el industrialismo y el charlatanismo medicos* in whatever form they may appear, and to oppose by every legal method the preparation, the sale, the propagation and the use of secret medicines as well as the absurd and gross practices with which charlatans and impostors exploit the public. The same conduct should be observed in respect to the illegal practice of medicine, and the methods or systems which do not rest on any scientific base or are in open opposition to facts demonstrated by observation and experience."

A chapter with thirteen sections is devoted to medical secrecy. It states that it is the duty of physicians, surgeons, pharmacists, dentists and midwives as well as interns and male and female nurses, to preserve as a secret whatever they may see, hear or discover in the practice of their profession or outside of their direct ministrations and which should not be divulged. It defines that telling even one isolated person destroys the secrecy. The exceptions are when a physician is serving as examiner for an insurance company, or as expert appointed by the court in civil and criminal cases or when he is serving as health or town officer, or makes out death certificates and declares contagious diseases. As insurance examiner, the obligation to secrecy is binding if the person to be examined has recently consulted him privately. Section 73 declares that the physician must regard the most absolute secrecy when he establishes the presence of venereal disease in a married woman. He must not only refrain from acquainting her of the nature of her malady, but he must guard against any suggestion that her husband might have been the source of her contagion. In consequence he should never deliver any certificate nor make any deposition in such a case, not even when the husband gives his consent thereto. Section 75 specifies that when a physician knows that a healthy woman is nursing a syphilitic infant, he must appeal to the parents of the child to inform the nurse. If they refuse, he should inform the nurse that she is exposed to contagious disease, but without naming it, making arrangements that she should give up the child at once, but stay in the house long enough to determine whether she has been already infected. If the parents object to this and insist on the woman's continuing to nurse the child, he

will inform the nurse of the risk she is running of contracting a contagious disease. Two other sections specify that the physician can without conflicting with his professional obligations denounce crimes of which he may learn in the practice of his profession, and reveal the secret when it is a question of preventing a judicial error.

Other sections state: "The physician's office is neutral ground where he may receive and treat all the sick, whoever may be their attending physicians and whatever the circumstances that may have preceded the office consultation. . . . A married woman should never be examined except in the presence of her husband or some member of her family authorized by him. . . . Except in emergencies, general anesthesia should not be administered unless there are at least two qualified physicians present. . . . The obstetrician must obtain the authorization from the woman before doing therapeutic premature delivery or abortion or embryotomy on the living fetus."

The "precepts for the public in their relations with physicians" state: "The benefits which the public derives from medical charity, incessantly practiced, are so numerous and so diverse that the profession, considered as a whole, has a legitimate right to the consideration and the respect of the community. The community should appreciate at their true value the titles, the merits and the labors of the physician; should discriminate between true science and the pretensions of ignorance, between honorable professionals and the *industriales de la medicina*." "The public should favor and stimulate by every means the study of the medical sciences. Every sick person should select for his attending physician one who has received a regular and complete scientific medical education, as it is impossible to suppose that in medicine—a science difficult and complicated beyond all others—knowledge is intuitive or can be acquired with greater ease than other sciences."

"The attending physician once selected, should not be changed, as this physician's continued experience with the constitution, the habits, the hereditary predispositions and the idiosyncrasies of his patient renders him better able to conduct treatment with intelligence and success. The patient should avoid the visits, even the social and friendly visits, of every physician except his attending physician, and if he cannot avoid them, he should not refer to his sickness or the treatment and regimen which have been prescribed for him." "The patient or the family wishing to change physicians, must first pay the charges of the hitherto attending physician and courteously inform him of the reasons for the change." The last sections warn the patient to be always ready to receive the physician when he comes, to save wasting his time, and not to insist unnecessarily on his coming at hours that interfere with meals and rest. "After recovery, the patient should not forget the obligations of a moral nature which he has contracted with the physician, for the services of a physician are of such a nature that mere pecuniary remuneration does not discharge the obligation."

Medicina Ibero, Madrid

May 25, 1918, 3, No. 29

62 *Present Status of Ocular Tuberculosis. Basterra.—p. 213.

63 Fracture of the Patella. J. Blanc.—p. 216.

64 The Tonsils. Prada.—p. 218.

65 Cysts on the Face. Sicilia.—p. 220.

June 1, 1918, 2, No. 30

66 History of Medicine in Spain. E. G. del Real.—p. 241.

67 Perforating Gastric Ulcer. J. Blanc.—p. 244.

68 Psychasthenia. A. Salazar.—p. 245.

62. **Ocular Tuberculosis.**—Basterra remarks that the tuberculous origin of ocular affections of the most varied kinds is recognized to be far more common than was formerly supposed possible. Experience has demonstrated further the comparative frequency of spontaneous cures of what seemed very grave lesions. Small tuberculous lesions of the conjunctiva seem most promising for excision or cauterization with heat or chemicals. He excised a lesion of this kind with the bistoury a year ago and applied the actual cautery to the site. The cure has been complete to date. In another case a woman of 72 had tuberculous lesions in the conjunctiva of

both lower lids. They were treated with 50 per cent. lactic acid, and the patient has been cured for over a year. Surgical treatment is also the best for tuberculous lesions in the lacrimal sac and duct. Cases are known in which tuberculous lesions of the eyes absolutely rebellious to local treatment, subsided spontaneously during a course of sanatorium treatment or sojourn in the mountains.

The records of tuberculin in ocular tuberculosis are conflicting, but enough successful cases have been reported to justify its use in connection with general and local measures. The technic for giving tuberculin for diagnosis and treatment is explained in minute detail, as also the various local measures that have been recommended.

Prensa Medica Argentina, Buenos Aires

June 30, 1918, 5, No. 3

69 *Joint Manifestations of Tardy Inherited Syphilis. M. R. Castex and R. Denis.—p. 25. Continuation.

70 Diagnosis of Tuberculosis in Children. G. A. Alfaro.—p. 31.

71 *Reconstruction of Lip after Removal of Cancer. A. A. Alsina.—p. 34.

69. **Joint Manifestations in Tardy Inherited Syphilis.**—Castex and Denis continue their article, calling attention in particular to the case they describe in which spondylitis with ankylosis, of the Bechterew type in its most pronounced form, is evidently a manifestation of tardy inherited syphilis. They have been unable to find a similar case on record in which syphilis was incriminated. The syphilitic origin in this case is evidenced by joint manifestations elsewhere which yielded to treatment for syphilis, and by syphilis in the parents. The spinal ankylosis had become too solidly established during the eight years since it first attracted attention for any benefit to be anticipated from antisyphilitic measures at this late date. The patient is a married man of 35, who at the age of 25 developed lumbar pains and supposed sciatica, rebellious to treatment as for rheumatism, and the ankylosing spondylitis soon followed. Under vigorous treatment for syphilis there has been no further progress of the spondylitis, and all the other disturbances have subsided. Another argument in favor of the inherited syphilis as the cause of this deforming spondylitis is the fact that the patient's brother recently developed an acute and extremely painful hydrarthrosis of the elbow, rebellious to the salicylates, which subsided promptly under potassium iodid. Both the men present unmistakable stigmata of inherited syphilis. In the majority of the cases illustrated, the lesions had been ascribed to tuberculosis, and futile treatment long applied on this basis and operations done. An increase in the pain at night is suspicious of a syphilitic origin. In case of doubt, they add, a well conducted intensive course of specific treatment never does harm.

71. **Reconstruction of Lower Lip After Removal of Cancer.**—Alsina reports excellent results from application of Doyen's three-triangle method, with illustrations of a case.

Revista Ibero-Americana, Madrid

April, 1918, 39, No. 164

72 *Connection between Mikulicz', Hodgkin's, Banti's, Alibert's and Paget's Diseases. D. R. Lozano.—p. 241.

73 Physiotherapy of Gastric Ulcer. S. Carro.—p. 255.

74 *Epinephrin in Asthma. G. Triviño.—p. 271.

75 Treatment of Valvular Disease. A. Mut.—p. 277.

76 Blood Diseases. G. Pittaluga.—p. 287.

77 Transvesical Prostatectomy. C. Negrete.—p. 299. Conclusion.

72. **Connection Between Mikulicz', Hodgkin's, Banti's, Alibert's and Paget's Diseases.**—Lozano concludes from study of the literature and his own clinical experience that Mikulicz' and Hodgkin's diseases are very much alike, and transitional forms are comparatively common. The same is true, although to a lesser extent, of both Mikulicz' and Hodgkin's disease and Banti's disease. Sometimes a fungoid mycosis and Paget's disease present clinical lesions similar to those of these three diseases. If all these diseases are of microbial origin, the portal of entry may be supposed to be in the salivary glands for Mikulicz' disease; in the pancreas in Banti's; in the mamma in Paget's and in the sweat glands in Alibert's. Extreme caution in treatment is necessary as surgical intervention has proved useless or directly injurious,

and roentgen treatment has repeatedly produced disastrous consequences, precipitating cachexia.

74. Epinephrin in Asthma.—Triviño has used epinephrin in twenty-two cases of asthma and, with one exception, the results were highly encouraging. In this one exception, there may have been a complicating emphysema. In other cases the patients were always relieved within twenty minutes. He followed the technic advised by A. Hertz who has had considerable clinical experience besides his experience with asthma in his own person. He found that injection of 3 drops of the usual 1 per thousand solution of epinephrin gave prompt relief, but the by-effects were disagreeable. Reducing the dose to 2 drops or even 1 drop proved usually efficient without the by-effects. Triviño did not find the relief so immediate as others have reported, but it was always experienced within twenty minutes.

Revista del Instituto Bacteriologico, Buenos Aires

January, 1918, **1**, No. 2

- 78 *Normal Beef Serum in Human Anthrax. J. Penna.—p. 115.
79 Necessity for Standardization of Anti-Anthrax Vaccine. R. Kraus and P. Beltrami.—p. 133.
80 Spontaneous Sarcoma in Guinea-Pig. C. Miguez.—p. 147.
81 Transmission of Epithelioma of White Rat. A. H. Roffo.—p. 155.
82 *Toxicity of Emetin. J. Guglielmetti. B. A. Houssay and R. F. Vaccarezza.—p. 161.
83 Action of Snake Venoms on Carbohydrates, Fats and Milk. B. A. Houssay and J. Negrete.—p. 173.
84 *Production of Diphtheria Antitoxin. R. Kraus and A. Sordelli.—p. 195.
85 *Infectious Bulbar Paralysis. J. Negrete and Kantor.—p. 205.

78. Normal Beef Serum in Treatment of Anthrax.—Penna gives the bases and the history of this treatment and the favorable results, as already mentioned in these columns and editorially.

82. Toxicity of Emetin.—The experimental research related demonstrates that the promptly lethal dose for laboratory animals is from 0.0075 to 0.02 gm. per kg. The drug displays marked cumulative action; dogs succumb when given one tenth of the fatal dose on successive days. The lethal dose for man is not known, but severe toxic cumulative action is reported in three adults given emetin for amebiasis, one taking thus a total of 1.08 gm. of emetin hydrochlorid in the space of thirty-three days by intravenous injection. Another was given five daily subcutaneous injections of 0.10 gm. and the other patient, eight of 0.06 gm. each, then suspension for eight days and resumption of the series. It had to be arrested at the fourth injection of the second series on account of the severe toxic symptoms. They persisted for two weeks.

84. Improved Technic for Production of Antitoxic Serums.—THE JOURNAL has already mentioned the success of Kraus and Sordelli in obtaining antitoxic serums of greater potency and in a much shorter time than with other technics (twenty days). They found it best to use old horses, and injected the toxin, neutralized with antitoxin, repeating the injections twice a week in progressive doses.

85. Infectious Bulbar Paralysis.—Negrete and Kantor report experimental research on this disease of domestic animals. It is known as pseudo-rabies in Brazil, the only country in South America in which it has been reported, but it is entirely distinct from rabies. The mouth and nose seem to be the natural portals for infection, and the nasal secretions and the urine of the infected animals are infectious. They found it impossible to immunize against the infection.

Revista de Medicina y Cirugia, Havana

July 10, 1918, **23**, No. 13

- 86 *Idiosyncrasy for Dichloramine-T. E. F. Soto.—p. 351.
87 *Ocular Tuberculosis. F. M. Fernandez.—p. 353.

86. Idiosyncrasy to Dichloramin-T.—Soto relates that he applied dichloramin-T in a case of rebellious purulent ethmoiditis. He ordered the woman to use the dichloramin-T in a 0.5 per cent. dilution, in the form of a spray, morning and evening. The atomizer used was made entirely of glass, and she was instructed not to squeeze the bulb more than ten times at one application. By the fifth day of this treatment the nose, lip, and cheeks had become much swollen and

blistered, as also the nasal mucosa. On suppression of the spray the whole subsided in a few days. Thinking that the preparation of the spray had been defective, he had a new supply prepared, but this caused the same disturbances as before, even more pronounced.

87. Ocular Tuberculosis.—Fernandez discusses ocular tuberculosis in its various localizations, the diagnosis, treatment and prognosis. As a rule, he remarks, ocular tuberculosis is secondary, but usually the primary focus is latent. Ocular lesions rarely accompany pulmonary tuberculosis. Any ocular mischief of a chronic character should be regarded with suspicion, and the diagnosis made by exclusion, the tuberculin test, and the family antecedents.

Revista Medica Cubana, Havana

May, 1918, **29**, No. 5

- 88 Science in General. J. Santos Fernandez.—p. 233.
89 *Helminthology of Cuban Children. E. Cuervo.—p. 242.
90 Tumors of Umbilical Cord. S. G. Marruz.—p. 247.
91 Recurring Torsion of Spermatic Cord. G. Pujadas.—p. 250.

89. Helminths in Children in Cuba.—Cuervo cites the works that have been published to date on intestinal parasites in Cuba, and reviews his own research.

Revista Medico-Cirurgica do Brazil, Rio de Janeiro

May, 1918, **26**, No. 5

- 92 Gorgas' Work in Panama. J. P. Fontenelle.—p. 193.
93 *Medicolegal Institutes. L. Ribeiro, Jr.—p. 196; E. N. Silva.—p. 204.
94 *Host of the Trypanosoma Cruzi. C. Chagas.—p. 220.

93. Necessity for Founding Medicolegal Institutes.—Ribeiro laments that the teaching of forensic medicine at the University of Rio de Janeiro has had to be exclusively theoretical except when the professors in charge have accomplished the impossible in procuring material. There is no regular provision for practical instruction and expert forensic medical testimony. Silva describes the morgue and medicolegal institutes in other cities. Even Bahia in northern Brazil has its new autonomous Instituto Medicolegal, and Prof. O. Freire, in charge, has organized in connection with it a medicolegal council.

94. Permanent Host of Trypanosome of Chagas' Disease.—Chagas found that fully 45 or 50 per cent. of the armadillos—mammals which abound in Brazil—caught in regions infested with Chagas' disease contained the special causal trypanosome. The animal does not seem to be affected at all by the presence of the trypanosome although the latter is extremely virulent for man. The intermediate host, the biting bug, *Lamprophya megistus*, may possibly be a parasite of the armadillo, as certain epidemiologic facts observed in Africa suggest that the trypanosome of African sleeping sickness can flourish under natural conditions in vertebrates other than man.

Revista de Medicina y Cirugia Practicas, Madrid

July 7, 1918, **120**, No. 1513

- 95 *Juvenile General Paralysis. R. del Valle.—p. 5.
July 14, 1918, **120**, No. 1514
96 *Diagnosis of Sciatica. J. Blanc y Fortacin.—p. 39.

95. Juvenile General Paralysis.—Del Valle cites the compilation in a recent Paris thesis of sixty-three cases of general paralysis in persons between 13 and 22 years old. The author was impressed with the frequent coexistence of infantilism of thyroid origin, and in one case he observed marked improvement under thyroid treatment.

96. Diagnosis of Sciatica.—Blanc warns to be wary of diagnosing sciatica in the young. In a case described a youth of 16 on getting up after resting for a few minutes after an athletic game, experienced intense pain in the sciatic region with contracture of the psoas. The pain continued intense for two weeks with no relief from measures applied for the assumed sciatica. The neck of the femur was found to be fractured, with sequestrs and signs of an old fungous process. Resection of the joint was imperative and the post-operative course has been excellent. Roentgenoscopy in this case had failed to give instructive findings.

Revista Medica del Uruguay, MontevideoMay, 1918, **21**, No. 5

- 97 *Annular Dystocia. J. C. Carlevaro.—p. 199.
 98 *Placenta Praevia. C. P. Colistro.—p. 204.
 99 *Familial Periodic Paralysis. P. E. Nuñez.—p. 208.
 100 *Hernia of Pouch of Douglas. C. Stajano.—p. 229.

97. **Annular Dystocia.**—The special feature of the case reported was the successful application of the forceps according to Lorient's single hand method.

98. **Twin Birth with Placenta Praevia.**—The placenta praevia was of the marginal type. Treatment of the hemorrhage was exclusively obstetrical as in all cases of low placenta praevia at the Montevideo maternity. The mortality of the thirty mothers was 3.33 per cent., and of the children, 23.24 per cent.

99. **Familial Periodic Paralysis.**—Nuñez remarks that only about seventy cases of this disease are on record, and he adds another family to the list. The grandfather died at 58 after having had attacks of paralysis recur every two or three months after the age of 16. The attacks always came on during sleep, and they never lasted for more than two days. Of his eight children, three presented similar attacks, beginning at 13, 16 and 19, but the intervals were longer, sometimes over a year. One is a bachelor, the others are women with seven and two children. Of the two children, one boy is epileptic, the other boy healthy, but neither is over 9. The three boys in the other woman's family of seven children all present the disease.

Of the total seven cases, two terminated fatally during an attack. In none of the cases are there prodromal symptoms. One of the grandchildren—a painter of 23—had forty-six attacks in the hospital during the year of his stay. The electric reactions are remarkable in that the muscles and nerves seem well nourished and active and respond normally to electric tests during the intervals, but during the attack they respond no more than if they were in a cadaver. As soon as the attack is over, however, they regain at once their full sensibility.

100. **Hernia of Pouch of Douglas.**—The woman of 66 had borne eight children. She applied for relief from a large tumor which appeared in the vulva at the least effort, and had been growing larger during the last six years.

Revista Sud-Americana de Endocrinologia, etc., MontevideoJuly, 1918, **1**, No. 7

- 101 Bacilli Resembling Anthrax Bacilli. C. Spada, Jr.—p. 167.

Semana Medica, Buenos AiresMay 23, 1918, **25**, No. 21

- 102 Campaign against Tuberculosis. L. Agote.—p. 579; E. R. Coni.—p. 592.
 103 Radiologic Ambulance: Heuser Model. C. Heuser.—p. 583.
 104 The Vegetable Pear as Useful Fruit. A. D'Alessandro.—p. 586.
 105 *Simulation of Sex. M. G. Vasquez.—p. 588.
 106 Visual Acuity in the Schools. P. B. Ferro.—p. 589.

105. **Simulation of Sex.**—Vasquez was called to make out the death certificate for a man of 90 who had been born and died on a small farm near Buenos Aires. He had buried his wife many years before and had always been a respected citizen. The body proved to be that of a normally formed woman, with hymen intact.

Siglo Medico, MadridJuly 6, 1918, **65**, No. 3369

- 107 Facial Paralysis in a Syphilitic. E. F. Sanz.—p. 522.

July 13, 1918, **65**, No. 3370

- 108 *Diathermy in Gonorrhea. B. N. Canovas.—p. 545. Conclusion.
 109 Photographic Register of the Pulse. M. Gil-Casares.—p. 554. Conclusion.

108. **Diathermy in Gonorrhea in the Male.**—Canovas reviews his favorable experience with gonorrhea given from five to thirty applications of diathermy. Seven of the men were cured, their gonorrhea dating from one to fourteen weeks, and three years. In eight other cases there was a clinical cure but the bacteriologic cure was not verified. Five others were much improved but a complete cure was not established although thirty-five applications were made

in one case, dating from thirteen months, and eighty-four applications in a case of only two weeks' standing. Only one patient showed no benefit from the diathermy; his gonorrhea was of seven years' standing and forty-one applications were made. One of the men who had gonococcus prostatitis had suffered for two years from pain in the anal and perineal region with recurring gonorrheal discharge. By the third application of the diathermy, the pains and the discharge disappeared and did not return even after drinking copiously of beer. Five more applications were made to confirm the cure. There was gonococcus prostatitis in a number of the cured cases.

Mededeelingen van de Burg. Geneesk. Dienst, Batavia

1918, No. 2

- 110 Systematic Study of Health Conditions among the Workers in Lampong District, Java. H. N. van der Heyden and others.—p. 1. Dutch and German edition.

Hygiea, StockholmApril 30, 1918, **80**, No. 8

- 111 *Hemolytic Jaundice. V. Edman.—p. 433.
 112 Pathologic Changes Found in Spleen in Two Cases of Congenital Hemolytic Jaundice. N. Wessen.—p. 453.

111. **Splenectomy for Hemolytic Jaundice.**—Edman reports two cases of congenital hemolytic jaundice treated by splenectomy, and several other cases happen to be mentioned in the different society proceedings in this issue, with discussions and review of the literature. Edman's two cases were the first published cases in Sweden in which the operation was done on a correct diagnosis. His patients were a middle-aged woman and her son of 18. Both mother and son had presented jaundice since early childhood, and the spleen had gradually become much enlarged. Both had been submitted to vigorous roentgen treatment without benefit, except slight subsidence of the spleen. The other symptoms had become aggravated. The mother had hemoglobin of 45 per cent., reds 2,940,000 and blood index of 0.76, and with the resistance test the findings were 0.46 to 0.50 per cent. Six weeks after the splenectomy the figures were: hemoglobin 58; reds 4,610,000; blood index 0.84, and the resistance findings normal. The jaundice bleached out by the third day and there was not a trace left in two weeks, and tests for urobilin and urobilinogen have been constantly negative since in both mother and son. In two cases of hemolytic jaundice Troell instead of removing the spleen, ligated part of the hilus, seeking thus to shut it off almost completely from the circulation, as a milder equivalent for splenectomy in a girl of 16 with Banti's disease, and in a woman of 65, with pernicious anemia. The effect on the blood disease seemed to be excellent, but the spleen was too pathologic to stand it, and sloughing and a fistula required operative measures later. The findings with ligation of a normal spleen in a healthy laboratory animal cannot be compared with those in the pathologic spleen of Banti's disease or hemolytic jaundice. Neither the ligation nor splenectomy arrested the fatal termination in the two pernicious anemia cases. Progressive improvement was pronounced in his hemolytic jaundice case after splenectomy.

Ugeskrift for Læger, CopenhagenJuly 11, 1918, **80**, No. 28

- 113 *The Coarse Bread Question. E. C. van Leersum.—p. 1081.
 114 Quackery in Denmark. G. Jepsen.—p. 1094.

113. **Absorption of Nitrogen from Coarse Bread.**—Van Leersum presents evidence to show that the degree of the utilization of the nourishment in coarse bread depends on the length of the sojourn of the food in the alimentary canal. When it is passed along rapidly, with vigorous peristalsis, it does not afford the nourishment that it does when the bowel movements are sluggish and time is given for greater absorption. This explains the differences between the results reported by different writers on this subject of coarse bread. For the constipated, the presence of the bran ensures better utilization of the nutrient elements in the bread. For persons with normal peristalsis, the admixture of bran stimulates the peristalsis, and thus hastens the passage of the food, with the consequence that the use of coarse bread signifies a loss in the amount of nitrogen absorbed.

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SYMPOSIUM ON SYPHILIS IN ITS ECONOMIC ASPECTS

HANDLING OF THE VENEREAL PROBLEM IN UNITED STATES ARMY IN THE PRESENT CRISIS*

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If we could handle venereal diseases as we can other infectious diseases they would offer a relatively simple sanitary problem. We know all of the facts necessary for their sanitary control. We know their causes, their incubation periods, and their modes of transmission; and these facts so far as they are physical facts offer no practical obstacles to sanitary control. But for all that some sanitarians may say, the venereal diseases cannot be handled simply as a sanitary problem. No effective policy is practicable which would isolate them like measles or scarlet fever; or quarantine them like smallpox; or, even in the present state of sentiment, get them successfully reported. They involve factors peculiar to themselves—social, personal and moral factors that reach into the most insistent and secret impulses of life. These facts make the problem of their control extremely difficult; make it a social as well as a sanitary problem and, without question, the most complex and difficult of social problems.

The Army program has taken full cognizance of both phases of this problem. It can readily be seen that they require very different treatment, and that in coordinating the forces necessary to attack them in a practical campaign, there may be need for tact, judgment, tolerance and sympathetic cooperation. In this attempt the dangers are many of cross purposes, of exaggeration of the importance of one part of the program over the other, of irreconcilable conflicts between radicals on the two sides, especially of having the moral propaganda run away with the medical. We all know to what extremes the sexual moralist can go. How impractical, how intolerant, how extravagant, even how unreasoning, if not scientifically dishonest, he can be. On the other hand, the medical man can make no boasts of the cool, dispassionate, scientific intelligence that he has brought to bear on

the problem. He is usually an infant in the knowledge of the epidemiologic facts of the venereal diseases and of the work that has been done on them as a sanitary problem. If he does not content himself with a mild mistrust of social and moral propagandas for influencing their prevalence, he is apt to have opinions about what he fondly regards as the practical aspects of the sexual problem, which are not the less vigorous because he has given very little serious study to the subject.

A very practical proposition has been to avoid the danger of being carried away by extremes in policy in either direction. Up to the present time, however, this danger has not actually obtruded itself.

METHODS OF PREVENTION

All of the methods of attack on the venereal diseases may be grouped into four classes: (a) Social measures to diminish sexual temptation; (b) education in regard to venereal diseases; (c) prophylactic measures against venereal diseases, and (d) medical care.

SOCIAL MEASURES

Social measures to diminish sexual temptation divide themselves in two sorts of activities: (1) the repression of prostitution and of the liquor traffic, and (2) the provision of proper social surroundings and of opportunities for recreation and diversion.

However unjust it may seem to some, the repression of prostitution and of the liquor traffic are logically classed together. In the spread of venereal diseases they go together. The liquor traffic in numerous ways is the fosterer of prostitution. And the effect of alcoholic liquor is a factor that cannot be overlooked in the diffusion of venereal diseases, because of the inhibition which it produces in those restraining influences that under ordinary conditions prevent man's giving way to his impulses.

It has been recognized, then, by the Army that keeping liquor away from soldiers is of fundamental importance in the program of attack on the venereal diseases. It is not necessary to go into the measures which the government has enacted to keep alcoholic liquors away from the soldiers. It may be said, however, that these measures are being enforced, and that the amount of alcohol consumed by the present Army of the United States is negligible. There is an occasional bootlegger, and a small amount of liquor gets to the soldier in devious ways; but it is, in the total, inappreciable. For all practical purposes the United States Army at the present time is a body of total abstainers. This fact is undoubtedly a very great factor in keeping down in the Army the incidence of venereal diseases.

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

The control of the liquor traffic and of prostitution has been one which has called for cooperation between federal and local authorities. Of course, inside cantonments and other government reservations the federal authorities are supreme. In addition to this federal area, a district has been provided by law, consisting of a zone, at present designated by the Secretary of War to be 5 miles, around each of the cantonments. In these zones the federal authorities are in position to control completely the liquor traffic and the various conditions which encourage prostitution. Even, therefore, where cantonments are situated near districts presenting the worst social conditions, the government is able to make prostitution difficult, and is very effectively doing it.

Outside the zones, the federal government can still exert great influence as regards these conditions, and, as necessity compels, is doing this. But for the most part, when it comes to the question of controlling prostitution and liquor traffic outside the zones, reliance has been placed in great measure on the local civil authorities. I think it can be said with considerable satisfaction that communities have almost without exception realized their responsibility in these matters and have responded as well as the most sanguine could have asked in their efforts to improve them. Cities have cleaned up in the last few months that have never cleaned up before; to such an extent is this true, that conditions in regard to prostitution in this country are the best today that they have ever been.

The cause of this is the awakened public conscience; the determination of our people to do the best they can for their soldiers. To attain this, much has been done in directing the public conscience, in discovering the conditions that need correcting, and in showing the public useful avenues of work.

In this ticklish business the Army is not trusting to well meaning amateurs alone. It has its own trained forces in the field, recruited largely from the experienced workers of such organizations as the American Social Hygiene Association. Vice conditions are minutely studied, and are known with a fulness that is surprising. Often, as a result of this, the condition of prostitution in a community has been revolutionized for the better almost in a day. More often the improvement is less magical. But the pressure is everywhere, most about camps, and is resulting in rapid betterment.

The interest of the intelligent public, not merely of the intellectual classes, but of the every-day citizen, in the menace of venereal diseases, has been accumulating in the last few years. The war has stimulated this to a point at which you can get the public to support any policy concerning them that is sane and useful. This makes the present time a unique opportunity for attacking the problem, and sanitarians are showing a disposition to utilize it. Everywhere the work for the control of venereal diseases is stimulated and many new approaches to the problem are being developed.

You can hardly find a district where there is not some manifestation of this activity. New and better ordinances and sanitary regulations in regard to venereal diseases are being enacted, and more intelligence is being applied to their enforcement. Municipal clinics for the treatment of venereal diseases are being established. Established clinics are being reor-

ganized to do better work. Hospitals for venereal diseases are being provided; even, in some places, isolation hospitals for venereal cases are in operation. Evidence of this sort of activity is found everywhere from the Atlantic to the Pacific. There has never been any systematic widespread attack on venereal diseases in the country before. There is now an almost universal and, for the most part, intelligent attack carried on.

The state councils of defense have generally taken up the work in their various states. Private organizations interested in public welfare are helping the campaign in innumerable communities. The aggregate, therefore, of work which is being contributed by forces not directly controlled by the federal government is not easy to be estimated.

The second group of measures to diminish sexual temptation are embodied in the provision of proper social surroundings and recreations. Applied to the Army, this means the furnishing of healthy social conditions and of opportunities for diversion for the soldiers at periods of leisure in camp, or when they are traveling, or on leaves of absence outside of their camps. In the camps the government has through the Commission on Training Camp Activities pursued a policy which, it seems to me, is of the highest intelligence in regard to the provision of recreations. The situation has been conceived to be much the same as that of a college community, where there are a large number of young men brought together, who have recently been detached from their familiar home surroundings; and it has been handled with college activities as the example to be followed. All of the wholesome forms of play which constitute the familiar recreations of college life have been included, and are encouraged and supported. The effort is to create the same sort of a class spirit among the men; to get them interested in their diversions and to excite in them a pride in their sports as in their work.

In furnishing proper social surroundings and facilities for recreation in the camp, the authorities have availed themselves of the invaluable experience of organizations which have been working so long in these fields in civil life, such as the Y. M. C. A., the Knights of Columbus and the Y. W. C. A. These organizations are not only doing incalculable work for the soldier in the cities; they are doing a greater one in the camps, where they have adapted themselves to military conditions.

Outside the cantonments and the zones, there has been an appeal to the civil population to add their part in this work. I think you are all more or less familiar with the cordial response which the public has given to this appeal. Hardly a community (no community that I know of) has failed to respond to this appeal to aid. What some communities have done amounts to examples of almost illimitable hospitality.

EDUCATION

The same civil agencies that have been working against prostitution have been active in the campaign of education of the public in sexual matters and in the dangers of venereal diseases. Education as to the dangers of venereal diseases has been a part of the general campaign. While the work of education has not been as extensive among the civil population as it has been among the soldiers, it has been by the same methods; the aggregate amount of it is very

large and is undoubtedly doing a very practical amount of good. Nor has this campaign of education in the danger of venereal diseases been confined to the boys. It has been extended to the girls; and such organizations as the Young Woman's Patriotic League are reaching out to the girls; telling them the danger of venereal diseases and fostering in them a sense of their responsibilities in these matters. The General Federation of Women's Clubs, the Women's Christian Temperance Union, the Y. W. C. A.—such women's organizations as these are giving their powerful support to this work.

When it comes to the soldiers, the work of education is systematic and so thorough that it reaches every man. All of the agencies that have been mentioned already are lending their cooperation in this work. The work is guided and largely done by the War Department Commission on Training Camp Activities and the Social Hygiene Section of the Surgeon-General's Office. Instruction is given by lectures, by pamphlets, and by exhibits and moving pictures. But reliance is not placed solely on measures of general instruction.

Lectures and exhibits and pamphlets for the soldiers in general serve a useful purpose, but they do not reach the soldier that is most in need of them. To reach the soldier in the way that is unfailing and that makes a real impression on him is through his company commanders—the men from whom he takes his orders, and to whom he naturally looks for guidance. Through this channel pamphlets are distributed to him that give safe and unsensational information. But much more telling than this, company officers, both line and medical, give lectures to their men on sexual matters and the danger of venereal diseases. Every soldier is instructed on this subject. This is not a matter left to the volition of the officer; it is a matter concerning which he is under orders and the performance of this duty is seen to by checking up as in other important matters.

It is a difficult thing to get a good popular lecture to young men on sexual matters. In one quarter we get the maudlin; in another the extravagant, sensational and untruthful; in another the unreasonable and impractical; and even when the lecturer is sane, and honest, and wants to tell the truth, it is hard to get actual knowledge of the subject, and harder still to put such a lecture into form. To overcome, as far as possible, these difficulties, company officers are provided with full lectures on these subjects which they can use as such or as a basis for lectures of their own.

The lectures on sexual hygiene and venereal diseases given by company officers to their men are not inane, pseudomoral stuff. They are plain, serious, instructive talks given by practical men. These lectures reach all of the men; the two million men now under arms for the United States have been instructed more systematically and probably more intelligently than any other large body of men have ever been instructed in sexual and venereal subjects. It is not making saints of them; but it is doing a great deal in saving them from venereal diseases.

SEGREGATION OF PROSTITUTES

It will doubtless be noticed that in this program for the repression of prostitution nothing has been said about segregation, and that no part of it includes either the examination or certification of prostitutes.

In the program everything possible is tried to discourage prostitution. It is a part of the policy to stimulate activity in providing adequate care of venereal diseases among the civil population, to the end, for one reason, that the numbers of venereal disease "carriers" shall be reduced as much as possible. There has been a very noticeable access of energy in the public care of venereal diseases as a result of the whole program that we have been considering. But the segregation of prostitutes and the regulation of prostitution in the Continental sense, that is, the examination of prostitutes, their certification and their toleration in definite districts, have not been included in this program, because they have not been regarded as advantageous.

In the attempt to coordinate social and medical forces in an attack on venereal diseases there is danger that the social forces may be allowed to overshadow and to cause the neglect of proper medical measures. They are so appealing to the moral and religious ideals of human nature, while the medical side has no such call; and the moral propagandist is apt to be intolerant of practical considerations.

There is always the possible danger of an unreasoning propagandist trying to run away with the situation. The fears of this were well expressed by Colonel Lyster¹ of the Army in an article on venereal diseases and the war. He says:

"Now as to our new Army and the future: Higher rates will probably prevail for some time, but hope is backed by knowledge that we have the means, if we can apply them, of controlling this great producer of nonefficiency in armies.

"The greatest enemy to its [the Army's] health is venereal diseases. A continuation of the orders and methods successful in the Army from 1908 to date will make a successful answer to that challenge of disease. But no misleading and impractical fanatics must be permitted to have a hand in this question of national efficiency."

As far as I can sense the situation this danger has not yet materialized.

The two parts of the program have not proved unworkable together, and the forces behind the social program have not minimized the importance of or interfered with the effective administration of the medical program.

MEDICAL PROGRAM

The second division of the program is the medical.

The first part of this is prophylaxis to prevent infection after exposure. This, in the opinion of venereologists, is the crucial part of any program to reduce the prevalence of venereal diseases; omit it and you have omitted the most important single practical weapon we have for fighting this plague.

This part of the program is in universal effect in the Army and care is taken to see that it is thoroughly carried out. Venereal prophylaxis is a part of the duty of every regimental infirmary and of every other infirmary that has in its care the health of a unit of soldiers. The regimental infirmaries do most of this work and its conduct in the regimental infirmaries may be taken as an illustration of it in general. Everything for giving prophylactic treatment is always accessible in every regimental infirmary. The medical officers are responsible for it and it is carried out by specially trained noncommissioned officers. As far as

1. Lyster, William: Venereal Disease and the New Army, *THE JOURNAL A. M. A.*, Oct. 13, 1917, p. 1257.

possible selected men are chosen for these positions. I have inspected a good many regimental infirmaries and I have been impressed by the superior grade of these noncommissioned officers. Such an officer is constantly on duty and the returning soldier can get prophylactic treatment at any time in the twenty-four hours that he applies for it. This is a matter of general policy and is checked up by medical inspectors. It is seen to as far as possible that the conduct of prophylactic treatment is carried out seriously, without allowing an atmosphere of levity or obscenity to creep in.

The necessity for medical prophylaxis is instilled into the soldiers' minds. They are universally told that it is not a sure preventive of infection; that the sooner it is applied the more likely it is to be effective; and that after eight hours it is likely to be ineffective. The taking of it, if exposed, is a matter of army regulation. If a man contracts venereal disease, he is not punished beyond losing his pay while the disease disables him for duty, provided he had prophylaxis after exposure. But if he contracts a venereal disease and has not, according to regulations, had prophylactic treatment, he is court-martialed for disobedience of orders and, if convicted, is punished.

Wherever I have been, there is invariable testimony to the value of medical prophylaxis. The number of cases of venereal infection that develops after prophylaxis is surprisingly small. I have visited several regiments where no such cases had developed since mobilization.

Among the measures which are regarded as prophylactic must be included two others; one is the loss of pay which, according to army regulations, disability from venereal disease entails; the other is the fortnightly physical inspections. Both of these, in force since 1912 (Lyster), are regarded by army authorities as very important measures in the reduction of venereal diseases.

MEDICAL CARE OF VENEREAL DISEASES

The second item in the medical program and the last item in the entire program is the medical care of those who are venereally infected. Necessarily the first step in putting into practical force the care of venereal diseases in the new Army was to obtain a group of competent specialists in their treatment. In going through the personnel of the medical reserve corps there was found a very considerable number of well trained specialists in genito-urinary, venereal and skin diseases. Among these were many of the best known men in the country in this field. The time of the great addition of soldiers to the Army was in September and October, when the National Guard and the National Army were mobilized in the thirty-one cantonments distributed over this country. Provision had suddenly to be made for the venereal care, as for the care of other diseases, of thirty-one cities, each containing a population of from 20,000 to 25,000 men between the ages of from 20 to 30 years.

It goes without saying that equally competent men were not obtainable for all these cantonments; but it can be said that at the time of the opening of each cantonment there was available in each, expert skill in venereal diseases. Since that time, as occasion has required, there have been added to the various camps whatever men trained in venereal diseases were asked for by commanding officers or necessity

seemed to require. Necessarily there was confusion and lack of preparedness in material ways at the time of mobilization in the cantonments; for one cannot build thirty-one cities in three months and at the end of the time have them as complete and finished as though they had existed always. The men in charge of venereal diseases, however, for the most part have shown themselves equal to the situation and the exceptions are few in which those affected with venereal disease have not been able to get adequate care in the cantonment base hospitals.

In the planning of the base hospital of each cantonment, full provision has been made for venereal diseases. It is a part of the policy of the Surgeon-General that acute venereal disease shall be confined to the hospital until the acute infectious stages are past. This means that all cases of acute gonorrhea belong in the hospital and all cases of syphilis which have early active lesions.

It is difficult at times to get this policy carried out. In many divisions the division surgeon has seen the wisdom of this course and has taken his own initiative in putting it into force. In a few places it has been for a time impossible, because of epidemics of acute diseases which have had prior demands on all of the available hospital beds. The policy has been thoroughly promulgated by the Surgeon-General and attention is called to it wherever neglect of it is discovered. This is, in some respects, a new military policy with us. It is one which it is believed will justify itself. It has several arguments for it; one is the great advantage which it affords in gonorrhea of curing quickly and preventing its spread to the posterior urethra; another is the assurance which it gives of thorough early treatment of syphilis, and the rapidity with which the infectious stage is passed; a third, and a very great advantage, is the reduction in the danger of nonvenereal spread of these diseases.

An effort has been made to standardize as far as possible the handling of venereal diseases. The first item of this consists in the hospitalization of acute cases, which has been referred to. There has been no effort to hamper mature men in carrying out established methods of treatment, but their attention has been called to the fact that in the Army team work is desirable, that bizarre and original methods are not necessarily most effective, and that the methods recommended have borne the test of experience. In carrying out this policy a small manual of venereal disease has been issued which includes, in addition to the program of attack on venereal diseases, brief articles which represent present established methods of treatment of the various venereal diseases.

It is part of the program to provide in the base hospitals complete laboratory facilities for the care of venereal diseases. There is provided in each hospital a general laboratory in which Wassermann tests are to be made. It is also part of the Surgeon-General's policy that each venereal service in the base hospital shall have its own small laboratory, equipped for examination for spirochetes and bacteria and for urinalysis examination. These laboratory facilities exist now in most of the cantonments that I have visited; in some they have not been developed. But wherever it is found that they are lacking, their establishment is stimulated.

In addition to the cantonments, there are many other large camps in which the care of venereal dis-

eases is handled on the same plans as has been outlined for the cantonments.

It is part of the program to use the specialists in venereal disease in the division as instructors of other medical officers in venereal diseases. As a rule, the chief of a venereal service in a base hospital is the chief officer in venereal diseases. He is expected to be an instructor of other medical officers and his efficiency is partly gaged, not alone by the care which he gives his patients, but by the efficiency with which he develops his hospital organization, and the way in which he takes part in handling the venereal problem in the cantonment as a whole.

In order to increase efficiency in venereal diseases, three schools have been established for the intensive training of the less experienced men who are in this work. These schools are conducted by well known specialists in genito-urinary diseases and syphilis and skin diseases and are in centers furnishing large clinical material. The instruction furnished by these schools along with the experience that is being gained by the men in the venereal service of the various cantonments and camps, is, to say the least, keeping the men in this work from stagnating. There is little room for doubt that, in most instances, it is increasing the knowledge of the junior officers rapidly. By this means, and by the constant addition of specialists from private life who are coming into the medical reserve corps, it seems safe to believe that, as the demands on this service increase, we will be able to meet them with competent men.

The policy of handling the venereal diseases that I have outlined is that of the Surgeon-General, and, as far as it depends on central authority, it is efficiency carried out. Of course, the success of the medical care of venereal diseases varies greatly in the different cantonments. The organization of the Army, properly I think, gives large discretion to the division commander and similarly to the chief medical officer, who is the division surgeon.

The conduct of medical affairs in the cantonments, therefore, depends to a very large extent on the attitude of those in supreme authority; that is. (1) the commanding general in a cantonment; (2) the division surgeon, and (3) the commanding officer of the base hospital.

If either one of the first two, and the same is true to a less extent of the third, should be obstinate, opinionated and ignorant, and interfere, he could spoil the best efforts of competent chiefs of service under him. I know of no instance where this has been so flagrant as I have just indicated as possible, but I think it is true that there is considerable variations in the efficiency of venereal services due to variations in these commanding officers. Nevertheless, the efficiency of the venereal service is, in very large part, what the chief medical officer assigned to the service makes it. Some of the men taken from civil life are showing great originality and efficiency in this service.

To mention only a few of those whose work I have seen:

Major William W. Townsend at Camp Dix has developed a clinic in the base hospital that meets the most exacting requirements of what such a clinic should be.

Major J. Bayard Clark at Camp Lee showed the same sort of originality before he was called to similar work overseas.

Capt. Victor N. Meddis at Camp Zachary Taylor has developed a highly efficient and well run service.

Capt. Charles M. Williams at Camp Meade has approached the work from another side and has developed an original and most efficient system of looking after venereal diseases throughout the cantonment from division headquarters.

I mention these especially because they illustrate the fact that there is room for the personal equation, for initiative and originality. The various intelligent plans which are developed are all useful additions to our experience in this work; and, partly on account of this fact, large latitude is given to the chiefs in the development of their services. The men previously mentioned undoubtedly could not have made such good showing without the support of their superior officers, but it is equally certain that with the same superior officers less efficient men would have made no such showing. One gains the impression, indeed, that in spite of so-called government red tape, military routine—which the civilian physician seems to regard in the way the public looks at medical etiquette—the equipment of the various hospitals, as well as their competency in other directions to take care of their patients, usually depends on the personnel of its medical officers. Sometimes it is impossible to get the necessary things, but as a rule you find the supplies ready for work in the place which is under the man who either knows how to get easily the things he needs, or is persistent enough to keep after these things until he obtains them, no matter how many obstacles he encounters in the endeavor.

QUALITY OF TREATMENT VENEREAL PATIENTS ARE RECEIVING

Venereal diseases are as a whole receiving excellent attention in the cantonment hospitals. Of course, the same factors of personal equation come in here, and the quality of service furnished in venereal diseases varies with the men who are furnishing it. But the men in charge of this work in the hospitals are trained specialists of long experience, and, without exception as far as my knowledge goes, are applying themselves with the utmost zeal and devotion to it. I have had a considerable opportunity to judge of the quality of treatment they are giving their patients and I believe it is as good as is to be obtained in any other forty hospitals in the United States.

The place where patients with chronic gonorrhea and syphilis are likely to fail to get expert care is in the division as distinguished from the base hospital. The regimental surgeon must be a general practitioner while he is in that position. Adequate care of syphilis and of the chronic complications of gonorrhea eminently demand expert training, and this is not any more to be expected of the regimental surgeon than is special training in all of the other specialties. He also cannot have the special equipment necessary for it. It follows, therefore, that gonorrhea and syphilis should as far as possible be taken out of the care of the general medical officers. It is the policy of the Surgeon-General to send them to the hospital as freely as practicable, and everything possible is done to encourage the return of ambulatory cases to the hospital for such treatment as they need. It is also the policy to have a qualified officer detailed to the special duty of supervising all venereal matters, including the treatment of venereal cases throughout the cantonment. But in spite of this, the fact remains that the

weak point in the care of the soldiers' venereal diseases is the care he receives when he is on duty; and he is allowed to stay on duty often when it would ultimately be better for him and for the service, if he were nominally as well as actually sick and under expert care. This is often due to the attitude of the commanding line officer. He wants his men or he does not want them, and he has no use for the soldier who is taking half-days off to go to the hospital for treatment. There is room for much education here, and for the development of considerable more cooperation.

RESULTS

The venereal situation in the United States Army has been excellent for several years. This is the result of the effective policy in handling these diseases that has been developed by the medical department. The present situation in the Army, then, as far as it is favorable, is not the result of any new policy, but is due to the continuation of the Regular Army policy, with such additions as the new situations have seemed to indicate.

Of course, a marked increase in venereal diseases was feared in the present military situation. Such an increase always follows mobilization of new troops, and the conditions which this great increase in troops entail.

Between 1897 and 1900, which was the period that covered the Spanish-American War, the venereal rate went up from an average of 80 per thousand to 160.

As Colonel Lyster says of our new Army, "higher rates will probably prevail for some time."

In order to appreciate the situation now, it is worth while to consider the Army record for venereal diseases for several years past: The venereal rate of the Army previous to 1898 averaged about from 80 to 85 per thousand. This is no criterion on which to base the comparison with present rates, for then we had none of the present means of diagnosis, and much that is now recorded as syphilis at that time was not included. Colonel Lyster thinks under present conditions of recording syphilis, the rate for venereal diseases during that period would have been 110 per thousand or more. With the mobilization of new troops in the Spanish-American War in 1898 the rate suddenly doubled, going to 160 per thousand. The high rate then produced persisted after the War for thirteen years, varying between 180 and 160 per thousand until 1911. (The rates from 1905 until 1917, inclusive, are shown in the accompanying charts.) Between 1909 and 1911, an effective policy of handling venereal diseases in the Army was developed by the medical department. The most important features of this policy were the enactment of regulations which provided for loss of pay for disability from venereal diseases, weekly physical inspections, and venereal prophylaxis. The result of this policy was shown by the rapid and continuous decline in venereal diseases. From a rate of 164 per thousand in 1911, it dropped to 116 in 1912, and by 1913, in two years, it had dropped to 86.

There are few more signal feats in sanitation than the reduction of 50 per cent. in venereal diseases in the United States Army, which was brought about by the policy of handling them developed by the medical department. This feat is the more creditable because it was the result of an original policy largely developed in our own Army and Navy.

Since 1913, the rate has remained under 90, excepting during 1916. In 1916, as a result of the rapid increase of the Army and the mobilization on the Mexican border, the rate went to 91.4.

In my estimates, I have taken the rate of 90 as the mean average toward which we should strive in the present crisis, although the rate of 91 in 1916 would certainly be fairly justifiable as the standard.

The rate for the Regular Army from September, 1917, to May, 1918, averages a little better than 90.

With the second week of mobilization in September the venereal rate for the National Army shot up to 367 per thousand. The National Guard at this time showed a rate of 150. The Regular Army made a very strong showing for itself by presenting a rate of 80 on this particular date.

Much has been made of this enormous rate of venereal diseases at the mobilization of the National Army. As a matter of fact, it does not give any fair indication of the relative prevalence of venereal diseases in the three services, for this reason: When venereal disease is discovered for the first time in a soldier it goes on record and is counted as a new case. It may, however, be an old infection. The result is, when new recruits are received, all venereal diseases among them at once enter the records; they include old as well as new cases. But after these old cases have once been counted, only actual new cases get into the records as new cases. It takes, therefore, about four weeks before the actual incidence of new cases of venereal disease in a body of troops can be determined. It does, however, give one a very fair idea of the relative prevalence of venereal disease in different bodies of troops to compare the rate when first recorded for these different bodies. And in this respect the contrast between the figures for the National Army and for the National Guard are interesting. The rate for the National Army for the first four weeks after mobilization of the Army was twice that of the National Guard.

I believe it may be said that fact shows that venereal disease was at the time of mobilization twice as common among the men who went in the National Army as it was in the men in the National Guard. That difference probably indicated what the relatively lax discipline of the National Guard could do in holding down the venereal diseases as compared with conditions of civil life where restraints are very much less in force.

During the months of September, October and November new recruits were constantly coming in, but their numbers were rapidly decreasing. From the time of mobilization, the venereal rate in the National Army showed a remarkably rapid decline. On December 1, these rates crossed below the rate of 90. From December 1 to date the rate for the National Guard has not reached 90 per thousand.

The rate for the whole United States Army for 1917, in spite of the enormous peak caused by mobilization, is 88, as compared with 91.3 for 1916.

It is interesting also to see what has happened with our expeditionary forces in France among whom the same general policy of handling the venereal problem is in force.

Among these troops we have none of the sudden peaks in our rate that occur when new troops first get into the records, therefore we are able to obtain a fair idea of the normal rate of incidence of actual new cases of venereal diseases contracted while sol-

diers are in service. Since November 23, when the first report was published, to date for only two weeks has the venereal rate reached 90. The figures since December 21 are these: 75, 57, 74, 58, 52, 55, 44, 48. They are running pretty nearly one half of what we might have expected as a reasonable showing when the war began.

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NEUROSYPHILIS

ITS DIAGNOSIS AND ECONOMIC IMPORTANCE *

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Neurosyphilis is a much more frequent sequence of the infection than is indicated by the available statistics which were compiled before the introduction of modern diagnostic methods. The older statistics took cognizance chiefly of the fully developed and classic types of tabes and paresis and failed entirely to recognize a large group of cases with indefinite nervous and mental symptoms often diagnosed as neurasthenia with nervous breakdown which existed for years before definite degeneration stigmata developed. The well known statistics of Mattauschek and Pilz are the most complete because of the long period covered. Taking the records of 4,134 cases of army officers who had been infected during the two decades between 1880-1900, these investigators followed their careers to the year 1911. They found that 4.75 per cent. had developed general paresis; 2.5 per cent. tabes, and about 3 per cent. cerebrospinal syphilis. Similarly Pilz made an independent study of prostitutes who had been under police control from 1885 to 1895. He collected 2,662 instances and was able to trace 643 patients in whom the infection had existed from ten to thirty-eight years. Of this number 1.32 per cent. had developed general paresis.

These figures, of course, are based mainly on the fully developed clinical symptomatology of neurosyphilis and probably did not take into account the large number of victims who belong to the same category from a laboratory standpoint but present only vaguely defined clinical signs difficult to interpret from a clinical study alone. I have in my case records many patients who have been passed on by physicians without a suspicion of the existence of syphilis until a cerebrospinal fluid examination revealed the true condition. It is impossible at this time to give accurate statistics as to the percentage of infected individuals who would show involvement of the fluid. We have, however, fairly accurate data as to the number of patients in the first year of the disease who show clinical and serologic evidence of such involvement. As a result of several years of observation, I am led to believe that once the fluid is infected with the *Spirochaeta pallida* resulting in strongly positive reactions cure of such infection seldom occurs unless persistent and proper treatment is instituted and vigorously carried out. If we assume, therefore, that the 25 or 30 per cent. of patients who show abnormal fluids in the secondary stage retain the infection, they

are potential candidates for one or the other forms of neurosyphilis. This would lead me to suspect that instead of 10 per cent. of syphilitics with nervous involvement according to the old statistics, at least 20 per cent. would, on careful examination, be shown. This conservative estimate is probably lower than the actual number that would be revealed by our modern methods of precision. It is possible, too, that later infection of the nervous system in uncured cases takes place from a focus in some part of the body as in tuberculous meningitis from a focus of that disease.

If the hypothesis that a normal blood and fluid after efficient early treatment insure such patients against neurosyphilis is true, a vast field is opened for prophylaxis of the really serious consequences of the infection. We can, at least by employing the newer methods of diagnosis and treatment, control the majority of the early infections of the fluid and greatly limit the number of neurosyphilitics in the future.

METHODS OF PREVENTION

The purely clinical methods of diagnosis employed in the past and unfortunately also at this time, together with inefficient therapeutic procedures, have resulted in a large number of individuals permanently disabled both mentally and physically who become inmates of public institutions or a constant care and expense to their families. It is estimated that syphilis is the primary cause of 15 per cent. of the first admissions to our civil state hospitals. In a recent article, Dr. Pollock¹ states that a census of patients in the civil state hospitals of New York at the close of the fiscal year, June 30, 1917, disclosed that 1,370 cases of general paresis and 122 cases of cerebral syphilis were under treatment. Estimating the cost of maintenance of patients of this type to the state and the loss of earnings resulting from their incapacitation the appalling figure of \$5,398,644.99 was obtained. How can these tragedies to the individual and the expense and economic loss to the state be prevented?

They can be limited (1) by educating the public as to the far-reaching results of the disease and encouraging sexual continence, and (2) by instructing the individual how best to escape infection after exposure. After infection the future health of the patient is largely dependent on the knowledge of the physician under whose care he may have the good or bad fortune to entrust himself. If the physician has the proper conception of the problem and recognizes the great importance of carefully formulated and efficient treatment he may, after a definite time, be cured clinically and serologically and be assured that his future is secure. Failure on the part of his medical adviser to properly employ modern therapeutic methods and to control the result by accurate serologic examinations results in a cure of symptoms only and not of the underlying infection. The existence at this time of such a large number of cases of neurosyphilis is largely due to the state of knowledge of the disease when individual infection took place, and to the belief at that time that practically all types of syphilis of the nervous system resulted from a late invasion with the virus. Treatment was more or less perfunctory; the serology of the fluid was undeveloped and only the terminal stage of nervous system syphilis was vaguely understood. It is not surprising, therefore, that many individuals infected previous to the modern era of

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

* Because of lack of space, this article is abbreviated in THE JOURNAL. The complete article appears in the Transactions of the Section and in the author's reprints.

1. Pollock, H. M.: The Economic Loss to the State of New York on Account of Syphilitic Mental Diseases During the Fiscal Year Ending June 30, 1917, Ment. Hyg., 1918, 2, 2.

accurate diagnosis and more efficient treatment are now the victims of what we may conservatively regard as preventable sequelae of the disease.

We now possess accurate laboratory methods for the diagnosis of syphilis in practically all of its clinical forms together with specific drugs which, given in the proper manner and at the right time, are curative in the majority of cases. We also by a study of the pathologic changes in the various organs appreciate the great value of prophylactic treatment rather than an attempt to cure organs damaged beyond repair. The pathologist is always a therapeutic pessimist because he sees the end-results only of an infection. It should be our aim to teach methods which prevent such consequences.

INSTITUTIONAL INSTRUCTION

How can the knowledge at our command be utilized for the best interest of the individual and the community? In the first place, by a system of education by medical institutions with sufficient intelligence to grasp the importance of the problem. Institutions not organized for the benefit of a small group of favored men, but those which will give to the department of syphilology the same recognition they grant the departments of medicine and surgery. A teaching department organized on broad lines in our leading medical schools should serve as a center for the dissemination of accurate knowledge of this important infection. At present a vast amount of misinformation is conveyed to students by various departments in most of our teaching institutions. Theories and impressions not based on facts are seriously taught by men without a thought as to the results they will have on the future activity of the student of medicine. A professor of pathology in one of our universities belittles the value of the Wassermann reaction of which he knows nothing. Other medical men attach no value to the serology of the cerebrospinal fluid because they have not had an opportunity to correlate their clinical observations with long continued and accurate investigations along these lines. At this time more than any other in the past the problem is of the gravest importance to the state, as with the return of many infected soldiers foci of disease will be established throughout the country that will give rise to its wide diffusion. Dispensaries and hospitals should be properly equipped to diagnose and treat early as well as late forms of the infection and be controlled by men educated in modern methods of diagnosis and treatment who realize the difference between a clinical and a serologic cure. Many hospitals now refuse early cases of the infection when a cure is possible, but gladly receive interesting cases of incurable aneurysms, neurosyphilis and visceral syphilis. It is difficult to eradicate medieval ideas as to the great danger of infection from the minds of hospital authorities and to cause them to realize the value of prophylaxis. We fortunately possess in the city and state of New York departments of health which recognize the economic importance of syphilis and which provide ample laboratory facilities for its diagnosis. They are also active in educational campaigns and eventually will have a much deeper influence in safeguarding the public health from venereal infection than they have in caring for tuberculosis.

DEFINITION OF NEUROSYPHILIS

Neurosyphilis is employed as a comprehensive term to include all types of the disease which may involve one or all of the tissues of the central nervous system.

The pathologic process may be limited to the blood vessels alone and give rise to a complex of symptoms due to partial or complete loss of blood supply to a definite area with resulting loss of function and eventual destruction due to softening. In this group we may have a clinical picture like that caused by cerebral arteriosclerosis of nonsyphilitic origin with vague symptoms, as headache, insomnia, loss of memory, inability to concentrate and mental depression. With gradual obliteration of the lumen of vessels supplying important centers or tracts, hemiplegias, paraplegias, monoplegias, aphasia, hemianopsia, convulsions, limited or generalized, may take place. As a result of localized or generalized arteritis, aneurysms and hemorrhages occur with pressure symptoms and tract degenerations accompanied, at times, by profound coma and death.

In uncomplicated vascular syphilis the cerebrospinal fluid may be entirely negative or show a marked globulin reaction, no excess of lymphocytes and either a positive or negative Wassermann reaction. The blood Wassermann may also be positive or negative. If the latter, a positive reaction may at times be activated by treatment. The results of serologic examinations in vascular syphilis are therefore frequently misleading. Damaged vessels often persist after the Wassermann reaction becomes negative and are the cause of cerebral or other hemorrhages or lesions due to thrombosis or partial vessel occlusion. Cerebral arteritis may be a part of a generalized arteriosclerosis with high blood pressure, cerebral hemorrhage and death, a condition not to be distinguished from the nonsyphilitic type in symptoms or terminal stage. Cerebral symptoms are often interpreted after the diagnosis of aortitis and blood pressure determination.

TYPES OF LESIONS

In early syphilis the lesions in the central nervous system are comparable to those met with on the cutaneous surface. They may be superficial and involve only the meninges or may extend to the brain substance itself. Early convexity meningitis is manifested by headache, vomiting, delirium and convulsions which lead to coma and at times to death. Localizing symptoms may be present or absent.

CASE 3.—A man, aged 45, consulted me, April 26, 1916, with a primary lesion. His Wassermann reaction was + + + +. He received seven intravenous injections of arsphenamin and sixteen injections of mercury, which treatment was followed by a negative test. He then left town. Early in October he suffered from general malaise, loss of appetite with nausea and vomiting in the early morning. A few days later he developed mild transient generalized headaches; and October 27, numbness of the right upper extremity followed by transient motor and sensory aphasia occurred. When seen October 30, he had a right-sided facial paralysis; all the deep reflexes were hyperactive and greater on the right side; the pupils were slightly irregular, reacting well to light and accommodation but did not hold when contracted. His blood was + + + + and a spinal puncture revealed: cells, 944; globulin, + + + +; Wassermann reaction, + + + + to 0.2; colloidal gold test, 5555542100. Six intravenous and eleven intraspinal injections with eighteen injections of mercury restored the patient to his former good health. His headaches and numbness disappeared after the second intraspinal injection, and he had no more attacks of aphasia. His fluid and blood have been negative since May, 1917.

CASE 4.—A physician developed an initial lesion on the thumb in November, 1916, followed by secondaries. He received immediate treatment with arsphenamin and mercury. Two months later he had right-sided parietal headaches. A

lumbar puncture made in May, 1917, was said to show 104 cells, the other findings being weakly positive. He received three intraspinal injections, after which the fluid was reported negative. His headaches did not entirely disappear and became more intense a few months later. He suffered from insomnia, great depression, impaired mental processes and lost 24 pounds in weight. I saw him Nov. 20, 1917. A few days later, while in the sanitarium, he became excitable and wildly delirious, his delirium lasting several days. Spinal puncture revealed: cells, 416; globulin, +++; Wassermann reaction, ++++ to 0.4; colloidal gold test, syphilitic curve. The serum was negative. Treatment: Seven intravenous and six intraspinal injections, with a course of mercury, were given. All the clinical symptoms vanished and the fluid rapidly became negative.

These cases are usually more acute and rapid in development than the late types of meningitis. Pupillary changes are, as a rule, absent or only slight. In basilar meningitis localizing symptoms are more often met with because of the anatomic structure of the base.

Cranial nerve paralyses and pupillary changes usually indicate the onset of this type which frequently shows no subjective symptoms and is only indicated by objective signs as pupillary irregularity and changes in the light reflex. Third nerve palsy is most frequent; occasionally the facial and auditory nerves are involved as well as the optic.

SEROLOGY

The examination of the spinal fluid gives an accurate index of the intensity of the process and usually shows most positive phases in the convexity type in which the pleocytosis may reach a count of 800 or 900, or even 2,000 or 3,000 with positive globulin and a positive Wassermann reaction in the higher dilutions together with a paretic gold curve. In basilar meningitis we may also find marked serologic changes, but sometimes only one or more phases positive in the early development of the process. A sharp limitation of the infection to one nerve or its nucleus may cause pupillary changes or oculomotor paralysis with little or no change in the fluid. These cases may terminate in a spontaneous cure with local damage and no tendency to progress.

EARLY APPEARANCE OF SYMPTOMS

Disseminated forms of cerebrospinal syphilis are met with in the first months of the infection with symptoms referable to the cord meninges as well as to the brain coverings. A careful interrogation of patients with advanced neurosyphilis will often elicit the information that paresthesias, bladder weakness, girdle sensations or rectal disturbances were noted in the early months of their infection. These symptoms at times regressed under treatment, but usually recurred with greater intensity at a later period. Such symptoms without doubt indicate early cord involvement and, when untreated, terminate in typical tabes or spinal syphilis.

A proper comprehension of the late forms of neurosyphilis is possible to one who can visualize the manner in which the tissues react to the infectious agent which invades the cerebrospinal fluid early in the disease. Foci are established in the blood vessels of the brain or cord meninges or the parenchymatous structure of the nervous system, which may remain latent for years or slowly compromise by pressure or degeneration important centers or tracts with resulting focal or general symptoms. As in the skin, a syph-

ilitic process may spontaneously subside in one place and reappear in another. It may rapidly cause a local destructive lesion with definite focal symptoms, a slow invasion of an important center, or a gradual degeneration of cord tracts or the cerebral parenchyma. It is not surprising, therefore, that the symptomatology is so varied and simulates so frequently lesions due to other infections or new growths. An invasion of the brain parenchyma may be present for years with few or no symptoms, if the meninges or important centers are not implicated. The character of the lesions may only be revealed by the serology of the fluid.

INTERPRETATION OF SPINAL FLUID FINDINGS

Observation of a large number of cases during the past six years, in which the clinical manifestations have been carefully correlated with the serologic findings, convince me that the symptomatology should be largely restudied and interpreted from a serologic as well as from a clinical standpoint. Fluid findings enable us to differentiate more accurately the symptoms due to pure vascular syphilis, meningovascular or parenchymatous. It enables us to prognosticate the outcome of certain types and to understand why the deeper forms resist all treatment and eventually terminate in incurable conditions. The latter type may have few symptoms but show a serology which offers the gravest prognosis, the former, acute and menacing symptoms which readily yield to treatment and terminate in complete recovery. The statements so often made that no information is afforded by spinal examinations is, in my experience, entirely erroneous and misleading.

A low grade parenchymatous encephalitis with slight or no meningeal involvement may exist for years with indefinite symptoms often wrongly interpreted. A slight character defect, loss of ambition, forgetfulness, irascibility, mental depression, so-called neurasthenia, symptoms terminating in a nervous breakdown, often precede for years the final stages of paresis and go unrecognized until an accidental eye examination reveals pupillary changes. Patients have come under my care in whom the diagnosis was only made after a sudden loss of consciousness following some unusual mental effort or without assignable cause. Spinal fluid examination reveals the real condition and enables one to correctly predict the patient's future.

SYMPTOMATOLOGY

In cord syphilis and tabes the early symptomatology may be equally vague and long unrecognized. Gastric crises are taken for appendicitis, gastric ulcer, floating kidney, gallbladder involvement, and patients having such symptoms often go to the operating table. Rectal and bladder crises are attributed to local conditions. Leg pains are called sciatica or rheumatism and may precede for years definite disturbance in gait. A radiculitis may exist with pains for months or years before definite involvement of the tracts takes place. The serology in such cases is definite and affords diagnostic and prognostic indications of the greatest value.

The symptoms which cause the patient to consult a physician aside from such evident ones as double vision, marked headache, convulsions, severe tabetic pains or paralyses are the following: vague fears resulting from a knowledge of old infection, weakness of the bladder and impaired sexual power, loss of memory, impaired business judgment, speech disturbance, gradually increasing motor aphasia, complaint

on the part of the family or business associates as to increasing irritability or unreliability of the patient, changes in personality, and character defects foreign to the normal state.

In a paper of this character a complete syndrome cannot be given. It is only suggestive and intended to point to the necessity of correlating clinical and laboratory study. It must always be kept in mind that, while the syphilitic inflammation may limit itself sharply to one or the other of the tissues mentioned, pure types are the exception rather than the rule, and that complicated and transitional forms are usual and confuse the clinical diagnosis. A hemiplegia due to an arteritis and hemorrhage may give a high cell count (in one case 1,100) indicating an accompanying meningitis. A gummatous meningitis involving the convexity follows the pial vessels into the brain cortex and may give the clinical picture of a paresis or brain tumor. Treatment in such cases may result in a more favorable outcome than indicated by the serology. Psychoses without the earmarks of paresis with positive fluid findings point to a cerebral encephalitis of unusual localization.

Neurosyphilis may also be complicated with chronic alcoholism as well as with a nonspecific arteriosclerosis. It may be activated after a long period of latency by trauma, unusual mental strain, and by the stress and traumatism of war. In the routine examination of the officers' training camps several patients have come under my care in whom the condition was revealed by a systematic neurologic examination without previous knowledge on the part of the patient. Under active war conditions an acute activation of the trouble would doubtless be brought about. Railway spine is likewise a not infrequent activation of a latent syphilis in this region.

In a former communication,² I referred to the existence of conjugal and family groups of neurosyphilis and quoted some of the available statistics. I also referred to Nichol's experimental work and strain of *Spirochaeta pallida* recovered from the spinal fluid. The work begun by Nichols has subsequently been carried on by Reasoner, Wile, Zinsser and Hopkins, and others. Reasoner's³ results were presented in a paper in 1916. He was able to demonstrate fixed differences in various strains of spirochetes as studied in the rabbit. Organisms recovered from the nervous system of patients with early cerebrospinal syphilis produced in the rabbit's testicle a definite type of orchitis with tendency to central necrosis and with eye changes, choroiditis and chorioretinitis in 75 per cent. of the inoculations. Eye involvement in the rabbit is, in his opinion, suggestive of a high degree of invasiveness or predilection for the human nervous system. The knowledge we have acquired regarding types of pneumococci and strains of streptococci and other organisms strongly suggest that the spirochetes may acquire certain changes in biologic characters by repeated passage through the central nervous system of the host. Racial immunity to neurosyphilis of which we have some clinical evidence strengthens the theory of strains of the syphilis organism with highly invasive power.

The following series illustrates the incidence of neurosyphilis in closely related individuals:

REPORT OF CASES

GROUP 1.—C. (husband), aged 55, had tabes, but gave no history of infection. There were typical neurologic signs of locomotor ataxia. Spinal puncture revealed: cells, 54; globulin, +; Wassermann reaction, +++++ to 0.4; colloidal gold test, 2233210000. Serum, ++.

C. (wife), aged 52, had tabes, but gave no history of syphilis. Married 30 years; no children; seven or eight miscarriages. Pronounced symptoms of tabes. Spinal fluid revealed: cells, 5; globulin, ++; Wassermann reaction +++++ to 0.6. Serum, +++++.

GROUP 2.—M. (husband), aged 63, had taboparesis, but gave no history of infection. Tabetic symptoms were present for years. Mental disturbance and right hemiplegia occurred in 1912. Spinal fluid: strongly positive. Serum, +++++.

M. (wife), aged 62, had taboparesis. In 1897, the ovaries and uterus were removed for gonorrheal salpingitis. In 1907, she developed insomnia and difficulty in walking. In 1910, melancholia and suicidal tendencies appeared. Spinal fluid was not obtained for examination.

GROUP 3.—C. (husband), aged 35, has tabes. The chancre and secondaries appeared at age of 17. There was no subjective complaint. Objectively, the patient has Argyll Robertson pupils and loss of deep reflexes. Spinal puncture revealed: cells, 4; globulin, +++++; Wassermann reaction, +++++ to 1 c.c. + 0.8. Serum, +++++.

C. (wife), aged 32, has tabes with optic atrophy. She has been married fifteen years; four miscarriages; one healthy child. No cutaneous symptoms. Six months after marriage she had a right-sided facial palsy. Twelve years later pronounced tabes occurred with rapid loss of vision of the left eye and impairment of the right. Spinal puncture revealed: cells, 67; globulin, ±; Wassermann reaction, +++++ to 0.4. Serum, +++++.

GROUP 4.—D. (wife), aged 62, had paresis, but gave no history of infection. For many years she has been nervous. In 1913, she had attacks of syncope with nausea and vomiting; in 1916, coma lasting three or four days occurred. Changed pupillary and deep reflexes, tremors, speech disturbances and memory defects were present. Spinal puncture revealed: cells, 7; globulin, +++++; Wassermann reaction, +++++ to 0.2; colloidal gold test, 554443300000. Serum, +++++.

D. (husband) died of paresis.

GROUP 5.—N. (wife), aged 33, had cerebrospinal syphilis, but gave no history of infection. Married ten years; no miscarriages. One child, 5 years old, has congenital syphilis.

For nearly a year she had been very nervous and irritable; complained of extreme exhaustion; occipital headaches and pains in extremities. Pupils were irregular, unequal and sluggish to light. The deep reflexes were hyperactive and unequal. Spinal puncture revealed: cells, 80; globulin, +++++; Wassermann reaction, +++++ with 2 c.c.; colloidal gold test, 5555410000. Serum, +.

N. (husband) died of paresis.

N. (son), aged 5 years, is mentally retarded, but has no physical defects excepting external strabismus of left eye. Spinal puncture revealed: cells, 1; globulin, ±; Wassermann reaction, — with 2 c.c.; colloidal gold test, 1111000000. Serum, +++++.

GROUP 6.—N. (husband), aged 50, had paresis, but gave no history of syphilis. In 1914, he developed typical parietic speech, mental defects and somatic signs. Spinal puncture revealed: cells, 16; globulin, ++; Wassermann reaction, +++++ to 0.2; colloidal gold test, 5555543100. Serum, +++++.

N. (wife), aged 33, had cerebrospinal syphilis. Married nine years; one miscarriage; two children died in infancy. One living child 5½ years old has congenital syphilis. She complained of headaches, insomnia and nervousness, and had pupillary changes and unequal reflexes. Spinal fluid not obtained. Serum, +.

N. (son), aged 5½ years, was mentally defective. Spinal fluid and serum were negative, but these examinations were made after the child had received prolonged treatment.

GROUP 7.—G. (father), aged 43, had cerebrospinal syphilis. The chancre appeared in 1901, and in 1909 there was paresis

2. Fordyce, J. A.: The Treatment of Syphilis of the Nervous System, THE JOURNAL A. M. A., Aug. 15, 1914, p. 552.

3. Reasoner, M. A.: Some Phases of Experimental Syphilis, THE JOURNAL A. M. A., Dec. 16, 1916, p. 1799.

of left leg and bladder paralysis. Spinal fluid was not obtained. Serum, —.

G. (daughter), aged 12, is feeble-minded. She has hutchinsonian teeth and arched palate. Is negative neurologically. Spinal fluid was not obtained. Serum, +++++.

GROUP 8.—E. (mother), aged 31, had tabes. She has been married eleven years; no cutaneous symptoms. Neurologically, she presents Argyll Robertson pupils and absent deep reflexes. Spinal puncture revealed: cells, 18; globulin, +++++; Wassermann reaction, +++++ to 0.4; colloidal gold test, 1223321000. Serum, ++.

E. (son), aged 8½, has cerebrospinal syphilis with unequal, irregular and fixed pupils. He is very nervous and was removed from school because of lack of cooperation, inability to grasp instruction and violent temper. Spinal puncture revealed: cells, 2; globulin, ++; Wassermann reaction, +++++ to 0.2; colloidal gold test, 555543100. Serum +++++.

GROUP 9.—K. (father), aged 38, had paresis. The chancre appeared in 1904, and delusions of grandeur in 1911. Death from paresis in 1916. Spinal puncture revealed: cells, 86; globulin, ++; Wassermann reaction, +++++ to 0.2. Serum, +++++.

K. (child), aged 5, had hydrocephalus when an infant. When 5 years old interstitial keratitis developed.

GROUP 10.—E. (husband), aged 44, had cerebrospinal syphilis (paraplegia).

E. (wife), aged 35, had hemiplegia and evidence of disseminate cerebrospinal syphilis.

GROUP 11.—S. (husband), aged 36, had paresis, the chancre appearing in 1906. In 1907, delusions of grandeur developed and he was committed to one of the state hospitals. Spinal puncture revealed: cells, 127; globulin, ++; Wassermann reaction, +++++ to 0.2; colloidal gold test, parietic curve.

S. (wife), aged 35, had incipient paresis, the chancre and secondaries appearing in 1909. In February, 1918, she developed paralysis of the third and fourth nerves. Argyll Robertson pupils, extreme nervousness and insomnia were present.

Spinal puncture revealed: cells, 9; globulin, ±; Wassermann reaction, +++++ to 0.6; colloidal gold test, 555543100. Serum, +++++.

GROUP 12.—M. (wife), aged 31, has tabes, but she denied syphilitic infection. Married seven years; no children; one induced miscarriage. She has subjective and objective manifestations of tabes. Spinal puncture revealed: cells, 2; globulin, —; Wassermann reaction, +++++ to 0.4; colloidal gold test, syphilitic curve. Serum, +++.

M. (husband) is in a state hospital with paresis.

GROUP 13.—K. (husband), aged 44, had optic atrophy. The chancre appeared in 1914 with secondaries of skin and mucous membranes. In 1916, his vision became impaired. Spinal puncture revealed: cells, 10; globulin, +; Wassermann, reaction, +++++ with 2 c.c.; colloidal gold test, 555542000. Serum, +++++.

K. (wife), aged 25, had incipient paresis (?); a late secondary eruption appeared in September, 1915. She presents unequal pupils, hyperactive reflexes, more so on right side. Spinal puncture revealed: cells, 185; globulin, +; Wassermann reaction, +++++ to 0.2; colloidal gold test, parietic curve. Serum, +++++.

GROUP 14.—R. (husband), aged 35, had incipient paresis, but gave no history of infection. In April, 1918, left-sided hemiplegia developed. Spinal puncture revealed: cells, 7; globulin, +; Wassermann reaction, +++++ to 0.2; colloidal gold test, parietic curve. Serum, +++++.

R. (wife), aged 30, has cerebrospinal syphilis. The pupils are unequal and irregular with sluggish light reaction; unequal exaggerated deep reflexes; headache and insomnia. Specimen of spinal fluid not obtained. Serum, +++++.

GROUP 15.—W. (father), aged 35, had cerebrospinal syphilis. Date of infection unknown. Unequal, irregular pupils; hyperactive reflexes, more so on right side. Spinal puncture revealed: cells, 25; globulin, +; Wassermann reaction, +++++ with 2 c.c.; colloidal gold test, syphilitic curve. Serum, +++++.

W. (mother), aged 32, had cerebrospinal syphilis. No signs of syphilis developed until syphilitic child was born five years ago and strongly positive Wassermann reaction was discovered. Argyll Robertson pupils were present and the deep reflexes were exaggerated, more so on right side. Spinal puncture revealed: cells, 2; globulin, ±; Wassermann reaction, +++++ to 1.5; colloidal gold test, syphilitic curve. Serum, +++++.

W. (daughter), aged 5, had juvenile paresis. When 3 months old she had a syphilitic eruption; at age of 18 months a hemiplegia developed; at age of 4 years epileptiform attacks occurred. Spinal puncture revealed: cells, 140; globulin, +++++; Wassermann reaction, +++++ to 0.2; colloidal gold test, parietic curve. Serum, +++++.

W. (son), aged 2½ years, has cerebrospinal syphilis. He has always been a healthy child; is bright and appears normal. Has unequal pupils. Other findings negative. Spinal puncture revealed: cells, 12; globulin, —; Wassermann reaction, +++++ with 2 c.c.; colloidal gold test, syphilitic curve. Serum, +++++.

GROUP 16.—P. (father), aged 46, had optic atrophy. The chancre and secondaries appeared in 1898. The patient was well until 1916, when his vision became impaired. Fluid examination was not obtained. Serum, +++++.

P. (wife), aged 42, had tabes, but gave no history of an initial lesion or secondaries. Married in 1899. For seven years she has suffered with gastric crises; has classic signs of tabes. Spinal puncture revealed: cells, 37; globulin, none; Wassermann reaction, +++++ to 0.6; colloidal gold test, 1123100000. Serum, ++.

P. (child), aged 11, was considered a normal child until school authorities reported that she was backward. Has grown very nervous and has increasing difficulty in learning. Has Argyll Robertson pupils. Spinal puncture revealed: cells, 1; globulin, +; Wassermann reaction, +++++ with 1 c.c.; colloidal gold test, syphilitic curve. Serum, +++++.

GROUP 17.—S. (son), aged 20, has juvenile paresis with optic atrophy. He is underdeveloped, completely blind and helpless. Spinal puncture revealed: cells, 15; globulin, +++; Wassermann reaction, +++++ to 0.2; colloidal gold test, parietic curve. Serum, +++++.

S. (father) died of paresis.

S. (mother), aged 38, gives no history of initial lesion or rash. Physical examination is negative; her blood has been repeatedly negative, and a lumbar puncture made recently was also negative.

GROUP 18.—P. (wife), aged 25, has incipient paresis and denied syphilitic infection. Argyll Robertson pupils. Unequal reflexes and beginning deterioration. Spinal puncture revealed: cells, 50; globulin, +++++; Wassermann reaction, +++++ to 0.2; colloidal gold test, parietic curve. Serum, +++++.

P. (husband) is now in a state hospital with paresis.

GROUP 19.—H. (husband), aged 38, has clinical symptoms of tabes. Permission for spinal puncture has not been granted. Wassermann reaction was +++++.

H. (wife), aged 34, has all the neurologic signs of tabes. Has not permitted a spinal puncture. Serum, +++++. She has a son, aged 10, who gives positive blood reaction and has a perforated palate, but no neurologic signs.

NEUROSYPHILIS IN THE ARMY

The thorough and scientific organization of the Army and Navy medical staffs in charge of venereal diseases with the cooperation of the medical section of the Council of National Defense has been followed by a marked decrease in the incidence of the venereal menace among the enlisted personnel. The scientific study of syphilis before the outbreak of war by Nichols, Reasoner, Craig, Vedder and others was largely influential in disseminating modern methods of diagnosis and treatment among the medical officers of the Army. This work has been ably supported since our entry into the war by the committee appointed by the Surgeon-General of the Army under the imme-

diate direction of Colonel Russell. Many of the reserve medical officers have had intensive training in the army medical schools and in venereal clinics, and now in active service are gradually acquiring exact technical skill. I have received a number of communications from former assistants and pupils which show a keen grasp of the syphilis problem and a constant endeavor to enlarge their knowledge.

The importance of early recognition of neurosyphilis and its significance to the future activity of the individual might here be emphasized. Medical officers should be instructed in the present day methods of spinal fluid examinations and learn to interpret the significance of the various positive phases which may be present. The treatment of neurosyphilis aside from the use of arsphenamin intravenously and mercury intramuscularly is perhaps too technical for general employment in the Army. Patients who show such involvement and who do not yield to the methods easy of application should be sent to a base hospital or discharged from the service and referred to a clinic equipped to treat them.

Examination of recruits and officers in the training camps has revealed the presence of neurosyphilis in individuals who either were unaware of their infection or who had considered themselves cured and were suffering no inconvenience from the nervous system involvement. Within the past year, I have seen a number of men who have been rejected because of pupillary anomalies; many of these patients have such slight signs that they are only demonstrated by the rigorous examinations now demanded on the part of the Army.

IMPORTANCE OF LABORATORY TESTS

The value of spinal fluid examination as a diagnostic measure in neurosyphilis is becoming more generally recognized among syphilographers and neurologists. Standardized methods are, however, not as frequently employed as they should be. Many laboratories report only a positive Wassermann reaction without titration of the fluid in strengths of from 2 to 0.2 c.c. or less. Others employ only 0.5 c.c. of fluid and thus fail to obtain a positive reaction in fluids which would give it in larger quantities. The reaction in many cases of tabes and cerebrospinal syphilis has been reported as negative because of failure to use the larger amounts of fluid. On the other hand, the presence of a strongly positive Wassermann reaction in the higher dilutions indicates a more serious type of infection and taken with a paretic gold chlorid reaction suggests paresis or pre paresis. We can, therefore, prognosticate with a fair degree of accuracy the eventual outcome of our cases of neurosyphilis by properly performing and interpreting our fluid serology and observing the effects of treatment.

TREATMENT

Treatment begun in primary and very early cases of secondary syphilis doubtless prevents infection of the spinal fluid, but it is impossible to say how much value treatment has in preventing the invasion of fully developed secondary syphilis, for at that time involvement may already have taken place. A recognition of this possibility with properly applied diagnostic and therapeutic methods readily controls early syphilitic meningitis as illustrated in the cases previously quoted and will prevent the degenerative sequelae which follow the long years of latency.

In order to emphasize again the importance of early lumbar puncture and careful and repeated neurologic examinations, I would like to cite another case:

A man who presented himself with a secondary rash in February, 1917, received fifteen injections of arsphenamin and thirty of mercuric salicylate. While under treatment in July, he complained of severe headaches; these occurred in October with marked vertigo and ataxia. At that time, examination revealed pupillary inequality, hyperactive reflexes and a very strongly positive spinal fluid. In another instance, a patient who was in the second year of the infection came complaining of pains about his knees. He had had thirty-two injections of arsphenamin, over 100 injections of mercury and many inunctions. The only neurologic abnormality was beginning Argyll Robertson pupils. The spinal fluid revealed: cells, 24; globulin, ++; Wassermann reaction, ++++ to 0.2; gold chlorid test, 1233100000.

CONCLUSIONS

In the past decade much progress has been made in our knowledge of the nature, development, prognosis and treatment of neurosyphilis. The various types had been correlated with the serology of the blood and spinal fluid and a fairly firm foundation established on which to build in the future. By carefully conserving the data now available, we may be able later to answer some of the questions which so deeply involve the patient's future health and the community's welfare. Some of these questions are the following:

1. Are the present criteria of cure all that are demanded to insure against a relapse of the infection?
2. Assuming that we have a negative blood Wassermann during a year after treatment is discontinued which remains negative after a provocative arsphenamin injection and that the spinal fluid is not infected, the following questions come up for consideration:

(a) Can we assure the patient with certainty against a recurrence? A mathematical reply cannot be made to these queries, but up to this time we have seen no relapses in patients who have complied with the criteria in question. All the evidence favors the view that a serologic and clinical cure will remain permanent. It is always possible, however, for spirochetes to be hidden away in some of the tissues too few in number to produce the Wassermann reaction but which may be activated at some future time and produce tissue reactions. This possibility has been observed in syphilis of the eye and in arteritis of undoubted syphilitic origin.

(b) Does freedom of the nervous system from infection in the first year with a positive blood Wassermann indicate that such infection cannot occur later from an uncured focus? This question can only be answered when we carefully compare the data obtained from cases of early infection with future observations of such patients. All institutions and physicians should therefore preserve carefully all records, serologic and clinical, and compare them with those obtained in future examinations. Standardized methods of diagnosis and treatment (amount and kind) with results should be adopted and preserved in the form of a medical register like the one used in the medical department of the Army.

8 West Seventy-Seventh Street.

A Patriotic Duty.—To be free from disease, or, if, unfortunately for ourselves, we cannot be free from disease, to prevent by every precaution, the spread of our disease to others, is one great thing we can do for our country.—Editorial, *Minnesota Public Health Association Journal*.

SYPHILIS AND VENEREAL DISEASES
AS A PUBLIC HEALTH
PROBLEM *

H. G. IRVINE, M.D.

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MINNEAPOLIS

Health authorities ought to be concerned with all diseases which, being infectious and communicable, are likely, through their spread, to endanger public health. It is said that the knowledge necessary to control such a disease consists of the recognition of the causative germ, its method of being carried and the having of a specific therapy. For years we have known the germs of syphilis and gonorrhea, have been perfectly cognizant of how both diseases are carried, and have had at hand a more or less specific therapy. More than that, we have known that continence is entirely consistent with health, and that it is an almost sure preventive of both diseases; and yet, we have hesitated as individuals and as a profession to go on record for it. We have even hesitated, and perhaps with good reason, to advocate those well known artificial means of prevention which the Army and Navy have demonstrated to be so valuable.

The public at large has been inclined to discount what seemed to it unbelievable figures of the prevalence, and the havoc wrought by venereal disease, and has not shown a willingness to be informed, in plain language, of all the facts. This has led to the nefarious practice of making these diseases "secret diseases," in fact as well as in name, and with a full knowledge that a goodly proportion of innocent persons were constantly being infected, we still have tolerated this policy of silence. It has taken a war to wake us up and make it possible to attempt to handle these diseases along the same lines that other infectious and communicable diseases are handled. The government knows full well that we must have well soldiers if we would win this war; it also knows that with every war there has been a marked increase in venereal diseases, and that the control of these diseases among the enlisted men would be its greatest disease problem. These facts were given full recognition when, early in the war, a very definite and complete program was adopted for the early diagnosis, treatment and control of venereal diseases. Not, however, until the mobilization of our draft Army did any one fully realize the very great need of the rapid extension of a similar program to the civil population. When it was seen from the figures produced that the venereal disease rate of civilians was several times greater than had been the rate in the Regular Army, the War Department, particularly through the Surgeon-General's Office began to call on the public health officials of various states to undertake definite campaigns to control these diseases. The fact that nearly every family in the land has had or will have a very personal interest in our Army makes the public sympathetic to this work as it has never been before.

California was, I think, the first state to answer the call, and made an appropriation, from war emergency funds, of \$60,000 for the organization of a bureau

of venereal diseases in the state board of health. Minnesota followed a few months later with an appropriation of \$35,000 for the creation of a similar division. In both cases the funds are to run to the next meeting of the legislatures; for California this means two years; for Minnesota, one year.

In all of the work, one fundamental fact has been kept in view, namely, the absolute need of recognizing the complexity of the problem and of coordinating the work of all groups interested in any particular angle of the attack. Generally speaking, this is in contrast to any previous method under which all of us have seen failures registered because of the necessary limitations.

PROGRAM OF ATTACK

The program for a state divides itself logically into four parts. These will be considered in the order of their importance from the standpoint of their effect on the reduction of disease. The first three parts are concerned with the control of three distinct groups of patients, the fourth part with educational work.

THE CARRIER

The first group of patients with which we are concerned is the one in which enforced quarantine and treatment are necessary. Here are included the great carriers of these diseases, the prostitute, both professional and clandestine, prisoners and inmates of institutions, and incorrigible patients. So far as pros-

EFFECT OF LAW ENFORCEMENT ON EXPOSURES AND INFECTIONS			
Month	Mean Strength of Command	Venereal Diseases, New Cases	Exposures Represented by Prophylactic Treatments
October	13,813	193	951
November	16,138	101	669
December	17,532	124	623
January	18,068	61	378
February	17,315	86	478

titution is concerned, there must be active cooperation of the police departments and courts in suppressing as far as possible all prostitution. This action will make prostitutes inaccessible, and so reduce exposures; reduction of exposures is bound to reduce infections. Examinations should be made in all cases and quarantine instituted in a hospital or other suitable place.

The effect of this work is very nicely demonstrated by some figures collected in San Francisco.¹ In the first place, the problem was rapidly reduced, as shown by the fact that in October before the work started, nearly 400 women were brought into court on charges of moral turpitude. Soliciting on the streets was rampant. November 1, arrangements were made for jail sentences in all cases with quarantine and treatment of those found diseased. During November only about 150 appeared in court, and the streets were clean. The number continued to decrease, until in February less than 100 were arrested.

The effect on exposures and infections is shown by the accompanying table in which it is seen that in the first month exposures, which may be represented by prophylactic treatments, were reduced nearly 300, while infections were practically cut in two, and this in spite of the fact that the strength of command shows an increase of nearly 3,000. As time went on, many other elements undoubtedly entered into the reduction; but there was apparently no other explanation

* Read before the Section on Dermatology at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Statistics compiled by Lieut. Allison T. French, Sanitary Corps, U. S. N. A.

for this rapid reduction taking place immediately following law enforcement. Another point to be emphasized in the table is that in February the same judge was on the bench as in October, and he was the one of the four who rotated in this court who was most reluctant in agreeing to the government's demands. Consequently, we see during his month an increase in exposures and a corresponding increase in infections. This table apparently demonstrates that, to a certain extent, exposures and infections follow the enforcement or nonenforcement of law.

While this law enforcement will have a deterrent effect on a certain number of prostitutes, it should not be understood that the work ends with this or their medical treatment; if it did, it would be wasted since on release they would immediately return to their profession and become reinfected. It will be necessary that adequate provision be made for the permanent custodial care of the feeble-minded, and for those confirmed offenders who can be forced into a life of decency only by long term commitments to reformatories. By bringing proper social service agencies in contact with the younger offenders, they may almost immediately be returned to society.

The professional prostitute is a prolific spreader of disease, as she nearly always has gonorrhea, which may be chronic in nature, and particularly because, if allowed to practice her profession openly, she daily exposes from ten to twenty or more patrons. From the standpoint of syphilis she is not so important, as she contracts it early in her career and thereafter is likely to take sufficient treatment to keep the disease under control. Clandestine prostitutes are a danger, not so much on account of the number of persons they expose individually, but because there are a great many more of them, and being youthful offenders, they are more likely to be acutely infected and less well informed as to the care of themselves and their patrons.

In the examination of several hundred prostitutes in San Francisco, Sperry² found only two or three with demonstrable lesions of syphilis. In an examination of 731 women, Stevens³ found 147 infected with gonorrhea, 243 with syphilis, and ninety-six with both syphilis and gonorrhea.

In carrying out this work in California, nearly \$100,000 was appropriated by various communities of the state, and special isolation hospitals were built in San Diego and Los Angeles. The one in San Diego has thirty-five beds, and the one in Los Angeles, fifty-four beds. San Francisco arranged for a ward of thirty beds in the San Francisco Hospital, and a budget has recently been passed for approximately \$50,000 for next year, which not only will permit the carrying on of this work in the hospital, but also will provide for a place of detention at the County Relief Home, which will care for from fifty to 100 inmates. Many of the smaller communities of the state have arranged for the detention of such patients in their county hospitals. Generally speaking, there is greater need for places of detention with proper hospital facilities than there is for straight hospital quarters, as many of these persons are properly ambulatory patients.

There should be an effort to make investigations of appropriate groups, and institute treatment when

indicated. In most cases state prisons provide adequate hospital and medical facilities, but rarely do we find any attempt made to examine and treat prisoners in city and county jails. Here we have a class of people who are naturally prone to have no regard for the rights of others, and who are likely to have syphilis or gonorrhea. Arrangements should be made for a careful examination, including a Wassermann test of every prisoner, and proper treatment instituted. If necessary, cases should be quarantined beyond the time of sentence, so that in no case would an individual be allowed his freedom while still in an infectious condition.

During the months of February and March there were examined in the city and county jail in Los Angeles 681 male and female prisoners, 389 of whom were infected, and more than 7,000 treatments were given.

An examination was recently made of forty-three women and 145 men in the Minneapolis City Workhouse. Of the women, fourteen had gonorrhea, nineteen positive Wassermans, and six had both syphilis and gonorrhea. Of the men, seven had gonorrhea, fifty had positive Wassermans, and two had both syphilis and gonorrhea, thus making a total of seventy-seven diseased persons out of 188 examined. In general, when surveys have been made of the inmates of jails, approximately 20 per cent. have been found to have syphilis, and nearly 50 per cent. to have syphilis or gonorrhea. These figures indicate the great need that this work be undertaken with this class of people, who, we must realize, will not take the care of themselves necessary to prevent infecting others.

DISPENSARY PATIENTS

Investigations have shown that not more than from 30 to 50 per cent. of the patients infected with gonorrhea or syphilis receive adequate medical service at the hands of private practitioners. This has been due partly to the fact that many physicians are not sufficiently trained in the care of these diseases, and partly to the fact that a great many patients coming to them could not afford to pay for sufficient treatment to arrive at a cure. It is also a fact that a large number of patients, particularly of the poorer classes, go to drug stores, and, of course, it is obvious that treatment received in this way is worthless.

Investigations of certain dispensaries in the East have shown that approximately 50 per cent. of their men patients with gonorrhea attempt drug store treatment before they come to the dispensary.

If there is an insufficient number of specially trained physicians, and if the majority of the people cannot afford to pay the fees of specialists, it is perfectly obvious that there is a great need for more and better dispensary facilities, where people can obtain either free, or for a nominal sum, expert services. We should remember in this regard that we are not concerned entirely with the individual patient, but that to a certain extent we are providing for him in order properly to protect the community. The fact must also be emphasized that unless all of these cases are treated until cured, not very much is accomplished from the public health standpoint. This, of course, is more true of gonorrhea than of syphilis, since the one is infectious so long as present, whereas the other may be rendered temporarily noninfectious. But the great need is to place patients in such a condition that

2. Sperry, J. A.: Venereal Disease Control in San Francisco by the Board of Health, California State Jour. Med., 1918, 16, 120.

3. Stevens, W. E.: Gonorrhea in Women, California State Jour. Med., 1918, 16, 260.

they will not be dangerous to others, and this means, generally speaking, a cure.

The man or woman who can afford to pay for only a little treatment should be sent at once to a dispensary or hospital where sufficient and expert treatment may be received.

Pressure should be brought to bear to see to it that every hospital supported by public funds admits all syphilis and gonorrhea patients on exactly the same basis as other patients are admitted, as there would seem to be no sense in their refusing on the one hand to admit active cases of gonorrhea or syphilis, while on the other hand, it is a fact that their wards are continually filled with the end-results of both of these diseases.

The problem of dispensaries is more acute in many of the smaller cities of 40,000 or 50,000 population than it is in the larger cities where there are already in operation either city or university clinics. It is being proposed, therefore, in many of the states, that a number of dispensaries be established in proper places throughout the state, either directly under the state board of health, or, at least, stimulated and officially recognized by it. In states in which there is a sufficient appropriation, a subsidy will be granted communities to assist in establishing these dispensaries, and it is quite possible that by making a nominal charge for treatment the dispensaries can be almost self-supporting.

In nearly all states in which the work is going on, provision is made for free arsphenamin, and these clinics can be made the official distributing points for this treatment. This plan is in accordance with the program that is being followed by Great Britain, namely, that of the federal government stimulating the organization of such clinics, and providing for 75 per cent. of the expenses, while the local communities take care of the other 25 per cent.

Unless the work of these and all other dispensaries is developed to conform to certain standards, the results will hardly be a success. But if certain standards are required such as the provision of a trained staff, sufficient rooms and equipment, nurses and social service workers, good results are almost bound to be attained. There are two distinct ways of insisting that these dispensaries be run according to standards laid down by the state board of health. In many states the board of health has the power to license dispensaries, and definitely control them, and in others, it will be possible by withholding official recognition, or by withholding the free arsphenamin, to see that the standards are followed.

It is very important that the states supply free laboratory service for the diagnosis of both gonorrhea and syphilis.

In California many local health departments were already operating dispensaries in connection with their work, and in many of these a department of venereal diseases was added. In San Diego such an outpatient department was instituted for both men and women. In Los Angeles an evening clinic for men was already in operation, and this has been enlarged, with very much better equipment, and now provides adequate service for both men and women. In May this clinic registered forty-six new cases, and had a total of 136 patients under treatment. San Francisco has depended in the past on the dispensaries of several medical schools. Their new budget, which has been granted, provides for a day and evening outpatient

clinic for both men and women at the San Francisco Hospital. In Fresno the county hospital arranged for a ward for venereal diseases, and instituted an outpatient service, with a proper social service department, and within a month's time had thirty-five cases of syphilis under treatment. In Bakersfield a similar arrangement was made at the county hospital. In Santa Barbara a new contagious disease hospital is near completion, and arrangements have been made to have a portion of this devoted to venereal diseases. In Oakland and Sacramento the local health departments have both inaugurated clinics for venereal diseases.

In Minnesota arrangements are being made to open a municipal dispensary in St. Paul. The City and County Hospital already provides about twenty-five beds for venereal disease patients. In Minneapolis the University Dispensary has adequate clinics for syphilis and gonorrhea, and the University Hospital has recently set aside twelve beds for these patients. In Duluth a clinic will probably be established under the local health department. Arrangements have been completed in these three cities for examination of all police court cases, and their quarantine and treatment when necessary.

In connection with these dispensaries, and cases placed under quarantine from the courts, there was distributed up to March 31, 1918, in California 1,660 doses of arsphenamin. This was distributed to thirty-two different dispensaries or health departments, and was given to 393 patients. For the most part, these were a class of people who under former conditions would have received no treatment. In view of the fact that these patients received an average of more than four doses of arsphenamin within this rather brief period, it is felt that a piece of work worth while has been accomplished. These patients also received mercury by inunction or injection.

PRIVATE PATIENTS

Adequate provision must be made for the treatment, and especially for the control, of private as well as indigent patients. This necessitates the passing of laws or rules and regulations, by the state board of health, under which these patients can be required to take the necessary amount of treatment.

There should be a system of notification identifying in some way those persons venereally diseased, and providing for a report of the name and address of the individual who does not so conduct himself as not to endanger others. The health officers should be responsible for the control of these individuals when they are reported. A rule should also provide for parents and guardians being responsible for the compliance of minors. In all cases reports are strictly confidential. Many physicians believe that notification is bad, as it is thought that it will have a tendency to drive patients away from them, and into the hands of druggists and quacks. The public in general, and patients in particular, should be informed carefully of the confidential nature of these reports, and that so long as they as patients continue under treatment and conform to the necessary rules and regulations, their names and addresses need not be divulged, nor will there be any difference in the relationship to their physician on account of this work.

California has had for several years a law requiring the reporting of these cases by number, but no definite effort ever has been made to enforce it. Since the

campaign was undertaken, however, their reporting has increased to more than three times the amount for the previous year. In Minnesota we are just preparing to inaugurate this work by circularizing all the physicians and asking their support for the government program. Many states in which reporting is now going on report the complete cooperation of the medical profession.

So far as we are concerned with the druggists, rules should be passed which will prevent counter prescribing, or the sale of any preparation or nostrum in the treatment of syphilis or gonorrhea. This sort of treatment means the loss of a considerable amount of time to the patient, and also in most cases it means that the patient, when finally presenting himself to a physician, has a chronic, difficult case, rather than an early case in which proper treatment can be very much more successfully given.

There is also a point in connection with this which distinctly concerns the Army and Navy, and indirectly also the civil population, and this is the treatment of soldiers or sailors by drug stores. This is to be condemned for two reasons. In the first place, on account of the men themselves getting inadequately treated, and in the second place, because it prevents the Army surgeon from placing these men under control, since the rules in the Army and Navy are that no such infectious patient be granted a leave of absence from the camp, and in that way any infection to the civil population is prevented.

By preventing the advertising of quacks, and by proper education of the people, it would seem possible to put the obvious quack or faker out of business. But it will be rather more difficult to restrain certain otherwise reputable physicians who persist in practically labeling themselves "quacks" so far as venereal diseases are concerned, by agreeing to cure these diseases quickly for stated fees. Generally speaking, the control of these patients who go to private practitioners depends almost entirely on the hearty cooperation of the medical profession, both individually and collectively. It is to be hoped, particularly at this time, when the value of this work to the federal government is so great, by reducing the disability among soldiers and sailors, both present and prospective, and among the vast army of industrial workers, that all physicians will pledge themselves to this cooperation.

EDUCATION

The systematic education of both laity and physicians as to the danger of these diseases, to their prevalence, and to the needs of adequate treatment, is the most important of any single method of attack. This should be directed along two distinct lines. In the first place, a campaign should be undertaken to get information to both laity and physicians from the disease standpoint. This should include lectures, distribution of pamphlets, setting up of placards in public comfort stations and other appropriate places, and various other means of publicity. Lectures should be given to various groups of men and women, and to county medical societies, both relative to the diseases and to the program for their control. A pamphlet on the treatment of these diseases should be furnished to physicians, as well as one containing information and instructions to be given patients. A carefully planned exhibit and stereomotorgraph with proper slides may also be used very successfully in various communities.

The other part of the educational work is directed toward those who in turn will be teachers, and is not limited in its scope entirely to venereal diseases. Courses should be arranged for in every state university, and in all normal schools. These courses should cover biology, psychology of sex, sociology, sex hygiene and venereal diseases. Courses should be given in medical schools with particular reference to the public health side of the problem. Courses should be given to hospital, public health and school nurses. Under the educational department a course of study of sex education should be planned for parents' and teachers' associations. Communities should be stimulated to the further use of present recreational facilities. The need and the part this work plays in stimulating a normal sex life in the young should be emphasized. This is particularly a great need in the rural communities.

I believe one important detail of the educational work should be giving people to understand that something can be done if exposure has already taken place. This may be called early treatment, or prophylaxis, as one wills. Its value has been fully demonstrated by the Army; of that there can be no question; but there is the question as to how this information should be given. I myself believe such information should be given individuals at the time of their attendance to the hospital or dispensary, and that people should be urged to go to these places for advice; but I do not believe that the public in general is willing to have such information spread broadcast to the youth of the land, nor do I believe that it would be proper on our part to advocate the sale of a prophylactic package, since that savors of the very drug store treatment that we are attempting to discard.

In connection with the educational work in California, forty lectures were given in cooperation with the War Department's Commission on Training Camp Activities, which reached approximately 55,000 enlisted men. A limited number of lectures were given to certain groups of people throughout the state, and a definite campaign for work along this line has been outlined. A number of sets of posters furnished by the American Social Hygiene Society were placed in various Army and Navy camps. A stereomotorgraph with proper slides was purchased, and sent first to Camp Kearney, at that time the largest cantonment in the state, and from there to others in different localities. Approximately 2,000 placards with information on venereal diseases were distributed and placed in the latrines of the Army and Navy camps of the state. Approximately 1,600 were distributed and placed by local health officers. About 6,000 pamphlets on venereal diseases, and 5,000 on the modern treatment of syphilis, were distributed throughout the state during the six months' period.

In Minnesota we feel that our educational program is well under way in view of the time elapsed. During the past winter complete courses were given at the university, and at a number of the normal schools of the state. Dr. Ulrich, who has charge of this work, has given fifty-five lectures to approximately 10,000 people. A number of different pamphlets have been issued and are being distributed. An exhibit is being planned and a stereomotorgraph with complete sets of slides has been ordered. A copy of the War Department's film "Fit to Fight" has also been ordered and will be shown to all enlisted men.

CONCLUSIONS

The program as proposed, and as put into force by the War Department, has already been proved a success by the fact that our armies now have the lowest venereal disease rate of any army in the field, and for weeks the rate of the expeditionary forces has been only about half that formerly averaged by our Regular Army. The program as proposed for civilians is along the same lines and is intended to be carried out in cooperation with the Army and Navy. There is every reason to believe that it will also be successful, particularly if it receives the support of the profession. There is a good opportunity for the private practitioner to show his desire to help by complying with all rules and regulations and by doing as much individual educational work as possible. The specialist who does not enter the Medical Reserve corps has an opportunity to serve at home by taking an active part in this movement, by lending his assistance with his special training, not only in working out problems, but by giving some time to dispensary work in his community.

There is need for the federal government to come to the state's aid in the way of finances just as England has done, and such legislation is now before Congress. With this assistance, the work will go on much more rapidly.

Emphasis should be placed on the educational work, particularly in the medical schools, as the people at large depend on the physicians for information concerning these diseases, and unfortunately the majority of the medical profession have little idea of the modern conception of sex hygiene or the public health point of view of the problems of prostitution and venereal diseases. This is due primarily to a lack of teaching of these subjects in the medical colleges.

A well rounded program for combating venereal diseases must take cognizance of every factor that enters into their spread. Any attempt to limit the work to any one field will fail, just as medical efforts at reducing venereal disease through attempted regulation of prostitution has always failed. In its last analysis we must agree with Surgeon-General Gorgas that venereal diseases depend on sex immorality for their spread; and until we do away entirely with immoral sexual relations, we cannot do away entirely with these diseases.

601 Syndicate Building.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRs. PUSEY, FORDYCE AND IRVINE

DR. JOHN E. LANE, New Haven, Conn.: The work which Dr. Pusey and his associates have done has already given such definite results and has been demonstrated to be of so great value that it cannot help assisting in the adoption, by other states, of the plan suggested by Dr. Irvine for the prophylactic measures which he has already introduced in several states. It is interesting to know that the value of the prophylactic measures adopted in our Army has already been recognized in France. You may remember that Fournier, in 1901, established the Society of Sanitary and Moral Prophylaxis in Paris, and planned prophylaxis on the lines that we have adopted. The measures suggested have never been taken very seriously by the majority of French physicians. A short time ago Sabouraud visited our army camps in France and gave a most flattering report of the result of the prophylactic methods used by our Army. He at the same time deplored the fact that the French, who first originated the plan and methods of prophylaxis, had to be shown how to put them into operation by the Americans.

We are all indebted to Dr. Fordyce for his insistence on the need of examination of the spinal fluid in cases of syphilis and for his persistence in demonstrating this need. We are also indebted to him for his persistence in demonstrating the need for organized hospital and dispensary facilities for the treatment of syphilis. It must be a cause of gratification to him to see that his efforts are beginning to bear fruit.

Dr. Irvine has been one of the leaders in the movement for getting the venereal diseases under the control of the state health authorities. The value of his work is best shown by the fact that several states have adopted plans similar to those which he has put into execution. I am glad to say that my own state is one of them.

DR. JOHN H. STOKES, Rochester, Minn.: I have myself been converted from a stand of opposition to intraspinal medication to the point where, while not an enthusiast, I am prepared to admit that at the hands of a man like Dr. Fordyce it is possible to produce results which cannot be duplicated by the conventional methods. On the other hand, I still feel that intraspinal therapy is a final rather than a first resort and that it should not be undertaken by the tyro. At the hands of the profession at large intradural therapy has been sadly overdone. This, however, is by no means a reflection on the method, but rather on those who have let enthusiasm get the better of their discretion. The results mentioned by Dr. Pusey and Dr. Irvine have interested me greatly. My personal hope is that state programs, however excellent, will not be allowed to overshadow the need for a really national campaign against venereal diseases.

DR. KING SMITH, Toronto: Men with well-marked psoriasis should not be taken into the Army. They live in huts and tents with other men and often such men are put down as syphilitic and their life is miserable. It is the same with many other diseases. Many cases of typical psoriasis and other diseases are considered syphilis, and it is hard to change the diagnosis. The soldier's pay is altered, as you know, and that man does not start in with a fair chance. I would like to suggest to Dr. Pusey that they think of the returned men. They will soon be sent back in great numbers with the loss of a leg or an arm and syphilis. The man cannot be kept in the Army, and you must find some way in which those men can be treated thoroughly in a civilian capacity. In Canada we have formed a league whereby these men can be gotten out of uniform but still receive care. The more you serve the more you will protect your other countrymen. You must give them every chance in this game, for they have given up everything for us, and we must protect them and when possible train the men not to put down syphilis against a man's name until he is sure of it. Get him back to the base hospital where he can have thorough treatment, and then make the diagnosis.

Many diseases have been put down to nervous origin. I found thousands of such cases soon after the evacuation of Gallipoli, where I happened to be. I saw only a very few irritated cases, never a lichen planus, and what struck me was the marked absence of nervous disease after going through that great campaign. The great thing I saw was the ecthyma group, which is often put down as syphilis. The men necessarily cannot change their clothes, the pediculosis is extreme and the ecthymoid conditions are very severe, forming great ulcers which look like tertiary syphilis, but are not. We sometimes do a routine Wassermann on a returned man, but I do not think this is justice to the man. If the man has not shown evidence of syphilis in the Army and you find the Wassermann positive, it goes down in the history sheet, he has to go down and take treatment, and if he refuses to do so it goes down on his chart and so becomes public property. The returned man, unless there are marked lesions, should be gotten out of the Army and in that way protected. If he is in the hospital his wife and friends come to see him, and everyone soon knows that he is attending a clinic for venereal disease if that plan of treatment is adopted. I do not believe in the long treatment of syphilis while the men are in the Army. If you can get the lesions cleared up, send them back to the trenches as soon as possible. They have a much right to be there as the healthy, sound men.

DR. A. SCHUYLER CLARK, New York: I have been in the Army for one year and up to the present time have never given a pink pill. My work has been entirely administrative and has consisted for nine months of medical administrative work in a division and three months in a base hospital, so I am inclined to look at this question from the point of view of efficiency in the Army and of administration. The point of putting a case of venereal disease in the hospital has two sides. There is no question that every acute case should be in the hospital, but there is a very decided objection to keeping them in the hospital too long. There is a great tendency for some soldiers to get "hospitalitis" or become hospitalized, and once that has happened it is extremely hard to get them interested in an organization again and anxious to go to the front, as all our soldiers are. A member of our organization is doing most efficient work at Camp Grant. I refer to Major W. L. Baum. The idea of getting venereal patients out of the hospital and having them treated by their organization is being urged by him. It is being tried out at the present time at the Depot Brigade at our cantonment, where they receive the new men coming directly from civil life. A venereal infirmary is being established there for the treatment of venereal patients in order that they may be gotten out of the hospital as soon as the acute stage is over. I am convinced that from the point of view of efficiency in the Army this plan is along the proper line. I believe that soon a division infirmary will be organized and there it will be important for an experienced venereal surgeon to teach the treatment of venereal diseases to the regimental officers of the detachment, requiring at least one regimental officer to report at this venereal infirmary and learn how to take care of venereal cases. I think that will be a future development in the Army. It is now being put into effect at Camp Grant. These soldiers do not wish to become hospitalized. I should like to tell you how appreciative the officers at Camp Grant are relative to the efforts being made to prevent prostitution in Rockford. I have never seen a cleaner city than is Rockford. It is rare to find a so-called new venereal case. The women of Rockford meet the trains and a questionable woman is approached by these women and advised that she had better return where she came from. If this is not effective, supervision is kept over her, and sooner or later she is put in jail or gotten out of town. This has a splendid effect on the cantonment in the prevention of venereal disease. There is no question about the effectiveness of prophylaxis. Another element which I consider of very great importance is the abstinence from alcohol.

DR. HENRY R. VARNEY, Detroit: Dr. King Smith was speaking of the proper treatment of the returned soldier, but I think there is another point, and that is the duty we owe to the returned soldier's family. I should like to ask what is being done to prevent these returned soldiers from infecting their wives and children with gonorrhea and syphilis.

DR. FRED WISE, New York: As I have the good fortune to be one of the few men in the room who is associated with Dr. Fordyce, I will confine my remarks to a discussion of his paper. In his recent writings his aim has been a campaign of education for the physician more than for the layman. The question of neurosyphilis has occupied his time for several years, but in spite of the fact that he has an overwhelming supply of data to present it may surprise you to know that in our city of New York many doctors not only do not follow his precepts in the treatment of neurosyphilis, but actually decry the value of spinal punctures. Dr. Fordyce's reports are based not on imagination, but on careful scientific data which have accumulated after years of hard labor. Naturally I can appreciate the work which he has presented to you today, because I have before me every day the results of the spinal treatment of neurosyphilis. If the handwriting on the wall be interpreted correctly, every doctor, specialist or practitioner will not only have to master the subject of spinal puncture in every case of syphilis, but also the treatment of neurosyphilis on the lines laid down by Dr. Fordyce.

DR. JAMES HERBERT MITCHELL, Chicago: Many of the criticisms of intraspinal methods are incident to the dangers of that treatment. The original Swift-Ellis technic was designed

for those cases which did not respond to the intravenous method. In our work we have limited our cases to those which did not respond to other treatment. The criticism which Dr. Stokes brings against the method will apply equally as well to the intravenous method. We have all seen a great many cases which have been markedly mistreated with the intravenous technic. That is not a criticism of the method, but of the clinician. During the past year I saw a patient in the dispensary who had had eight intravenous treatments. She had a hemiplegia and intense headache, which was not in any way relieved by intravenous injection. Spinal puncture showed 1,000 cells per cubic millimeter. One intraspinal injection of a large dose of undiluted serum gave her relief from the headache, and two further treatments relieved practically all the objective as well as the subjective symptoms.

DR. LOYD THOMPSON, Hot Springs, Ark.: I wish to mention one or two things in regard to venereal prophylaxis in the Army which Dr. Pusey did not touch on, the enlisted man on furlough and the officer on leave of absence. I found that 8 per cent. of our men who contracted the disease did so while on furlough. We are not able to control their actions on those occasions, and they have no prophylactic material with them. It is my idea that it would be a good plan to furnish all men who go on furlough with a prophylactic kit of some sort. A man may go on pass one night and indulge himself and come back and fail to take the prophylaxis. He will go on pass again the next night, will not indulge himself, but will take the prophylaxis. He is within the law, so far as the Army regulations are concerned, and we have no way of knowing when the infection occurred.

In the matter of treatment: As long ago as last October I advocated establishing dispensaries in the divisions. Our division surgeon did not approve of it and we did not get as good results as we might have. We have now established a division dispensary which will take care of all ambulatory cases of venereal disease.

DR. M. SCHOLTZ, Cincinnati: In discussing sanitary control of venereal diseases we must differentiate clearly between the military and civic aspects. The military problem is so thoroughly and efficiently controlled by the federal government that we, as physicians, have no cause for anxiety as to the results sought for. The civilian problem is infinitely more difficult and complex. We should realize that the main reason why the venereal problem is so difficult of solution is because venereal diseases are social and secret. The medical profession as a body cannot render a greater service to society than by educating and molding its mind in this direction. When we have accomplished this our difficulties will largely cease. I believe, in this sanitary crusade of social hygiene, we should rely more on the educational campaign and more liberal attitude in the matter than on the oppressive legislation or on the raids on shady hotels. We should not judge the effectiveness of our clean-up efforts by the number of arrested women of ill repute. The effects of these measures are always transitory and local in character. We all know that these undesirable female characters, when driven out of one city, land in another community. We simply transfer our burden temporarily to our neighbors. From this viewpoint it is high time for the medical profession to urge the government to organize a national commission for the study of venereal diseases from every possible angle—medical, social, educational and economic—a commission which would insure a concerted action on the national scale and rational methods of solution.

DR. E. H. MARTIN, Hot Springs, Ark.: Referring to Dr. Brown's paper, I wish to call attention to one factor which may have led to error; that is, that his experiments were made on rabbits with the initial lesion. Any one who has treated many cases of chancre must realize that the chancre is the most resistant of all syphilitic lesions to treatment until you come to the cerebrospinal colonies. Many organisms reside in the chancre, many of them in an unkillable stage, and the drug does not have the effect on them that it does on the ordinary forms of spirochete. Very often an indurated lump will remain at the site of the chancre for weeks after healing; very often ten doses of ordinary arsphenamin have been given

before such a lump would soften. I believe if the experiments could be carried out on animals in the secondary stage, after the chancre had softened, they would be more valuable in determining which of the drugs is most curative.

DR. FRANKLIN R. WRIGHT, Minneapolis: If we may believe the writings of Havelock Ellis, there has been only one race of people discovered who did not have prostitutes, and they had polygamy. The question simply comes down to one of sex; the male has strong sexual desires, while the female has maternal desires. Applied to the human race, the male is a natural Mormon and the female is not. It is simply a matter of sex all the way through. One of the leaders on sex questions has stated that if a man of 35 brags that his will is so strong that he has never had intercourse, that man is boasting of the weakness of his sexual powers instead of bragging of the strength of his will power. The question is, Are we willing to teach the general public that all unmarried men have intercourse, and that the state has cured all persons having illicit intercourse of contagious disease and made fornication as safe as possible? Are we ready to go so far as to teach the public that there are measures which they can take by which the chances of infection are reduced to the minimum? If we are ready to teach the young boys and girls these things, well and good. The Army is a different proposition. It is a well-known fact that the men who do the heavy physical work are not the ones that have strong sexual desires. The men who do the mental work and live sedentary lives are the ones who have the strong desires. Army life is a fairly active life.

There are reasons why the Army shows great diminution in the amount of venereal disease. All these cantonments are in small communities. The number of prostitutes in any community is in proportion to the number of unmarried males. More than this number cannot find lodging suitable to their vocation. This is the situation at Rockford, Ill.; Battle Creek, Mich.; Camp Kearney at San Diego, Calif., and other places. At Camp Custer, Mich., between October 1, 1917, and December 15, 1917, there was only one young man admitted to the Base Hospital who had acquired his infection after entering the Army. There were no prostitutes at these places, except a few to take care of the needs of the unmarried men among the 30,000 people living in Battle Creek. This reason will apply to Camp Kearney, Calif., the same as at Camp Custer, Mich.

DR. WADE H. BROWN, New York: In experimental therapy we have to take such conditions as we find them and make the best use of them. As to the use of the rabbit for experimental purposes, well developed and enduring primary lesions are relatively easily obtained, while there has been a great deal of discussion as to the extent to which a true generalization of the infection with secondary lesions follows a local inoculation. In recent years we have found that a true generalized syphilis does occur in the rabbit in many instances and that secondary lesions may appear even as late as sixteen or eighteen months after inoculation, but such lesions may be very transient and, as a rule, are much more easily influenced by treatment than the primary lesions. Further, when treatment is instituted during the primary stage of the infection with consequent healing of the initial lesions, if a true cure has not been effected, secondary or generalized lesions may appear later in a considerable number of animals and this is particularly true of certain drugs, as instanced by the results reported with various arsphenamin preparations. For these and other reasons which we might mention, it seems better as a routine procedure to treat experimental animals during the primary stage of the infection and to rely on the subsequent development or absence of generalized lesions during some four to six months than to treat the more transient and more easily influenced secondary lesions. Under the circumstances, this is all one can do, as a rule, and the results obtained from such experiments furnish reliable presumptive evidence as to the therapeutic action of the drugs used.

DR. WILLIAM ALLEN PUSEY, Chicago: I would like to call Dr. Wright's attention to the fact that the reason there are not more women in Rockford and Battle Creek is not because there are not more prostitutes that might be available for

these districts, but because it is a part of the Army work to keep them away.

Regarding the question about what to do with cases of venereal diseases after the war, this is undoubtedly very important, but so far there has been considerable to do to take care of the venereal cases during the war, and not much has been done as yet toward the care of them after the war. The protection of the family against venereal disease while the man is in the Army is pretty well taken care of by the fact that these men are not allowed to get away.

Regarding the percentage of venereal disease, the Army program has taken some pride in the fact that it has not been an unworkable program. I do not mean that it is ideal, but only a fair standard at the present time.

DR. JOHN A. FORDYCE, New York: I had no intention of presenting the subject of intraspinal therapy in neurosyphilis, but as this has been touched on by several of the gentlemen I will briefly refer to it. In order to obtain results by the method in question one must have a very clear conception of the various conditions present. In other words, indications for or against this therapeutic procedure are afforded by the results obtained from an examination of the spinal fluid. Early meningitis may occur before, during or after intensive treatment. These cases can best be controlled by intraspinal injections. In tabes, with a relatively high cell count and positive Wassermann, if the degeneration be not too far advanced, we can anticipate further degeneration, relieve the pains and cure the crises in the majority of cases. In optic atrophy, with the preservation of one half or one third of the vision with positive findings in the fluid, we can arrest in the majority of cases the further progress of the atrophy.

Many neurosyphilis patients come to me in my private work and in the clinic who have had a large amount of treatment of arsphenamin and mercury. It is useless to continue the ordinary methods of treatment in such cases. They are treated intraspinally if the indications afforded by the spinal fluid examination point to an involvement of the meninges. Many cases of disseminated cerebrospinal syphilis which have not been cured by ordinary treatment have been cured or greatly benefited by the method in question. In the past five years we have treated about 170 cases of various types of neurosyphilis and have obtained a negative cell count and negative Wassermann in 2.0 c.c. of fluid in about 30 per cent. of the cases. We do not consider the patient cured until we obtain a negative Wassermann with the larger quantities of fluid. As to the benefit to be expected in paresis we cannot say as much. There are, however, borderline cases of meningoencephalitis which simulate paresis and which have been cured. In the routine examination of the spinal fluid in the various types of neurosyphilis we frequently meet with patients who give a four plus (+++++) Wassermann in 0.2 c.c. and a paretic colloidal gold curve. Although these cases presented no stigmata of degeneration, we consider them potential paretics. In these cases treatment probably delays for a long time the development of the later degenerative stage.

DR. HARRY G. IRVINE, Minneapolis: In regard to the returned soldier, the federal government should notify the state boards of health of any diseased man coming into their district. Where the program which has been suggested is enforced it would be possible to have these cases taken care of in their dispensaries. This program provides for this very thing and not only for the care of the returned soldier, but will also protect his family and the community as necessary. I am sure that the Surgeon-General's Office has gone into this matter and that it will be given serious consideration. The relationship of prostitution to venereal disease can hardly be settled in two or three minutes' discussion. It is possible to do away with commercialized prostitution, which is not in business to take care of the demand but to create a demand, and this can and should be done away with. So far as control of prostitution is concerned, it is worthless to institute any form of medical examination to attempt to make it safe. In any attempt at regulating prostitutes it has never been possible to register more than 10 per cent., and it is worthless to adopt any program which can be applied to those registered and not to the others, who are in the majority. So I cannot see that

it will ever be possible to make the prostitute safe, so far as venereal disease is concerned. I think that the habits of the male have a great deal to do with the amount of intercourse. If a man is in the habit of doing without for a long time he can do so very nicely. The question of alcohol, whether a man is working or not, and the nature of his work all enter into it very largely, but as time goes on and we have better sociological conditions we will likely develop a race of men who will get along with much less intercourse than has been the case in the past, even if such a thing is not the case at present.

The question of making prostitution safe brings up again the segregated district, and that has been shown to be an absolute failure, so far as venereal disease is concerned. Many of the best authorities have gone on record, publicly stating it as their opinion that any attempt at medical regulation has always been a failure so far as reducing venereal disease is concerned. I think that until we are as well informed as those men are it is hardly good form for us to question the statements which they make.

THE QUESTION OF OPERATION IN GUNSHOT ABDOMINAL WOUNDS *

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The study of gunshot wounds of the abdomen deals with one of the most interesting chapters of the major wounds of war, especially by reason of the numerous controversies relating to a general plan of treatment of abdominal wounds. Certainly the present war has developed important advances in this department of surgery.

In previous wars it was held as dogma that gunshot wounds of the abdomen should be treated expectantly and conservatively, as distinguished from the teaching of prompt operation in civil practice. At the present time, it may be said that the weight of opinion is in favor of applying in military practice the civil method of immediate operation in all penetrating wounds of the abdomen wherever the favorable conditions of civil practice can be provided. These essential conditions include a skilled operator, trained assistants, a sufficient armamentarium, an aseptic environment, and the time in which to operate. Practically all agree that it is better to await the establishment of these conditions before attempting to operate.

It is likely that the best explanation of the improved statistics of operation in this war is to be sought in the favorable conditions of trench warfare, the battle lines being in the main more stable than in former wars, and allowing of better preparation for operating near the front.

Chalier and Glénard¹ express the view of most war surgeons in all armies when they say that expectancy is a "snare and a delusion." It is permissible only when twenty-four to forty-eight hours have elapsed since the injury, when operation could do no good. In this event, they advise that no food should be given and the man should not be sent back any distance until after six weeks.

Notwithstanding the fact that the experiences of the present war have modified the old views as to the advisability of abstention in abdominal

wounds, there still remains, notably in France, a rather sharp division between what are designated the abstentionists on the one hand and the interventionists on the other. The former group bases diagnosis of penetration and perforation, as well as treatment, on the evolution of symptoms; the latter group makes the complete diagnosis by laparotomy, applying appropriate surgical treatment immediately or within the first few hours. Unfortunately, the most experienced surgeons occasionally find more or less difficulty in diagnosing penetration and perforation before operation, and all are, of course, opposed to precocious operating in nonpenetrating wounds.

There is not always present an aperture of exit, in which case it is difficult to determine the course of the missile. All missiles may ricochet. I have witnessed wounds in which, if the missile had traversed the shortest route between the two openings, there would have been perforation of many vital organs and structures, and yet there was no serious injury.

There are a few recognized rules to follow; for example, the closer together the wounds of entrance and exit, the less the chance of penetration. And Rochard² declares that if a wounded man does not cease to complain of abdominal pain, a perforation is almost certain. Rochard also says that if a patient passes gas at the anus, there is no perforation.

All rules fail sometimes, with the exception of these three which prove the existence of perforation: escape of bowel contents from the wound of entrance or exit, protrusion of perforated intestine at the wound, and passing of the missile by the anus. Schwartz and Mocquot³ describe four cases of perforation showing no signs. I have observed the case of a man with perforating wound of the abdomen who continued active duty for several hours after receipt of the wound, having no knowledge of the injury. Six hours after injury, the abdomen at operation was filled with blood.

Among the common signs of perforation are pain; vomiting; hiccuping; costal breathing, due to immobility of the diaphragm; the syndrome of shock; board-like rigidity of the abdomen (*ventre du bois*); retraction of the testicle to the external abdominal ring; change in shape of the abdomen, for example, the "*ventre bilobé*" from meteorism; emphysema as in colon wounds; tympany; temperature changes, etc. To these may be added the symptoms of intra-abdominal hemorrhage. A true interventionist does not, of course, await the appearance of all these symptoms, since one may suffice to determine the propriety of operating.

CONDITIONS DETERMINING OPERABILITY

Among the deciding criteria which determine the advisability of operation are the following:

1. The kind of missile. A smooth undeformed bullet as a rule makes a small canal in the abdominal wall and a small easily sutured opening in a hollow viscus unless the shot be tangential to the intestine. Such a smooth bullet, however, usually produces an irregular laceration of a parenchymatous organ. The aperture of entrance being smaller and more clear cut than the aperture of exit. Irregularly deformed bullets naturally produce larger and more ragged wounds than do smooth ones. For example, the fragmented nickel or steel mantle partially split off and projecting from a lead center bullet may do great damage. Large

* Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

1. Chalier, André, and Glénard, Roger: *Rev. de chir.*, 1917, 53, 124.

2. Rochard, E.: *Bull. et mem. Soc. de chir. de Paris*, 1915, 41, 2182.

3. Schwartz, Anselme, and Mocquot, Pierre: *Rev. de chir.*, 1916, 51, 56.

grenade fragments do not as a rule penetrate deeply, but often cause extensive crushing and laceration of the abdominal wall. Small grenade fragments often do very little injury, but may produce a deceptive wound; that is, the wound of the abdominal wall may seem insignificant, whereas the intra-abdominal injury is extensive and serious. Shrapnel balls often remain impacted in the abdominal coverings. They are of low velocity and usually retain their smoothness and rotundity and do comparatively little damage to viscera, considering their large size. They rarely completely traverse the abdomen. Shrapnel wounds are usually infected because the low velocity missiles push into the clothing, whereas the small, high velocity rifle bullets cut clean, small wounds and do not often carry in fragments of the clothing.

2. The length and character of transportation required to bring the patient to the place of operation. Koerte places the limit of operability at twelve hours, and Chali r and Gl nard at twenty-four hours, and the records of all show that the operative mortality percentage rises rapidly with each hour during which operation could be done after the subsidence of shock.

TABLE 1.—STATISTICS OF ABDOMINAL WOUNDS TREATED BY THE ABSTENTIONIST METHOD

Surgeons	No. of Cases	No. of Deaths	Surgeons	No. of Cases	No. of Deaths
Barbet and Bouvet..	11	10	Brought forward	532	422
Bichat	21	16	Lorin	10	8
Cadenat	9	3	Marquis	68	36
Chaput	4	4	Meyer and Taylor...	41	17
Chavannaz	38	22	Pascalis	10	7
Chevassu	85	27	Pellot	12	6
Delore	100	100	Picqu�	16	11
Didier	3	0	Proust	33	33
Dupont and Ken-			Rouvillois	67	60
dirdjy	40	40	Schwartz	10	7
Gatelier	12	12	Sencert	58	45
Gaudier	75	69	Stern	50	46
Gosset	5	5	Tartois	8	8
Hourtoule and Bar-			Vignard	11	2
bier	7	4	Weiss and Gross....	57	49
Latarjet and Cotte ..	5	5	Total	983	760
Leriche	117	105			
Carried forward ..	532	422			

Proportion of mortality, 77.3 per hundred.

3. The stability or nonstability of the place of operation determining whether the patient may require transportation soon after operation.

4. The factor of time, that is, the question as to whether time can be given for the operation without neglect of other wounded.

In any case, before operation is undertaken, the interventionist excludes simple, nonpenetrating injury of the abdominal wall. Likewise, he considers the question of whether conservative treatment, under the circumstances relating to the wound, the patient's general state and surrounding conditions would not be better.

INTERVENTION VERSUS ABSTENTION

At the beginning of the war, nearly all surgeons were abstentionists. For example, Aug. 10, 1914, in an address to the Academy of Sciences, Delorme advised against intervention, saying that experience in the Transvaal and in the Manchurian and Balkan wars justified the expectant plan, but the records of the interventionists are better in this war, as shown in Tables 1 and 2, taken from Chali r and Gl nard.

It should be noted that the interventionist verifies his diagnosis of perforation, or, in the French nomenclature, penetration with injury of the viscus; whereas, the abstentionist may designate as perforation cases some which are not perforative. M. Chevassu, who

was an abstentionist, not by choice but by unfavorable circumstances, had only twenty-seven deaths in eighty-five penetrating gunshot wounds, but according to French writers, many of these were doubtless cases of simple penetration without any injury of an important viscus. Moreover, the interventionist's deaths occur promptly and are counted against him, whereas the abstentionist's deaths are often late, as from fistula, and are not counted.

TABLE 2.—STATISTICS OF ABDOMINAL WOUNDS TREATED BY THE INTERVENTIONIST METHOD

Surgeons	No. of Cases	No. of Deaths	Surgeons	No. of Cases	No. of Deaths
Abadie	15	9	Brought forward ...	365	203
Barbet and Bouvet ..	15	8	Lorin	8	5
Bichat	21	10	Mathieu	26	20
Boulay	20	11	Mathieu	41	28
Bouvier and Caudre-			Meyer and Taylor...	50	17
lier	33	18	Pascalis	3	0
Bouvier and Caudre-			Pellot	11	10
lier	58	30	Petit	5	0
Cadenat	17	12	Picqu�	15	9
Charrier	1	0	Proust	101	64
Chavannaz	13	9	Qu�nu	1	0
Chevassu	38	25	Rouhier	15	9
Cotte and Latarjet ..	9	5	Rouvillois	74	54
Delay and Lucas			Schwartz	9	5
Championni�re ...	22	12	Schwartz and Mocquot	46	30
Delay and Lucas			Schwartz and Mocquot	60	41
Championni�re ...	55	30	Stern	34	20
Didier	10	6	Tartois	11	6
Dupont and Ken-			Vignard	9	5
dirdjy	4	3	Villette	2	0
Duter and Halez....	1	0	Veiss and Gross....	4	4
Gatelier	11	6	Total	890	530
Gosset	7	3			
Hallopeau	4	2			
Hourtoule and Bar-					
bier	10	4			
Launay	1	0			
Carried forward ..	365	203			

Proportion of mortality 59.5 per hundred.

In support of intervention, the Interallied Surgical Congress of last March expressed the view, which is the most authoritative available, that all intestinal wounds should be treated by laparotomy, with suture. Most surgeons reserve the suprapubic buttonhole drainage, which the French call the operation of Murphy, and which the Germans ascribe to Payr, for cases of simple penetration without perforation. Payr advised that in all penetrating abdominal wounds an incision be made promptly above the symphysis for drainage.

Chali r and Gl nard treated fourteen of their thirty-nine cases of abdominal gunshot wounds with simple drainage of the pouch of Douglas with intraperitoneal injections of ether and oil of camphor. They also injected oil of camphor subcutaneously and employed the Fowler position. There were ten deaths among the fourteen patients. None of the patients were operated on within ten hours after injury and some were operated on as late as the fourth day.

TABLE 3—RESULTS OF SUPRAPUBIC DRAINAGE IN FIFTY-FIVE CASES

Bouvier and Caudrelier:	
16 operated on in less than 3 hours, 8 deaths, 8 cures.	
11 operated on in less than 5 hours, 5 deaths, 6 cures.	
2 operated on in less than 6 hours, 2 deaths, 0 cures.	
Lapointe:	
14 operated on in the first 7 hours, 8 deaths, 6 cures	
12 operated on after the first 7 hours, 12 deaths, 0 cures.	

Table 3 shows the results of simple suprapubic drainage in fifty-five cases.²

What may be called the internationally accepted treatment of patients not to be operated on consists in rest in the recumbent position with shoulders raised and knees flexed. This position relaxes the abdominal musculature and adds to the comfort of the patient. No attempt should be made to move the patient unless the move is unavoidable, nor should he

be permitted to move himself. If he is moved before the operation, the Fowler position should be maintained during transport. Food by the mouth should be interdicted and water likewise should be forbidden, unless neither nausea nor gas is present. A teaspoonful of water at intervals of fifteen minutes may be given by mouth to moisten the dry mucosa. Food and water may be given by the bowel in the case of lesions of the small intestine or the stomach, the common sites of perforation. Opium should be given to control pain whether the operation is to be done or not. Shock is to be combated by heat, and by physiologic sodium chlorid solution administered hypodermically, by rectum and by intravenous infusion.

MORE COMMON INJURIES OF THE VARIOUS INTRA-ABDOMINAL ORGANS

Gunshot injuries of the stomach are of frequent incidence. Perforation of the stomach when it is full is more serious because of the escape of the contents, than when the organ is empty, notwithstanding that the openings made by the missile are smaller, all things being equal, when the stomach is distended (Landois). The commonest injury is that in which the aperture of the entrance is on the anterior wall and the wound of exit on the posterior wall. This, of course, may be reversed. Both openings may be on the anterior wall, or on the posterior wall. In the latter case, the stomach contents will empty into the lesser peritoneal cavity.

Landois has called attention to a frequently occurring phenomenon, namely, the outpouring of stomach contents into the lesser peritoneal cavity through a wound of exit in the posterior wall, while the wound of entrance on the anterior wall discharges no contents at all.

Little value attaches to the symptoms of hemoatemesis in stomach wounds as it is rarely present. Wounds of the anterior stomach wall are, as a rule, easily found and readily closed. The wound on the posterior wall is not always easy to find nor is it easy to close by suture. Through a large opening in the gastrocolic omentum, the lesser peritoneal cavity may be mopped free of blood and the stomach contents and the posterior wall inspected. Occasionally one can find the posterior wound with the finger but cannot bring it into view for closure by suture. In such a case, drainage without suture is safer than blind and awkward attempts to repair the wound. An experienced surgeon, however, will not often be driven to forego the suture of any stomach wound.

Pauchet has advised approaching the posterior stomach wall through an opening made by separating the greater omentum from the transverse colon along the line of the insertion of the omentum to the intestine. I have found that this method provides excellent exposure. It is very easily carried out.

Of all the hollow viscera, the small intestine is the most frequently perforated. Horizontal close range shots with the wound of entrance near the umbilicus produce most perforations. There may be wounds of entrance and exit in each wounded coil of intestine or a single opening may be present, the result of a tangential shot. As a rule, the openings are present in pairs, the wound of exit being the larger and accompanied by more marked extrusion of mucosa. Irregularly deformed nickel or steel-jacketed bullets or grenade fragments may entirely divide the small intestine.

Of great practical importance are the wounds establishing communication from the intestine lumen to the space between the peritoneal laminae of the mesentery produced by tangential shots of the small intestine at its mesenteric attachment. These may be overlooked.

A few hours after perforation of the small intestine, the neighboring peritoneal surfaces become covered with plastic exudate, which in the case of small wounds, for example, those from minute grenade fragments may effectually prevent further escape of intestinal contents and occasionally lead to spontaneous cure. The benign, walled-off abscess is unfortunately a much less common sequel of perforation than is general peritonitis.

The comparatively hopeful outcome of injury of the large intestine has been ascribed to the fact that the walls of the large intestine are thicker and the wound is partially closed by the greater amount of tissue involved in the perforation. An interesting point is that wounds of the small intestine higher up are more likely to be associated with injuries of other vital organs than are wounds of the large intestine. Many surgeons of the present war support the view of Landois that if we eliminate from consideration associated lesions of other organs, infection from injury with escape of contents of the large intestine is more serious than that following injury of the small intestine. The contents of the cecum and ascending colon are rich in bacterial flora of virulent character, so that comparatively few patients with perforation of the colon survive even when promptly operated on. A smooth rifle ball or a small grenade fragment may produce a small wound of the colon which more or less perfectly closes itself by contraction of the muscularis and the sliding of the intestinal coats. In such a case, the escape of contents being slight or nil, the chance of recovery is good if the operation is performed promptly.

Retroperitoneal wounds of the colon are often overlooked, especially in fat individuals. The presence of intraperitoneal hematoma and gray or brown-gray discoloration of the peritoneum with edema or gangrene in the neighborhood of the wound are valuable signs, though not always present. Retroperitoneal wounds of the transverse colon may elude search until the lesser peritoneal cavity is opened.

Extraperitoneal injuries of the rectum nearly always recover though the convalescence may be prolonged because of the development of fistula, cellulitis or septicemia. On the other hand, all injuries of the rectum which establish communication with the peritoneal cavity are to be regarded as serious.

Wounds of the kidney are, as a rule, accompanied by injuries of the intestines. If there is no evidence of perforation of the intestine, the kidney injury should be treated conservatively. Even in cases of extensive hemorrhage from a kidney wound, the treatment may well be conservative unless the case can be brought to operation very early and the hemorrhage is really threatening. Uncomplicated injuries often heal promptly. If the renal vessels are divided or great destruction of the kidney has occurred nephrectomy is required. As a rule, however, it may be stated that rifle bullet wounds of the kidney are best treated by rest and opium. Occasionally, gunshot injuries of the kidney are followed by hydronephrosis requiring incision and drainage.

Wounds of the bladder rarely produce dangerous hemorrhage. The bladder contents are normally not infectious, but if emptied into the peritoneal cavity, cause more or less chemical irritation. Obviously, extraperitoneal wounds of the bladder are less serious than those which involve the peritoneal cavity. Hemorrhage into the bladder suggests an extraperitoneal injury of the bladder. An empty bladder suggests intraperitoneal injury of the bladder with escape of urine into the peritoneal cavity. The interallied conference declared for primary suture of intraperitoneal bladder wounds and for suture of extraperitoneal wounds as well. Inaccessible wounds are to be enlarged and drained. Cystostomy should be done in bladder wounds with urinary infiltration.

Intraperitoneal wounds of the bladder demand abdominal operation if conditions are favorable. If not, a retention catheter should be introduced promptly. Extraperitoneal wounds are best treated by continuous catheterization or by perineal section.

A clean-cut wound of the liver is rare. Lacerations are the rule. The wound of entrance is small, the wound of exit larger, and the bullet canal fusiform. Star shaped wounds are not rare. Hemorrhage is always present, the degree depending on the size of the vessels involved. Fortunately, the liver tends to tear and give way between the large vessels. Near the hilus, however, the danger of injury to large vessels is great. Liver hemorrhage often subsides spontaneously. Blood pressure is low and the bleeding may be controlled nearly always by pressure with gauze pads. In wounds of the liver communicating with the chest, hemorrhage is into the chest cavity, rather than into the abdomen, since intra-abdominal pressure is greater than intrathoracic pressure. If there be extensive laceration of the diaphragm, the liver tissue may be extruded into the chest.

Uncomplicated gunshot wounds of the liver require no surgical treatment unless there is serious hemorrhage. This hemorrhage may be controlled in nearly all cases by gauze packing, which is left protruding at the abdominal wound.

Combined injuries of the chest and the abdomen are not uncommon. Landöis divided these into five groups as follows:

1. Abdominal injuries associated with perforation of the diaphragm and pleural space. Since the pleural space extends considerably farther down laterally and posteriorly than the upper level of the abdomen, horizontal shots may, of course, perforate both cavities. In such a case, stomach or intestinal contents, bile or peritonitic exudate may enter the pleural space causing pleuritis.

2. Associated injury of thoracic and abdominal organs. In a complicated injury of the lung and liver the patient may cough up bile, or as in one case observed by the author, may cough up a bullet entering the lung by way of the abdomen and the diaphragm. Empyema may occur as the result of such a complication. The heart may also be injured by bullets passing through the abdomen.

3. Wounds with great laceration of the diaphragm. In such a case, the liver or other abdominal organs may be extruded upward into the chest.

4. Tangential shots of the lower thorax with contusion of the liver or kidney.

5. Separate or multiple injuries of the chest and abdomen.

ABSTRACT OF DISCUSSION

DR. DANIEL N. EISENDRATH, Chicago: The principles underlying the treatment of gunshot and stab wounds of the abdomen are essentially the same whether the work is in civil or military life. Dr. Eastman spoke of the combined thoracic and abdominal injuries. These are of a special class in which in civil practice the perforation of the diaphragm and injury of abdominal viscera are frequently overlooked because the men do not think of anatomic relations, that the diaphragm has under it a large proportion of the male abdominal viscera. For that reason we are accustomed to look carefully within the first six to twelve hours, examining the patient with perforating stab or gunshot wound of the chest almost every hour for evidence of abdominal injury. Especially in the last two years of the war there have been a relatively large proportion of injuries of the thorax, which have gone under the name of the open, or leaking pneumothorax. In these cases there is extensive laceration and destruction of the chest wall with injury to the diaphragm, to which Dr. Eastman has referred, and extensive laceration of the liver. Since the Battle of the Somme there has been more tendency to treat these injuries by early exploration. This can easily be done by reopening the edges of the thorax wound to see whether there has been perforation of the diaphragm or injury of the subdiaphragmatic structures. Dr. Eastman spoke of the signs of perforation. These are not different in war from those seen in civil practice, and it is the consensus of opinion among those of experience that when these are present, under no circumstances should a chance be taken, but that laparotomy or exploration of the wound be done at once. Rather should this be done many times without finding an intraperitoneal perforation than that a perforation be overlooked. Of these signs rigidity of the abdominal muscles is one of the most important in indicating beginning peritonitis. If that rigidity spreads within two or three hours, or has at the time of first seeing the patient spread over one quarter or half of the abdomen, take no chances, but do a laparotomy at once. Accompanying tenderness is also a very valuable sign of beginning peritonitis. A third sign is increase in the pulse rate. Leukocytosis is also a guide, because this may be present after effusion of blood into the peritoneal cavity, as it is in cases of infection. You do no damage by operating in a case presenting these signs. If the wound has not perforated the abdominal wall you have done no harm. If there has been perforation of the abdominal wall you are in a position to deal with the injury. The first surgeon to suggest the value of suprapubic drainage was Dr. Van Buren Knott of Sioux City, Iowa. Many recoveries from generalized peritonitis in the last five years have been attributed to suprapubic drainage. With a generalized peritonitis you might as well pass your hand over a patient as to expect suprapubic drainage alone to effect a cure. Unless there is repair of the injury in the early stages such drainage is an irrational measure. I do not think any of us will fail to remember the clinical picture of perforation of the upper portion of the alimentary canal or pancreas with the hypertoxicity which comes from the activated pancreatic secretion. A method I have found of value in examining for perforation is that of placing a loose catgut suture about the coil of intestine at the point of beginning examination. If you find no perforation in the small intestine, begin at the catgut suture and examine the large bowel in the same way. The suture thus marks the beginning and the ending of the examinations.

DR. JOHN YOUNG BROWN, St. Louis: For quite a number of years I have been an earnest advocate of early operations in the treatment of gunshot wounds of the abdomen. There are some points relative to diagnosis to which I should like to call attention. The simple penetrating wound is a wound that penetrates the peritoneal cavity and does not injure the solid or hollow viscera. The penetrating and perforating wound may be subdivided under two heads: 1. The penetrating and perforating wound, where the bullet injures only the bloodless portion of the gut. 2. The penetrating and perforating wound, where the bullet perforates the intestine and mesentery. This last type of wound is readily diagnosed, as it gives immediate symptoms—the symptoms resulting from hemorrhage. The

Other two types cannot be diagnosed without exploratory operation. I have seen many cases with multiple bowel perforations, perforations occurring in the bloodless portion of the bowel, which presents absolutely no symptoms suggestive of the seriousness of the injury. Again, I have operated in a large number of cases where examination of the wound of entrance would indicate perforation, and, after exhaustive search, I failed to find any injury. Early exploration should be the rule in all cases. Cases that give no immediate symptoms may have multiple perforations, and the failure to repair them will result in fatal peritonitis. In regard to the combined wounds involving the chest and abdomen, all such cases should be explored. We no longer hesitate to open the chest. A stab or bullet wound penetrating the chest brings on a pneumothorax, and resection of a rib in order to see if the diaphragm is injured can be done with perfect safety. If the diaphragm is penetrated, the same rule should hold good relative to abdominal section. I seriously question the cases that have been reported as having recovered from multiple perforations without operation. I am inclined to believe that the diagnosis was incorrect.

HEMORRHAGIC DEGENERATION OF MYOMAS AND THEIR RELATION TO SARCOMAS*

ARTHUR E. HERTZLER, M.D.
KANSAS CITY, MO.

By hemorrhagic degeneration of myomas is meant that condition in which spontaneous hemorrhage takes place into the substance of a myoma that has previously undergone a degeneration. Gebhard sought to indicate the essential degenerative character of the lesion by calling it a necrobiosis. The changes which underlie the condition consist of an obliterating endarteritis, hyaloid degeneration of the vessel wall and degeneration of the surrounding tumor tissue, with finally a free hemorrhage into the interstices of the degenerated tumor. The end-result of hemorrhagic myomas may be one of several: 1. The hemorrhage may become absorbed from the substance of the tumor, leaving only cholesterol crystals or small cysts. 2. More commonly the escaped blood lies for indefinite periods in a fluid state (Fig. 1), but the blood may clot, leading to vascularization and organization of the blood clot. 3. The hemorrhage may result in perforation of the capsule of uterine tissue covering the necrobiotic mass (Fig. 3). The escape of blood from such a perforation may cause profound irritation of the peritoneum, or even death from shock. 4. Finally, a rapidly developing sarcoma may develop from the hemorrhagic tissue. It is the last named condition that concerns us here.

It is necessary in seeking the relationship between these hemorrhagic myomas and sarcomas to examine the conditions that precede the hemorrhage and to study the changes that take place in the mass after hemorrhage has occurred.

Cullen long ago pointed out that most myomas show some evidence of hyaloid degeneration. In most tumors the microscope is required to discover it. These areas of degeneration when more extensive may involve the tumor tissue diffusely, or only that portion most remote from the vessels, while that lying nearest

the vessels remains undegenerated or even shows evidence of recent proliferation. On the other hand, the tissue lying next to the vessel wall may be the part showing the chief degeneration (Fig. 5). This seems to be the type in which hemorrhage is most apt to occur. Associated with the hyaloid changes there is always a thickening of the vessel walls and usually a narrowing (Fig. 6), or even an obliteration of the lumen of the vessel (Fig. 7). Surrounding these vessels more or less extensive hyaloid or mucoid material is found. These areas may liquefy and form cysts. This is the most common degenerative change observed at the operating table. It is tumors showing such changes that are prone to bleed into their substance. What factors enter which excite a hemorrhage within such tissue cannot be stated. It is probably due to a progressive decrease in the resistance of the vessel walls until they are weakened to such a degree that they are no longer able to withstand the intravascular pressure. Accidents to the common source, however, must sometimes play a rôle, for in some tumors multiple foci of hemorrhage are seen.

Once blood has escaped, a series of phenomena are observed. In some tumors the blood remains fluid for long periods of time. The history may indicate that hemorrhage took place months before operation, yet these tumors are fluctuating, and, when cut into, much blood escapes. This fluid blood may be contained in compartments of varying sizes, or may infiltrate the tumor diffusely. This blood may or may not undergo spontaneous coagulation within the tumor or when exposed to the air. In most instances a part coagulates before the tumor is opened and part remains fluid. Usually bands of fibrin that have undergone some development form a network across the small pools of blood. Within this meshwork, red blood cells lie which have not undergone degenerative changes (Fig. 8). In some instances this tissue proceeds to a complete development of fibrous tissue, and a typical angioma results. Sometimes, on the other hand, the fibrin bundles remain as such, showing no tendency to go on to the development of fully formed fibrous tissue. It is in these specimens, usually those in which the hemorrhage occurred some time previous to operation, that the most interesting changes take place. In fresh hemorrhages, nucleated cells are observed that can be identified as leukocytes. These cells arrange themselves along the fibrin bundles noted above. In older specimens these cells are larger, the nuclei are ovoid, and the protoplasm is more abundant. In other words, they may be called endothelioid. The way these cells arrange themselves along the fibrin bundles seems identical with that observed in tissue cultures. I have often observed similar phenomena in the study of the healing of freshly made wounds. In some specimens a part of the tumor may represent tissue in this stage (Fig. 9), and another portion may show more positive evidence of sarcoma. Finally the patient may attest to the character of the tumor by dying of a rapidly recurrent sarcoma. The question of fundamental importance is the source of the nucleated cells from which the sarcoma develops. They seem to come from the blood stream, because in recent hemorrhages they are mingled in the proportions in which one would expect to find leukocytes. More convincing to me is the fact that in the healing of peritoneal wounds the cells seem to be native to the blood stream.¹

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* Owing to lack of space this article has been abbreviated for publication in THE JOURNAL by the omission of the illustrations. The complete article appears in the Transactions of the section and in the author's reprints.

1. A more detailed consideration will be found in Hertzler, A. E.: The Peritoneum, St. Louis, C. V. Mosby Company, 1918, 1.

Should it prove to be true that these cells, which are found along the fibrin bundles, are derived from the blood stream, one would be warranted in designating such sarcomas as hematogenic. These would then be placed in contrast with the more common type resulting from metaplasia of the myoma cells, which may therefore be called myogenic.

The hypothesis set forth above finds support in the genesis of sarcomas of other regions. Sometimes in tumors developing in fascias after a single blow, similar pictures are observed. The same thing is true of processes in the intestine wall which begin as inflammations and end up as sarcomas. Closely related are reactive processes which do not end in malignant tumors such as desmoids and woody phlegmons. The first group is exemplified by those tumors which arise following injuries to bone or fascial plains, and the other by sarcomas following inflammations of the intestine wall. The latter type so closely resembles inductive inflammations that a distinction is impossible.

The disposition of the hemorrhagic myomas to form sarcomas finds a practical application in the fact that they are always objects of suspicion. Whenever any of the evidence of hemorrhage or the changes which precede it are present, the prognosis must be made with a certain reserve.

ABSTRACT OF DISCUSSION

DR. EMIL NOVAK, Baltimore: The work of Dr. Hertzler is very interesting, but he has not given sufficient evidence that these cells surrounding the blood vessels actually become converted into sarcoma cells, as he believes. We ought to be very conservative in our interpretation of these findings. Very few myomas do not show hemorrhages. In these cases of hemorrhage with blood thrown out into the tissues we always get what might be called a foreign body reaction. Sometimes we even get giant cells. I recently saw a case of large ovarian cyst with what seemed at first sight to be giant cell sarcoma in the walls of the cyst. Closer examination showed these to be simply a reaction to an old hemorrhage. If Dr. Hertzler can show other pictures proving the transition of these cells into actual sarcoma cells we can accept his theory. Otherwise, I feel that it is without proof. It is curious to expect hemorrhage in myoma to predispose very strongly to sarcoma when it does not do so in other parts of the body. This suggestion looks rather unlikely, especially when we find hemorrhage in practically all myomas of the uterus. Every myoma of the uterus ought to be cut open before it leaves the operating room. Unfortunately, there is little clinical evidence to indicate sarcomatosis, the process taking place in only one nodule. It is a great mistake not to cut into all nodules; the one overlooked may be the one becoming sarcomatous. One reason for the unfortunate outcome in sarcomas of this group is that supravaginal hysterectomy is done. Dr. Cullen some time ago reported a case in which supravaginal hysterectomy had been done two years before and in which at the time of report the patient had suddenly gone into collapse with symptoms of intraperitoneal hemorrhage. A large mass had arisen from the stump at the site of the old operation. The old specimen was looked up in the laboratory, where it had been examined two years before, and in one of the nodules the typical sarcoma was found, having been overlooked at the time of operation. Kelly and Cullen collected 2,300 cases of myoma and a little over 1 per cent. (twenty-five) were sarcomatous.

DR. BERTHA VAN HOSEN, Chicago: I may not be able to add any weight to Dr. Hertzler's paper, but I hope I will not detract from its value if I demonstrate a reverse process, i. e., malignant disease converted into fibrous tissue. A patient, who had inoperable adenocarcinoma of the cervix and who was suffering from hemorrhage, profuse and bad smelling discharge, much pain and general debility, was given 9 grains

of emetin intravenously with no reaction, and at the end of two weeks the hemorrhage and discharge had entirely ceased and she was able to be up and do light work. A second dose of 9 grains was followed by a severe reaction and sudden death. No pathology was found to account for the patient's death, and a section taken from the part most involved by the carcinoma shows in the superficial portions an extensive fibrosis surrounding small groups of carcinoma cells; the deeper parts of the section show no evidence of malignancy.

DR. ARTHUR E. HERTZLER, Kansas City: I have tried to make it clear that in order to get the facts of this argument one would have to review a considerable number of cases, observing the various steps in their development. In the myomas I see there is hemorrhage in only a small proportion of the cases. This may be explained by the fact that I never use the retractor, and have no traumatism, except that done by the operator's hands. Fully 90 per cent. of the tumors we have had do not have blood in the substance of the tissues. The percentage of sarcoma in the tumors I see is just about four times that in Dr. Novak's experience. In order to get the run of the general argument one must familiarize himself with the structure of cultures in vitro, the appearance of the cells and the fibrin bundles as they develop. He must also familiarize himself with the development of fibrous tissue along the lines of recent development.

PAROTITIS FOLLOWING INDUCED ABORTION IN A CASE OF PERNICIOUS VOMITING IN PREGNANCY*

W. P. MANTON, M.D.

DETROIT

REPORT OF CASE

Some time ago I was called into the country by Dr. Sharpe, in consultation, to see Mrs. X., a primipara, aged 23, who was then in her thirteenth week of pregnancy. Vomiting had begun on the eightieth day following the beginning of her last menstruation, and had become progressively worse until, at this time, it had reached the pernicious stage. The patient was much reduced and exhausted, but looked fairly well, and it was arranged that, should the remedies then suggested prove inadequate, interruption of the pregnancy must be undertaken without delay.

Three days later, I dilated and emptied the uterus, placing a strip of iodoform gauze in the cavity and packing the vagina lightly with the same material. The following day the patient became nervous and disturbed, and these symptoms continued during the greater part of her illness, the delirium at times becoming boisterous and agitated.

Three days after the curettage, she complained of pain in the left parotid gland, which was swollen and inflamed. Forty-eight hours later, a large quantity of thick yellow pus was discharged from the mouth. On the following day a fluctuating mass in front of the ear was opened under chloroform by the attending physician, and during the next twenty days four other abscesses or pockets, one of which was retropharyngeal, were incised and drained. On the fifth day after operation, headache developed. On the tenth day there was severe pain at the base of the skull, and on the nineteenth day there was a constant backward movement of the head, indicating a probable involvement of the meninges or encephalon. Muscular twitching and repeated up and down movements of the hands and feet occurred at intervals during the entire period of the disorder. Vomiting continued until the twelfth day following operation, when it ceased. No pelvic symptoms were noted until the nineteenth day, when urination began to give rise to great distress. On the twenty-first day the emptying of the bladder was, on one occasion, preceded by a slight convulsion. During the greater part of the time urine was passed freely, frequently involuntarily, but at

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times it became scanty and of a dark brown color, and deposited a large amount of sediment. There is no record that urinalysis had been made. Involuntary movement of the bowels was of frequent occurrence.

On the fourteenth day, a cough developed, sometimes accompanied by the raising of quantities of pus which the patient had evidently swallowed. On the eighteenth day, she complained of pain in the right lung, which was aggravated by coughing. During the whole course of the disease, free discharge of pus continued from the wounds and mouth, and later from the nose, and on the thirtieth day both eyes became filled with purulent material.

On account of the condition of the stomach during the early days of the sickness, the patient could retain no nourishment. Later the swelling of the neck glands and stiffening of the jaws prevented opening of the mouth, and forty-eight hours were sometimes passed without food of any kind. Nutrient enemas were begun early and tried repeatedly, but were generally expelled; at times the anus and rectum were so relaxed that the fluid escaped as soon as introduced. During the last day of life, tube feeding was resorted to. Saline by hypodermoclysis at times appeared to give temporary relief.

After thirty-three days of intense suffering, which toward the end was relieved only by hypodermics of morphin, the patient finally succumbed to the infection. During the entire illness the temperature went up only once as high as 103, generally fluctuating between normal and 101. The pulse was erratic, but never went above 140, usually running to about 100 or below.

This case was obviously one of profound septic infection. The source of the trouble is not, however, as readily determined. The case is unique of its kind; I find no other similar instance recorded.

RELATION OF PAROTID TO SYSTEMIC DISORDERS

In pagan times, when men ran up against a problem which they could not solve, it was carefully shouldered off as the work of demons. As late as the early nineteenth century, Christianity made the inexplicable a throwback on Providence, and later still the term "sympathetic" stood for the unknown, and "reflex phenomena" served as a cloak to ignorance of internal physiologic and pathologic processes.

The relationship between the parotid gland and systemic and local disorders has not, up to the present time, been satisfactorily elucidated. That symptomatic parotitis sometimes occurs as a grave complication in the course of infectious fevers has long been known, and that it is also an occasional sequela of other disorders, as amebiasis (Lesk), peripheral neuritis (Gowers), and the like, has been fairly demonstrated. In 1886 Paget directed particular attention to the fact that parotid bubo might develop as a rare secondary manifestation, following injuries to and operations on the abdominal and pelvic viscera, and he collected 101 cases from his own experience and the literature. In 1902 Morley added fifty-one cases to the list, and since that year a considerable number of instances have been reported in the medical press of this and other countries. Moreover, it has been found that symptomatic parotitis may follow other operations, though more rarely than those directed to the abdominal contents. Thus, MacDonald has seen cases of inflammation of the gland associated with railway amputations of the thigh, and Auld mentions an instance which followed trachelorrhaphy and the removal of hemorrhoids. Altogether there are now on record the reports and histories of several hundred cases of the condition, from which we may draw conclusions.

In specific parotitis, or mumps, the existence of a distinct connection between the disorder and the testes in the male and the pelvic organs, and breasts in the female, especially during the child-bearing act, has been satisfactorily established, and Lavarán has shown that, in this form of the disease, the materies morbi is a specific organism, a small gram-negative diplococcus, which is presumably carried to the distant organ from the seat of the original focus. That the organism may be effective in its colonized environment in otherwise healthy males and females is sufficiently proved by many case reports. As long ago as 1855, in its obstetric connection, Homans mentions a case of mumps in a pregnant woman which extended to the uterus and led to premature delivery, and more recently similar cases have been recorded by Rook, Salter and others.

On the other hand, parotitis following septic (?) abortion and puerperal infection has received attention from a number of observers. Beuttner saw two cases of pyemia following abortion, in one of which metastasis to the parotid and the buttocks occurred; and in puerperal infection similar instances are recorded by Charriers, Davis and others. In both Davis' cases, abscess of the parotid complicated puerperal septicemia, from which both patients appeared very ill. Both patients also had pneumonia, and one died.

Now, if a path, as yet unrecognized, exists correlating the parotid gland with abdominal and other organs and parts, it is quite logical to assume that the arrangement is a two-way function, a premise which, admitted, at once makes clear why invasion of the gland by pathogenic organisms takes place after surgical procedures and in local pelvic infections.

The bacterial organisms found in most of the reported cases is the *Staphylococcus pyogenes-aureus*. In Davis' cases, which appeared to be of streptococcic nature, no bacteria were found in the blood or lochia, but the parotid pus contained staphylococci. Legueu and Morel have, on the other hand, found the *Staphylococcus aureus* in the blood associated with infection of the field of operation, and believe that this organism is the cause of the parotid disease.

According to Henning (quoted by Hoffstatter), the course of puerperal parotitis may run afebrile, but usually the temperature corresponds to the severity of the infection.

TWO SOURCES OF GLAND INVOLVEMENT

From an analysis of reported case of postsurgical and obstetric parotitis it is apparent that the etiology of the gland involvement must be sought in two sources: first in a general, and second in a local, infection. In the first, the process is embolic (metastatic), that is, it conveys the germs of toxins to the parotid gland from the involved organ or part.

One point in this connection, which is possibly of considerable importance, and which thus far seems to have been overlooked by most writers, is that the parotid alone of the three salivaries contains lymphatic glands. The slowing or stasis of the blood or lymph stream at these points would give rise to an accumulation of the causative agent in sufficient quantities to overcome the resistance of the gland and bring about the inflammatory sequel.

The second source of infection is through Stenson's duct. From a study of the involvement of the parotid gland in other conditions, it is evident that the oral

cavity plays a more important rôle in the production of parotid bubo than is generally believed. The mouth contains a large and varied flora, which under ordinary circumstances is harmless; but some bacteria, after operations, may become virulent. The drying effect due to the anesthetic, and possibly due also to nervous influence in lessening secretion, the blood loss, the removal of water from the patient's body, due to limited intake of fluids and vomiting and possibly to mechanical insult, and the result of swabbing the mouth for the removal of mucus and vomitus all render the functionally disturbed gland increasingly susceptible to the invasion of the bacteria which, finding a suitable nidus in the abnormal tissues, at once develop a greater or less activity.

In the case I report, according to the nurse in charge, the mouth of the patient was foul from the beginning and the teeth were covered with sordes, before the emptying of the uterus was undertaken, and as the operation was conducted as aseptically as possible and no pelvic symptoms developed before the nineteenth day, when general infection was well established, I am of the opinion that involvement of the parotid gland in this instance was of oral, rather than of pelvic, origin.

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ABSTRACT OF DISCUSSION

DR. E. E. MONTGOMERY, Philadelphia: I have seen parotid infection follow various operative procedures and septic processes. In the great majority of cases, however, I was inclined to believe that the condition arose from transmission through the mouth rather than through the blood. The association of mumps with the development of orchitis and ovaritis has led to the belief that there is a very close relationship between these organs and the parotid gland, but all that can be said, I think, is that they were possibly more susceptible to the organisms which produced the glandular inflammation than other structures of the body.

DR. M. E. KLINGLER, Garrett, Ind.: I recall a case of lobar pneumonia in the right lung in which the patient, 32 years of age, aborted an early pregnancy on the fourth day. This was followed on the next day by left-sided parotitis without formation of pus. On about the twentieth day there was a right-sided hepatitis, also without pus. Finally, on the thirty-fifth day an appendiceal abscess developed, which was opened and drained and the appendix removed. Subsequently there was a left-sided empyema on about the fiftieth day, followed by complete recovery.

DR. STEPHEN E. TRACY, Philadelphia: I have seen two or three cases of parotitis follow operation, but they all cleared up promptly. I am inclined to believe with Dr. Montgomery that in some of these cases the infection originates in the mouth. For that reason more attention should be paid to the condition of the mouths of our patients than has been done in the past. The profession is beginning to give this subject more consideration. It is well to bear in mind that a patient with soreness at the angle of the jaw may have a more serious condition than an infection of the parotid gland. A year and a half ago I operated on a patient who eight or ten days later complained of soreness at the angle of the jaw. I thought at the time that she was developing a parotitis. In thirty-six hours it was evident she had tetanus. It is well to keep this in mind, as such a condition requires prompt and energetic treatment.

DR. W. P. MANTON, Detroit: The condition which I reported following the emptying of the uterus is rare; at least, I have been unable to find any record of such a case in literature. Even up to the present time surgeons are claiming that these cases of infection of the parotid are sympathetic. I am not a believer in "sympathy" of that kind. That the infection may take place through the mouth is a well settled fact.

CLINICAL SUPERVISION OF THE WELL BABY DURING THE FIRST YEAR *

H. H. YERINGTON, M.D.

SAN FRANCISCO

With the enormous amount of work going on in Europe at this time, the need of more organized work in the conservation of child life is beginning to be felt in this country. This work has its foundation, for the most part, in our large public clinics, and the ones doing the greatest work are those having the proper organization for handling it.

Those of us who have spent many years in clinic and hospital work and are connected with teaching institutions have often felt that constructive work in the ordinary clinic is lacking, that great numbers of our patients go home with improper treatment and that the work on the part of the clinicians becomes monotonous.

It has seemed to me that the factors in making a children's clinic a success are the following: (1) a supervising head who is present at all times during clinic hours, capable of attending to the executive work, and directing the teaching; (2) individual care of the various patients by the same clinician; (3) the division of the clinic into different parts, each part headed by a clinician interested in a certain line of work, and a specialist in it; (4) the proper teaching of students, nurses and also mothers; (5) a close connection between the prenatal clinic and children's and obstetric services in the hospital; (6) the social service worker, who is indispensable in such an organization; also the convalescent home, which should be a part of the clinic.

DEVELOPMENT OF SPECIAL CLINICS

The plan of special clinics in the children's department of the Stanford University Medical School was developed several years ago under the direction of Dr. Langley Porter, the first being a special clinic in congenital syphilis starting in 1911. Since then the following have been established, each under a separate head: mental deficiency, prenatal, adolescence, children's chest clinic, well baby clinic, whooping cough, and a special division in the baby clinic for the instruction of mothers and students in dietetics.

The big advantage in developing clinics is that the patient gets much better care, the work of the student is more concentrated, and the clinician takes pride in developing his own side of the work and obtains valuable material for scientific research. As this paper deals with the supervision of the well baby during the first year, I shall consider only that part of the organization dealing with this subject.

In 1907 the mortality of the infants up to 2 years old in the San Francisco Foundling Home was 59.7 per cent. The next year the Associated Charities put their foundling babies in private homes, the food was ordinary commercial milk, and there was no special supervision. The mortality dropped to 12.5 per cent. These figures would seem to settle the case for the foster home. In 1909 the baby hygiene committee of the Collegiate Alumnae began to cooperate with the

* From the Division of Pediatrics, Leland Stanford Junior University School of Medicine.

* Read before the Section on Diseases of Children at the Sixty-Ninth Annual Session of the American Medical Association, Chicago, June, 1918.

Associated Charities. They made possible the use of certified milk and physicians rendered clinical and medical care.

From 1909, the mortality of the boarded-out infants continued to drop until in 1916 it was 2.67 per cent. in contrast with 8.7 per cent., the average death rate of babies of the same age in the city of San Francisco.

THE CLINIC AT WORK

The present system of the Associated Charities' work operates as follows: First, a home is carefully selected and the baby is placed in it. Second, the social worker and nurse watch the home and baby, certified milk is supplied, and the mother is taught how to modify the milk. Third, the baby is brought to the clinic every Friday and its feeding and care supervised by Drs. Holsclaw and Rude who deserve the credit for the remarkable work done by this organization. During 1917, 245 babies were cared for, of whom nine have died, the mortality being 3.67 per cent.

The problem of caring for infants in a general clinic is somewhat different and more complicated. The principal difficulty is in the fact that it is much harder to get the mother to cooperate than the foster mother, and the supervision over the babies is not as close. Feeling, therefore, that there was a big field in the education and care of the mother and child coming to our general clinic, we decided to establish a well baby clinic one day a week for these cases. Such a clinic was established a year ago last September and has been growing rapidly since.

In order to do any constructive work in a clinic of this nature a close association of the prenatal and adolescent work is indispensable. The adolescent clinic has been established two years, and is on a firm foundation, and a survey of its first hundred cases was made and published recently by Dr. Amelia Gates.¹ A movement has been started to teach adolescent girls infant hygiene and formula making by combining the two clinics together one day a week.

This year the prenatal clinic under the department of gynecology and obstetrics had a total of 942 visits, many of the mothers having already had the educational advantages of the baby clinic.

PROGRAM OF THE WELL BABY CLINIC

The plan adopted in the well baby clinic is as follows: The clinic is held every Friday morning in separate rooms fitted up for this purpose, with a reception room, weighing and examining room, and a large outer room with three desks for the clinicians. The histories are brought from the central history room, the baby is undressed and weighed and the weight reported by a volunteer worker. The social service worker supervises this work, discussing home conditions and needs of the parent, and the histories of the babies are then brought into the outer room to be observed by the physician.

The babies are brought for examination every week for the first three months, every two weeks from the third to the sixth month, and every month from six months to one year. They are transferred then to the general children's clinic. Every mother delivered in either the maternity ward in the hospital or in the outpatient obstetric service is given a card asking her to report with her child to the baby clinic

when it is 3 weeks old. From May, 1917, to May, 1918, there were 2,146 visits to this clinic, 348 being new cases. Of 290 deliveries in the hospital 194, or 67.8 per cent., returned to the baby clinic. Of 126 deliveries on the outside service, fifty-three, or 42 per cent., returned. This shows a close bond between the hospital cases and the baby clinic.

In order to stimulate the work and keep a check on such a clinic, the social service worker, of course, plays the leading rôle. A card system is kept, postals are sent to those not attending the clinic, and if there are no responses the cases are followed up in the homes. At the present time, more than 200 calls a month are made by the social service workers connected with the children's clinic. In the organization of a clinic of this kind, intimate knowledge of the home surroundings of the infant is of great importance, and the sympathetic relationship between the social service nurse and the mother is imperative.

A STUDY IN INFANTS' WEIGHTS

It is somewhat early to tabulate data obtained in this clinic, but some of the following points may be of interest. Last year Faber and Murry began a study of weights of San Francisco infants. They took the weights of babies born in the maternity and outpatient obstetric services of Lane Hospital, and the babies coming into the clinic. If any child came for malnutrition or any chronic disease, his weight was discarded as abnormal, and twins and premature infants were excluded. There were 2,966 weights taken from 246 boys and 275 girls and thirty-four from infants whose sex was not recorded. The average weight at birth in this series was: males, 3,500 gm., and females, 3,311.7 gm., or an average of 3,432 gm. Holt gives an average of 3,345 gm., which is 87.3 gm. less than the foregoing.

They summarize the results as follows: The initial loss in weight is greater in San Francisco babies' averages by about 38 gm., and the return to the original weight occurs approximately the same time, that is, in ten days. At the end of the first month, the San Francisco babies are heavier than those recorded by Newman and Holt, but not as heavy by 77 gm. as those observed by Robertson of England.

By the end of the first year, however, this loss is made up and the San Francisco infant's weight is 329 gm. heavier than that of the baby of any other locality previously recorded. This gain over other infants is no doubt due to the evenness of the climate and the lack of any season unfavorable for growth. The breast-fed babies show this regularity in development particularly well. The maximum growth occurs in August and the two and three months following, and this agrees fairly well with the most careful similar records made by Bleyer.

INSTRUCTION IN INFANT FEEDING

In our method of feeding we have endeavored to instruct the mother to nurse her baby as long as possible, later adding bottle feedings, beginning with one a day when the child's weight becomes stationary or the mother's condition warrants it. Examination of the breast milk we have found of little value as compared to the clinical manifestation of a diminished milk supply. I have felt that formulas of the simplest kind should be used in such a clinic, both as a ground work for students and because of the simplicity in making up the formulas. Dilutions of certified milk

1. Gates, Amelia: Arch. Pediat., 1918, 35, 236.

and water are used first and barley water substituted for water at the beginning of the third or fourth month. Cane sugar and one of the maltose and dextrin products have been the carbohydrate of choice, it being found that this combination regulates the bowels and is well handled by the great majority of our infants. At the age of 6 or 7 months, the feedings are changed from a three to a four hour interval, and fruit juices, cereals and broths are added, and at the age of 1 year a generous diet is given. The class in this course is limited to four students and covers a period of three months. They follow their own cases under the eye of an instructor, and with an average of fifty cases a morning, the instruction is very intensive. Both the caloric and the percentage methods are used in this work.

THE CONVALESCENT HOME

Last year the people of Palo Alto who are interested in the university subscribed a sum of \$2,000 for the establishment of a convalescent home for the clinic children. It was open for three months during the summer and ninety children were cared for. This year a similar sum will be subscribed and we plan to accommodate about forty children a month for a period of three months. We cannot care for the infant of less than 1 year old as yet, but the home will be there for any building up the baby needs during the run-about period.

When I left San Francisco, the program of Children's Year had been launched, and the first week's work had proved more successful than any of us anticipated. In view of the fact that the Associated Charities, the University of California, and Leland Stanford Junior University all have well established baby clinics and that others are being organized, I feel that we in the Far West are laying the foundation for a big work in the reduction of infant mortality.

ABSTRACT OF DISCUSSION

DR. C. F. WAHRER, Fort Madison, Iowa: In the past it would have seemed foolish, if not silly, to have a clinic for the well, but what seems foolish in one age becomes the rule of life for another. A long time ago it was suggested that when a woman was expected to be confined, she should put herself in touch with her family physician and report any abnormalities. When I began practice thirty-five years ago it was the rarest occurrence for a woman to want me to confine her until she was in the second stage of labor. Sometimes I would be called on a case, and I had not the faintest idea until I arrived there whether it was a broken leg or a baby. Luckily for the poor patient, this state of affairs is passing, except in the most remote districts. In most cases now we are able to get the patient to report some time before, with much better results for mother and babe. Whenever a babe is born we have in the near future a potential patient, and the physician who attends the mother during the birth of the child, especially in the outlying districts away from the medical centers, should have the constant care of that child. The mother should be taught to be on the watch for symptoms of approaching trouble and keep the physician informed, and in this way many serious results would be avoided. This is easy now, as the physician is usually in telephone connection with all his patients.

DR. LOUIS H. SCHWARTZ, New York: I have conducted a "well baby" clinic for about twelve years. During that time we have taken care of about 11,000 babies. We have active social histories of about 10,000 babies. I was much interested in Dr. Yerington's description of his clinic. Our prenatal work has been well organized only recently. We have tried to get our babies as soon as possible after birth. With better

organization we will get them much earlier than we do. These 10,000 family histories have been gotten in ten years by the same social worker, who speaks four or five languages. These babies represented 5,000 families—20,000 pregnancies of all sorts—stillbirths, miscarriages, full-time births, etc. Eight per cent. were miscarriages; about 1.5 per cent. were stillbirths; infantile deaths were about 12 per cent. Children up to 8 years of age were counted. That is to say, of the 20,000 pregnancies, 5,000 were useless up to the age of 8 years—in other words, a 25 per cent. loss of life. If we view that as compared with the lower animals, I wonder how much preventable death that represents. Put it in another way: The miscarriage rate in these families was 80 per thousand; stillbirths, 10 per thousand. The infant death rate as compared with the viable pregnancies, so to speak, is 131. Child death rate up to 8 years, per thousand pregnancies of all kinds, is 161, and child death rate up to 8 years as compared with a thousand viable pregnancies, is 178. That is to say, 178 of every thousand viable children die before the age of 8 years. For our children we might say we have a death rate of 64 at this clinic instead of 126 that the entire family has. The same class of patients before they came to our clinic had a general death rate of 126 per thousand. Under our care, in the same city, in the same surroundings, they have now a death rate of only 64 per thousand.

THE PRINCIPLES OF TREATMENT IN MERCURIC CHLORID POISONING

WITH RESULTS OF TREATMENT*

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CINCINNATI

Within the past two years there has been much work done in the various phases of mercuric chlorid poisoning. Before then, most of the work reported was of a therapeutic nature; but recently, new and important laboratory data have been contributed. These new data have certainly put the modern therapeutic measures to the test, discrediting many and placing a few on a firm basis.

The anatomic pathology has been well established. Every organ of the body is affected, the liver and kidneys bearing the brunt of the injuries. From a cloudy swelling the changes continue to fatty degeneration and necrosis. When the poisoning is severe, hemorrhagic inflammation may supervene.

Schamberg, Kolmer and Raiziss,¹ in their studies of the comparative toxicity of the various preparations of mercury used for therapeutic purposes, have shown in a long series of dogs that every animal develops evidences of nephritis of varying degrees after injections of both the soluble and insoluble mercury salts. The nephritis produced is primarily tubular, with frequent accompanying glomerulonephritis (hemorrhagic) in the severer instances. The changes in the tubular epithelium they attribute to a direct toxic degeneration of the cells by the mercury, and not to an inflammatory reaction depending on the elimination of toxic substances.

Mercury has been obtained from the blood of dogs within ten minutes after its administration by mouth.² Burmeister and McNally have shown that the kidney

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1. Schamberg, J. F.; Kolmer, J. A., and Raiziss, G. M.: A Study of the Comparative Toxicity of the Various Preparations of Mercury, *Jour. Cutan. Dis.*, 1915, **33**, 819-840.

2. Burmeister, W. H., and McNally, W. D.: Mercury Poisoning, *Jour. Med. Research*, 1917, **36**, 87.

changes vary with the size of the dose in massive intoxication, and that the liver changes depend on the duration of the intoxication.

The important newer studies consider the question from a chemical standpoint. It is from this point of view that the present treatment must be evolved.

As the mercury is quickly taken up by the blood after ingestion, it is evident that all the tissues are quickly bathed with the toxic material. In a fatal case of mercury poisoning, it was found that almost one third of the mercury recoverable from the body was obtained from the blood.³ In 1916, Lewis and Rivers⁴ found that the retention of waste nitrogen was a factor in the production of early fatalities. More recently MacNider,⁵ in an exhaustive study, has demonstrated some essential facts. Those animals that did not succumb from the early gastro-enteritis developed a severe type of acid intoxication, as evidenced by the production of acetone bodies, the reduction of the alkali reserve of the blood, and the increase in carbon dioxide content. Constantly associated with this acid intoxication was a kidney injury. He states that delayed kidney injury is not due to the action of the mercury as such during its elimination by this organ. He⁶ had previously shown that acetone and diacetic acid are developed in nephritis produced by uranium, and that administration of alkaline carbonates lessened the toxicity of the uranium and delayed the formation of the acid bodies. Furthermore, when the kidney was protected by carbonate, it was found that the kidney remained functionally more active, and that there was a diminished acute swelling, fatty degeneration and necrosis of the renal epithelium.

It is this work which has proved correct the therapeutic principles that I have employed in the treatment of mercuric chlorid poisoning.⁷

The symptoms of poisoning by mercury are well known: locally burns, and later vomiting and gastrointestinal hemorrhages; as the toxemia progresses, oliguria, then anuria and finally "uremic" symptoms, as convulsions and death.

Many remedies, empiric and allegedly scientific, have been advocated in the use of mercury poisoning, but they seem not to have stood the test of time. We have used the alkaline treatment for more than three years, and our records show a lower mortality than that ordinarily reported.

The principle involved in the use of alkali is that of trying to counteract the acid intoxication produced, which in turn produces the generalized toxemic swelling and degeneration of all the body tissues.⁸ When there is present oliguria, with blood and casts in the urine, we have evidences of acute kidney injury. This discernible kidney injury is merely an indication of an injury common to all the body tissues, for we know that the entire organism has been bathed by the mercury. The alkali is not given as an eliminant, but to counteract acid intoxication, edema and cloudy swelling, which, if permitted to go on, proceed to fatty degeneration and irreversible cell damage (necrosis).

Sansum,⁹ in a recent paper, seems to believe that the basis for the use of alkali is to be found in its power to increase diuresis with a secondary washing out (increased elimination) of mercury. Because he finds no increased mercury elimination, he leads his readers to suppose that the use of alkali as a therapeutic agent is valueless. The alkali, however, is not used solely for its eliminatory action, but to inhibit and to counteract damage to the tissues which mercury, if left to itself, produces.

At present we can report on fifty-four consecutive cases of mercurial poisoning with but three deaths.

Of the three patients that died, two received the treatment only after unavoidable delay, and one had a preexisting nephritis and cirrhosis.

METHOD OF TREATMENT

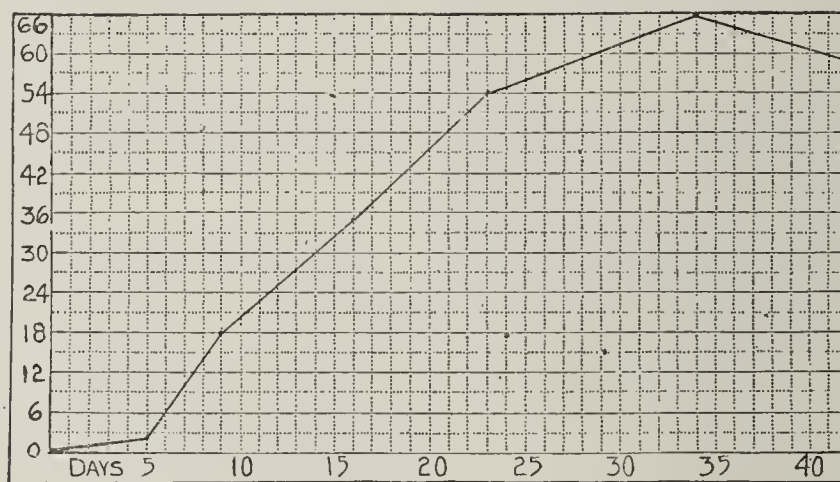
Essentially the treatment which I have proposed consists of an early washing out of the mercury salt from the stomach and intestine and continued introduction of sufficient alkali to overcome the acid intoxication.

The patient should come under observation as early as possible, for I have found that when the treatment is delayed for any reason, the symptoms produced by the mercury poisoning become more difficult to control. Two patients of my series died, I think, because treatment was commenced too late.

I usually wash out the stomach with a mixture of 1 quart of milk and the whites of three eggs, following this by a saturated solution of sodium bicarbonate until the stomach washings return clear. Finally, before the stomach tube is removed, from 3 to 4 ounces of crystallized magnesium sulphate dissolved in from 6 to 8 ounces of water are allowed to remain in the stomach. A soap suds enema is then given.

Usually the patient vomits shortly after taking the mercury, thereby aiding in the elimination of the poison.

The next step is to introduce alkali, and we give the alkali by mouth, rectum and intravenously. As soon as possible after washing the stomach, the patient is given Fischer's solution intravenously. Fischer's solution consists of crystallized sodium carbonate, 10



Percentage of phenolsulphonephthalein output after a patient who developed anuria for three days began to void.

3. Rosenbloom, J.: A Note on the Distribution of Mercury in the Body in a Case of Acute Bichlorid of Mercury Poisoning, *Jour. Biol. Chem.*, 1915, **20**, 123.

4. Lewis, D. S., and Rivers, T. M.: Chemical Studies on a Case of Bichloride Poisoning, *Johns Hopkins Hosp. Bull.*, 1916, **27**, 183.

5. MacNider, W. de B.: A Study of Acute Mercuric Chlorid Intoxication in the Dog with Special Reference to the Kidney Injury, *Jour. Exper. Med.*, 1918, **27**, 519.

6. MacNider, W. de B.: The Inhibition of the Toxicity of Uranium Nitrate by Sodium Carbonate, and the Protection of the Kidney Acutely Nephropathic from Uranium from the Toxic Action of an Anesthetic by Sodium Carbonate, *Jour. Exper. Med.*, 1916, **23**, 171-187.

7. Weiss, H. B.: A Method of Treatment of Mercuric Chlorid Poisoning, *THE JOURNAL A. M. A.*, June 2, 1917, p. 1618; The Treatment of Bichlorid of Mercury Poisoning, *Ohio State Med. Jour.*, 1917, **12**, 595.

8. Fischer, M. H.: *Edema and Nephritis*, New York, John Wiley & Sons, 1915.

9. Sansum, W. D.: The Principles of Treatment in Mercuric Chlorid Poisoning, *THE JOURNAL A. M. A.*, March 23, 1918, p. 824.

gm. ($\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$), (or 4.2 gm. of the ordinary "dry" salt); sodium chlorid, 15 gm., and distilled water, 1,000 c.c.

Depending on the state of the circulatory system, from 1,000 to 2,000 c.c. of the solution are given intravenously as a first dose. We continue the alkaline medication by giving 8 ounces of "imperial drink" every two hours. This drink consists of: potassium bitartrate (cream of tartar), 4 gm. (1 teaspoonful); sodium citrate, 2 gm. ($\frac{1}{2}$ teaspoonful); sugar, 2 gm. ($\frac{1}{2}$ teaspoonful), and water, 240 c.c. (8 ounces).

This drink is flavored with lemon or orange juice. The patient is allowed large quantities of it.

There is no restriction in diet at any time during the treatment.

As an indication of the severity of the acid intoxication, and as a guide to the amount of alkali and salt that needs to be given, we use the analysis of the urine. Except in suppression cases (which were rare in our series), the patient voids large quantities of urine, the amounts depending on the amount of fluid taken. The urine should become alkaline to methyl red (a saturated solution of methyl red in alcohol) and be kept so, for Fischer has demonstrated that if the urine of a nephritic cannot be maintained alkaline to methyl red, the patient continues in a serious state. If the output of urine is not seen to be maintained, and if its reaction does not become alkaline to methyl red after the first intravenous injection, a second intravenous injection is given the following day, and general alkali administration by mouth or rectum is continued.

RESULTS

Under this treatment, there is usually produced and maintained a free secretion of urine which remains alkaline; and an output of albumin in the urine, which usually develops early, rapidly disappears. Ordinarily, two intravenous injections of the alkali, together with the solution of potassium bitartrate and sodium citrate, which is given at hourly or two hourly intervals day and night (when the patient is not asleep) has been found sufficient to keep the urine alkaline and to keep the output of urine normal. The blood and casts in the urine are usually quickly dissipated. The patient is kept under observation for about ten days after the urine has become normal, and is then discharged.

I have shown previously¹⁰ that patients treated early show fewer symptoms and make a more rapid recovery than those in whom treatment is delayed.

We have performed phenolsulphonephthalein tests on most of our patients, and it is interesting to note that those who were treated early showed only slight or no diminution in phenolsulphonephthalein output. When the output was diminished, it rapidly rose to normal and continued so. In one patient who developed an anuria for three days,¹⁰ the phenolsulphonephthalein output was practically zero for five days after he commenced to void, and then rapidly rose to 66 per cent. (as shown in the accompanying chart) at the end of thirty-three days. This patient's urine was normal six months after his recovery from the mercuric chlorid poisoning.

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THE PULSE AFTER A MARATHON RACE

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FRANCE

The question of the possibility of producing alternation of the pulse by very vigorous and prolonged exertion was the incentive to a study of the pulse of twenty men who ran the annual Boston Marathon of 25 miles from Ashland to Boston, April 19, 1916.

Myocardial exhaustion resulting from damage such as that produced by arteriosclerosis or syphilis has been shown to be an important cause of alternation of the pulse. The greater the strain on such a heart, the more marked is likely to be the alternation. The strain necessary to sustain a high blood pressure is especially likely to bring out alternation. Extreme and prolonged tachycardia, as in auricular flutter or paroxysmal tachycardia, may result in pulsus alternans. But it has never been shown, so far as I am aware, that alternation has been found in the pulse of a normal individual after severe exertion. Von Tabora¹ stated that he had been unable to detect pulsus alternans in cyclists who had covered the distance from Leipzig to Strassburg, a distance of 260 miles as the crow flies; no note was made as to the speed of the cyclists.

The Marathon run is probably as severe a physical effort as has ever been undertaken in athletic contests, and many of the men who finish are in a state of collapse after the race. It was from twenty contestants that radial pulse tracings were taken with the Mackenzie ink polygraph within five minutes of the time they completed the race. Tracings covering two or three minutes' time were taken in each case. Three polygraphs were used. The men investigated were all young and healthy. Their positions at the finish were: 3, 4, 6, 7, 8, 10, 13, 14, 16, 17, 18, 19, 20, 21, 22, 23, 25, 27, 29 and 32. Thirteen of them finished the 25 miles within three hours, and the third man in ran the race in two hours, twenty-eight minutes and thirty seconds.

No alternation of the pulse was found in any tracing. Marked sinus arrhythmia was found in two cases, but the only abnormal arrhythmia was one ventricular premature contraction found in the third man to finish. This premature contraction was not followed by alternation. The pulse rates as calculated from the tracings ranged from 72 to 107, with an average of 91. In general, the pulse is smaller after the race than before.

In 1915, the pulse of six of the runners was felt before and immediately after the race. The rates were: 64 before and 136 after, 86 and 120, 60 and 140, 62 and 108, 80 and 80, 118 and 110. The last man noted was the winner; he was obviously very nervous before the race, as he had good hopes of winning. These pulse rates were taken with the men standing, while the tracings were taken in 1916 with the men lying flat. The rapid vagal action probably accounts for the generally slower rates found in the latter group. No irregularity was felt in 1915. In the case of one runner who collapsed on the course and who was brought in by automobile to the finish, a thready pulse of 80 was counted. He seemed to be in a condition of shock.

10. Weiss, H. B. (Footnote 7, first reference).

1. Von Tabora, verbal communication to Gravier, L.: *L'Alternance du cœur*, Paris, 1914, footnote, p. 278.

Electrocardiograms taken in 1915 of the winner, Fabre, and of a runner who finished late in the list, showed nothing abnormal except possibly very slight prolongation of conduction time. They were taken two hours after the finish of the race. The winner had at the start of the race the highest pulse rate counted, 118. It was 110 when he finished.

SUMMARY

Marathon racing does not exhaust the healthy heart sufficiently to produce alternation of the pulse.

A FILTRABLE TOXIC PRODUCT OF THE HEMOLYTIC STREPTOCOCCUS*

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BALTIMORE

The following is a brief statement of the methods and results of experiments in which a filtrable substance toxic for rabbits has been obtained from cultures of hemolytic streptococci isolated in cases of bronchopneumonia occurring in Army camps. Though various workers at different times have obtained toxic materials from streptococci, yet we have so far been unable to find any report of methods or results directly analogous to these. The observations that led to the work were made simultaneously and independently by each of us.

The essential feature of the method was the cultivation of the streptococcus in a medium consisting of sterile, defibrinated rabbit's blood diluted with Locke's solution. The Berkefeld filtrates from such cultures were acutely toxic for rabbits, while uninoculated hemolyzed controls incubated for the same time were nontoxic. Toxicity in the culture medium did not appreciably appear before eighteen hours, reached its maximum at about forty-eight hours, and was still evident at ninety-eight hours. No definite relation between oxygen tension or anaerobiosis and toxicity of culture filtrates could be determined. Until the present time the greatest toxicity has been obtained from a blood-Locke's mixture that gave a reading of about 20 per cent. hemoglobin with a Sahli hemoglobinometer. A Locke's solution containing 0.15 per cent. of glucose has seemed most effective for dilution. This mixture when inoculated and incubated at 37 C. for forty-eight hours has yielded a sterile filtrate, 0.5 c.c. per kilogram of which killed three out of twelve rabbits injected simultaneously, while 1 c.c. per kilogram killed five out of six. This illustrates the fact that within certain limits there was a distinct individual variation in the susceptibility of different rabbits to a constant dosage. Six different strains of streptococci were grown in this medium, and all yielded toxic culture filtrates. When injected into rabbits, an incubation period varying generally from four to twenty-four hours elapsed before the symptoms appeared, the time depending to a considerable extent on the dosage. These symptoms were a slowly increasing weakness, accompanied often but not invariably by diarrhea, with death finally occurring with or without

convulsions. Intravenous, subcutaneous or intraperitoneal injection gave death in about the same period of time. As controls, other nonrelated organisms were grown in the medium. Single strains of *Bacillus coli*, *B. lactis-aerogenes*, a gram-negative organism obtained from the air, and a hemolytic *Micrococcus catarrhalis* grew abundantly and produced hemolysis in the medium; but after filtration when injected into rabbits, no toxicity was demonstrated. This indicated that the toxicity that appeared in streptococcus cultures was not dependent alone on hemolysis.

While the medium described above is efficient in yielding a toxic filtrate, numerous experiments were carried out to determine some factor which, in the presence of the growing organisms, was necessary for the production of this toxic effect. Various modifications of meat infusion broth were invariably negative with the strains of organisms used. Rabbit's liver, spleen, kidney and heart muscle when washed free from blood and chopped and mixed with Locke's solution, while allowing a luxuriant growth of the organisms, gave nontoxic filtrates.

Rabbit blood serum did not yield any toxicity. If, however, the washed corpuscles from this blood were mixed with a volume of Locke's solution equal to that of the serum removed and the streptococcus grown in this medium for forty-eight hours, the resulting filtrate showed the full toxicity. The toxic product of the streptococcus growing in a medium of blood seemed, therefore, to be derived from some factor in the red blood cells. An attempt was made to separate the various constituents of the red blood cells to determine, if possible, which factor was the source of the toxic substance. Blood cells were washed with Locke's solution, and the stroma obtained in a pure, colorless condition according to the method of Woodbridge. No toxicity could be obtained from a medium consisting of Locke's solution and this purified stroma. A cholesterinized broth medium was negative. The filtrate from a culture in a colorless medium made by the precipitation of the blood pigments with chloroform from washed corpuscles, containing about .12 gm. of protein per liter, was nontoxic. Globulin obtained from washed corpuscles by the method of Morend was dissolved in alkaline Locke's solution and then neutralized. Growth of the organisms was excellent, yet large doses of the filtrate were nontoxic. The chemical preparation of these fractions obviously alters their native condition, yet the negative findings are of interest. These experiments, therefore, suggest at least that the toxic effect of the streptococcus growing in the rabbit's blood medium is due to a substance or substances elaborated in the interaction between the growing organisms and the hemoglobin fraction of the red blood cells.

Certain characteristics of this toxic substance were determined. It did not produce any hemolysis in vivo or in vitro, though the growth of the organisms in the medium itself caused extensive hemolysis. The toxic material was definitely dialysable through collodion membranes of the proper degree of permeability. While the dialysates were seldom as pigmented as the original medium, no toxic dialysates were obtained that were entirely colorless. Complete thermal inactivation occurred at 50 C. in thirty minutes without a demonstrable change in the physical properties. Heating to 45 C. for the same length of time gave no alteration in toxicity. Toxic culture filtrates showed

*From the Pathological Laboratory of the Johns Hopkins University.

a marked diminution in toxicity after standing a few days in the ice box. Exposure of a rabbit to sunlight did not increase the effect of a toxic injection.

Immunologic tests, as far as they have been conducted, yielded the following results: Toxic filtrates were injected into rabbits in increasing amounts. Immunity was acquired against multiple lethal doses. It was found possible, occasionally, by beginning with small inoculations, to double the dose at successive daily intervals without any noticeable reaction aside from variations in weight. Until the present time no attempt has been made to increase the immunity beyond six lethal doses; but the ease with which this degree of resistance was acquired would indicate that a much higher degree could be established. This immunity, at the end of about a month since the last injection, did not seem to be diminished. An immunity against the toxic product of one organism also gave an immunity against that of another. Blood from an immune rabbit conferred a certain degree of passive immunity on normal rabbits injected with lethal doses of toxic material. For example, a normal rabbit given 1 c.c. per kilogram of toxic filtrate intravenously died in thirty hours. Five other normal rabbits were given 2 c.c. per kilogram of the same toxic filtrate mixed with 0.1, 0.25, 0.5, 1 and 2 c.c. of defibrinated immune blood. Aside from a temporary slight weakness in those with the smallest amount of blood, no effect was evident. Immune serum also confers this passive immunity. Normal blood and serum did not have a comparable degree of protective power.

A series of rabbits immunized against toxic filtrates was given varying quantities of living virulent streptococci. Not only were they resistant against minimal lethal doses of the organisms, but in several of the animals large intravenous injections of the living cultures were tolerated. As much as 20 c.c. per kilogram of a culture gave no symptoms in a rabbit which more than a month previously had received the last injection of three lethal doses of a toxic filtrate. A normal control died in forty-eight hours with 1 c.c. per kilogram of the same culture. It was quite evident in this series, therefore, that immunity against the toxic product of the organisms gave an immunity against the organisms themselves, and that an active immunity persisted for at least a month. This immunity was also effective against strains of the hemolytic streptococcus other than that which was used as antigen.

The question as to whether immune serum will or will not confer a passive immunity against living organisms has not as yet been definitely determined.

The relation between the toxic filtrates and the virulence of the organisms is illustrated by one experiment in which one fifth of the lethal dose of toxic filtrate increased the rabbit's susceptibility to such an extent that one fortieth of the lethal dose of living culture caused death.

A few experiments have been carried out in which the pneumococcus and staphylococcus have been cultivated in the rabbit blood-Locke's medium in the same way and have been found to yield filtrates that were toxic for rabbits.

SUMMARY

It has been found that hemolytic streptococci grown in rabbit's blood diluted with Locke's solution yield a filtrate that is toxic for rabbits occasionally in doses as low as 0.5 c.c. per kilogram. The formation of this toxic material is dependent on the presence of

hemoglobin. It is destroyed by heating to 50 C. for thirty minutes; it is dialysable; it requires a certain incubation period in the animal before exerting its toxic effects; it is nonhemolytic in vivo or in vitro; it slowly loses its toxicity on standing at ice box temperature; an immunity can be rapidly established against it, and the blood of immune rabbits when injected with the toxin has the power of neutralizing its toxic effects; rabbits immune against the toxic substance are resistant to living streptococci.

THE TREATMENT OF AMEBIC DYSENTERY WITH IPECAC BY RECTUM

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Brem and Zeiler,¹ in 1911, successfully used ipecac by rectum and through the appendix after appendicostomy in several cases of amebic dysentery that had not yielded to other methods of treatment. This method does not seem to have come into any general use. We have been using a similar method for about five years, although, up until recently, we were ignorant of Brem and Zeiler's work. Our number of cases has been somewhat limited, and it is only in the past year that we have been able to test this method to our satisfaction. Our method of procedure is to put 60 or even 120 grains of powdered ipecac into about 24 ounces of water; this is kept hot for an hour, but not allowed to boil. After washing out the bowel with warm water, this whole preparation, without filtering, is given slowly by rectum to be retained as long as possible. If there is much pain and tenesmus, only a part of this can be given. In a few of our cases, there was some discomfort and the treatment had to be slowed down. Formerly, we used this method of treatment, and, at the same time, gave the salol-coated ipecac pills. Later on emetin (alkaloid) came into use; we used this hypodermically and gave the ipecac by rectum. In two cases—which we are reporting—the ipecac was used by rectum without other treatment:

CASE 1.—J. T. M., white man, aged 63, presented himself for examination, Dec. 4, 1917, complaining that the rectum felt as if it would pull out, and of having from five to six stools a day. The general history was negative except for a severe typhoid at the age of 31. The present illness began five years before, while the patient was selling groceries in Roanoke, Va. He gradually commenced to have a diarrhea, which has been better at times and worse at others. In 1915 he was kept in bed one month and treated with quinin enemas. In the spring of 1916 he was given emetin hypodermically in rather large amounts, with salol-coated ipecac pills by mouth, and was also given chaparro amargosa without much improvement. In February, 1917, he was given arsphenamin intravenously with improvement for nearly four months, with relapse at the end of this time. Later on, he was given another treatment of arsphenamin without any improvement. Since then he had fared badly, as a rule; the bowel was always full of gas and there were from two to six movements a day, with some blood-tinged mucus. The man was undernourished, but in fairly good shape as a whole. Rectal examination revealed a large number of superficial yellow ulcers; the mucus from the rectum showed much pus, red blood cells and many large active motile amebas containing red blood cells. The Wassermann test was negative. The patient was given the ipecac

1. Brem, W. V., and Zeiler, A. H.: Medical Treatment of Amebic Dysentery, New Orleans Med. and Surg. Jour., July, 1911.

preparation by rectum every day, with immediate betterment of symptoms. The amebas, pus and blood soon disappeared from the stools, and for five and a half months he has had no trouble whatever. He has been using an occasional ipecac treatment during this time. At no time during this treatment has he been dieted in any way, or has he stopped his regular work.

CASE 2.—H. E. D., man, developed amebic dysentery while a soldier in the Philippine Islands during the Spanish-American War. It took him a long time there to get well. He remained in good shape until about five years ago, when the dysentery increased, and, on presentation for examination, he showed very many motile amebas containing red blood cells; he also showed a heavy trichomonas infection. We began immediately to use the ipecac by rectum. The symptoms disappeared almost at once, and the amebas disappeared almost immediately from the stools.

We believe that the hypodermic emetin treatment for dysentery can be greatly aided by also giving ipecac by rectum. It certainly seems preferable to apply a treatment locally rather than have it traverse the whole alimentary canal before reaching the seat of the disease. It also seems better to use the ipecac, or some form of ipecac, by rectum rather than give it hypodermically where it will diffuse through all the tissues of the body by the time it reaches the seat of the disease. Since the barium enemas can be seen with the fluoroscope to pass up to the cecum, we believe this ipecac preparation very rapidly spreads to all the surface of the large bowel, where it can have a direct local effect and the soluble portion can be absorbed even into the deeper tissues. The administration of ipecac by rectum has the advantage that it can be used by the patient when away from his physician.

Clinical Notes, Suggestions, and
New Instruments

A NEW CONTACT TEST FOR ALBUMIN IN URINE*
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Certain observations, made over a period of years, convinced me that a rapid and reliable contact method for the detection of albumin in urine was desirable. The method described is the outcome of nearly three years' work with various reagents.

Because of its general use and reliability, the heat test has been taken as a standard. A number of reagents, such as Tanret's solution, were tried out and found to be entirely too sensitive. Positive reactions were obtained with mucin and proteose in urines which were otherwise normal. Still other reagents, such as concentrated nitric acid, were found to be less sensitive than the heat test, negative reactions being frequently obtained with pathologic specimens.

The heat test, although very reliable, is too time consuming when a large number of specimens are to be examined. The use of acid in dissolving phosphate precipitates may also carry the albumin into solution, if only a faint trace is present. The agitation necessary to dissolve the precipitate completely may so diffuse the albumin that the reading is doubtful. The method described is very rapid and duplicates closely results obtained by the heat test. The technic of applying the test has been in use for a number of years, being formerly used for the nitric acid contact test.

*From the Pathological Laboratory, Base Hospital, Camp Gordon, Ga. The greater portion of this work was carried on while the author was assistant director at the National Pathological Laboratory, New York.

This solution being too concentrated for use, 100 c.c. should be diluted to 150 c.c. with distilled water. The dilute solution will keep.

Picric acid is an excellent protein precipitant, but for the detection of albumin in urine, it must be used in a concentration that will not give false positive reactions. After careful study the quantity given in the formula was found to meet this requirement. The citric acid will prevent the possible precipitation of phosphates. The magnesium sulphate, which

REAGENT *	
Picric acid, wet.....	10 gm.
Magnesium sulphate.....	400 gm.
Citric acid	20 gm.
Distilled water	1,500 c.c.

* Picric acid, wet, is the product ordinarily supplied, containing 20 per cent. added water for safety in shipping. The magnesium sulphate used is the U. S. P. crystalline salt.

will precipitate serum globulin, is used primarily to give the solution a high specific gravity. This prevents diffusion of the reagent with the urine, the zone of contact remaining well defined.

TECHNIC

An ordinary, heavy wall culture tube, 150 by 15 mm., and a piece of glass tubing 20 cm. long, with a diameter of 6 mm. and 1 mm. wall are procured. The reagent is poured into the test tube to a depth of about 4 cm. It is advisable to use the centrifuged specimen, as the organized elements, in suspension, may give a false reaction, the same as with the heat test. The glass tube is introduced into the specimen to a depth of about 2 cm. The end of the tube is closed with the finger, as in using a pipet, and the tube is withdrawn and introduced into the reagent so that the level of the urine is slightly lower than that of the test solution. The finger is now removed and the urine and reagent will rise in the tube, giving a distinct zone of contact without diffusion. The tube may be removed to facilitate the reading, the finger being held between the light and the tube. In the presence of albumin a white ring will form, the intensity indicating the quantity. Faint traces, as found by the heat test, may be easily detected by this method. After each test the tube should be rinsed by being dipped in water. If the reagent in the test tube becomes cloudy, it should be discarded, as it is essential that the reagent and urine be clear. With a little experience, an estimation of the quantity of albumin can be as readily made as with the heat test.

RESULTS OBTAINED

A series of 725 specimens was examined by the heat test and with the new reagent. The sediment was also examined as a check on the chemical results. For convenience, the new reagent will be referred to as Solution B.

TABLE 1.—RESULTS OF TESTS			
Negative. 500	Positive. 225	Positive with Heat. 205	Positive with Solution B. 213

It will be noted from Table 1 that out of a total of 725 specimens, 225, or 31.03 per cent., were positive with either heat or Solution B, or both. Of these, 205, or 28.27 per cent., were positive with heat, and 213 or 29.38 per cent., were positive with Solution B. Out of the 225 positive specimens, twenty gave reactions with B which were negative with heat. With the heat test, twelve were positive which failed to react with the new reagent.

TABLE 2.—VARIATIONS DISCLOSED BY MICROSCOPIC EXAMINATION		
Sediment—	Positive with Heat. Negative with Solution B.	Positive with Solution B. Negative with Heat.
Pathologic	8	14
Normal	4	6

The microscopic examination of all specimens confirmed the chemical results, except in a few cases, as noted in Table 2, in which it will be seen that positive reactions were obtained by both tests, in a few cases, in which the sediment was normal. Also a few pathologic specimens failed to react with one of the reagents, either heat or solution B. These variations were all found in urines showing only a trace or faint trace of albumin, and are to be expected.

Military Medicine and Surgery

THE PREVAILING PANDEMIC OF
INFLUENZA

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During the past two weeks, August 28 to September 11, there has begun a severe and rapidly spreading epidemic of influenza in the First Naval District. More than 2,000 cases have been reported in these two weeks, and there are indications of a rapid spread of the infection. This is undoubtedly the same disease which, first heard of in Spain last spring, and hence called Spanish influenza, has in recent months spread over nearly all of Europe, including Germany, Italy, France, England and Ireland, attacking from 30 to 40 per cent. of the people. The outstanding feature of this epidemic is its high degree of communicability; in fact, in pandemics of this nature, influenza is the most contagious of all infections. The last pandemic (1889-1890) also moved from east to west along the lines of travel. We, therefore, have every indication that this outbreak will soon spread all over the United States. It doubtless has been carried to this country by patients or carriers aboard vessels. In fact, definite histories to this effect have been obtained from officers aboard vessels.

The disease is similar to the familiar endemic influenza, except that it is often more severe, the complications are more frequent and serious, and it shows an extraordinary degree of contagiousness. The number has increased to more than 2,000 within two weeks, in spite of early recognition and reasonable precautionary measures. It has attacked many of the physicians, nurses and hospital apprentices, thus unduly taxing the hospital service, in spite of the use of gauze masks and other precautions by all those in contact with the patients.

CHARACTERISTICS OF THE DISEASE

The incubation period is from one to two days. This was demonstrated by the first cases that developed in the hospital staff after the arrival of the first group of fifty patients. These patients were received Thursday afternoon, August 28, from the receiving ship at Commonwealth Pier, Boston. Blood cultures, blood counts and throat cultures were immediately taken by the laboratory officers, one of whom was suddenly taken sick with the disease the following Saturday morning. Another medical officer, who made the first physical examinations on Thursday, was also sick Saturday.

The onset is very sudden, the patient sometimes passing from an apparently well condition almost to prostration within one or two hours. There is no complaint of sore throat at any time, and no initial localized symptoms. In a few cases the patient attributes the attack to a slight sore throat or ill feeling a few days previously, but the majority give no such history. The fever rises rapidly to from 101 to 105 F. (38.3 to 40.6 C.), the patient usually complaining of severe headache, weakness, general malaise and pains of varying severity in the muscles and joints, especially in the back. As frequently described, the patient feels as though he had been beaten all over with a club.

The course is fairly constant. The patient lies in bed in a semistuporous condition, doubled up, with the covers pulled tightly over his head and neck. There are alternating chilly and warm sensations, but no paroxysmal chill. The face is flushed, the pulse from 100 to 120, the respiration from 20 to 30, the temperature from 101 to 105 F. A few have nausea and vomiting. Epistaxis is not uncommon. There are usually no gastro-intestinal symptoms, the tendency being toward a slight constipation.

After these initial symptoms, which are quite constant, a remission frequently occurs in the morning of the second or third day. In a small percentage of the cases the temperature may continue normal, with recovery. More frequently there is a secondary rise of temperature following the remission, accompanied by a coryza and slight bronchial cough. It is during this period that the disease probably is most contagious, being transmitted almost entirely by direct contact, and by droplet infection within a radius of a few feet.

TABLE 1.—LEUKOCYTE AND DIFFERENTIAL COUNT OF EARLY CASES FROM ONE WARD

Cases	White Blood Cells	Poly- morpho- nuclears	Lym- pho- cytes	Large Mono- nuclears	Transi- tionals	Eosino- phils	Baso- phils
1	6,200	76	20	2	2		
2	6,800	55	38	1	5	....	1
3	8,400	77	14	3	6		
4	10,000	78	25	1	1		
5	5,600	44	50	...	6		
6	6,800	72	24	2	2		
7	7,200	80	20				
8	7,200	88	12				
9	4,400	54	44	2			
10	8,000	74	20	4	2		
11	6,800	68	30	2			
12	6,600	52	45	...	2	1	
13	4,200	60	40				
14	4,600	50	46	2	2		
15	5,200	52	46	2			
16	5,800	48	52				
17	4,200	48	52				
18	6,800	64	28	4	2	2	
19	7,200	72	26	...	...	2	
20	6,800	68	30	...	2		
21	4,600	66	34				
22	5,800	40	56	...	4		
23	8,600	75	24	...	...	1	
24	7,200	78	16	4	2		
25	4,400	56	36	4	4		
26	4,200	68	32				
27	5,000	70	28	2			
28	5,400	56	43	...	1		
Average	6,700	63.7	33.3	1.2	1.2	0.21	0.035

Following this secondary rise, the temperature in uncomplicated cases gradually returns to normal within a week, but the patient is usually still coughing, and feeling rather weak. It requires another week of convalescence before returning to duty is advisable, and then the patient fatigues very easily, and shows distinct effects of the infection. Relapses have not occurred in the short period covering this report.

The laboratory findings in the cases described above are rather constant and characteristic. Blood cultures taken at all stages of the disease have been negative. Improved technic may change this result, but this now appears doubtful, for the disease seems to be a toxemia. The white blood cell count in uncomplicated cases is below normal. The differential leukocyte count is essentially normal. Table 1 illustrates thirty representative cases, taken in one ward as the patients entered in the various stages of the disease, from the first to the third or fourth day. The urine in fully two thirds of the cases shows a faint trace of albumin, and numerous granular and hyaline casts. No case of

nephritis has developed. The urine is characteristic of a severe febrile and toxic disease. Table 2 shows the significant urinary findings in the cases of one ward, as they entered.

The remaining 5 to 10 per cent. of the patients in this epidemic develop a very severe and massive bronchopneumonia. Of the ninety-five cases of pneumonia

TABLE 2.—URINE EXAMINATIONS FROM EARLY CASES OF ONE WARD

Cases	Specific Gravity	Albu-min*	Microscopic
1	1.029	Neg.	Many hyaline and granular casts
2	1.025	F. T.	
3	1.033	Neg.	
4	1.025	V. F. T.	
5	1.028	Neg.	A few granular and blood casts; many red blood cells
6	1.029	Neg.	
7	1.014	Neg.	
8	1.030	F. P. T.	
9	1.028	V. F. T.	Hyaline and granular casts
10	1.028	F. P. T.	
11	1.028	V. F. T.	
12	1.028	V. F. T.	
13	1.028	Neg.	A few hyaline and granular casts; also pus cells
14	1.014	Neg.	
15	1.027	F. P. T.	
16	1.031	V. F. T.	
17	1.016	F. P. T.	A few hyaline and granular casts; a few pus cells
18	1.026	F. P. T.	
19	1.029	V. F. T.	
20	1.023	V. F. T.	
21	1.029	F. P. T.	Many hyaline and granular casts
22	1.028	V. F. T.	

* Abbreviations: Neg., negative; F. P. T., faint possible trace; V. F. T., very faint trace; F. T., faint trace of albumin.

in the hospital developing from the influenza, thirty-five patients have died, and another fifteen or twenty are desperately ill. This would indicate a final mortality of from 60 to 70 per cent. In a case of progressive or extensive involvement, the patient rarely recovers. The bronchopneumonia appears as a continuation or extension of the bronchitis, present in a large percentage, so that there is rarely any remission of the symptoms after the second or third day, and physical signs of pneumonia develop. The consolidation appears most frequently in the right inferior lobe, just medial to the inferior angle of the scapula. The same tendency has been noted in pneumonias in general, but especially in bronchopneumonias. It probably is due to the anatomic relation of the right bronchus, this bronchus presenting a larger opening than the left within the trachea, and being shorter, larger and in more direct line with the trachea than the left, so that gravity and direct extension would favor the first appearance of involvement in the posterior upper portion of the right inferior lobe.

The bronchopneumonia extends very rapidly to the left inferior, the right upper and middle lobes, and finally to the left superior lobe, so that in many of the earlier cases death is distinctly one of asphyxiation. In cases of longer duration a severe toxemia is evident. The leukocyte count is very variable, frequently maintaining the leukopenia that is characteristic of the initial disease (Table 3). This persisting leukopenia can usually be interpreted as due to an uncomplicated influenza bacillus pneumonia, since this organism apparently calls forth no defensive leukocytosis in the circulating blood. The necropsies have corroborated this interpretation. The accompanying chart illustrates such a case. More frequently, however, there is a leukocytosis, this representing a secondary infection with either the pneumococcus or the streptococcus.

A purulent effusion or empyema does not develop in the pleural cavity. This may be due partly to the short duration of the pneumonia before death. In the terminal stages, with embarrassed and failing circulation, there is frequently a serofibrinous effusion into the pleural cavity, most frequently unilateral and on the right side, varying in amount from 100 to 1,000 c.c. The cell count of this fluid is rarely over 5,000 per cubic millimeter, chiefly polymorphonuclears. This fluid usually contains pneumococci or streptococci.

The gross pathology revealed at necropsy shows a massive and largely confluent bronchopneumonia, thus frequently simulating a lobar pneumonia. In the early cases, however, and in the more recent areas of the later cases, the bronchopneumonic type is very evident. The cut surface has a mottled, firm, granular appearance, each bronchiole standing out as a grayish area, with intervening dark red alveolar tissue. The coarse, nodular consolidation of a typical bronchopneumonia is rarely present. A large quantity of blood exudes from the cut surface. In the more prolonged cases this rather uniform bronchopneumonic consolidation passes through a more firm, gray stage, and then to a characteristic condition of diffuse and confluent small abscesses. These may be seen from the surface as flat, grayish yellow areas maintaining the markings of the lung lobules. Creamy, grayish yellow pus exudes from the cut surface in all regions, leaving a slight reticulum of necrotic lung tissue.

The remaining organs are essentially normal in appearance, except for a moderate degree of congestion. The heart in one case was acutely dilated. The liver and spleen are slightly enlarged. The spleen

TABLE 3.—LEUKOCYTE AND DIFFERENTIAL COUNT OF PNEUMONIA CASES FROM ONE WARD

Case	White Blood Cells	Poly-morpho-nuclears	Lym-pho-cytes	Transi-tionals	Large Mono-nuclears	Baso-phils	Eosino-phils	Temp-er-a-ture
1	26,200	81	18	1	...	..	..	104
2	29,000	89	10	1	...	..	..	100
3	14,600	73	26	1	...	..	..	104
4	14,600	80	19	..	...	1	..	100
5	13,600	71	24	3	...	2	..	104
6	10,000	82	17	1	...	..	..	99
7	37,000	77	20	1	2	2	..	103
8	17,600	75	16	4	5	..	..	102
9	29,600	91	8	1	...	..	...	100
10	17,200	78	19	2	1	..	..	103
11	10,600	78	20	2	...	..	..	99
12	7,000	88	10	2	...	..	..	99
13	13,000	80	20	..	...	..	..	102
14	17,000	87	10	3	...	..	..	104
15	13,600	86	12	..	2	..	..	102
16	28,800	82	14	2	2	..	..	102
17	4,600	78	19	2	1	..	..	103
18	14,800	96	4	..	...	..	..	104
19	12,600	70	28	2	...	..	..	100
20	12,200	84	16	..	...	..	..	103
21	7,800	67	29	3	1	..	..	101
22	6,400	66	34	..	...	..	..	104
23	7,400	53	46	1	...	..	..	101
24	10,000	56	42	2	...	..	..	99
25	3,600	84	16	..	...	..	..	104
26	16,800	56	36	3	...	..	1	99
27	6,800	56	40	4	...	..	..	104
28	9,000	61	36	3	...	..	..	99.5
29	12,200	82	16	2	...	..	..	103
30	15,800	76	22	2	...	..	..	100
31	19,400	78	18	2	2	..	..	102
Aver.	13,980	76.16	21.5	1.6	0.52	0.16	0.03	101.8

rarely shows the enlarged, soft, flabby condition so frequent in other forms of pneumonia. The cut surface is firm, dark red, smooth, and with indistinct markings. The kidneys are congested but otherwise of normal appearance. Microscopic examination of the tissues has not been completed, but will be made the subject of a separate report on the pathology of the disease, this being quite distinctive in the lung tissues.

BACTERIOLOGIC FINDINGS

The bacteriology of this epidemic has been the subject of special study, on account of the unusual severity and communicability of the disease, and its disputed relation to the common endemic disease known as influenza. The influenza bacillus has been generally accepted as the etiologic micro-organism of influenza. Pfeiffer discovered the influenza bacillus in 1892, two years after the great pandemic of influenza of 1889-1890. This pandemic spread rapidly over all parts of the world, attacking between 40 and 50 per cent. of the inhabitants and having a comparatively high mortality. The present pandemic is undoubtedly of the same character and is in all probability the same disease.

The reports of the bacteriology of the present pandemic in Europe serve only to confuse on account of their incompleteness. THE JOURNAL¹ and the London Lancet² have given the most recent reviews of the conflicting opinions in Europe, including the opinions of the French and the German investigators. The influenza bacillus was found only occasionally. Streptococci, pneumococci and the *Micrococcus catarrhalis* were recovered more frequently from the throat and sputum and occasionally from the blood. Little, Garofalo and Williams³ selected a pleomorphic gram-positive coccus as the probable etiologic micro-organism, this in all probability being a pneumococcus of the mouth. Gotch and Wittingham⁴ are inclined to attribute the disease to the *Micrococcus catarrhalis*.

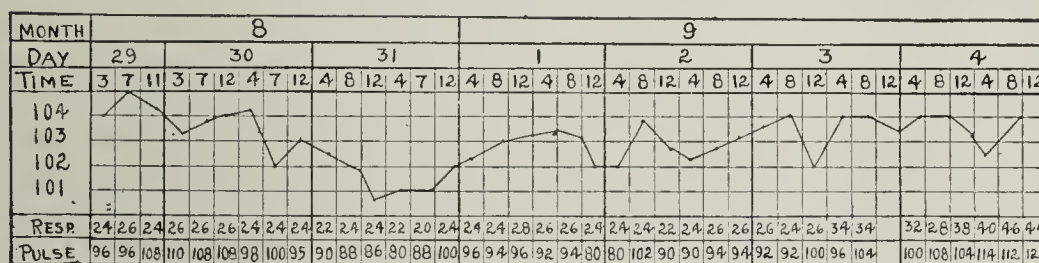
In the present epidemic in the naval stations of Boston, throat cultures were made, streaked on blood agar plates, from more than 100 cases, and similar cultures made from washed selected bronchial sputum, in search of the influenza bacillus or other predominating organisms. As a control, a similar number of blood plate throat cultures were taken from convalescent hospital patients. In both lots the predominating organism was a gram-positive diplococcus, with a considerable green area surrounding the small gray colonies and frequently marked pleomorphism noted on smear, probably corresponding to the pleomorphic organism described by Little.³ Approximately pure cultures of a hemolytic streptococcus occurred in 4 per cent. of the influenza cases, in comparison with 20 per cent. of the control cases. A few colonies of hemolytic streptococcus were found in an additional 16 per cent. of the influenza cases. In the influenza plates there were numerous small, colorless colonies, some of which stained typically as influenza bacilli. But similar colonies could be found in many of the control cultures, and they were by no means constantly found in either lot, so that no conclusions could be drawn from this

source. These negative findings in throat cultures may be explained by the difficulty of isolating the influenza bacillus from mixed cultures. Also, it is probable that the focus of influenza bacillus infection is not in the pharynx, but is located in some recess of the nasal cavity, explaining the negative throat symptoms. In this respect the influenza bacillus would be likened to the meningococcus, which selects the posterior nasopharynx for most abundant growth, and the diphtheria bacillus, which usually selects the supratonsillar fossa for its primary focus.

Mouse inoculation of washed selected sputum was made in numerous cases. There was no uniformity of results. Almost all possible organisms were recovered in pure or mixed cultures, pneumococci, *Streptococcus viridans*, *Streptococcus hemolyticus*, *Micrococcus catarrhalis* or the influenza bacillus, or the mouse recovered. The sputum of the bronchopneumonia patients usually is not the tenacious, fibrinous, blood-stained sputum of pneumococcus pneumonia, but a purulent, opaque, greenish or yellowish red sputum, showing on smear a predominating gram-positive diplococcus. It resembles more that of the streptococcus pneumonias of the past winter.

The smears and cultures from the lung punctures and necropsies furnished the best evidence of the nature of the infectious process. Table 4, of the results of cultures taken directly from the lungs, shows that

the influenza bacillus occurred either in pure or mixed culture in 82.6 per cent. of the twenty-three cases studied thus far. The only cases in which it did not occur were four, in which there were pure cultures of a hemolytic streptococcus. In six cases, or 31.6



Clinical chart of an uncomplicated influenza bacillus pneumonia. The patient died September 4. Leukocyte Counts:

	Influenza August 29	Pneumonia—	
Total	6,800	September 1	September 3
Polymorphonuclears	68	8,800	5,200
Lymphocytes	30	64	74
Transitionals	2	32	26
		4	..

per cent. of the positives, there were pure cultures of the influenza bacillus. It should be noted that these pure cultures were all in pneumonias of short duration, none of more than four days' and two of only two days' duration. The influenza bacillus was found in no case in the pleural fluid or in the heart's blood (Table 5). In direct smears from the lung tissue a very small coccobacillus, characteristic of the influenza bacillus, could be identified in many cases with a methylene blue stain, but with difficulty with a gram stain on account of its small size and poor staining qualities. By this means pure cultures and predominant cultures of the influenza bacillus can successfully be predicted from lung smears. It is found almost entirely within polymorphonuclear leukocytes, and in considerable numbers within individual cells, but not within all cells.

The most common secondary invader is the pneumococcus, occurring in thirteen of the twenty-three cases tabulated, or 56.5 per cent. Six of these, 46.1 per cent., were the Type II pneumococcus, two the Type III pneumococcus, and five the Type IV pneumococcus. One patient had both a Type III and a Type IV pneumococcus infection. The differentiation of the Type IV pneumococcus and the pleomorphic forms of the *Streptococcus viridans* is not without

1. "Spanish Influenza," editorial, THE JOURNAL A. M. A., Aug. 24, 1918, p. 660.

2. Bacteriology of the "Spanish Influenza," Lancet, London, 1918, 2, 177.

3. Little, T. H.; Garofalo, C. J., and Williams, P. A.: Lancet, London, 1918, 2, 34.

4. Gotch, O. H., and Wittingham, H. E.: Brit. Med. Jour., 1918, 2, 82.

difficulty, and some of these on further study may be found to fall within the *Streptococcus viridans* group. Bile solubility tests of broth cultures were not found very reliable for identification of the pneumococci, some of the fixed types, identified by agglutination, not showing a distinct bile solubility. Hence morphology was relied on in the doubtful Type IV cases.

TREATMENT

This frequency of the pneumococcus, especially the Type II pneumococcus, brings up the question of the possible value of sputum typing and antipneumococ-

TABLE 1.—LUNG CULTURES

Case	Influenza Bacillus	Pneumococcus	Streptococcus Viridans	Streptococcus Hemolyticus	Micrococcus Catarrhalis	Staphylococcus Aureus	Day of Pneumonia	Pleural Effusion	Blood Culture
1	+	—	—	—	—	—	4	+	—
2	+	—	—	+	—	—	3	—	—
3	+	+(II)	—	—	—	—	10	+	+
4	—	—	—	+	—	—	4	+	+
5	+	—	—	—	—	—	4	—	—
6	+	+(II)	—	—	—	—	7	+	—
7	+	+(IV)	—	+	—	—	3	—	—
8	+	+(IV)	—	—	—	—	9	+	—
9	—	—	—	+	+	—	5	—	—
10	+	+(II)	—	—	—	—	—	—	—
11	+	+(II)	—	—	—	+	4	+	—
12	—	—	—	—	—	—	4	—	—
13	+	+(IV)	—	—	—	+	12	—	+
14	+	+(II)	—	—	—	—	6	—	+
15	+	—	—	—	—	—	2	—	—
16	+	—	—	—	—	—	4	+	—
17	—	—	—	+	—	—	5	+	+
18	+	+(IV)	—	—	—	—	—	—	—
19	+	+(III-IV)	—	—	—	—	6	—	—
20	+	+(IV)	—	—	—	—	—	—	—
21	+	+(III)	—	—	+	—	—	—	—
22	+	—	—	—	—	—	2	+	—
23	+	+(IV)	—	—	+	+	..	+	+

cus serum therapy in these pneumonias. First, it is noteworthy that no case of a Type I pneumococcus has thus far occurred in the outbreak in this locality. This indicates that the infecting pneumococcus is a common mouth inhabitant, since Type I pneumonias are rarely met at the present time. The second point of interest is the fact that no pure infection with the pneumococcus has yet occurred. In every case of pneumonic complications the influenza bacillus was also recovered from the lung cultures, frequently in as great numbers as the pneumococci or in greater numbers. Considering the presence of six cases of pure influenza bacillus pneumonia, the interpretation is that the influenza bacillus is the primary invader in every case, sufficient in itself to cause a rapidly fatal pneumonia, and that the pneumococcus acts entirely as a secondary or terminal invader. It is questionable if serum therapy, and especially Type II antipneumococcus serum, would have much influence altering the course of the disease.

However, sputum pneumococcus grouping and antipneumococcus serum therapy should be tried in selected cases. By selected cases is meant those in which the patients are bringing up typical pneumococcus sputum and have a marked leukocytosis, showing that this organism is the predominating one. Indiscriminate routine typing of all cases that show a patch of bronchopneumonia is an impossible task in the present emergency, as well as of doubtful value, for in all cases at necropsy there is found a distinct bronchopneumonia, although at times of such massive and confluent character as to be distinguished with difficulty from lobar pneumonia. A significant feature recently noted is that a separate type of infection may occur in the two lungs, one being both an influenza

bacillus and a pneumococcus infection, while the other lung may give a pure culture of a pneumococcus, a streptococcus or a *Micrococcus catarrhalis*.

The hemolytic streptococcus occurred in five of the twenty-three cases, or 22.7 per cent., and in four of these it was the only organism present. As noted previously, these four cases were the only ones of all twenty-three in which the influenza bacillus was absent. This is significant in view of the known extremely invasive properties of the *Streptococcus hemolyticus* and its tendency completely to obscure a primary infecting micro-organism. The low percentage of hemolytic streptococci as secondary invaders in the bronchopneumonias of this disease, compared to their incidence in the postmeasles bronchopneumonias of the past winter, perhaps reflects the low percentage of pure hemolytic streptococci found in the throat cultures of a group of these men as they entered the hospital, being only 4 per cent.

The *Micrococcus catarrhalis* is a fairly frequent secondary invader found in the lungs and in one instance in pure culture in the heart's blood. The *Staphylococcus aureus* occurs infrequently and in small numbers.

THE INFLUENZA BACILLUS

The interpretation of these bacteriologic findings is that the influenza bacillus is the primary invader in all cases of pneumonia accompanying this outbreak of influenza. This pneumonia is always a bronchopneumonia and is frequently complicated by a secondary infection with the pneumococcus or the streptococcus, and less frequently with the *Micrococcus catarrhalis* and the *Staphylococcus aureus*. Separate, double or triple secondary infections may occur.

This tendency of the influenza bacillus to grow in symbiosis or in an ancillary relation with other organisms in the lungs is not necessarily due to the more

TABLE 5.—HEART'S BLOOD CULTURES AT NECROPSY

Case	Influenza Bacillus	Pneumococcus	Streptococcus Viridans	Streptococcus Hemolyticus	Micrococcus Catarrhalis	Staphylococcus Aureus
1	—	—	—	—	—	—
2	—	—	—	—	—	—
3	—	II	—	—	—	—
4	—	—	—	+	—	—
5	—	—	—	—	—	—
6	—	—	—	—	—	—
7	—	—	—	—	—	—
8	—	—	—	—	—	—
9	—	—	—	—	—	—
10	—	IV	—	—	—	—
11	—	II	—	—	—	—
12	—	—	—	—	—	—
13	—	—	—	+	—	—
14	—	—	—	—	—	—
15	—	—	—	—	+	—

virulent nature of the secondary invaders, but may be due to a well-recognized property of the influenza bacillus to grow much more luxuriantly in the presence of certain other organisms, especially the staphylococcus, but also the pneumococcus, the streptococcus and numerous other organisms. This is most strikingly illustrated in plate cultures of the influenza bacillus, by the colonies in the vicinity of a staphylococcus colony. These colonies grow to giant size, from 2 to 3 mm. in diameter, in comparison with the remote influenza colonies which remain barely visible at the end of four or five days.

The influenza bacillus in this study was identified by the small size and colorless appearance of the colonies, which were almost imperceptible at the end of

twenty-four hours, and then visible only by reflected light. Around a staphylococcus colony they have a distinct gray color on account of their larger size. They are moist and easily removed with a platinum wire and readily emulsify in salt solution. Microscopically, the influenza bacilli appear as exceedingly small gram-negative coccobacilli. There are no specific agglutination or fermentation tests available for further identification of the influenza bacillus. It is nonpathogenic for all laboratory animals except in a few reported instances of monkey inoculation in which the characteristic disease was reported to have resulted.

A fixed strain of the influenza bacillus, such as this organism must be, to act in such a virulent and pandemic manner, has never previously been available for the study of specific serum reactions. The bacillus was not discovered until after the great pandemic of 1889-1890, and there has been no similar pandemic of influenza since, until the present. Work on the specific serum reactions of this strain of the influenza bacillus is now in progress, and it is hoped that specific reactions will be found, probable toxins demonstrated, and possible antitoxins or vaccines prepared that will prove of use in prophylaxis, or in clearing up the chronic reinfective condition so frequently remaining after the first acute symptoms.

The focus of the primary infection most certainly is in the upper respiratory passages, but it gives rise to practically no localizing symptoms during the first day or two of the disease. Then it attacks the nasal mucosa and usually the bronchi. A sore throat is never complained of in the typical cases. Other organisms usually predominate in the pharynx. Further study should locate more specifically the primary focus of infection and the location in carriers.

Speculation as to the probable cause of the beginning of this pandemic of influenza suggests that it may bear some relation to the congregation of such enormous numbers of troops in Europe; that an original slightly pathogenic influenza bacillus, by passage through many individuals in a short period, has become a fixed, highly pathogenic strain of the influenza bacillus.

In the beginning of this study of the etiologic organism of the prevailing pandemic of influenza, an experiment was performed in conjunction with Dr. M. J. Rosenau, director of the Naval Hospital laboratory, on nine volunteers from the Deer Island Naval Training Camp. These men had not been exposed to the disease, there having at that time been no cases at Deer Island. The experiment was for the purpose of determining whether or not the disease was due to a filtrable virus. Certain features of the onset and course suggest strongly a similarity to dengue, yellow fever, trench fever and pappataci fever.

The experiment consisted of introducing the filtrate of the washings from the nose and throat of two cases of influenza into the anterior nares of nine volunteers. The influenza cases selected were typical, with definite history of recent exposure. One was in the second day of the disease and the other in the fourth day. The nose and throat of each patient was washed and gargled with 75 c.c. of sterile physiologic sodium chlorid solution. Throat swabs and sputum were added to the separately collected washings. Each was shaken with beads in a sterile bottle and filtered through a Mandler diatomaceous earth filter by means of a water vacuum pump. One filter had a positive

pressure value of 9 pounds and the other of 12 pounds. Cultures were made from the clear filtrates for control. The filtrates were then carried to Deer Island, where about 0.5 c.c. was introduced into the anterior nares of each of the volunteers, five receiving the filtrate from one case and four from the other. Three and one-half hours had elapsed from the time of obtaining the nasal washings to the time of the nasal instillation. The control cultures were negative for bacterial growth, and none of the nine volunteers have shown symptoms of the influenza during ten days of isolation.

These men of the U. S. Navy are especially to be commended for their fine spirit in being willing to take chances of serious sickness for the sake of advancement of knowledge of the disease. The nature of the experiment and the possibility of serious consequences were fully explained to them. Their names are: J. E. Kiley, F. J. Hogan, F. B. O'Neill, P. G. Woods, L. C. Berg, H. L. Robertson, T. E. Null, T. A. Walker and H. A. Maronowitz.

In the other portion of the work thanks are due Dr. J. M. Brister, Dr. M. J. Rosenau, Dr. E. W. Goodpasture, Dr. William R. Redden, Dr. F. L. Burnett and Dr. F. N. Rapoport of the U. S. Naval Hospital, Chelsea, Mass., medical staff, for their assistance in examination and report of the cases.

SUMMARY

A rapidly spreading pandemic disease was first recognized at the U. S. Naval Hospital, Chelsea, Mass., Aug. 28, 1918, the first patients coming from the receiving ship at Commonwealth Pier, Boston. It has been carried to this port from Europe, both by patients and by carriers. It promises to spread rapidly over the entire country, attacking between 30 and 40 per cent. of the population, and running an acute course of from four to six weeks in each community.

This disease is characteristic of the ordinary endemic influenza, but is more severe and much more contagious. It is caused by a specific virulent strain of the influenza bacillus, against which individuals of the younger generation have relatively no immunity.

In from 5 to 10 per cent. of the persons afflicted, it develops into a massive and very fatal bronchopneumonia. This pneumonia is primarily caused by the influenza bacillus, this micro-organism being recovered from 82.6 per cent. of the lungs at necropsy, in 31.6 per cent. of which it is found in pure culture. The pneumonia is frequently complicated by pneumococcus or streptococcus infection.

The disease is characteristic of a sudden and severe toxemia, the influenza not being in the blood at any stage. It is not due to a filtrable virus. This was determined by introduction of the filtrate of nasal and throat washings from two typical cases into the anterior nares of nine volunteers, with negative results.

U. S. Naval Hospital.

Administering the Birth Registration Law.—Administrative history seems to indicate that it is easier to enforce a law on a new subject than it is on one that radically changes existing practices. It is this latter condition that has met most officers in the effort to enforce model birth registration laws. With the enactment of a model registration law in Kansas in 1911 it was found that it was not only necessary to put into active operation the new law, but to break up the old habits of reporting and not reporting.—W. J. V. Deacon, M.D., State Registrar.

The onset was at times sudden; at other times it was gradual and the patient remained at work for one or more days before he reported ill. The initial symptoms were in most instances headache, backache, malaise, chilliness and pains in the extremities. Several complained of pains in and above the eyeballs. A few of the enlisted men and a considerable number of the Hindus complained of abdominal pain during the first day or two of the disease. Irritation of the upper respiratory tract occurred in about two thirds of the patients. This usually consisted of a dry,

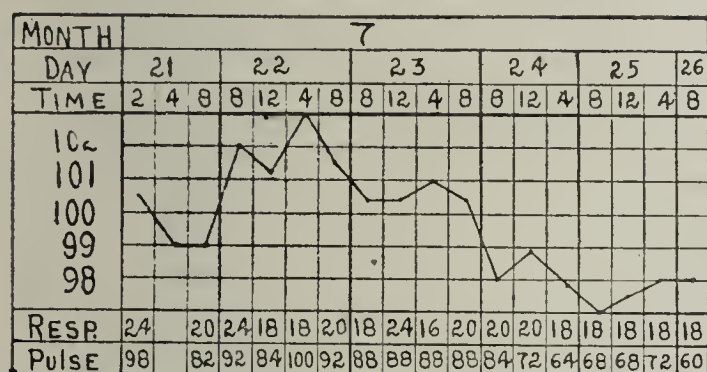


Fig. 2.—Temperature chart of a case of influenza in which the main rise of temperature occurred on the second day in the hospital.

hacking cough or of soreness of the throat. Less commonly there was hoarseness, a sense of rawness beneath the sternum, or a cough productive of sputum. The last was the rule among the Hindus.

Examination at the onset showed in most instances some reddening of the pharynx, which commonly involved the anterior pillars. The tonsils were rarely swollen, and the glands at the angle of the jaw were not palpable. When the cough was productive, bronchial râles could be heard over the lungs; but otherwise the respiratory sounds were normal. There was no enlargement of the spleen, no swelling of the lymph glands and no abdominal tenderness or rigidity.

Mental dulness and apathy were common, and in some instances the patient was continuously drowsy and slept most of the first forty-eight hours of his illness. In other instances, the headache, backache or pains in the extremities, together with a general irritability, made the days uncomfortable and the nights restless.

Nearly all patients showed considerable fever. Among the Hindus all but one showed a maximum temperature of 103 or over. Among the enlisted men the average temperature was 102, but it varied from a few whose temperature hardly exceeded the normal to one whose maximum was 105.6. In several patients who developed the disease in the hospital wards, the temperature rose abruptly; but it may also rise gradually. In thirty enlisted men the temperature was highest on the day of admission to the hospital, in seventeen it was highest on the second day, while in one it was highest on the third day. In uncomplicated cases the fever lasted from one to six days, with an average duration of about three days. The fall was usually by lysis. When the fever lasted more than six days in our patients, bronchitis or bronchopneumonia was present. Representative temperature charts are reproduced herewith.

The pulse rate was accelerated but usually not in proportion to the rise of temperature. For example, the temperature of 105.6 was accompanied by a pulse rate of 104, while pulse rates below 100 with temperatures above 103 were common. Among the Hindus, the pulse rates were somewhat more rapid than among

the enlisted men; but they were still slow relative to the temperatures. When serious pulmonary complications were present, the pulse became rapid. It seemed to us that the pulse furnished a better indication of the severity of the infection than did the temperature.

Leukocyte counts made at the onset in seven uncomplicated cases showed from 5,000 to 8,000 to the cubic millimeter. In three Hindus who subsequently developed bronchopneumonia the counts were 8,600, 9,200 and 10,000. Faint traces of albumin were found in thirty of forty urines examined during the early stages of the disease. In two others there was a heavy cloud of albumin. Casts were found in eight urines. Later examinations in a number of these cases showed a normal urine after subsidence of the infection.

Convalescence was commonly marked by an unusual degree of prostration and by unusual exhaustion on slight exertion. These symptoms usually passed off in from three to five days after the temperature had become normal, but in a few instances they lasted a week or more.

The only serious complication among these patients was bronchopneumonia. This was suspected in two or three of the hospital personnel. It was definitely diagnosed in four of the nineteen Hindus, the diagnosis being based on the considerable number and persistence of râles, the protracted fever, the rapid pulse rate and the serious character of the illness. In only one of these patients were the usual signs of consolidation demonstrable. Of these four patients, two died. These were the only deaths in this local epidemic.

We have had the opportunity to observe the complications and sequelae of influenza in a considerable number of patients who have been sent to the hospital. Without going into detail, it may be said that the most common sequelae observed were infections of the lungs and pleurae, particularly fibrinous and sero-fibrinous pleurisy, empyema, persistent bronchitis and bronchopneumonia. Prostration and continued cough have frequently given rise to a suspicion of pulmonary

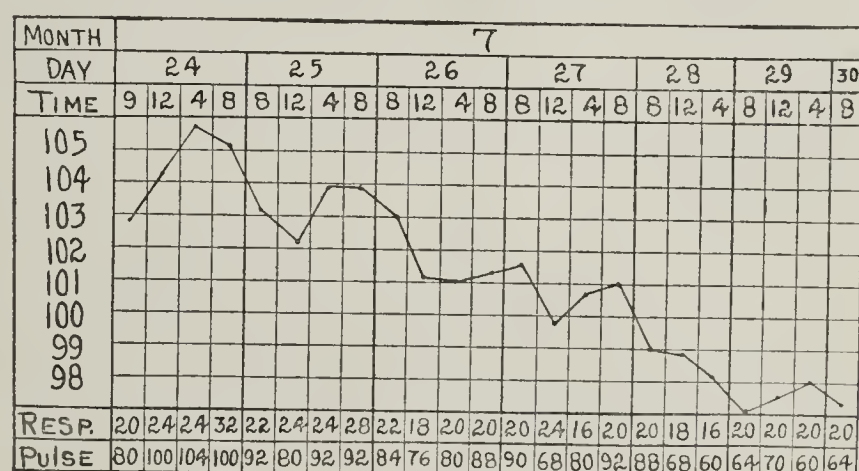


Fig. 3.—Temperature chart of a severe but uncomplicated case of influenza.

tuberculosis. Less common have been cardiac disturbances which were characterized by breathlessness, palpitation, precordial pain and rapid pulse. In a number of patients the symptoms have been those of neurasthenia or less commonly of a marked and persistent general asthenia.

The treatment used was expectant and symptomatic. With the onset of fever the patient was sent to bed and was kept there until the temperature had been normal for at least forty-eight hours. If pains in the head, back and extremities were troublesome, acetyl-

salicylic acid was given in doses of 15 grains every three hours until six doses had been taken. If the patient could not sleep, 5 grains of barbital were given at bedtime. Oily sprays lessened the irritation in the upper air passages. By these means the early discomforts were diminished. Since the chief danger of the infection arises from complications and sequelae, care to avoid these should be taken. The spread of bronchopneumonia is probably increased when many patients are treated in confined quarters. Under such circumstances special precautions should be taken against contact and droplet infection. On account of the danger of cardiac and neurasthenic sequelae, convalescence should be prolonged until the patient can carry on his usual duties without fatigue.

CONCLUSIONS

The present widespread epidemic of influenza is comparable to that which swept over the world in 1889-1890. The percentage mortality is very low, but the total mortality is probably considerable on account of the high morbidity. Under unfavorable conditions of lessened individual resistance and overcrowding, the percentage mortality may also be high. For example, a ship's surgeon informed us that of fifty Hindus who contracted the disease, he lost fifteen with pulmonary complications.

The clinical features of this disease, together with its rapid spread to a large number of individuals, give it a definite character. The clinical features alone do not suffice to mark it off clearly from the sporadic

LABORATORY AS AID IN CONTAGIOUS
DISEASE ADMISSIONS IN CAN-
TONMENT HOSPITALS

A. B. MORRILL, M.D. (CHICAGO)
Major, M. C., U. S. Army
A. E. F.

Early last winter it was found at Camp Grant that the receiving officer, who admitted all patients, could not give time for the necessary examination of contagious cases, and measles and scarlet fever patients were occasionally put into clean wards, tying up these

TABLE 1.—AVERAGE WHITE COUNT ON ADMISSION

Diseases	Number of Cases	Average White Count
Measles.....	346	7,539
German measles.....	19	9,751
Mumps.....	488	9,415
Scarlet fever.....	91	18,926
Streptococcus sore throat.....	33	17,484
Whooping cough.....	3	20,433

wards for long periods of time with quarantine regulations. For this reason the contagious disease department took over the admission of all contagious cases.

All patients were stripped to the waist and examined. In the definite cases, patients were sent to the proper wards, and in doubtful cases to the observation wards. Difficulty soon developed in properly grouping the following types of cases: (1) infections in the incubation period of a second infection; (2)

TABLE 2.—WORK DONE BY THE RECEIVING OFFICE UNIT LABORATORY AT CAMP GRANT, 1918

	Week Ending																													
	January				February				March					April				May				June					July			
	6	13	20	27	3	10	17	24	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16	23	30	7	14	21	28
Blood counts:																														
White.....	45	88	159	86	127	113	126	93	116	154	168	134	127	145	112	123	130	146	123	67	51	63	50	37	43	71	48	55	59	56
Red.....	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Differential.....	7	20	12	12	2	12	21	11	34	27	17	28	9	12	9	14	21	43	36	2	1	2	3	1	1	..	6	..	1	..
Urinalysis.....	50	67	46	46	34	27	43	28	24	48	37	23	40	80	36	33	59	35	25	..	..	3	..	..	..	6	..	4	4	1
Throat smears....	6	3	18	10	23	30	47	13	28	25	36	31	18	18	18	19	15	14	4	7	5	..	..	..	..	6	2	..	8	3
Throat cultures...	..	..	..	7	27	31	41	26	45	46	37	37	43	70	55	27	68	75	96	14	38	12	17	7	126	10	33	13	9	8
Urethral smears...	2	..	..	1	..	..	2	..	..	..	..	..	2	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Spinal fluids.....	..	..	..	6	15	6	2	2	..	6	10	13	11	3	2	..	2	2	1	2	3	2	..	..	..	..	..	..	..	..
Sputum.....	1	1	1	..	..	..	1	..	..	..	2	1	2	10	4	..	1	3	..	..	..	..	..	..	1	..	..	..	..	..
Feces.....	..	..	..	..	..	..	..	3	3	..	1	2	..	..	..	1	2	4	3	..	..	..	..	..	..	..	..	..	..	..
Schick test.....	..	..	..	..	..	..	..	..	..	..	12	4	1	2	3	..	..	21	14	34	6	15	..	..	..	237	217	253	372	314
Wassermann tests	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hemolytic strepto-	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
coccus cultures...	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	47	..	..	..	..	..
Men at work.....	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

cases of "influenza" that occur from time to time in every community. If the disease continues to spread in a manner comparable to that of 1889-1890, an opportunity to study its etiology will be given to bacteriologists in the United States.

Training the Disabled in Great Britain and Ireland.—According to the *Vocational Summary*, published by the Federal Board for Vocational Education, the British ministry of pensions publishes each month a list of training courses for the reeducation of disabled soldiers in the United Kingdom. Training courses have been provided in many different lines, and in many different communities. The courses are given by public and private schools, colleges and institutes in every section of the country, as well as in factories and workshops. The list of courses for May, 1918, printed in the *Summary* shows a list of subjects of the greatest variety taught in many communities. This plan is of interest to the people of the United States who are preparing a national scheme of reeducation under the Smith-Sears Act for vocational training.

double infections, in which, for instance, a measles eruption masked a scarlet fever efflorescence; (3) cases that were apparently one infection but in reality were another. It was found that the leukocyte count taken after admission to the ward readily differentiated most of these cases.

The suggestion was therefore made that the white blood count for the differentiation between these diseases be made in the receiving office. In this way a large majority of these patients could be sent directly to the proper ward without an intermediate delay of a day or two in the observation wards. With this idea in mind a unit laboratory was placed in the receiving office, and a leukocyte count was made in all doubtful cases. A larger number of cases proved to be doubtful than was at first apparent, so that it became expedient to make counts in all cases. Before this procedure was instituted, the error made in making the immediate diagnosis was about 5 per cent. of all cases; the white count reduced this error to

approximately 1 per cent. It also increased the number of cases in which an immediate diagnosis could be made. This cut down the number of patients that it was necessary to send to the observation wards.

In the laboratory of the receiving office, cultures and cover glass smears are made from all sore throats to determine the presence of the diphtheria bacilli. In all cases of sore throat with exudates that show organisms resembling the diphtheria bacilli in the smears, the patients are immediately given antitoxin. The administration of antitoxin in other cases can usually await the examination of cultures. Because of the known susceptibility of scarlet fever patients to diphtheria, it is important that no throats harboring the diphtheria bacilli should be allowed to remain in the scarlet fever ward; and to avoid such cross-infection, in all scarlet fever cases smears are taken and cultures made in the receiving office. A Schick test should be made in all cases of sore throat, and it is often a valuable aid in differentiating between a true diphtheria and a diphtheria carrier. This is especially true when a streptococcus exudate clouds the picture.

This laboratory has also proved to be a convenient place for obtaining the blood for routine Wassermann tests, and recently has been of value in obtaining a series of throat cultures to determine the frequency of the hemolytic streptococcus.

Table 1 shows the average white counts in the various diseases on admission. It contains both uncomplicated and complicated cases with the exception that unquestionable cases of double infection were omitted. Many cases of measles and some cases of mumps were complicated by the hemolytic streptococcus, which elevated the white count. Therefore these diseases will show a higher average than a series of uncomplicated cases. The table is considered of value, however, because it shows the figures the receiving officer actually has to consider in making his disposition of cases.

Out of 476 cases of measles, 66 per cent. showed Koplik's spots on admission, which was usually on the first day of eruption.

These examinations led to the following general conclusions:

Measles patients with counts of more than 10,000 and mumps patients with counts over 12,000 had a complication that demanded a careful diagnosis before they were sent to the wards. In a small series of nineteen cases, German measles averaged a higher count than true measles. Many mumps patients have a leukopenia of from 5,000 to 7,000. An orchitis elevates the white count in this disease by an increase of the mononuclear cells. There was little difference in the white counts in streptococcus sore throat and scarlet fever, although scarlet fever averaged slightly higher.

It might be objected that these laboratory tests would undesirably lengthen the process of getting the patient to bed. Practically this did not occur. If it did occur, it could easily be remedied by putting more workers in the laboratory. Installation of small cubicles will maintain the technic of the masking system, while the patient is unmasked for throat cultures, etc. These cubicles should be made of wood and sheet metal and covered with white enameled paint, so that they can be frequently disinfected with soap and water.

Table 2 shows the amount of work done by this unit laboratory at Camp Grant.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

W. A. PUCKNER, SECRETARY.

CHLORCOSANE.—A liquid, chlorinated paraffin containing its chlorine in stable (non-active) combination.

Actions, Uses, Dosage, Physical and Chemical Properties.—See THE JOURNAL, Feb. 16, 1918, p. 459.

Chlorcosane-Squibb.—A brand of chlorcosane.

Manufactured by E. R. Squibb & Sons, New York. No U. S. patent or trademark.

THROMBOPLASTIN SOLUTION-ARMOUR.—An extract of cattle brain in physiological sodium chloride solution prepared according to the method of Hess. It complies with the description of Solution Brain Extract (New and Nonofficial Remedies, 1918, p. 138).

Action and Uses.—See general article, Fibrin Ferments and Thromboplastic Substances (Kephalin) (New and Nonofficial Remedies, 1918, p. 136).

Dosage.—See Solution Brain Extract (New and Nonofficial Remedies, 1918, p. 138). Thromboplastin solution-Armour is marketed in 25 Cc. vials which bear an expiration date, after which time the contents should not be used.

Manufactured by Armour & Co., Chicago. No U. S. patent or trademark.

One part thromboplastin solution-Armour will coagulate 100 parts of oxalated blood plasma in less than one minute when tested as follows:

To 0.5 Cc. thromboplastin solution-Armour is added 24.5 Cc. physiological sodium chloric solution and the mixture shaken until a uniform emulsion results. Of this suspension 5 Cc. is mixed in a graduated cylinder with an equal volume of blood serum. To this is added 10 Cc. of oxalated blood plasma (1 Gm. sodium oxalate in 100 Cc. of water, added to 900 Cc. of fresh blood) and mixed by inverting the cylinder twice. The mixture is rapidly transferred to a shallow dish; it should coagulate in less than one minute. For this test, all solutions must be made freshly and the temperature of the liquids maintained at 38 C.

DESICCATED CORPUS LUTEUM-ARMOUR (See N. N. R., 1918, p. 237).

The following dosage form has been accepted:

Corpus Luteum Capsules, 2 Grains.—Each capsule contains desiccated corpus luteum-Armour 2 grains.

SALIPYRINE (See N. N. R., 1918, p. 275).

The following dosage form has been accepted:

Salipyrine Tablets, 7½ Grains.—Each tablet contains salipyrine 7½ grains.

ANTIPNEUMOCOCCUS SERUM (See THE JOURNAL, June 1, 1918, p. 1599).

The Gilliland Laboratories, Ambler, Pa.

Antipneumococcic Serum, Type I.—Marketed in vials containing 50 c.c.

PHENYLCINCHONINIC ACID, U. S. P. (See N. N. R., 1918, p. 269).

Phenylcinchoninic Acid-Abbott.—A brand of phenylcinchoninic acid, U. S. P.

Manufactured by the Abbott Laboratories, Chicago, under U. S. patent No. 1,075,171 (Oct. 7, 1914; expires 1930) by license of the U. S. Federal Trade Commission.

PARRESINE (See N. N. R., 1918, p. 247).

The following dosage form has been accepted:

Parresined Lace-Mesh Surgical Dressing.—Net mesh gauze impregnated with and containing from 45 to 50 per cent. of parresine.

HALAZONE (See N. N. R., 1918, p. 159).

Halazone-Squibb.—A brand of halazone. Sold only in the form of tablets (see below).

Halazone-Squibb Tablets, 1/16 Grain.—Each tablet contains halazone-Squibb ¼ gr., anhydrous sodium carbonate ¼ grain and sodium chloride 1½ grains.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, SEPTEMBER 28, 1918

THE DAILY PRESS AND THE "FUTILITIES OF CONTEMPORARY SCIENCE"

The American public has so long been accustomed to accept the daily press as its mentor in all things which concern human welfare that the pronouncements of its printed columns are sometimes given an undeserved consideration. However sound and enlightening the almost infinite variety of items published in the newspapers may be as a rule, however convincing and worthy the editorial notices may appear when they analyze the current problems of politics, economics, finance or literature, it not infrequently happens that the reputation of science suffers. Our great metropolitan dailies attempt to secure experts in the domain of so-called "humanistic" studies to guide them in public expression of policies or achievements. All too often science is treated as something apart from the worthier interests of the thinking public; and as a consequence the presentation of scientific achievement often occurs in a crude way that makes errors of statement glaring to the intelligent, or else degrades reports of scientific progress by the employment of ignorant facetiousness.

An illustration of the editorial preaching of reckless misinformation regarding the development of typhoid germs in horses and the consequent alleged danger of eating horse meat—a statement emanating from Hearst papers under the editorship of Arthur Brisbane—was referred to recently in *THE JOURNAL*.¹ Under the caption "Futilities of Contemporary Science," a newspaper of no less dignity than the *New York Times*² attempts to exploit in semijocular vein the press dispatches regarding investigations of Hindhede of Copenhagen on restricted diets. This student of nutrition, who has long advocated economy in diet and particularly in the use of animal protein, has lately shown that adults could live without apparent detriment for a period of more than one and one-half years on a ration of bread, potato, vegetables and

fruits without added fats. Such experiments, among many others that might be cited, help to rob the vision of meatless days and beefless weeks of the terror which it inspires in the breasts of the uninitiated. Man's health and strength are not dependent on the assumed superior virtues of animal flesh as a dietary constituent.

Every physician with scientific training is aware of the uncertainty existing with respect to the precise rôle of fat in the economy. Aside from the fact that fats yield more than twice as much energy per unit of substance as other foodstuffs, the demonstration that animal fats often act as carriers of vitamins essential to physiologic welfare has begun to raise new questions as to the indispensability of this group of nutrients. In the current discussions of war edema, the xerophthalmia of babies fed on fat-free milk and cereals, and other diseases of dietary deficiency origin, the possible need of fats as such or what they may include has become prominent.³ It has been repeatedly reported by competent observers that the low fat ration in Germany, at least in the earlier period of the war, was regarded as one of the most severe deprivations of the population.

Surely, then, reputable investigations of nutrition successfully accomplished in spite of a dearth of fats are likely to command attention in the scientific world. The presumable potency of potato protein, the possible occurrence of adequate vitamins in the green vegetables—these and other timely topics are involved in Hindhede's announcement in his Danish report, of which a brief summary has been transmitted by cable. Yet the *New York Times*, evidently ignorant of the real significance of its "news," indulges in the following supposedly humorous animadversion:

How painful, then, it is to read that a distinguished Scandinavian, Dr. Hindhede, has established the fact that man can get fat without eating fats! Those misguided individuals who want to know how to get fat are few, and material for the gratification of their strange desire is ready to the hand of most of them. That men could continue to live, work, think, and maintain at least a minimum of health with very little fat in their diet was already established, for in vast regions of half-fed Europe they have been doing that for months and years past; no Scandinavian researches were needed to establish that.

If Dr. Hindhede and his colleagues among neutral scientists wish to devise something that will bring real solace to the world after the war is over, let them devise some diet on which anybody can get thin. The mere verification of suspicion that whatever you eat or do not eat you will still have to let out your belt, may prevent some needlessly painful dietetic penances, but it does nothing to alleviate the agonies of the adipose.

Where ignorance is bliss 'tis folly to be wise. But it is worse than folly to allow ignorance to concoct belittling facetiousness at the expense of the efforts of modern science—particularly in a day when science admittedly needs to be encouraged to its utmost.

1. The Intermediate Host of the Typhoid Bacillus, Current Comment, *THE JOURNAL A. M. A.*, July 27, 1918, p. 284.

2. Futilities of Contemporary Science, Editorial, *New York Times*, July 29, 1918.

3. Steenbock, H.: Vitamins and Nutrition, *The Scientific Monthly*, August, 1918, 7, 179.

ARE ANTITOXINS PROTEIN IN NATURE?

Ehrlich's hypothesis that an antitoxin consists of "cell receptors" that have been produced in excess and secreted by body cells into the blood has doubtless been a helpful conception stimulating pathologists or immunologists—as the specialists are now designated—in the investigation of immune serums. To the chemically trained mind, however, it falls far short of suggesting something definite or tangible and in any way comparable with the more familiar compounds that are known to play some part in biologic processes. The fact that the neutralization or detoxication of toxin with antitoxin can be carried out quantitatively in a beaker as well as in the body is an indication that specific substances are involved in such reactions. According to Arrhenius, the interaction of toxin and antitoxin is accompanied by a liberation of heat much as is the action between strong acids and bases.¹ The concurrence of opinion further opposes the idea that antitoxins are in the nature of chemical ferments or enzymes.

Although the actual chemical nature of antitoxins is unknown, the antitoxic properties of such immune serums as are employed in combating diphtheria are closely associated with the globulin fraction obtainable from this part of the blood by current methods of protein separation and purification. There is some evidence, derived from data regarding their comparative diffusibility, to indicate that antitoxin molecules are much larger than the toxin molecule;² and this fact, along with the deportment of antitoxin in the attempts to concentrate it from serums, is often adduced in favor of its protein nature. Although it is possible to retain all of the immunity units along with only a part of the protein, no one has succeeded in separating the antitoxins from their associated proteins.

At the Bureau of Animal Industry in Washington, Berg and Kelser³ have attempted anew to secure a protein-free antitoxin preparation on the one hand, and on the other to determine whether antitoxin can be destroyed by procedures that leave the protein intact. Success in either direction would indicate that antitoxin may be of nonprotein nature. According to the method proposed by the government pathologic chemists, if an antitoxin—tetanus antitoxin, for example—is a substance of nonprotein nature, it should be possible to prepare artificial digestion mixtures containing the antitoxin serum or antitoxin derived therefrom, in such fashion that the protein would undergo digestion without loss of antitoxin. Appropriate chemical measurements would indicate the extent of prote-

olysis, while inoculation experiments on guinea-pigs would indicate whether there was any loss of antitoxic units. If, on the other hand, the antitoxin is a protein and its power to neutralize immunologically the corresponding toxin is a function of the intact protein molecule, then the antitoxin would be destroyed in every case in which the protein had undergone cleavage, regardless of whether the cleavage was caused by a proteolytic enzyme or other chemical agent. Due regard must of course be had for the possible destruction of the toxin by the chemical agents used in the experiments.

The outcome of the experiments of Berg and Kelser has been to indicate that antitoxin destruction may take place with or without cleavage of protein. Dilute acid or alkali may destroy the antitoxin within a period in which significant chemical changes in the accompanying protein cannot be detected by the tests adopted. The authors interpret their results as indicating that tetanus antitoxin is a substance of non-protein nature. But, they add, the stability of the antitoxin is so dependent on that of the protein to which it is attached that whenever the protein molecule is split, the antitoxin splits with it. It would be folly, however, to regard these demonstrations as conclusive so long as a protein-free antitoxin is not obtained. Proteins are susceptible to molecular rearrangement by the action of an alkali, for example, without having their gross composition altered thereby. The antigenic properties of proteins can be entirely altered in this way, as Ten Broeck⁴ found in the case of the racemized protein of Dakin, which still seems to possess all of the amino-acids present in the original active substance.

THE UROBILIN PROBLEM

It is nearly half a century since urobilin was described by Jaffe. Little attention was paid to this substance from a clinical standpoint until its relation to the decomposition of bile pigment by bacterial action in the alimentary canal was made prominent by Friedrich Müller. The terms "urobilin" and "urobilinogen" are applied to a group of derivatives of bile or blood pigment for which methods of estimation, crude though they may appear to careful analysts, have been devised and widely applied to the examination of urine and feces by a considerable number of clinicians and in a great diversity of cases. Like many novelties in clinical chemistry—we may cite the indican test and Ehrlich's diazoreaction—the test for urobilin has attained a considerable popularity and has been the subject of generalizations that might appear highly significant and diagnostic to the uncritical reviewer. It seems worth while, therefore, to point out at this time that there are unquestionably obstacles to the ready acceptance of some of the current hypotheses.

1. Arrhenius, S. A.: *Quantitative Laws in Biological Chemistry*, 1915.

2. The literature on this topic is reviewed by Wells, H. G.: *Chemical Pathology*, Ed. 3, Philadelphia, 1918, p. 180.

3. Berg, W. N., and Kelser, R. A.: *The Destruction of Tetanus Antitoxin by Chemical Agents*. *Proc. Nat. Acad. Sc.*, 1918, **4**, 174.

4. Ten Broeck: *Jour. Biol. Chem.*, 1914, **17**, 369.

The recent theory that is perhaps the most prominent has been thus summarized by Robertson:¹ Urobilin is a decomposition product of bile, formed chiefly in the intestine by the action of putrefactive bacteria on the bile pigments. The quantity of urobilin in the feces does not represent the total amount of bile excreted into the intestine, for part of the urobilin is reabsorbed in the form of urobilinogen. Yet there seems to be a fairly constant relationship between the two, and the urobilin output may be taken as a rough measure of bile excretion. Since the amount of bile formed is, with a normal liver, directly dependent on the quantity of blood pigment brought to it, the variations in urobilin excretion may therefore be considered to indicate corresponding fluctuations in the amount of blood being destroyed. Robertson observed, in his clinical studies at the Massachusetts General Hospital, that those patients in whom the evidence of blood destruction was most marked gave the highest urobilin estimations. There was no case with a normal urobilin output which showed any evidence of abnormal hemolytic activity. Accordingly it seemed fair to conclude, first, that the quantity of urobilin in the stool may be taken as an approximate measure of the degree of hemolysis occurring in the body; and secondly, that such estimation is of very definite clinical value in the diagnosis of conditions questionably hemolytic in character, particularly in anemias that are of uncertain type.

These conclusions were in harmony with the views of Wilbur and Addis² of Leland Stanford Junior University, who have devoted much attention to the clinical significance of urobilin. They even state that by means of urobilin estimations in the stools, those forms of anemia associated with an increased blood destruction may be differentiated. They intimate that it is probably in this field that the most valuable diagnostic results will be obtained; and they point out the striking contrast which was found between the very large total urobilin elimination in pernicious anemia as compared with the small amount observed in secondary anemias following hemorrhage or carcinoma.

At the Mayo Clinic, Giffin, Sanford and Szlapka³ have altered the technic by making observations on contents of the duodenum collected by means of an Einhorn tube rather than on stool extracts. As a result they report low values in secondary anemias, but high figures in cases of hemolytic jaundice and of pernicious anemia—the classic instances. The Rochester clinicians do not attempt any far reaching deductions, however, as to the interpretation of their findings.

What is to become of the enterogenous hypothesis of urobilin formation in the light of such clinical observations? Must it be abandoned? There is evidence that the urobilin substances may make their appearance in the urine independently of any presumable putrefactive origin in the bowel. Shall we then relate urobilin to some antecedent reaction associated with bile pigment formation, for example, to the failure of a proper bile pigment synthesis or to a disintegration of bilirubin in the liver or elsewhere? In this event it becomes necessary—if the original contentions of an interrelation between blood pigment destruction and urobilin formations are maintained—to postulate a direct relationship between hemoglobin and bile pigments. Such a hypothesis has found a serious obstacle in the researches of Whipple and Hooper⁴ of the Hooper Foundation at the University of California. Their conclusions, termed “iconoclastic” by one recent writer³ on urobilin, indicate that bile pigment production is influenced by dietary factors quite as well as by the blood factors. Thus, although the introduction of free hemoglobin into the circulation may be followed by an increased output of bile pigment, this is not an invariable and uniform response. In other words, the disintegration of blood pigment may not be the decisive factor in the production of bile pigments or their derivatives. It may turn out that urobilin is the expression of some impaired organ function as well as of blood destruction. Amid the uncertainty and confusion that have arisen, the clinician may well hesitate to take a decisive attitude toward the pigment problems.

SEED OILS AS NUTRIENTS

When we were warned, early in the war, that an impending shortage of fats—a deficit due to lack of tonnage and the extensive use of fats in the manufacture of munitions, as well as to decreased animal production—called for intelligent conservation of these foodstuffs, there was some uneasiness as to the outcome. It had early been heard as a prominent complaint against war time diets in Germany, in which the fats were said to be very low, that they do not “stay by” and consequently they put the consumer in the position of a dietetically unsatisfied individual. With a possible decrease in the procurability of butter, lard, suet and tallow impending, the vision of a perennially hungry public began to worry the food experts. But necessity is the mother of invention; consequently

1. Robertson, O. H.: Urobilin in the Stool—An Index to Blood Destruction, *Arch. Int. Med.*, June, 1915, p. 1072.

2. Wilbur, R. L., and Addis, Thomas: Urobilin: Its Clinical Significance, *Arch. Int. Med.*, February, 1914, p. 235. Addis, Thomas: A Working Hypothesis of Hemoglobin Pigment Metabolism, *ibid.*, March, 1915, p. 413.

3. Giffin, H. Z.; Sanford, A. H., and Szlapka, T. L.: The Estimation of Urobilin and Urobilinogen in the Duodenal Contents, *Am. Jour. Med. Sc.*, 1918, **155**, 562.

4. Hooper, C. W., and Whipple, G. H.: Bile Pigment Metabolism, I, Bile Pigment Output and Diet Studies, *Am. Jour. Physiol.*, 1916, **40**, 332. Whipple, G. H., and Hooper, C. W.: Bile Pigment Metabolism, II, Bile Pigment Output Influenced by Diet, *ibid.*, p. 349; III, Bile Pigment Output and Blood Feeding, *ibid.*, 1917, **42**, 256. Hooper, C. W., and Whipple, G. H.: Bile Pigment Metabolism, IV, Influence of Fresh Bile Feeding upon Whole Bile and Bile Pigment Secretion, *ibid.*, p. 264. Whipple, G. H., and Hooper, C. W.: Bile Pigment Metabolism, VI, Bile Pigment Output Influenced by the Eck Fistula, *ibid.*, p. 544.

new sources of fats have come to notice and hitherto little used fats have gained a novel prominence. There are many wholesome and relatively inexpensive vegetable oils on the market which might be used more freely than they now are. Moreover, the U. S. Food Administration¹ assures us that the production of vegetable oils can be more easily and quickly increased in an emergency than the production of the animal fats.

The physiologist insists on something more than attractive appearance and palatability as a guarantee of nutrient virtues in newly proposed foods. He insists nowadays on the rigorous test of digestibility, etc., which can be furnished only by actual feeding experiments. Hence the government, through the agency of its Office of Home Economics, has sought information of this sort regarding the edible fats. In addition to the edible animal fats, all of which are proverbially digested well when eaten in amounts not in excess of those consumed in the ordinary dietary, some of the better known vegetable fats, including olive, cottonseed, coconut, peanut and sesame oils, as well as those expressed from common nuts, have passed the test.² The latest contribution³ to the possibilities of fat for food vouches for the excellent utilization of corn oil, a refined by-product of the manufacture of corn starch, which has been used quite extensively in the preparation of lard substitutes and is now becoming quite a common household product; soy bean oil, long a fuel in the Orient and now giving promise of possible usefulness as a food; sunflower seed oil, which the American Indians were wont to use for food purposes and which the human subjects in the government tests consumed in excess of 90 gm. daily without objection; Japanese mustard-seed oil, a by-product of the manufacture of mustard for condimental purposes; rape-seed oil, already familiar to inhabitants of Europe and India; and even charlock oil, the product of a weed seed (wild mustard).

If we can accept substitutive cereals, why not substitutive fats? It must not be overlooked, of course, that some animal fats, notably milk fats, contain little known but very important substances — vitamins — without which the body cannot grow or recover from injury as it should. As these are not found in all vegetable oils, we must not fail to provide children and invalids with some animal fats, preferably perhaps from milk. The fact that some fats are solid and some oily does not affect their comparative wholesomeness. It merely gives us the problem of using them in new ways when once their physiologic availability has been suitably guaranteed.

Current Comment

OUR ANIMAL HERDS

The drought of this summer in parts of the Allied countries and in our own Southwest and in some Western states forces on the world's attention the great dependence of the human race on its animal herds. The war has led to such depletion in the animal stocks of European countries that they can be saved only from the outside and are looking particularly to us for help. We should remember that the little cans of condensed milk have become almost sacred symbols of our aid to hundreds of thousands of Belgian and French mothers. Since under war conditions the maternal nursing period is only from six weeks to three months, the continued development of all the peoples directly hit by the war depends on their dairy herds—now sadly depleted by slaughtering for food and by German thieving. The embargo on feed grains to neutral countries, such as Holland, has forced the slaughtering of hundreds of thousands of cows. It takes at least three years for any considerable herd increase in milch animals, so at the best the problem will be a most serious one. A scarcity of the world's food supply for the coming year brings out an interesting contrast to that of the years 1917-1918, since now the Allied countries' shortage, as well as our own, is in fodder and feed grains rather than in bread grains. The effect of this on our own country is hard to foresee.

THE EPIDEMIC OF INFLUENZA

The epidemic of influenza now sweeping over the country—a part of the pandemic now covering the world—reported in this country first from seaports and naval stations, and later from many cities, including at least twenty-five Army camps, with the craze for weird nomenclature accompanying war conditions, has been labeled "Spanish influenza." This, however, should not cause any greater importance to be attached to it, nor arouse any greater fear, than would influenza without the new name. This epidemic is of course modified as to its epidemiology by the fact that large numbers of the most healthful portion of our population have been segregated in military and naval camps. The condition presumably started in Spain and spread throughout the various armies. It has already practically disappeared from the Allied troops. A typical epidemic as it existed abroad is described in the paper by Hewlett and Alberty in this issue of *THE JOURNAL*; a typical epidemic at a naval station is described also in this issue by Lieutenant Keegan. It is needless and too early to discuss here the exact identity of the infectious agent. Few physicians will attempt to treat the condition with any special reference to its bacteriologic cause. The course of the disease is similar to the condition which has always been called influenza, except that it seems in some cases more severe, that it shows an extraordinary degree of contagiousness and that it is complicated or followed, in perhaps as many as 5 per cent. of cases,

1. *The Day's Food in War and Peace*, published by the U. S. Food Administration, Washington, 1918, p. 44.

2. Bull. 310, U. S. Dept. Agr., 1915; 507, 1917; 505, 1917; 630, 1918.

3. Holmes, A. D.: Digestibility of Some Seed Oils, Bull. 687, U. S. Dept. Agr., 1918.

by a massive and rather fatal bronchopneumonia. In its great prevalence it recalls the epizootic of earlier years. In the epidemic at Chelsea, Mass., this pneumonia was found to be caused by the influenza bacillus, which was recovered from 82.6 per cent. of the lungs at necropsy, and in 31.6 in pure culture, frequently mixed, however, with pneumococcus or streptococcus infections. This pneumonia was fatal in 33 $\frac{1}{3}$ per cent. of the persons attacked by it. Early reports of the epidemic at the Great Lakes Naval Training Station indicate a similar incidence of pneumonia and mortality. Medical authorities of the Army, the Navy and the Public Health Service are thoroughly alive to the condition, and are taking active measures to control it. These measures are based on our knowledge that the disease is transmitted from person to person by direct contact, or indirect contact through droplet infection, and that it is therefore to be controlled by isolation and prevention of the transmission of these discharges. Because of the tendency to the development of the secondary bronchopneumonia, patients should be treated in well-ventilated, warm rooms with special consideration for the possibility of this serious complication.

"UNCLE SAM, M.D."

Under this title Samuel Hopkins Adams writes in *Collier's* for September 21. It is an article that every physician should read. Mr. Adams says: "The vast and complex job of making over our peace doctors into war doctors is the nearest thing to 100 per cent. achievement that the government has yet performed in this war"; and his article tells the story of this job and the way it is being done. Mr. Adams is not writing from hearsay; he went to one of the medical officers' training camps, and in order to go through the routine, as he puts it, "became part and parcel of a decidedly active, not to say overcrowded life." The company to which he was assigned was the "crack company of the best battalion"; the company said so! Mr. Adams thus sums up his impressions of the camp: "If I had to select the one quality which chiefly characterizes doc in uniform, I think I should name gameness. Fuse with his determination and enthusiasm a certain healthy humility, born of the necessity of learning things from the bottom up, a prevailing readiness to help the man a little newer than oneself, and a complete sense of democracy, and you get an esprit de corps such as one would not believe possible in an organization so new and so constantly renewing."

THE MILK PROBLEM

The most insoluble of all food problems are those associated with dairying. Local conditions are widely at variance as to the expense of production and the increase in milk production. Advances in the price of milk strike at our children's welfare and encounter greater opposition than advances in the price of any other commodity. The successful efforts of health officers and of physicians to improve the quality and

increase the safety of milk have necessarily raised the cost. Dependable milk and butter are absolutely vital to child welfare. With the short supply of fodder in many places, the cutting off of brewers' grains, the shortage of labor and the many difficulties surrounding milk distribution, public interest in maintaining the dairy herds must be kept up. Only by so doing can we care for the present emergency and keep intact the large herd needed for the replenishment of Europe. The medical profession has for years been in the forefront in the protection of the public on the milk question, and its influence must be felt even more now in every community, in order that we may be able to have a wide margin of safety in the size of our animal herd. A sympathetic survey of the question with wide dissemination of the facts so obtained would be a worthy service that far-seeing citizens can render in every community.

ADVERTISING

This, from the opening paragraph of a heart-to-heart letter of Swoboda—the gentleman who will "guarantee to give you perpetual youth"—to a prospective sucker:

You would never forgive me, and I could never forgive myself, nor could the creative forces of the Universe forgive us, if I failed to bring you to the point of evolutionizing, consciously, progressively, and intensively.

As an advertising blurb, this ranks high. Although possibly the fourth paragraph from the same letter is almost as good:

Through Conscious Evolution, I convert weakness into strength, illness into health, fear into confidence, timidity into courage, worry into optimism, a negative personality into a positive personality, and old age into youth.

And the production of super-men no longer is to be confined to the Central Empires, for:

Conscious Evolution has made possible for everyone the possession of super-health, super-vitality, super-courage, super-aggressiveness, super-mental power, and super every power.

And this is the sort of stuff which staid and respectable publications are willing to advertise, and even, if necessary, editorially defend. Evolution, we are told, has taken a million years to make a man out of a monkey; modern advertising reverses the process in a day.

Dental Dressers.—To provide for continued and systematic dental attention to schoolchildren without prohibitory expense to the rate payers, officials in the Derbyshire district of England, according to the *Medical Officer*, Aug. 10, 1918, at the suggestion of the dental officer of the schools, put into practice the training of dental dressers, young women, who, after six months or a year of training were found competent as dental hygienists and were able to detect irregularities of the teeth, detect caries by probe and mirror, chart defects correctly, do simple dressings, select septic temporary teeth for extraction, scale well, drill and excavate caries and make fillings where the pulp cavity was not reached, and extract temporary teeth. The 80,000 schoolchildren of the district would have necessitated the employment of ten full time dentists at an expense of 10,000 pounds, while by the expedient of employing dental dressers the number of full time dentists was reduced to three, each having under him three trained dental dressers at a total expense of 3,000 pounds.

Medical Mobilization and the War

Rank of Medical Aides to Governors

As a recognition of the importance of their work, medical aides to governors have been given the rank of captain in all states having a population of less than a million and a half, and of major in states having a larger population than a million and a half.

Red Cross Offers Mourning Emblems

The War Council of the American Red Cross announces that that organization will provide mourning brassards free to the parents or widows of men who have died in the service, and will furnish the same at cost to other members of the family. The brassard is to be worn on the left sleeve, midway between the elbow and shoulder, is a band of black broadcloth or other material, 3 inches wide, on the surface of which the regulation military star is embroidered in gold thread.

Military Pathologic Museum

Major C. J. Herrick, M. C., has been detailed to the Army Medical Museum for the duty of receiving and disposing of pathologic specimens forwarded to the museum from military centers at home and abroad. Interesting specimens from civil life will be received also. Major Herrick will see to the preparation and preservation of these specimens and will determine what disposition will be made of them; some will be kept as permanent exhibits for the museum; others will be distributed for instruction purposes; and others, including duplicates, will no doubt be sent to swell similar collections elsewhere.

Medical Students and the Draft

The Provost Marshal-General has addressed the following telegram to the draft executives of all states:

"It has been brought to the attention of this office that many Local Boards are calling registrants for induction who had enlisted in the Enlisted Reserve Corps of the Medical Department under Section 151, Old Regulations, on mistaken assumption that under telegram Number B 2546 such enlistment held the registrant in Class V only until September 16.

"Registrants who enlisted in the Enlisted Reserve Corps of the Medical Department as aforesaid should be held in Class V and should not be confounded with registrants who enlisted for special training in camps and schools for a limited period expiring September 16, referred to in Telegram B 2546. Please communicate contents of this telegram to all Local Boards.

CROWDER."

Red Cross Mission to Italy

The Italian Tuberculosis Unit of the American Red Cross, under the supervision of Col. Robert Perkins, Red Cross commissioner of Italy, will sail in a short time to conduct a health campaign with the particular objective of stamping out tuberculosis. The director of the unit is Dr. William Charles White of Pittsburgh, and associated with him are Dr. John H. Lowman, Cleveland, chief of the medical division; Louis I. Dublin, New York City, chief of the division of medical statistics; Dr. Richard A. Bolt, Cleveland, of the child welfare division; Dr. Erwin A. Peterson, Cleveland, chief of the division of medical inspection of public schools; Dr. Robert G. Paterson, Columbus, Ohio, chief of the division of education and organization; Miss Mary S. Gardner, chief of the division of public health nursing, and Lewis D. Dement, Framingham, Mass., executive manager.

Medical History of the War

Further steps toward writing the medical history of this war are being taken by the training of men to illustrate pictorially the medical and surgical pathology which will come under observation in the camps and hospitals both at home and overseas. A section of a dozen or more enlisted men under the command of a commissioned officer are on duty at the Army Medical Museum for special training in this branch of art. Among other features of the training is a thorough course in anatomy. Dr. D. S. Lamb, the veteran anatomist of the museum, has been engaged in teaching these men by didactic lectures and by demonstration of the wealth of

material in the museum. Dr. W. F. R. Phillips, dean and professor of anatomy of the Medical College of South Carolina, has about completed a course in practical anatomy, guiding the men through the complete dissection of cadavers. Dr. Phillips is now about to leave for Charleston, S. C., to take up his duties at the medical school there.

Commissions Offered and Orders to Active Duty

Successful applicants for commission in the Medical Corps of the Army receive a letter from the Surgeon-General's Office informing them that they have been recommended for a commission; they are also notified that commissions are now awarded with orders to active duty immediately on acceptance. In due time—it may be a week, or three or four weeks—the applicant receives a telegram from the Adjutant-General's Office informing him that he has been awarded a commission; and ordering him to active duty at a definite post within ten days *after date of acceptance*. The acceptance is to be telegraphed to the Adjutant-General's Office and the action taken telegraphed to the Surgeon-General's Office. In some instances the brief time allotted works hardship on physicians whose affairs could not be adequately closed up in this time. It is advisable for the physician, on receipt of the letter from the Surgeon-General's Office, to begin to arrange his affairs, but not to close up anything finally. If, on receipt of the telegram from the Adjutant-General's Office, the officer finds that he requires more than the ten days of grace before departure, he should delay sending his telegram of acceptance to the Adjutant-General, but only so long as is absolutely necessary.

Information for Disqualified Draft Registrants

On the recommendation of the Surgeon-General of the Public Health Service, the Provost Marshal-General of the United States Army has arranged to distribute through the local draft boards, a circular of instructions prepared by the Public Health Service called "Information for Guidance and Assistance of Registrants Disqualified for Active Military Service Because of Physical Disabilities." In the instructions accompanying this document, the Surgeon-General points out that in the first draft about one third of the men examined were rejected for physical disability and there will doubtless be many among those examined in the new draft. The object of the circular is to give to the rejected men definite instructions as to the meaning of their disabilities and to appeal to them to correct the disability as far as possible. This will not only serve to reclaim many men for military service, but will lessen the burden of illness and disability among those engaged in essential industrial work. The circular contains specific information concerning the commoner causes of rejection or deferred classification such as defective eye sight, teeth, feet, underweight, overweight, hernia, etc. It is said that experience has shown that the proportion of persons with physical impairment is greater in persons between 30 and 40 than those between 20 and 30. This means, probably, that more disability will be found among those called by the new draft. Each registrant rejected will be given one of these circulars and in addition arrangements have been made by which specimens of the circular will be furnished to life insurance companies, fraternal organizations, labor unions, employers of labor and others who desire to reprint and make use of the circular. Requests for specimen copies should be made of the United States Public Health Service, Washington, D. C.

Promotions of Medical Officers Abroad

For some time considerable dissatisfaction existed among medical officers on duty in France because of the slowness of promotion, especially as compared with the rate of promotion of medical officers still in the United States. However, it has recently been announced that efforts are being made to accelerate promotion of reserve officers in France. July 29, recommendations were sent for the promotion of ninety-eight officers serving with the British Expeditionary Forces, and July 30, fifty-eight other officers were recommended for promotion. The *Stars and Stripes* for August 16 states that the policy governing the Medical Reserve Corps promotions recognizes that several factors should be considered in determining the rank of physicians coming into the Army in time of war: (1) age and length of professional experience; (2) length of active service, and (3) character of active service, taking into consideration whether or not it has been

distinguished by unusual self-denial, gallantry, efficiency or hardships. Commanding officers and senior medical officers have been requested to accumulate data for determining these factors in the case of medical officers in line for promotion. It is understood, however, that officers under 31 years of age are not to be promoted except in special cases in which they have rendered unusual distinguished service and have been more than a year on active duty. All officers of the Medical Corps in Europe are to be placed on a roster according to age in each grade. The officer's age is to be determined by taking his actual age and adding four months for each month of service; thus, all lieutenants whose actual age is above 31 and who have completed one year's service will be eligible for recommendation to be promoted to captain. Taking the number of first lieutenants as a basis, the number of officers in the grades of captain and major are to be one lieutenant to 3.9 captains, to 1.7 major. It is understood also that the present recommendations for promotions to majorities shall concern only officers above the age of 40, and for promotion to captaincies only those lieutenants above the age of 35, except in special instances.

CORRECTION

The "Honor Roll" published in THE JOURNAL of June 1, 1918, should have contained the name of Lieut. H. L. HOLZBERG, M. C., U. S. Navy, attached to the Naval Training Station, San Francisco.

COMMISSIONS ACCEPTED, MEDICAL CORPS, U. S. ARMY

Previous lists published in THE JOURNAL, June 1, 22, and 29, July 13, 20 and 27, August 3, 10, 24 and 31, September 7, 14 and 21.

ARKANSAS

McGeheel—DeClark, W. H.

CALIFORNIA

Modesto—Clark, I. J.
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To Chillicothe, Ohio, to examine the command for nervous and mental diseases, Lieut. R. F. DOWELL, Elgin.

To Louisville, Ky., Lieuts. J. LEVETT, E. W. LYONS, Chicago; H. B. MARTIN, Grayville; F. P. COWDIN, Springfield.

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To Walter Reed General Hospital, D. C., Capt. S. KEY, Washington.

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To Fort Riley, Lieut. J. L. MAGILL, Holdredge.

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To Camp Jackson, S. C., base hospital, Major R. H. McCONNELL, New York.
To Camp Upton, N. Y., Lieuts. H. P. FOEHRENBACH, Brooklyn; C. T. FOWLER, Dexter; E. M. DINGS, Sacket Harbor.
To Fort Oglethorpe for instruction, Capt. R. L. SULLIVAN, Baldwinsville; C. B. M. DUGAN, Beacon; S. C. HOLLIS, Belleville; B. G. BALCKMAR, G. J. DOYLE, Brooklyn; G. R. CRITCHLOW, J. A. MACLEOD, Buffalo; T. D. BUCHANAN, J. S. K. HALL, E. W. HOLLADAY, H. E. MEEKER, A. A. MOORE, P. PRIOLEAU, New York; G. B. VAN DOREN, Watertown; J. S. PARKER, White Plains; J. P. TROTTER, Yonkers; Lieuts. W. A. BEHAN, Binghamton; L. L. COHAN, R. P. MORRISON, Brooklyn; J. G. KRAUSS, Elmhurst; J. A. G. MAC PHAIL, Katonah; M. H. BARSKY, J. BONDY, A. C. FREEMAN, F. C. KEIL, A. V. ROCKWELL, New York; T. F. MANLEY, H. W. McNITT, Norwich; C. F. POTTER, Syracuse.
To Hoboken, N. J., Capt. C. M. FIERO, Leicester; D. E. FRASER, Lyndonville; C. SUMNER, Rochester; Lieuts. R. M. HALL, Broadalbin; G. MANULKIN, Brooklyn.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. H. A. CRAIG, Staten Island; Lieut. L. B. SISSON, Auburn.
To Plattsburg Barracks, N. Y., Major J. R. HUNT, New York.

To report to the commanding general, Eastern Department, Capt. W. H. McGRAW, Cortland.
To Rockefeller Institute for instruction in laboratory work, Capt. O. T. AVERY, New York.

North Carolina

To Camp Wadsworth, S. C., Capt. J. E. KERR, Lilesville.
To Fort Oglethorpe for instruction, Lieut. J. L. ADAMS, Asheville.
To report to the governor of North Carolina, as medical aide, Capt. A. W. KNOX, Raleigh.

North Dakota

To Fort Oglethorpe for instruction, Capt. W. B. WANNER, Wimbeldon.
To Fort Riley for instruction, Capt. G. A. SARCHET, New England; Lieut. J. SIMON, Kintyre.

Ohio

To Camp Custer, Mich., Lieuts. F. M. OXLEY, Cincinnati; A. T. CARTER, Cleveland; F. E. GINDER, Darbyville; W. D. GREGG, Dayton; R. A. H. KNISELY, Toledo; P. E. DECATUR, Washington Court House.
To Camp Holabird, Md., Lieut. Z. H. BALLMER, Toledo.
To Camp Leach, D. C., Capt. P. J. HANZLIK, Cleveland.
To Camp Lee, Va., Lieut. J. D. HARTZELL, North Star.
To Camp Shelby, Miss., base hospital, Lieut. W. J. SCOTT, Cleveland.
To Camp Zachary Taylor, Ky., Capt. E. H. KNOWLTON, Mantua; Lieuts. F. B. KALOR, Bellefontaine; C. G. GOLL, Stryker.
To Fort Oglethorpe for instruction, Capt. W. N. SHARP, Cleveland; M. H. CARMEDY, Painesville; G. W. WILLIARD, Tiffin; I. H. HAMMER, L. F. SMEAD, Toledo; W. E. RANZ, Youngstown; Lieuts. F. C. BISSELL, E. B. MALLOY, Akron; C. I. STEPHEN, Ansonia; H. N. LEEDS, W. A. TEVELUME, Cincinnati; J. R. MONIHAN, Cleveland; C. D. SIDLE, Convoy; M. H. BOWERS, Perrysburg; G. F. BAINTER, Strasberg; R. L. BIDWELL, R. E. SINEK, Toledo.
To Fort Wayne, Mich., Capt. C. O. BEARDSLEY, Ottawa; Lieuts. L. C. NEISWANDER, Ada; H. L. MECKSTROTH, Dayton; W. H. BENNER, Tiffin; F. A. COBB, Toledo.
To Louisville, Ky., Lieut. A. M. CURL, Quincy.
To New York, Neurological Institute, Lieut. J. R. Davis, Toledo.

Oklahoma

To Camp MacArthur, Texas, Capt. H. A. LILE, Cherokee; Lieut. I. C. MORRIS, Cushing.
To Fort Oglethorpe for instruction, Capt. J. H. SCOTT, Shawnee; W. W. WOODY, Tulsa.
To Fort Riley, Capt. J. S. VITTUM, Muskogee; Lieut. H. E. HUSTON, Aline.

Oregon

To Fort Riley for instruction, Capt. J. D. STERNBERG, Portland; Lieut. G. S. NEWSOM, Athena.
To Palo Alto, Calif., Capt. H. I. KEENEY, Portland; Lieut. E. J. CROWTHERS, Austin.

Pennsylvania

To Camp A. A. Humphreys, Va., Lieut. D. W. LEWIS, Philadelphia.
To Camp Colt, Pa., Lieut. C. M. KERWIN, Northwales.
To Camp Dix, N. J., Lieuts. A. V. PERSING, Allenwood; L. H. HENDRIXSON, New Holland.
To Camp Leach, D. C., Lieut. A. A. COLLINS, Oxford.
To Camp Upton, N. Y., Lieuts. C. B. DENNY, Oakdale; R. C. PARRISH, Philadelphia; W. W. McFARLAND, Pittsburgh; R. W. LENKER, West Leesport.
To Fort Oglethorpe for instruction, Capt. W. A. JONES, Hays; W. T. ELLIS, C. S. WILLIAMS, Philadelphia; M. M. DENLINGER, Rohrerstown; Lieuts. W. B. SHEPARD, Bellevue; J. M. LEONARD, Blairsville; M. J. McCALLUM, Erie; A. SILVERMAN, Philadelphia; J. W. FISHER, A. H. JAHN, W. H. RODGERS, H. L. SHAFFER, Pittsburgh.
To Hoboken, N. J., Lieut. J. P. MAYER, Philadelphia.
To Lakehurst, N. J., Lieut. P. N. WENTZ, York.
To New Haven, Conn., Lieut. L. G. FLANNERY, Philadelphia.
To Wrightstown, N. J., Capt. W. McKEAGE, Philadelphia.

South Carolina

To Camp Jackson, S. C., Lieuts. R. ACKERMAN, Walterboro; J. J. GLENN, Yorkville.
To Camp Wadsworth, S. C., Lieut. W. A. BROWN, Georgetown.
To New Haven, Conn., Major D. M. JAMES, York.
The following order has been revoked: *To Camp Shelby, Miss.*, base hospital, Lieut. V. W. BRATHAM, Orangeburg.

South Dakota

To Fort Oglethorpe for instruction, Capt. W. D. FARRELL, Aberdeen.

Tennessee

To Camp McClellan, Ala., Lieuts. J. JACKSON, Dyer; W. M. HARDY, Nashville.
To Camp Sevier, S. C., Lieut. W. L. MEDLING, Dyer.
To Camp Pike, Ark., base hospital, Lieut. W. B. Sharp, Nashville.
To Fort Oglethorpe for instruction, Capt. J. H. McCLURE, Nashville.

Texas

To Camp Cody, N. M., Lieut. G. L. MONTGOMERY, Aquilla.
To Camp Logan, Texas, Lieuts. J. P. HARRIS, Midlothian; R. R. MAY, Whitewright.
To Camp MacArthur, Texas, Capt. M. C. HAGLER, New Braunfels; Lieut. J. H. TRAYLOR, Cuere.
To Fort Oglethorpe for instruction, Lieut. W. WALKER, Fort Worth.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. G. TURNER, Iredell.

Utah

To Fort Riley for instruction, Lieuts. H. W. NELSON, Ogden; J. M. THORUP, Salt Lake City.

Vermont

To Camp Meade, Md., Lieut. R. J. GOSS, Wilder.
To Montpelier, Vt., as medical aide to the governor of Vermont, Capt. J. H. WOODRUFF, Barre.

Virginia

To Camp A. A. Humphreys, Va., Lieut. P. C. HUNDLEY, Pembroke.
To Camp Dix, N. J., Lieut. E. A. HOLMES, Bradford.
To Camp Meade, Md., Capt. W. L. MCGILL, Petersburg; Lieut. S. G. Gill, Hopewell.
To Camp Zachary Taylor, Ky., Lieut. G. B. MARTIN, Richmond.
To Fort Oglethorpe for instruction, Capt. M. J. PAYNE, Staunton; Lieut. H. W. PATTON, Hemp.
To Hoboken, N. J., Capt. T. E. RUCKER, Lynchburg; Lieut. R. R. GOAD, Dug Spur.
To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. G. A. L. KOLMER, Salem.
To Washington, D. C., Major C. C. COLEMAN, Richmond.
To Wrightstown, N. J., Capt. G. H. THOMAS, Staunton.

Washington

To Camp Fremont, Calif., Lieuts. C. A. LEWIS, Fairfield; S. J. ROWLAND, Toppenish; A. E. McDOWELL, West Seattle.
To Camp Lewis, Wash., base hospital, Capt. E. L. REGER, Spokane.
To Fort Riley for instruction, Lieuts. R. R. KERKOW, Valley; H. H. SKINNER, North Yakima.
To San Francisco, Calif., Lieut. D. B. HARVISON, Palouse. Letterman General Hospital, Capt. J. T. WHITTY, Seattle.

West Virginia

To Camp A. A. Humphreys, Va., Lieut. J. E. WOMACK, Summit Point.
To Camp Greene, N. C., Lieut. J. U. KIMBLE, Newburg.
To Fort Oglethorpe for instruction, Capt. T. J. MCGUIRE, Parkersburg.
To Fort Riley for instruction, Lieut. W. H. YOUNG, Sistersville.

Wisconsin

To Camp Custer, Mich., Capt. W. G. LAW, Clidden; Lieuts. G. E. ARMSTRONG, New London; R. K. LOHMILLER, Superior; L. H. A. NOWACK, Watertown.
To Camp Grant, Ill., Lieuts. H. C. WIGER, Dallas; W. J. McLAUGHLIN, Stockbridge.
To Fort Oglethorpe for instruction, Lieut. A. M. FOSTER, Kaukauna.
To Fort Riley for instruction, Capt. C. F. MYRE, Chippewa Falls; Lieut. W. C. REINEKING, Markesan.

Wyoming

To Fort Riley for instruction, Lieuts. L. E. KINDALL, Kemmerer; W. LOWE, Sunrise.

ORDERS TO OFFICERS OF THE MEDICAL CORPS, U. S. ARMY

Alabama

To Camp Joseph E. Johnston, Fla., Lieut. R. C. McQUIDDY, Birmingham.
To Camp Lee, Va., Lieuts. J. W. SIMPSON, Athens; W. N. McCLURKIN, Camden.
To Camp Sevier, S. C., from duty as an enlisted man, Lieut. T. D. COWLES, Mobile.
To Camp Shelby, Miss., evacuation hospital, from Camp Logan, Lieut. J. H. HAYS, Bessemer.
To Camp Sherman, Ohio, from Hoboken, Major W. H. OATES, Mobile.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. R. M. KIMBROUGH, Thomasville.
To Fort Oglethorpe for instruction, Lieut. T. W. JONES, Camden.
To Fort Wayne, Mich., from Americus, Ga., Capt. A. P. WEBB, Atmore.
The following order has been revoked: To Camp Sheridan, Ala., Lieut. O. E. WILSON, Birmingham.

Arizona

To Camp A. A. Humphreys, Va., from Hot Springs, N. C., Lieut. W. N. McDUFFIE, San Carlos.

Arkansas

To Camp Lee, Va., as orthopedic surgeon, from Army Medical School, Lieut. E. B. BUCHANAN, Texarkana.
To Camp MacArthur, Texas, base hospital, Capt. A. G. THIOLLIERE, Varner.
To Camp Zachary Taylor, Ky., base hospital, from Jefferson Barracks, Lieut. N. MUMEY, Little Rock.
To Fort Riley for instruction, Lieut. J. F. BELL, Rison.
To Fort Screven, Ga., from Southeastern Department, Lieut. E. S. BAKER, Paragould.
To Washington, D. C., Surgeon-General's Office, from Camp Pike, Col. J. T. CLARKE.

California

To Camp Beauregard, La., evacuation hospital, from Camp Fremont, Capt. B. F. MILLER, Whittier; from Camp Logan, Major H. W. HORN, San Francisco.
To Camp Dix, N. J., from Lakewood, Capt. F. M. HILLYER, San Francisco.
To Camp Dodge, Iowa, evacuation hospital, from Camp Cody, Lieut. J. N. CHAIN, Eureka; from Fort McDowell, Lieut. E. W. MEYER, Patton.
To Camp Fremont, Calif., Lieut. A. M. THOMSON, Sonoma.
To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. J. R. SHEA, Los Angeles; from the Surgeon-General's Office, Capt. A. M. MEADS, Berkeley.
To Camp Kearney, Calif., base hospital, Capt. J. S. TREWHELLA, Montebello.
To Camp Lewis, Wash., base hospital, from Camp Fremont, Lieut. O. M. HARRAH, LaManda Park.
To Camp Shelby, Miss., evacuation hospital, from Camp Kearney, Capt. T. E. TILLMAN, San Francisco; Lieuts. P. N. SIMS, Calexico; E. H. HALL, Los Angeles; J. H. BREYER, Pasadena; J. S. COCHRAN, San Diego; W. T. McNEIL, Stockton.

To Camp Wadsworth, S. C., from Western Department, Lieut. M. B. FRACTMAN, San Francisco.
To Fort Sill, Okla., base hospital, from Camp Sheridan, Lieut. R. A. CARTER, Los Angeles.
To Leon Springs, Texas, from Camp Cody, Lieut. S. M. ATKINS, San Jose.
To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. C. E. HOLGATE, Los Angeles.
To Morrison, Va., from Lee Hall, Va., Lieut. W. B. THOMPSON, San Francisco.
To report to the commanding general, Western Department, from San Francisco, Lieut. E. R. COX, Los Angeles; from Vancouver Barracks, Major E. I. SWIFT, Fort McDowell.
To San Francisco, Calif., for observation and treatment, from Los Angeles, Lieut.-Col. W. E. PURVIANCE, Los Angeles. Letterman General Hospital, from Western Department, Lieut. J. I. BOYER, Los Angeles.

Canal Zone

To San Francisco, Calif., from Panama Canal Department, Col. W. H. WILSON.

Colorado

To Camp Greene, N. C., base hospital, Lieut. E. A. CORBIN, Denver.
To Camp Kearney, Calif., base hospital, Capt. J. R. ARNEILL, Denver.
To Camp MacArthur, Texas, from Nogales, Ariz., Capt. R. L. DRINKWATER, Denver.
To Camp McClellan, Ala., base hospital, from Fort Oglethorpe, Capt. H. W. WILCOX, Denver. Evacuation hospital, from Camp Travis, Lieut. J. D. DAVIES, Alamosa.
To Camp Pike, Ark., base hospital, from Fort Oglethorpe, Capt. T. L. A. SHAFFER, Salida.
To Camp Sherman, Ohio, evacuation hospital, from Camp Custer, Major J. C. EPLER, Pueblo.
To Camp Travis, Texas, as orthopedic surgeon from Fort Oglethorpe, Capt. GILLASPIE, Boulder.
To Camp Wheeler, Ga., evacuation hospital, from New Haven, Lieut.-Col. A. M. FORSTER, Colorado Springs.
To Denver, Colo., Capt. L. W. BORTREE, Colorado Springs; E. W. COLLINS, Denver.
To Fort Oglethorpe for instruction, Lieut. W. H. L. LEWIS, Hotchkiss.
To Fort Riley for instruction, Lieut. R. L. GLEASON, Wellington.

Connecticut

To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Lieut. J. A. HARTEN, New Haven.
To Camp Jackson, S. C., base hospital, from Camp Sherman, Lieut.-Col. L. I. MASON, Willimantic.
To Fort Riley, base hospital, from Fort Oglethorpe, Lieut. J. H. BIRAM, Hartford.
To New Haven, Conn., Lieut. H. W. BRAYTON, Hartford.
To Waco, Texas, Rich Field, from Mineola, Lieut. J. D. RUSSO, New Haven.
To Whipple Barracks, Ariz., from New Haven, Capt. F. J. RONAYNE, Hartford.

District of Columbia

To Camp Custer, Mich., as orthopedic surgeon, from Camp Devens, Capt. H. L. SCHURMEIER, Washington.
To Camp Dodge, Iowa, evacuation hospital, from Walter Reed General Hospital, Capt. W. H. HUNTINGTON, Washington.
To Camp Gordon, Ga., as camp surgeon, from Central Department, Col. F. T. WOODBURY.
To Camp McClellan, Ala., from Fort Oglethorpe, Lieut. M. J. HERSCHMAN, Washington. Evacuation hospital, from Fort McPherson, Major J. F. MITCHELL, Washington.
To Camp Meade, Md., evacuation hospital, from the Surgeon-General's Office, Lieut.-Col. E. KING.
To Camp Sevier, S. C., from Camp Jackson, Major F. LEECH, Washington.
To Washington, D. C., St. Elizabeth's hospital, from Camp Devens, Capt. L. M. WHITE, Washington.
To Williamsbridge, N. Y., from Camp Jackson, Capt. H. L. HAYES, Washington.

Florida

To Atlanta, Ga., Capt. J. F. WILSON, JR., Lakeland.
To Camp Lee, Va., base hospital, from Fort McHenry, Capt. A. N. FREEMAN, Starke.
To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. O. G. KENDRICK, Tallahassee.
To Camp Sheridan, Ala., from Panama Canal Department, Capt. M. E. HECK, St. Augustine.
To Fort Barrancas, Fla., from Camp Joseph E. Johnston, Capt. S. R. M. KENNEDY, Pensacola.
To Lakewood, N. J., Lieut. A. J. WOOD, St. Petersburg.

Georgia

To Camp Beauregard, La., base hospital, from Camp Logan, Lieut. H. M. McGEHEE, Atlanta.
To Camp Dodge, Iowa, evacuation hospital, from New York, Capt. B. S. MOORE, Atlanta.
To Camp Gordon, Ga., base hospital, Capt. W. E. QUILLIAN, Atlanta; Lieut. T. G. RITCH, Odum.
To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Lieut. H. W. SHAW, Augusta.
To Camp Joseph E. Johnston, Fla., Lieut. G. G. WILLIFORD, Lenox.
To Camp Kelly, Texas, from Buffalo, Lieut. J. H. HERNDON, Atlanta.
To Camp Lee, Va., base hospital, from Fort Oglethorpe, Capt. R. M. WARE, Fitzgerald.
To Camp Shelby, Miss., evacuation hospital, from Fort Logan H. Roots, Lieut. B. H. MINCHEW, Waycross.
To Camp Wadsworth, S. C., evacuation hospital, from Fort Oglethorpe, Capt. E. D. HIGHSMITH, Atlanta.
To Camp Wheeler, Ga., Lieut. H. E. HAMMETT, LaGrange.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. F. P. NORMAN, Greenville.
To Cape May, N. J., Capt. D. E. FREDERICK, Marshallville.
To Fairfield, Ohio, Wilbur Wright Field, from Lonoke, Ark., Capt. C. R. RINER, Summit.

To Fort Benjamin Harrison, base hospital, from Army Medical School, Lieut. E. R. ANTHONY, Jr., Griffin.

To Fort Oglethorpe, from Camp Wheeler, Capt. T. H. STEWART, Atlanta. Base hospital, from Camp Joseph E. Johnston, Lieut. P. H. CHRISTIAN, Columbus. For instruction, Capt. I. H. ADAMS, Macon; Lieut. W. H. HENDRICKS, Tifton.

To Fort Wayne, Mich., from Lake Charles, La., Capt. J. M. SPENCE, Camilla.

To Lakewood, N. J., Capt. A. J. WARING, Savannah.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Lieut. G. C. McKENZIE, Ashburn.

To St. Paul, Minn., Dunwoody Institute, from Columbus, Lieut. E. S. COLVIN, Atlanta.

Idaho

To Biltmore, N. C., for observation and treatment, from Waynesville, N. C., Lieut. C. WRIGHT, Fruitland.

To Camp MacArthur, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. R. YOUNG, Pocatello.

To Cooperstown, N. Y., from Mineola, Major F. H. POOLE, Pocatello.

To Fort Oglethorpe for instruction, Lieut. G. H. KENNET, Kellogg.

Illinois

To Camp Abraham Enstis, base hospital, from Fort Oglethorpe, Lieut. S. M. ROBERTS, Chicago.

To Camp Beauregard, La., base hospital, from Camp Sheridan, Lieut. A. THOMPSON, Chicago.

To Camp Cody, N. M., as tuberculosis examiner, from Camp Sheridan, Capt. E. S. GILLESPIE, Wenona.

To Camp Custer, Mich., as tuberculosis examiner, from Camp Greene, Lieut. A. S. CAMPBELL, Oak Forest. Base hospital, Lieut. J. T. MEYER, Chicago.

To Camp Devens, Mass., as orthopedic surgeons, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. W. F. McNARY, East St. Louis; J. J. BACON, Peoria. Base hospital, from Fort Oglethorpe, Lieut. G. L. McKINNEY, East Alton.

To Camp Dodge, Iowa, evacuation hospital, from Camp Pike, Lieut. J. D. McCULLOUGH, Jr., Aurora.

To Camp Fremont, Calif., from Camp Lewis, Lieut. F. J. SCHICK, Chicago.

To Camp Gordon, Ga., Lieut. F. H. YATES, St. Peter. Base hospital, Lieut. A. E. HUBBARD, Peoria; from Camp McClellan, Lieut. A. H. CARTER, Chicago; J. A. DE FREITAS, Springfield; from Camp Shelby, Lieut. M. S. HARMON, Chicago; from Camp Zachary Taylor, Lieut. T. V. DAGNAULT, Chicago.

To Camp Grant, Ill., Capt. H. T. MORRISON, Springfield.

To Camp Logan, Texas, base hospital, Lieut. O. W. SIMPSON, Peoria.

To Camp Meade, Md., from Fort Oglethorpe, Capt. T. C. HAYS, Canton.

To Camp Shelby, Miss., as orthopedic surgeon, from Fort Oglethorpe, Lieut. Y. JORDANSON, Chicago.

To Camp Sheridan, Ala., as orthopedic surgeon, from Fort Oglethorpe, Lieut. M. F. McGUIRE, Chicago.

To Camp Sherman, Ohio, from Camp Dodge, Lieut. J. HIGGINSON, Chicago; from Hoboken, Major J. F. PRESNELL, Chicago. Base hospital, from Central Department, Major J. R. McKNIGHT, Chicago. Evacuation hospital, from Camp Zachary Taylor, Capt. L. L. FRISQUE, Chicago; from New York, Lieut. F. M. SYLVESTER, Oak Park.

To Camp Upton, N. Y., from Buffalo, Lieut. A. T. WEBER, Chicago.

To Camp Wadsworth, S. C., as orthopedic surgeon, from Camp Grant, Lieut. M. J. KOSTRZEWSKI, Chicago. Evacuation hospital, from Camp Sevier, Capt. M. A. GIER, Chicago.

To Camp Wheeler, Ga., from Fort Riley, Capt. T. C. COGGSHALL, Henry; Lieut. W. P. CANNON, Kankakee. Evacuation hospital, from Camp MacArthur, Lieut. G. J. TORELL, Chicago; from Camp Upton, Capt. P. OLIVER, Chicago.

To Cape May, N. J., from New York, Capt. C. J. DAVIS, Deerfield. To Chicago, Ill., as instructor in orthopedic surgery, from Fort Oglethorpe, Major J. RIDLON, Chicago.

To Fort Benjamin Harrison, from Fort Oglethorpe, Lieut. C. S. POWELL, Chicago; from Fort Riley, Major J. H. HESS, Chicago; from Jefferson Barracks, Lieut. E. H. DUFOUR, Chicago. Base hospital, from Fort Riley, Lieut. R. R. McCARTHY, Chicago.

To Fort Leavenworth, Kan., from Fort Riley, Capt. G. H. COTTRAL, Savanna.

To Fort Riley, Lieut. E. C. ROOS, Oak Park. Base hospital, from Camp Devens, Lieut. M. J. LATIMER, Chicago. For instruction, Lieut. H. L. PETTITT, Morrison; F. D. HUBER, Pleasant Plains.

To Fort Snelling, Minn., base hospital, from Camp Grant, Lieut. W. J. RILEY, Chicago.

To Garden City, N. Y., Lieut. C. H. VEROVITZ, Chicago.

To Jefferson Barracks, Mo., base hospital, from Fort Riley, Capt. E. Z. LEVITIN, Peoria.

To Lakewood, N. J., Lieut. E. S. MELOY, Highland. To Leon Springs, Texas, from Camp Cody, Lieut. W. H. ACKER, Chicago.

To Mineola, N. Y., Hazelhurst Field, for instruction, Lieut. S. M. MERWITZ, Chicago; from Lake Charles, La., Capt. F. CARY, Chicago.

To New Haven, Conn., Capt. A. H. BEEBE, Stillman Valley.

To report to the commanding general, Panama Canal Department, from Southern Department, Capt. W. E. HERVEY, Chicago.

The following order has been revoked: To Camp Dodge, Iowa, Capt. J. L. MANNING, Chicago.

Indiana

To Ann Arbor, Mich., University of Michigan, Lieut. G. H. McCASKEY, West Newton.

To Camp Abraham Eustis, Va., base hospital, from Camp Meade, Lieut. J. L. GLENDENING, Indianapolis.

To Camp Alfred Vail, N. J., Lieut. C. L. ROWELL, Valparaiso.

To Camp Beauregard, La., evacuation hospital, from Camp Wheeler, Capt. G. B. JACKSON, Indianapolis.

To Camp Dodge, Iowa, evacuation hospital, from Camp Custer, Capt. F. H. KELLY, Argos.

To Camp Gordon, Ga., base hospital, from Camp Shelby, Lieut. I. E. BRENNER, Winchester; from Fort Oglethorpe, Lieut. M. M. MORAN, Portland.

To Camp Greene, N. C., evacuation hospital, from Camp Hancock, Lieut. L. W. SMITH, Warren.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Capt. J. W. SHAFER, Lafayette.

To Camp McClellan, Ala., evacuation hospital, from Fort McPherson, Capt. H. C. WADSWORTH, Washington.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. L. H. STAFFORD, Indianapolis.

To Camp Newton D. Baker, Texas, base hospital, from Fort Riley, Lieut. B. R. KIRKLIN, Muncie.

To Camp Perry, Ohio, from Central Department, Major M. R. COMBS, Terre Haute.

To Camp Sherman, Ohio, to examine the command for nervous and mental diseases, Capt. F. W. TERFLINGER, Logansport.

To Camp Zachary Taylor, Ky., as orthopedic surgeon, from Fort Oglethorpe, Capt. J. B. YOUNG, Cumberland. Base hospital, from Army Medical School, Lieut. E. M. KIME, Indianapolis; from Fort Oglethorpe, Capt. A. L. BRAMKAMP, Richmond.

To Fort Oglethorpe for instruction, Capt. J. E. P. HOLLAND, Bloomington; Lieut. O. C. STEPHENS, Fort Branch.

To Garden City, N. Y., Lieut. P. J. COULTAS, Bristow.

To Hoboken, N. J., from New Haven, Lieut. F. P. HUNTER, Lafayette. Base hospital, from Fort Des Moines, Capt. J. C. GLACKMAN, Hatfield.

To Jefferson Barracks, Mo., base hospital, from Camp Upton, Capt. W. C. MOSS, Bunker Hill.

To Lakewood, N. J., Lieut. G. N. DRULEY, North Webster.

To Otisville, N. Y., from New Haven, Capt. M. L. SAMMS, Batesville.

Iowa

To Camp Custer, Mich., Capt. J. B. NAFTZGAR, Sioux City.

To Camp Dix, N. J., base hospital, from Fort Oglethorpe, Lieut. T. F. E. BESS, Fort Madison.

To Camp Dodge, Iowa, base hospital, Capt. G. L. PRENTICE, Troy.

To Camp Gordon, Ga., base hospital, from Camp McClellan, Lieut. C. W. TIDBALL, Independence.

To Camp Grant, Ill., evacuation hospital, from Army Medical School, Lieut. S. D. JONES, Fort Dodge.

To Camp Greene, N. C., from Garden City, Lieut. L. D. HUFF, Lenox.

To Camp Hancock, Ga., evacuation hospital, from Fort Oglethorpe, Lieut. C. E. CHENOWETH, Iowa City.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Major P. B. McLAUGHLIN, Sioux City.

To Camp McClellan, Ala., evacuation hospital, from Camp Shelby, Capt. W. C. NEWELL, Ottumwa.

To Camp Meade, Md., from the Surgeon-General's Office, Lieut. G. H. STEELE, Belmont.

To Camp Wadsworth, S. C., evacuation hospital, from Camp Sevier, Lieut. D. H. OSBORN, Monticello; from Southeastern Department, Capt. A. C. STRONG, Burlington.

To Camp Wheeler, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. H. L. von LACKUM, Iowa City.

To Jefferson Barracks, Mo., from Camp Dodge, Lieut. J. S. CALDWELL, Lenox.

To Fort Riley, base hospital, from Camp Travis, Lieut. L. D. McNAUGHTON, Eagle Grove.

To Fort Williams, Me., from Fort Riley, Lieut. M. N. GERNSEY, Waverly.

To Lakewood, N. J., Lieut. J. S. KNIPE, Armstrong.

To Washington, D. C., Surgeon-General's Office, from Camp Gordon, Capt. J. V. KEOGH, Dubuque.

The following order has been revoked: To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, from Camp Zachary Taylor, Lieut. A. E. ACHER, Fort Dodge.

Kansas

To Camp Beauregard, La., base hospital, from Camp Gordon, Lieut. L. D. MABIE, Kansas City. Evacuation hospital, from Camp Bowie, Lieut. A. L. KNISELY, Liberal; from Camp Cody, Capt. F. H. SLAYTON, Wichita.

To Camp Grant, Ill., to examine the command for nervous and mental diseases, Capt. F. A. CARMICHAEL, Osawatimie.

To Camp Logan, Texas, from Fort Riley, Capt. G. R. GAGE, Hutchinson.

To Camp Wheeler, Ga., from Fort Riley, Lieut. W. B. BURR, Longton. Evacuation hospital, from Camp Gordon, Lieut. J. H. HANSEN, Elkhart.

To Fort Riley, base hospital, Lieut. G. H. ALLEN, Topeka; from Camp Travis, Lieut. W. R. BRADY, Parsons. For instruction, Capt. D. I. MAGGARD, Wichita.

To Walter Reed General Hospital, D. C., for observation and treatment, Lieut. W. L. BUTLER, Stafford.

Kentucky

To Camp A. A. Humphreys, Va., from Hot Springs, N. C., Capt. B. K. MENEFEY, Covington.

To Camp Abraham Eustis, Va., base hospital, from Fort Oglethorpe, Lieut. H. H. RICHESON, Campbellsville.

To Camp Beauregard, La., base hospital, from Camp Sheridan, Capt. E. R. BUSH, Winchester.

To Camp Forrest, Ga., from Fort Oglethorpe, Capt. S. L. POTTINGER, Louisville.

To Camp Gordon, Ga., Lieut. J. P. WYLES, Cynthiana. Base hospital, Capt. A. V. MENEFEY, Williamstown; from Camp Zachary Taylor, Major V. N. MEDDIS, Louisville.

To Camp Greene, N. C., evacuation hospital, from Southern Department, Lieut. E. L. DRAVO, Jeffersonton.

To Camp Joseph E. Johnston, Fla., Lieut. S. R. STITH, Ekron; J. F. MARRS, Tompkinsville.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. J. K. FREEMAN, Louisville.

To Camp Meade, Md., from Fort Oglethorpe, Lieut. J. F. DUNCAN, Bowling Green; H. LYON, Winchester.

To Camp Sevier, S. C., Capt. J. W. NOLAN, Harlan.

To Camp Wheeler, Ga., evacuation hospital, from Camp Hancock, Lieut. H. P. HONAKER, Horse Cave.

To Columbia, Ohio, from Camp Colt, Capt. J. M. MORRIS, Chestnutburg.

To Fort McDowell, Calif., from Camp Lewis, Lieut. U. G. DAVIS, Hopkinsville.

To Fort Meyer, Va., Lieut. E. D. TURNER, Cave City.
To Fort Oglethorpe for instruction, Lieut. W. J. FLOWERS, Columbia.
To Fort Omaha, Neb., base hospital, from Army Medical School, Lieut. S. J. SMOCK, Glasgow.
To New Cumberland, Pa., from Camp Gettysburg, Capt. H. LUTEN, Fulton.

Louisiana

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Capt. C. P. MUNDAY, Shreveport.
To Camp Gordon, Ga., base hospital, from Fort Oglethorpe, Lieut. M. F. MEYER, New Orleans.
To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Lieut. E. L. KING, New Orleans.
To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. S. L. WHITE, Ruston.
To Camp Shelby, Miss., base hospital Lieut. O. B. HICKS, Shreveport.
To Hoboken, N. J., from Fort Oglethorpe, Capt. T. REGAN, Shreveport.
To Rockefeller Institute for instruction in bacteriology, from Camp Joseph E. Johnston, Lieut. J. R. STAMPER, Caspiana.

Maine

To Fort Oglethorpe for instruction, Lieut. F. H. FREEMAN, Sangerville.
To New York, City College, from Fort Oglethorpe, Capt. L. M. HOWES, Bangor.

Maryland

To Camp A. A. Humphreys, Va., to examine the command for cardiovascular diseases, from Lakewood, Lieut. C. V. McMEEN, Baltimore.
To Camp Crane, Pa., from Fort Riley, Lieut. J. P. EIDSON, Baltimore.
To Camp Joseph E. Johnston, Fla., to examine the command for nervous and mental diseases, from Camp Pike, Capt. M. LEVY, Baltimore.
To Camp Lee, Va., base hospital, Lieut. A. A. PARKER, Pocomoke City. To examine the command for cardiovascular diseases, from Lakewood, Lieut. W. L. BROSIUS, Baltimore.
To Camp Meade, Md., as orthopedic surgeon, from Fort Oglethorpe, Lieut. C. C. NUOHE, Baltimore. On completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. G. R. MICKLETWAITE, Baltimore.
To Camp Pike, Ark., from Fort Oglethorpe, Lieut. C. S. LENTZ, Baltimore.
To Camp Sherman, Ohio, base hospital, from Camp Meade, Lieut. L. A. M. KRAUSE, Baltimore.
To Camp Wheeler, Ga., evacuation hospital, from Fort Oglethorpe, Lieut. W. M. HOLLYDAY, Baltimore.
To Fort Oglethorpe for instruction, Lieuts. R. C. DODSON, Rising Sun; C. H. THOMAS, Westminster.
To Plattsburg Barracks, N. Y., from Camp Jackson, Lieut. L. B. HOHMAN, Baltimore.
To Washington, D. C., St. Elizabeth's Hospital, for intensive training, Lieut. E. C. REITZEL, Baltimore.
The following order has been revoked: To Rockefeller Institute for instruction, and on completion to Camp Upton, N. Y., base hospital, Lieut. F. E. ROBERTS, Baltimore.

Massachusetts

To Boston, Mass., from Cambridge, Lieut. E. F. W. BARTOL, Lancaster; from duty as a contract surgeon, Lieut. G. H. POIRIER, Boston.
To Camp Cody, N. M., base hospital, from Fort Oglethorpe, Lieut. T. H. KENNY, Northampton.
To Camp Crane, Pa., from Camp Devens, Capt. A. W. FAIRBANKS, Boston; from Fort Slocum, Lieut. C. E. RODERICK, Boston.
To Camp Custer, Mich., as tuberculosis examiner, from Camp Greene, Lieut. J. J. COSGROVE, Westfield.
To Camp Devens, Mass., base hospital, Lieut. E. J. GRAINGER, Winthrop; from Fort Oglethorpe, Lieut. A. R. GARDNER, Lowell.
To Camp Dix, N. J., from New Haven, Lieut. F. A. STANWOOD, Wellesley Hills, base hospital, from Fort Oglethorpe, Capt. G. H. HILL, Worcester.
To Camp Greene, N. C., as orthopedic surgeon, from Fort Oglethorpe, N. W. GILLESPIE, Boston.
To Camp Hancock, Ga., as orthopedic surgeon, from Fort Oglethorpe, Lieut. A. KLEIN, Boston.
To Camp Jackson, S. C., base hospital, Major F. R. JOUETT, Cambridge.
To Camp Joseph E. Johnston, Fla., as orthopedic surgeon, from Fort Oglethorpe, Lieut. M. A. GILBERT, Chelsea.
To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. J. H. DEWEES, Boston.
To Camp McClellan, Ala., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. S. L. MARNOY, Chelsea.
To Camp Meade, Md., from Fort Riley, Major I. T. CUTTER, Winchester.
To Camp Sheridan, Ala., as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. M. GILCHRIST, Springfield.
To Camp Sherman, Ohio, from Hoboken, Lieut. H. H. SUMNER, Lowell.
To Camp Wadsworth, S. C., evacuation hospital, from Camp Sevier, Lieut. M. P. MAHONEY, Lowell.
To Camp Wheeler, Ga., base hospital, Lieut. E. A. KNOWLTON, Holyoke. Evacuation hospital, from Camp Joseph E. Johnston, Lieut. F. S. CALDICOTT, Milford.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. C. C. PARKER, JR., Roxbury.
To Fort Benjamin Harrison, from Fort Oglethorpe, Capt. W. G. TURNER, Fall River. Base hospital, from Fort Oglethorpe, Lieut. C. L. HOITT, Lynn.
To Fort Oglethorpe for instruction, Lieut. L. H. ROCKWELL, Boston.
To Fort Snelling, Minn., base hospital, from Camp Grant, Capt. H. CARO, Chelsea.
To Fort Thomas, Ky., from Camp Upton, Lieut. H. M. STEWART, Pittsfield.

To Jefferson Barracks, Mo., base hospital, from Hoboken, Lieut. F. H. COFFIN, Haverhill.
To Lakewood, N. J., Capt. J. A. COCONI, Dorchester; from Camp Dix, Capt. G. M. ALBEE, Worcester.
To New Cumberland, Pa., Lieut. P. D. BLANCHARD, Lowell.
To report to the governor of Massachusetts for duty as medical aide, from Boston, Lieut. F. G. WHEATLEY, North Abington.
To Walter Reed General Hospital, D. C., Lieut. E. A. KNOWLTON, Holyoke; from Fort Oglethorpe, Lieuts. E. P. RUGGLES, A. D. VAMVAS, Boston.
To Washington, D. C., St. Elizabeth's Hospital, from Camp Custer, Lieut. J. L. McAUSLAN, Gardner.

Michigan

To Camp Beauregard, La., evacuation hospital, from Corpus Christi, Texas, Lieut. B. FRIEDLANDER, Saginaw.
To Camp Crane, Pa., from Camp Travis, Lieut. G. H. BAHLMAN, Flint.
To Camp Dix, N. J., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. R. S. CRON, Ann Arbor.
To Camp Grant, Ill., Lieut. L. L. YOUNGQUIST, Marquette.
To Camp Shelby, Miss., evacuation hospital, from Camp Dix, Capt. J. P. PRATT, Detroit; from Camp Dodge, Capt. R. D. McCLURE, Detroit.
To Camp Sherman, Ohio, evacuation hospital, from Camp Custer, Capt. S. V. BARNUM, Coloma.
To Dayton, Ohio, McCook Field, from Fairfield, Ohio, Capt. J. I. FROUDE, Detroit.
To Fort Douglas, Utah; Lieut. W. J. LOVERING, Detroit.
To Fort Riley, base hospital, from Camp Pike, Lieut. C. P. CLARK, Flint.
To New York City, neurological institute, for instruction, Capt. H. A. LUCE, Detroit.
To West Point, Miss., Payne Field, from Fort Oglethorpe, Lieut. D. A. COHOE, Detroit.
The following order has been revoked: To Hoboken, N. J., from Camp Sherman, Capt. R. BEATTIE, Detroit.

Minnesota

To Camp Beauregard, La., base hospital, from Camp A. A. Humphreys, Lieut. W. H. HALLORAN, St. Paul.
To Camp Custer, Mich., base hospital, from New York, Capt. U. V. PORTMANN, Jackson.
To Camp Dix, N. J., base hospital, Capt. F. W. BRIGGS, Moorhead.
To Camp Grant, Ill., Capt. C. L. GREENE, St. Paul.
To Camp Jackson, S. C., as orthopedic surgeon, from Fort Oglethorpe, Lieut. B. T. BOTTELFSON, Halstad.
To Camp Meade, Md., from Camp Lee, Major J. C. SESSIONS, Minneapolis.
To Camp Sherman, Ohio, evacuation hospital, from Camp Custer, Capt. A. F. MOYNIHAN, Sauk Centre; from Camp Custer, Lieut. G. C. ROSKILLY, Deer Creek; from Camp Dodge, Lieut. F. N. KNAPP, St. Paul.
To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. H. OERTING, Minneapolis.
To Fort Douglas, Utah, from Camp Dodge, Lieut. W. J. McKILLIP, Duluth; from Fort Oglethorpe, Lieut. A. W. DREW, Swainville.
To Fort Riley, base hospital, from Camp Dodge, Capt. W. W. LEWIS, St. Paul.
To Fort Screven, Ga., from Fort Oglethorpe, Lieut. J. R. NANNSTAD, Albert Lea.
To New Haven, Conn., for observation and treatment, from Fort McHenry, Lieut. H. C. BUMPUS, JR., Rochester.

Mississippi

To Camp Gordon, Ga., Lieut. V. M. CROTHERS, Lambert. Base hospital, Lieut. J. L. NICHOLS, Alligator.
To Camp John Wise, Texas, from West Point, Miss., Lieut. W. T. WATSON, Banner.
To Camp MacArthur, Texas, from Nogales, Ariz., Major J. C. BAL-LARD, Biloxi.
To Camp Wadsworth, S. C., evacuation hospital, from Camp Sevier, Capt. M. C. GARNER, Meridian.
To Fort McPherson, Ga., from Fort Oglethorpe, Capt. R. M. BUTLER, Jackson.
To Fort Oglethorpe for instruction, Lieut. M. TATE, Meridian.
The following order has been revoked: To Camp Lewis, Wash., base hospital, Lieut. R. L. BEADLES, Coffeeville.

Missouri

To Camp A. A. Humphreys, Va., from Fort Oglethorpe, Lieut. J. D. MOULDER, Linn Creek.
To Camp Beauregard, La., base hospital, from Camp Logan, Lieut. J. R. RANSON, St. Louis; from Camp Sheridan, Capt. J. C. BOONE, Charleston; from Fort Oglethorpe, Capt. R. E. WOBUS, St. Louis; Lieut. R. H. UNDERWOOD, Kansas City; from Fort Riley, Capt. C. MARTIN, St. Louis.
To Camp Dodge, Iowa, base hospital, Major M. A. GOLDSTEIN, St. Louis; Lieuts. H. B. PRYOR, Ashland; G. W. GAINES, Knoxville; J. C. POTTER, St. Louis.
To Camp Gordon, Ga., base hospital, Capt. L. H. BEHRENS, St. Louis; Lieuts. H. A. ELKINS, Hardin; R. H. MILLIGAN, Kearney.
To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Capt. W. P. GLENNON, St. Louis.
To Camp Logan, Texas, from Fort Riley, Lieut. J. H. STAPP, Hardin.
To Camp Sevier, S. C., base hospital, from Camp Greene, Lieut. C. H. SHUMAKER, St. Louis.
To Camp Shelby, Miss., from Fort Oglethorpe, Capt. R. H. MORRIS, Kansas City.
To Camp Travis, Texas, base hospital, Capt. H. C. CREVELING, St. Louis.
To Camp Wadsworth, S. C., from Fort Riley, Lieut. D. L. GOLDBERG, St. Louis. Evacuation hospital, from Camp Jackson, Lieut. U. S. SHORT, St. Louis.
To Camp Wheeler, Ga., from Fort Riley, Capt. W. K. STATLER, Oak Ridge; Lieut. E. F. HIGDON, St. Joseph.
To Charleston, S. C., from Camp Bowie, Capt. R. F. MILLS, Odessa.
To Denver, Colo., from Fort Riley, Capt. S. R. JOHNSON, St. Charles.

To Fort Leavenworth, Kan., from Fort Riley, Capt. J. F. GRACE, Excelsior Springs.

To Fort Oglethorpe for instruction, Capt. J. E. BAIRD, Excelsior Springs; W. C. GAYLOR, Lieut. A. A. MARGULIS, St. Louis.

To Fort Riley for instruction, Capt. D. E. BLACKLOCK, King City; H. G. FARME, Mountain Grove; Lieut. G. O. WILHITE, Centertown; E. D. JAMES, Joplin; R. F. VIEHOE, St. Louis.

To Fort Sill, Okla., from Camp Perry, Major F. W. SHAW, Mount Vernon.

To Fort Wayne, Mich., from Montgomery, Ala., Lieut. D. B. HAWORTH, Kansas City.

To Lonoke, Ark., Eberts Field, from Camp McClellan, Lieut. B. J. WIESNER, St. Louis.

To New Haven, Conn., Yale Army Laboratory School, for instruction, Capt. R. H. MAJOR, Liberty.

Montana

To Fort Oglethorpe for instruction, Lieut. C. S. KOUTZ, Havre.

The following order has been revoked: To Rochester, Minn., Mayo Clinic, for instruction, and on completion to his proper station, Lieut. J. J. TOBINSKI, Missoula.

Nebraska

To Aberdeen, Md., from Fort Oglethorpe, Capt. J. A. TROWBRIDGE, Superior.

To Camp Hancock, Ga., evacuation hospital, from Camp Pike, Capt. H. A. JOHNSON, Tekamah.

To Camp Kearney, Calif., from Western Department, Lieut. O. P. SCHNETSKY, Schuyler.

To Fort D. A. Russell, Wyo., Capt. J. H. PLUMB, York.

To Hoboken, N. J., from New Haven, Lieut. W. C. BECKER, Papillion.

To Washington, D. C., St. Elizabeth's Hospital, Capt. S. J. STEWART, Hastings.

New Hampshire

To Camp Dix, N. J., as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Lieut. E. A. JONES, Manchester.

To Camp Lee, Va., base hospital, from Fort Oglethorpe, Lieut. A. BORLAND, Meredith.

To Camp Zachary Taylor, Ky., base hospital, from Fort Oglethorpe, Lieut. A. F. MULVANITY, Nashua.

To Fort Sill, Okla., from Fort Oglethorpe, Capt. N. E. GUILLET, Manchester.

New Jersey

To Arcadia, Fla., Carlstrom Field, from Mineola, Lieut. J. W. HURFF, Newark.

To Camp Fremont, Calif., as tuberculosis examiner, from Camp Kearney, Major R. BEW, Atlantic City.

To Camp Hancock, Ga., base hospital, from Camp Bowie, Major G. C. ALBEES, South Orange.

To Camp Lee, Va., from Southern Department, Major C. E. MACDONALD, Salem. Base hospital, Lieut. H. H. JOHNSTON, Jersey City.

To Camp Meade, Md., to examine the command for nervous and mental diseases, Lieut. E. B. FUNKHOUSER, Trenton.

To Camp Wadsworth, S. C., evacuation hospital, from Camp Hancock, Lieut. E. L. MINARD, East Orange.

To Camp Wheeler, Ga., base hospital, from Fort Oglethorpe, Capt. W. J. ARLITZ, Hoboken.

To Fort Oglethorpe, as instructor, from Camp MacArthur, Capt. G. THORBURN, Newark.

To Fort Riley, base hospital, from New York, Lieut. A. L. L. BELL, Englewood.

To Mineola, N. Y., Hazelhurst Field, for instruction, from Camp Gordon, Lieut. J. S. VANNEMAN, Princeton.

To Syracuse, N. Y., from Camp Dix, Lieut. J. WECHSLER, Jersey City.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. W. A. TANSEY, Newark.

To Williamsbridge, N. Y., from Fort Oglethorpe, Lieut. E. W. SMITH, Passaic.

New Mexico

To Fort Leavenworth, Kan., from Fort Riley, Lieut. C. E. KINDALL, Hurley.

New York

To Biltmore, N. C., from Camp Travis, Capt. D. S. CHILDS, Syracuse.

To Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Camp Lee, Lieut. H. F. MORRISON, Tuxedo, Park; from Newport News, Lieut. H. T. BLAIR, Brooklyn.

To Camp A. A. Humphreys, Va., from Camp Wheeler, Major L. D. McEVOY, New York.

To Camp Abraham Eustis, Va., base hospital, from Camp Meade, Lieut. J. GRABENSTEIN, New York.

To Camp Alfred Vail, N. J., from New York, Capt. J. R. FARRELL, New York.

To Camp Beauregard, La., base hospital, from Camp Hancock, Capt. G. PRIESTMAN, Willard; from Camp Wadsworth, Lieut. H. W. KEMP, Brooklyn.

To Camp Crane, Pa., from Camp Dix, Lieut. C. H. BRUSH, Kings Park; from Camp Wheeler, Lieut. J. M. O'NEILL, Flushing.

To Camp Custer, Mich., base hospital, from New York, Lieut. I. H. PARDEE, A. A. RAYLE, New York.

To Camp Dix, N. J., Lieut. P. B. BREGMAN, New York. Base hospital, from Syracuse, Lieut. B. C. HAMILTON, Goshen.

To Camp Dodge, Iowa, evacuation hospital, from Camp Meade, Capt. W. S. SMITH, Brooklyn; from Fort McHenry, Capt. H. R. CHARLTON, Bronxville; W. S. WOODRUFF, Mount Vernon; from Fort Oglethorpe, Capt. E. K. TANNER, Brooklyn; from the Surgeon-General's Office, Major J. E. JENNINGS, Brooklyn.

To Camp Fremont, Calif., base hospital, from Camp Lewis, Lieut. A. G. DE SANCTIS, New York.

To Camp Gordon, Ga., base hospital, from Camp Wadsworth, Lieut. J. E. NOLL, New York; from Fort Oglethorpe, Lieut. I. E. LISS, New York.

To Camp Greene, N. C., from Garden City, Major A. M. CACCINI, New York. Base hospital, from Camp Lee, Lieut. B. P. BROWN, Brooklyn; from Fort Oglethorpe, Lieut. D. D. KRUPP, Brooklyn.

To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Lieut. H. M. BULLARD, Brooklyn; J. F. McGOVERN, New York.

To Camp Jackson, S. C., base hospital, from Fort Oglethorpe, Lieut. P. W. SKLADZIEN, Brooklyn.

To Camp Logan, Texas, base hospital, from Hoboken, Major J. B. CLARK, New York.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Lieut. G. FREIMAN, Brooklyn.

To Camp McClellan, Ala., evacuation hospital, from Biltmore, N. C., Lieut. O. C. PICKHARDT, New York; from Camp Shelby, Capt. F. PALMER, Glens Falls; from Fort Oglethorpe, Lieut. S. S. ARLUCK.

To Camp Meade, Md., base hospital, Capt. H. N. RATLIFF, New York. To examine the command for cardiovascular diseases, from Camp A. A. Humphreys, Lieut. D. SCHULTHEIS, New York.

To Camp Pike, Ark., evacuation hospital, from Camp Travis, Lieut. A. B. DYKMAN, Riverdale.

To Camp Sevier, S. C., base hospital, from Fort Oglethorpe, Capt. J. L. BENDELL, Albany.

To Camp Shelby, Miss., as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. E. VANDERWERKER, New York. Base hospital, from Army Medical School, Lieut. H. A. PATTERSON, Buffalo.

To Camp Sheridan, Ala., as orthopedic surgeon, from Fort Oglethorpe, Lieut. L. FASKE, Brooklyn. Base hospital, from Fort Oglethorpe, Lieut. S. S. FRIEDMAN, New York.

To Camp Sherman, Ohio, evacuation hospital, from Camp Custer, Lieut. W. C. HANNON, New York; from Camp Zachary Taylor, Major L. M. KAHN, New York; from Fort Oglethorpe, Capt. A. D. YOUNG, Mayville; from Fort Ontario, Major J. F. WHITE, Port Chester.

To Camp Travis, Texas, as orthopedic surgeon, from Fort Oglethorpe, Capt. D. C. PATERSON, Yonkers.

To Camp Upton, N. Y., from Buffalo, Lieut. W. H. ORDWAY, New York.

To Camp Wadsworth, S. C., from Fort Oglethorpe, Lieut. R. B. ERNEST, JR., New York. Evacuation hospital, from Camp Sevier, Capt. T. A. KENYON, New York; Lieut. D. V. CATALANO, Staten Island; from Columbus Barracks, Lieut. R. V. M. HADLEY, Collins; from Fort Oglethorpe, Lieut. T. F. BERBEROVICH, New York.

To Camp Wheeler, Ga., from Fort Oglethorpe, Capt. E. W. AYERS, Alfred.

To Fort Douglas, Utah, from Fort Oglethorpe, Lieut. A. E. GORDIN, S. M. HYMAN, New York.

To Fort Niagara, N. Y., Capt. N. B. FORD, Owasco.

To Fort Oglethorpe, as instructor, Lieut. C. A. WATERS, New York. For instruction, Lieut. W. O. HILL, Buffalo; J. M. BERNHARD, New York; from Camp Forrest, Lieut. G. C. BARONE, Buffalo.

To Fort Ontario, N. Y., from Fairfield, Ohio, Lieut. S. TRIPLER, New York; from Fort Oglethorpe, Capt. A. F. GRIFFITHS, Brooklyn.

To Fort Riley, base hospital, from Camp Grant, Capt. J. M. KEYES, New York; from Fort Oglethorpe, Lieut. H. OSTROWSKY, New York.

To Fort Sam Houston, Texas, base hospital, from San Antonio, Lieut. R. J. WHARTON, Brooklyn.

To Fort Thomas, Ky., from Camp Upton, Capt. D. R. ROBERT, Brooklyn.

To Garden City, N. Y., from Lonoke, Lieut. P. L. HELMICK, New York; from Mineola, Capt. F. L. SENER, Brooklyn.

To Lakewood, N. J., Lieut. L. A. BINGAMAN, New York; C. E. TUBB, Poughkeepsie. For instruction and on completion to Camp Sevier, S. C., to examine the troops for cardiovascular diseases, from Camp Lee, Capt. J. B. ZABRISKIE, Brooklyn.

To Lee Hall, Va., from St. Paul, Capt. R. GRACE, La Grangeville.

To Mineola, N. Y., Hazelhurst Field, from Dayton, Ohio, Capt. G. M. CLOWE, Schenectady. For instruction, from Lee Hall, Capt. E. L. HAZELTINE, Jamestown.

To New York, Academy of Medicine, from Eastern Department, Major W. T. HELMUTH, New York.

To report to the commanding general, Panama Canal Department, from Camp Upton, Lieut. M. A. RAMIREZ, New York. Philippine Department, from New York, Major F. J. EISENMAN, New York.

To Rockefeller Institute, Lieut. P. K. OLITSKY, New York.

To Syracuse, N. Y., Capt. MALCOLM CAMPBELL, New York; from Camp Dix, Capt. G. W. BEATTY, Brooklyn.

To Waco, Texas, Rich Field, from Mineola, Lieut. W. E. GAZELEY, Albany.

To Washington, D. C., Surgeon-General's Office, from Syracuse, N. Y., Major C. R. CASTLEN.

Honorably discharged on account of physical disability incurred in line of duty, Lieut. I. C. WHITEHEAD, Hoosick.

North Carolina

To Camp Hancock, Ga., evacuation hospital, from Fort McPherson, Capt. C. T. GRIER, Carthage.

To Camp McClellan, Ala., from Fort Oglethorpe, Capt. C. O. ABERNETHY, Raleigh.

To Camp Sevier, S. C., base hospital, Lieut. J. R. SPENCER, South Mills.

To Fort Jay, N. Y., Capt. M. B. ABERNETHY, Reidsville.

To Fort Oglethorpe, Major E. C. BOYETTE, Charlotte. For instruction, Lieut. R. C. RAY, Beaver Creek.

To Rockefeller Institute for instruction in the treatment of infected wounds, and on completion to Garden City, N. Y., Capt. A. W. MOORE, Charlotte.

Honorably discharged on account of physical disability existing prior to entrance into the service, Lieut. H. ROBINSON, Reidsville.

North Dakota

To Camp Joseph E. Johnston, Fla., as orthopedic surgeon, from Fort Oglethorpe, Lieut. L. F. FISHER, Grand Forks.

To Fort Benjamin Harrison, from Camp Zachary Taylor, Lieut. L. G. DUNLAP, Bismarck.

To Fort Riley for instruction, Capt. J. W. COX, Grand Forks.

Ohio

To Camp A. A. Humphreys, Va., from Camp Perry, Lieut. T. WALKUP, Dayton.

To Camp Abraham Eustis, Va., Lieut. F. McLEISH STRATTON, Pioneer.

To Camp Beauregard, La., base hospital, from Camp Joseph E. Johnston, Lieut. C. C. PATTON, Ashland; from Camp Wheeler, Lieut. L. A. OSTER, Cleveland.

To Camp Dodge, Iowa, base hospital, from Fort Oglethorpe, Lieut. E. C. MYLOTT, Cleveland.

To Camp Gordon, Ga., base hospital, from Camp McClellan, Capt. F. W. HITCHINGS, Cleveland; from New York, Lieut. L. R. COURTRIGHT, Dayton.

To *Camp Grant, Ill.*, Lieuts. J. E. SPRINGER, Akron; H. F. BURMAN, Toledo.

To *Camp Hancock, Ga.*, evacuation hospital, from Fort McPherson, Major F. FLETCHER, Columbus.

To *Camp Holabird, Md.*, from Camp Colt, Major R. W. DE CROW, Newark.

To *Camp Kelly, Texas*, from Dayton, Ohio, Capt. M. C. PHILLIPS, Fremont.

To *Camp MacArthur, Texas*, as orthopedic surgeon, from Fort Oglethorpe, Lieut. E. H. HAYMAN, Murray. Base hospital, Capt. C. S. MANSS, Cincinnati.

To *Camp Meade, Md.*, from Fort Oglethorpe, Lieut. C. R. JOHNSON, Cambridge; from Fort Riley, Capt. E. H. MORGAN, Gallipolis.

To *Camp Sevier, S. C.*, Lieut. H. H. TALBOTT, Steubenville. Base hospital, from Fort Oglethorpe, Capt. H. B. DORNBLASSER, Springfield.

To *Camp Upton, N. Y.*, as orthopedic surgeon, and on completion to Boston, Mass., Harvard Graduate School of Medicine, for instruction, from Fort Oglethorpe, Capt. J. R. TILLOTSON, Delphos.

To *Camp Zachary Taylor, Ky.*, base hospital, from Fort Oglethorpe, Lieut. M. C. HOUSTON, Urbana.

To *Fort Oglethorpe* for instruction, Lieut. J. D. WENDER, Dayton.

To *Fort Snelling, Minn.*, from Fort Oglethorpe, Lieut. C. R. FISHEL, Thurston.

To *Garden City, N. Y.*, from Lake Charles, La., Lieut. J. G. MARTIN, New Concord.

To *Hoboken, N. J.*, from Camp Perry, Lieut. G. R. WILKINS, Cleveland; from Fort Oglethorpe, Capt. H. J. HERRICK, Hudson.

To *West Point, Miss.*, Payne Field, from Camp Kelly, Lieut. J. M. PUMPHREY, Mount Vernon.

The following orders have been revoked: To *Army Medical School* for instruction, from Garden City, Lieut. D. M. MacDONALD, Cleveland. To *Camp A. A. Humphreys, Va.*, Capt. F. J. WOOD, Cleveland.

Oklahoma

To *Camp Beauregard, La.*, base hospital, from Camp Logan, Capt. J. H. MAXWELL, Oklahoma City; Lieut. J. B. LEISURE, Watonga.

To *Hot Springs, Mass.*, from Camp Lee, Major W. E. HARRINGTON, Wakita.

To *Camp Gordon, Ga.*, base hospital, from Southern Department, Lieut. W. P. SIMS, Drumright.

To *Camp MacArthur, Texas*, base hospital, Capt. E. F. DAVIS, Oklahoma City.

To *Camp Meade, Md.*, from Fort Oglethorpe, Lieut. R. A. DOUGLAS, Tulsa.

To *Fort Douglas, Utah*, from Fort Snelling, Capt. F. M. SANGER, Oklahoma City.

To *Hot Springs, Ark.*, from Camp Pike, Lieut. J. W. PENDLETON, Kingfisher.

To *Morrison, Va.*, from Lee Hall, Lieut. J. R. WALTRIP, Kinta.

To *Washington, D. C.*, St. Elizabeth's Hospital, for intensive training, from Camp Wadsworth, Lieut. R. K. GODDARD, Supply.

Oregon

To *Camp Cody, N. M.*, base hospital, from Fort Oglethorpe, Lieut. F. E. BUTLER, Hot Lake.

To *Camp Dodge, Iowa*, from Fort Des Moines, Lieut. R. F. JAMES, Portland.

To *Camp Fremont, Calif.*, Lieut. R. E. SCHMIDT, Rainer.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. J. H. GARNJOBST, Salem.

To *Camp Jackson, S. C.*, base hospital, from Army Medical School, Capt. W. H. NORTON, Portland.

Pennsylvania

To *Arcadia, Fla.*, Carlstrom Field, from Mineola, Lieut. H. F. LANSHE, Allentown.

To *Boston, Mass.*, Harvard Graduate School of Medicine, for instruction, from Camp Lee, Lieut. C. N. SILMAN, Pittsburgh.

To *Camp A. A. Humphreys, Va.*, Capt. S. H. HELLER, Lancaster.

To *Camp Abraham Eustis, Va.*, base hospital, from Camp Lee, Lieuts. A. ROZPLOCH, Chester; J. M. STEWART, Marion Center; from Fort Oglethorpe, Capt. J. H. ARNETT, Philadelphia.

To *Camp Bowie, Texas*, base hospital, Lieut. M. S. ERSNER, Philadelphia.

To *Camp Crane, Pa.*, from Baltimore, Lieut. E. P. DICKINSON, St. Michael.

To *Camp Custer, Mich.*, base hospital, from Camp Dix, Lieut. T. L. McCULLOUGH, Homewood.

To *Camp Dix, N. J.*, Capt. J. M. TIMMONS, West Alexandria.

To *Camp Dodge, Iowa*, base hospital, from New York, Lieut. C. D. FOX, Cynwood.

To *Camp Gordon, Ga.*, base hospital, from Fort Oglethorpe, Lieut. C. W. McELHANEY, Greenville.

To *Camp Greene, N. C.*, base hospital, from Fort Oglethorpe, Lieut. C. M. THOMAS, Carrick.

To *Camp Hancock, Ga.*, evacuation hospital, from Camp Dix, Capt. G. W. STIMSON, Pittsburgh; from Fort Oglethorpe, Lieut. E. J. STEIN, Lancaster.

To *Camp Jackson, S. C.*, base hospital, Major K. A. EMMERLING, Pittsburgh.

To *Camp MacArthur, Texas*, base hospital, from Fort Oglethorpe, Lieut. R. J. HAWS, Reading.

To *Camp McClellan, Ala.*, evacuation hospital, from Camp Wheeler, Lieut. C. C. GANS, Chambersburg.

To *Camp Pike, Ark.*, base hospital, from Camp Dix, Major A. J. SMITH, Philadelphia.

To *Camp Shelby, Miss.*, evacuation hospital, from Camp Meade, Capt. H. H. LOTT, Philadelphia.

To *Camp Travis, Texas*, base hospital, from Fort Bayard, Capt. G. P. PILLING, Philadelphia.

To *Camp Wadsworth, S. C.*, evacuation hospital, from Camp Sevier, Major C. M. LUMAN, Uniontown; Lieut. J. H. HAMILL, Legonier; from Fort Oglethorpe, Lieut. R. H. PEARLMAN, Pittsburgh.

To *Camp Wheeler, Ga.*, evacuation hospital, from Fort McPherson, Lieut. J. LEEDOM, Philadelphia.

To *Camp Zachary Taylor, Ky.*, base hospital, from Camp Pike, Lieut. G. R. LACY, Pittsburgh.

To *Cape May, N. J.*, from Fort McPherson, Capt. S. D. INGHAM, Philadelphia.

To *Carlisle, Pa.*, from Fort Oglethorpe, Capt. N. G. L. SHILLITO, Pittsburgh.

To *Fort Douglas, Utah*, from Camp Dodge, Capt. H. A. SPANGLER, Carlisle.

To *Fort Oglethorpe* for instruction, Lieut. O. R. KLINE, Philadelphia. To *examine the command* for nervous and mental diseases, Lieut. W. C. CHANEY, Philadelphia.

To *Hoboken, N. J.*, from Walter Reed General Hospital, Lieut. E. B. SLOTERBECK, Monessen. Base hospital, from Walter Reed General Hospital, Lieut. E. PARDOW, South Fork.

To *Lakewood, N. J.*, Lieut. J. G. FLYNN, Ridgway; from Camp Dix, Capt. J. T. MADDEN, Pittston.

To *Mincola, N. Y.*, for instruction, from Garden City, Lieut. W. C. SMITH, Woodbine. Hazelhurst Field, from Washington, D. C., Capt. G. W. SMELTZ, Markleton.

To *New Haven, Conn.*, Lieut. W. C. JOHNSON, Philadelphia.

To *Syracuse, N. Y.*, from Fort Oglethorpe, Lieut. G. R. PRETZ, Lebanon. To *examine the command* for nervous and mental diseases, from Fort Ontario, Lieut. J. E. DWYER, Polk.

To *Walter Reed General Hospital*, from Fort Oglethorpe, Lieut. W. C. REESE, Wilkes-Barre.

To *Washington, D. C.*, from Camp Wheeler, Lieut. C. R. HUGHES, Philadelphia. Surgeon General's Office, from Camp A. A. Humphreys, Capt. S. L. GANS, Philadelphia.

To *West Point, Miss.*, Payne Field, from Camp Hancock, Lieut. R. PAINE, Philadelphia.

Porto Rico

To *Camp Las Casas, P. R.*, from Rockefeller Institute, Lieut. L. A. SALIVA, Rio Piedras.

South Carolina

To *Camp Beauregard, La.*, base hospital, from Camp Sheridan, Lieut. M. WEINBERG, Sumter.

To *Camp Gordon, Ga.*, Lieut. M. L. LANFORD, Greer.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Capt. A. P. McELROY, Union.

To *Camp Lee, Va.*, Lieut. I. M. GAGE, Columbia.

To *Camp Logan, Texas*, from Fort Riley, Lieut. J. H. MILLS, Maynesville.

To *Camp Sheridan, Ala.*, base hospital, from Philadelphia, Lieut. R. N. DAVIS, Troy.

To *Fort Oglethorpe* for instruction, Capt. S. C. ZEMP, Camden.

To *Fort Riley*, base hospital, from Fort Oglethorpe, Lieut. R. T. FERGUSON, Gaffney.

To *Otisville, N. Y.*, from New Haven, Capt. H. B. MALONE, Chester.

South Dakota

To *Camp Greene, S. C.*, from Garden City, Lieut. D. D. RABER, Buffalo.

To *Camp Meade, Md.*, from Fort Riley, Capt. H. C. PARSONS, Watertown.

To *Fort Benjamin Harrison, Ind.*, base hospital, Capt. W. J. MAYTUM, Alexandria.

Tennessee

To *Biltmore, N. C.*, from Camp Zachary Taylor, Capt. O. B. CHANDLER, Union City.

To *Camp Beauregard, La.*, from Fort Oglethorpe, Major J. L. ANDREWS, Memphis.

To *Camp Custer, Mich.*, from Ann Arbor, Lieut. G. C. ENGLISH, Mount Pleasant.

To *Camp Gordon, Ga.*, Lieut. F. M. BLANKENSHIP, Hartsville; from Camp Meade, Lieut. C. E. WARDE, Memphis; from Camp Sevier, Capt. E. M. ORR, Nashville.

To *Camp Hancock, Ga.*, base hospital, from Fort Oglethorpe, Lieut. J. A. JAMES, Nashville.

To *Camp Joseph E. Johnston, Fla.*, Capt. J. F. MASSEY, Fountain City.

To *Fort Oglethorpe* for instruction, Lieut. H. P. CALMOS, Memphis; from Knoxville, Lieut. R. W. PATTERSON, Knoxville.

To *Fort Ontario, N. Y.*, Lieut. D. N. WILLIAMS, Chattanooga; from Fort Oglethorpe, Capt. J. E. Hall, Nashville.

To *Fort Riley* for instruction, Lieut. W. V. SANFORD, Ripley.

To *Jefferson Barracks, Mo.*, from Camp Gordon, Major G. M. ELLIS, Chattanooga.

To *San Antonio, Texas*, Kelly Field, as orthopedic surgeon, from Southern Department, Lieut. R. F. PATTERSON, Knoxville.

The following order has been revoked: To *Hoboken, N. J.*, from Camp McClellan, Lieut. R. L. MOTLEY, Jr., Dyersburg.

Texas

To *Camp Beauregard, La.*, base hospital, from Camp Logan, Lieut. F. H. NEWTON, Dallas.

To *Camp Dodge, Iowa*, evacuation hospital, from Camp Cody, Lieut. E. C. AXTELL, Lipan.

To *Camp Grant, Ill.*, evacuation hospital, from Southern Department, Capt. L. G. AMENT, Victoria.

To *Camp Greene, N. C.*, base hospital, from Fort Oglethorpe, Lieut. A. F. LEACH, Weatherford.

To *Camp Logan, Texas*, Lieuts. J. P. REED, Port Arthur; J. H. POPE, Tyler; from Fort Riley, Capt. C. W. GRIFFITH, LaPorte.

To *Camp MacArthur, Texas*, Lieut. C. A. DREUSS, Fort Worth.

To *Camp Sevier, S. C.*, base hospital, from Camp Hancock, Capt. C. B. McGLUMPHY, Galveston.

To *Camp Stuart, Va.*, base hospital, from Army Medical School, Lieut. A. H. NEIGHBORS, Seguin.

To *Camp Travis, Texas*, from Southern Department, Major E. L. GOAR, Houston.

To *Camp Wadsworth, S. C.*, evacuation hospital, from Camp MacArthur, Capt. H. E. NICHOLSON, Mobertie.

To *Camp Wheeler, Ga.*, base hospital, from Camp Joseph E. Johnston, Lieut. A. S. GRAYDON, Paris.

To *Fort Douglas, Utah*, from Fort Oglethorpe, Lieut. J. E. McDOWELL, Shamrock.

To *Fort Oglethorpe* for instruction, Lieuts. D. J. SAUNDERS, Benham; H. B. DuPUY, San Antonio.

To *Fort Riley*, base hospital, from Camp Meade, Major H. F. CONNALLY, Waco; from Camp Pike, Lieut. H. DONNELL, Rockett.

To *Fort Sheridan, Ill.*, base hospital, from Camp Grant, Capt. C. C. ODOM, Childress.

To *Dayton, Ohio*, McCook Field, from West Point, Miss., Lieut. F. B. KING, Durango.

To *Garden City, N. Y.*, from Americus, Ga., Lieut. W. F. P'POOL, Sweetwater.

To Hoboken, N. J., from New York, Capt. J. H. SHELTON, Kingsville.

To Lonoke, Ark., Eberts Field, from Camp MacArthur, Lieut. M. SWEARINGEN, Port Arthur.

To Scituate, Mass., from Rockefeller Institute, Lieut. J. D. MARTIN, Call.

To Stithson, Ky., as camp surgeon, from Southern Department, Lieut. F. H. MILLS, Fort Bliss.

The following order has been revoked: To Hoboken, N. J., from Camp Dix, Lieut. H. L. BROWN, Sherman.

Utah

To Camp Cody, N. M., base hospital, Capt. H. P. KIRTLEY, Salt Lake City.

To Camp Gordon, Ga., base hospital, Lieut. U. H. SMITH, Bingham Canyon.

To Camp McClellan, Ala., from Fort Oglethorpe, Lieut. G. J. Field, Salt Lake City.

Vermont

To Montpelier, Vt., as medical aide to the governor of Vermont, Capt. J. H. WOODRUFF, Barre.

To Walter Reed General Hospital, D. C., from Fort Oglethorpe, Lieut. B. E. WHITE, Brattleboro.

Virginia

To Camp A. A. Humphreys, Va., Lieut. R. M. BAKER, Edgehill.

To Camp Crane, Pa., from Fort Oglethorpe, Lieut. E. R. FERGUSON, Roanoke.

To Camp MacArthur, Texas, base hospital, from Fort Oglethorpe, Capt. E. L. FLANAGAN, Richmond.

To Camp Sevier, S. C., Lieut. G. C. ANDES, Timberville.

The following orders have been revoked: To Camp Dix, N. J., Lieut. R. H. BROCKWELL, Barnette. To Newport News, Va., Lieut. J. L. WRIGHT, Charlottesville.

Washington

To Camp Beauregard, La., base hospital, from Camp Sheridan, Lieut. E. R. BUSH, Fort Canby.

To Camp Custer, Mich., base hospital, from Hoboken, Lieut. W. H. BOONE, North Yakima.

To Camp Fremont, Calif., Lieut. T. D. BURGER, Spokane; from Western Department, Lieut. A. SHAW, Anacortes. Base hospital, from Camp Lewis, Capt. A. C. STEWART, Fort Steilacoom.

To Camp Kearney, Calif., Lieut. C. B. PASCOE, Tacoma.

To Camp Logan, Texas, from Fort Riley, Lieut. W. A. MITCHELL, Colfax.

To Camp Sheridan, Ala., from Fort Riley, Lieut. C. E. GREASON, Laconner.

To report to the commanding general, Panama Canal Department, Lieut. J. P. KANE, Tacoma.

To San Francisco, Calif., Letterman General Hospital, from Camp Fremont, Lieut. M. W. BRACHVOGEL, Montesano.

West Virginia

To Camp A. A. Humphreys, Va., from Washington, D. C., Lieut. D. T. WILLIAMS, Martinsburg.

To Camp Dix, N. J., Lieut. J. B. GROVE, Petersburg.

To Camp Dodge, Iowa, evacuation hospital, from Camp Pike, Lieut. O. P. CHAPMAN, Holden.

To Camp Greene, N. C., evacuation hospital, from Camp Hancock, Capt. K. C. PRICHARD, Huntington.

To Camp Joseph E. Johnston, Fla., Capt. O. S. HARE, Bluefield; W. H. WILSON, St. Albans.

To Camp Sevier, S. C., Lieut. W. C. Camp, Grandeeville.

To Camp Wheeler, Ga., evacuation hospital, from Camp Gordon, Lieut. R. F. THAW, Sistersville.

To Charleston, W. Va., as medical aide to the governor of West Virginia, from Fort Oglethorpe, Lieut. G. C. ROBERTSON, Spencer.

To Fort Oglethorpe for instruction, Lieut. B. C. WIRE, Hurley.

To Garden City, N. Y., from Mineola, Lieut. W. F. SHIRKEY, JR., Charleston.

Wisconsin

To Camp Custer, Mich., base hospital, from Camp Greene, Lieut. E. A. GATTERDAM, Wauwatosa.

To Camp Hancock, Ga., as orthopedic surgeon, from Fort Oglethorpe, Capt. E. L. BOLTON, Chilton.

To Camp MacArthur, Texas, as orthopedic surgeon, from Fort Oglethorpe, Lieut. J. D. GILLIS, Wauwatosa.

To Camp Sherman, Ohio, evacuation hospital, from Camp Zachary Taylor, Lieut. A. J. LOOZE, Brodhead.

To Camp Travis, Texas, from Southern Department, Lieut. O. F. PARTRIDGE, Mattoon.

To Fort Benjamin Harrison, as orthopedic surgeon, from Central Department, Lieut. J. E. BENTLEY, Portage.

To Morrison, Va., from Lec Hall, Lieut. J. D. NELSON, Milwaukee.

Wyoming

To Camp Dodge, Iowa, as assistant to camp surgeon, from Western Department, Lieut. F. H. SPARREBERGER, Fort Yellowstone.

To Fort Leavenworth, Kan., from Fort Riley, Capt. C. A. CONYERS, Buffalo.

To Fort Riley, base hospital, from Camp Kearney, Lieut. H. M. BROWN, Sheridan.

To Garden City, N. Y., from Mineola, Lieut. E. R. VAN COTT, Diamondville.

ORDERS TO OFFICERS OF THE UNITED STATES PUBLIC HEALTH SERVICE

Surg. J. W. KERR, to proceed to New Mexico to make a study of public health organization and administration.

P. A. Surg. F. A. CARMELIA, proceed to Petersburg, Va., for temporary duty.

P. A. Surg. J. S. BOLTEN, relieved at Jackson, Miss., proceed to Washington, D. C., preliminary to duty at the Angel Island Quarantine Station.

P. A. Surg. A. R. SWEENEY, proceed to Fayetteville, N. C., and assume charge of service operations at that place.

P. A. Surg. C. E. WALLER, proceed to Raleigh, N. C., and assume charge of service operations at that place.

Asst. Surg. L. L. WILLIAMS, JR., relieved at Millington, Tenn., proceed to Charleston, S. C., for duty.

Asst. Surg. CHARLES ARMSTRONG, relieved from duty on coast guard cutter *Seneca*. Report to the bureau for orders.

Asst. Surg. M. V. ZIEGLER, proceed to Charleston, S. C., to investigate an outbreak of meningitis.

Asst. Surg. F. B. ROSS, proceed to Chamberlain, S. D., to investigate typhoid epidemic.

Asst. Surg. C. W. MITCHELL, relieved at Ellis Island, N. Y., proceed to the Marine Hospital, Stapleton, N. Y., for duty.

A. A. Surg. SAMUEL L. HUTCHINSON, proceed to Alexandria, La., for duty in extracantonment sanitation.

A. A. Surg. W. B. PARKER, proceed to Chattanooga, Tenn., for duty in extracantonment sanitation.

San. Eng. J. K. HOSKINS, relieved at Macon, Ga., proceed to Columbus, Ga., and assume temporary charge of extracantonment sanitation.

San. Eng. H. W. STREETER, proceed to Florence, Ala., for conference relative to Sheffield water problem.

Scien. Asst. W. H. BOLTEN, proceed to Jacksonville, Fla., for duty in extracantonment sanitation.

Scien. Asst. WALLACE PURRINGTON, relieved at Portsmouth, N. H., proceed to New London, Conn., for duty in extracantonment sanitation.

Scien. Asst. W. L. WOOD directed to make an investigation of conditions at various points in the state of Virginia to ascertain the probable effect on the health of the military forces.

San. Insp. JOHN F. GORDON, proceed to Portsmouth, N. H., for duty in extracantonment sanitation.

San. Insp. ROBERT SERUNTINE, relieved at Atlanta, Ga., proceed to Pensacola, Fla., for duty in extracantonment sanitation.

San. Insp. R. C. SIMPSON, proceed to Newport News, Va., for duty in extracantonment sanitation.

Microscopist GETHYN B. RUGAN, proceed to Wilmington, N. C., for duty in malarial investigations.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST; SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARIZONA

Funds for Y. M. C. A.—Dr. S. E. Lynd, associate manager of the Phoenix, Y. M. C. A., convened a meeting at Flagstaff, September 12, for the purpose of raising the sum of \$110,000—Arizona's quota for the support of the Y. M. C. A. abroad.

Cooperation in Health Matters.—To cooperate with the state health authorities in Arizona, Dr. Frederick T. Fahlen, St. Louis, has been appointed acting assistant surgeon of the United States Public Health Service for Arizona. Dr. Orville H. Brown, Phoenix, new state superintendent of public health who succeeded Dr. William O. Sweek, will cooperate with the United States Public Health Service representative in the expenditure of the appropriation for the control of venereal disease.

ARKANSAS

Physicians Meet.—The District Medical Association met at Portsmouth, September 15. Dr. Harry C. King, Fort Smith, conducted a surgical clinic at Sparks Memorial Hospital.

Free Clinic.—At Fort Smith a free clinic was opened, August 20, at which special attention is to be given to the welfare of children. Drs. James A. Foltz, Dred R. Dorente and Irving Sternberg are in charge.

Personal.—Dr. J. C. Geiger, formerly in charge of the United States Public Health Service work in Lonoke, has succeeded Captain Weldon in charge of the work of the Little Rock district. Dr. Geiger is an expert on sanitary conditions in rice field districts.—Dr. St. Cloud Cooper, Fort Smith, has resigned as a member of the state board of health.—Dr. William M. Burns, Argenta, has been appointed food administrator of North Little Rock.

CONNECTICUT

Personal.—Dr. Henry F. Moore, superintendent of health of Hartford, has obtained leave of absence to go to England to engage in war work.—Dr. Stewart W. Reid has been appointed police surgeon of Hartford.

DISTRICT OF COLUMBIA

Additional Personnel for Medical and Dental Inspection of Schools.—The new appropriation act for the District of Columbia considerably enlarges the force of medical and dental inspectors of public schools, increases the number of school nurses, and provides for four dental clinics in the pub-

lic schools to be served by eight dental operators, who shall be half-time dentists at \$700 per annum, and four prophylactic operators, who shall be graduate nurses trained in the inspection and cleaning of teeth; these last are to be full-time employees at \$900 per annum. The number of medical inspectors is increased by one, and of dental inspectors by two, making the new numbers twelve and four, respectively. There are to be three additional school nurses—ten in all—at \$1,000 per annum.

Escape of Leper.—John R. Early the leper and ex-soldier who has acquired nation-wide notoriety and occasioned interstate complications by his tendency to wanderlust, is once more at large, having escaped from his cottage by sawing through the iron bars which guarded the window of his room. That his liberty will be short lived may be assumed as the police authorities are vigorously on his trail. This escape from quarantine is the fourth excursion of the kind during four years. Once he found his way to the Pacific Coast, having been unrestricted in his movements for several months. When apprehended a lively dispute arose regarding the responsibility for his care; he was finally sent back to Washington, however, apparently on the ground that having been so indiscreet as to make the diagnosis the District authorities would have to bear the consequences.

Municipal Tuberculosis Dispensary Opened.—The past fortnight saw the inauguration of a new municipal social service work in the opening of the District of Columbia Tuberculosis Dispensary. The dispensary will be in charge of Dr. W. D. Tewksbury, who will have as assistants, Drs. Everett M. Ellison and Thomas Miller. A liberal appropriation was granted by Congress for this project and, while not yet complete, the equipment of the plant will be modern and ample. The roentgenologist in charge will be Dr. W. H. Merrill. The new dispensary will replace the outpatient work heretofore conducted under the auspices of the Association for the Prevention of Tuberculosis and will serve as the obviously necessary supplement to the excellent Municipal Tuberculosis Hospital. Later there will be established in the same building a social hygiene clinic, the chief of this service being Dr. Harry A. Fowler; Dr. William G. Young will be the second in command.

Personal.—Drs. A. L. Stavelly and V. B. Jackson, both of whom have been ill and have undergone surgical operations of some magnitude, have recovered. Dr. Jackson is again actively at work, while Dr. Stavelly has gone away for a vacation.—Dr. W. S. Bowen has recently recovered from an illness and has gone away for a much needed rest.—Dr. Harry S. Bernton, recently bacteriologist of the state board of health of Rhode Island, has been appointed chief of the bureau of preventive diseases and director of the bacteriologic and serologic laboratories of the health department of the District of Columbia. As chief of the contagious disease service, Dr. Bernton succeeds Dr. William C. Fowler, who became health officer following Dr. William C. Woodward's departure to Boston, and as director of the laboratories, he succeeds Dr. J. J. Kinyoun, who as major, M. R. C., is doing epidemiologic work for the Army.—Dr. E. W. Titus has been made deputy coroner, a post recently vacated by Dr. W. Browne Carr, now in the Army medical service.

ILLINOIS

Poliomyelitis.—A second case of infantile paralysis within a week was brought to the attention of health officers of Evanston, September 16.—One new case of poliomyelitis was reported, September 13, at DeKalb, making five cases under treatment at that time. Serum was being used in the treatment. The same date seven cases of scarlet fever were in quarantine.

Quarantine for Venereal Disease.—At Camp Grant, September 20, an order was issued by Col. H. C. Hagadorn, camp commander, that all men with venereal disease will be quarantined in special camps, two of which have been provided for colored men and one for white men. There are said to be between 1,000 and 1,200 men afflicted with venereal disease in the camp. Practically all these cases are in recently inducted men.

Personal.—Dr. Carl E. Black, Jacksonville, has been appointed a member of the Greek commission in charge of the surgical department and will sail soon.—Dr. Clarence H. Boswell, Rockford, has been reappointed county physician with the understanding that his contract is to be cancelled when he is called into military service.—Dr. Albert E. Campbell, Chicago, has been appointed district health officer of Springfield. He was formerly surgeon to the Illinois Central Railroad.

Illegal Practitioners Fined.—J. W. Schuppacher of Edwardsville, Madison County, was arrested by the Illinois Department of Registration and Education for practicing medicine without a license. The court assessed a fine against him of \$100 and costs, amounting to \$128.20. Joseph Zientek of 2610 Milwaukee Avenue, Chicago, was also arrested by the Illinois Department of Registration and Education for practicing medicine without a license and was fined \$25 and costs by the municipal court of Chicago.

Influenza.—In addition to the large number of cases of influenza in the Great Lakes Training Station, there are many cases in the civil population in towns along the lake. September 17, 150 cases were reported at Lake Forest and 200 at Waukegan. The Army students at Fort Sheridan and all men in the Great Lakes Aviation Camp, in addition to the 50,000 men in the Naval Training Station, have been placed under quarantine. September 20, it is reported that the epidemic at the Great Lakes was on the wane, and it was expected that there would be a decrease in the number of cases daily.

To Treat Returned Tuberculous Soldiers.—A movement has been started at East St. Louis which has the support of the County Medical Society as well as the State Medical Society and the Illinois Tuberculosis Association through its president, Dr. George T. Palmer, Springfield, to provide appropriate and continuous care for soldiers returned from the front or from the army camps on account of tuberculosis. It is said that over 1,200 have been returned up to this time. Work in St. Clair County at East St. Louis is under the direction of Dr. Charles W. Lillie, county medical director. Similar work is to be undertaken in the other counties.

Correction of Remediable Defects in Registrants.—A plan has been worked out by the War Committee of the Illinois State Medical Society by which registrants who have been placed in Group 1, Class B, on account of remediable defects, may be provided gratuitous surgical and hospital aid in having their defects remedied. This plan, together with a list of competent and trustworthy physicians and surgeons, and a list of hospitals that will care for such registrants, has been presented to Major John M. Dodson, medical aide to the governor, and through these channels the adjutant-general of the state has been led to issue to the chairman of each local board the formal offer of the physicians and hospitals to provide such service to registrants with remediable defects, together with a list of the hospitals and surgeons in the territory most convenient to any particular registration district. Accompanying these lists, which will be added to from time to time, are blanks on which the postponed registrant is invited by the local board to have his defect remedied, giving him a list of physicians and surgeons in his neighborhood who have made the offer of gratuitous service, a blank on which the registrant accepts the offer and selects the surgeon and hospital, a blank to be furnished the registrant addressed to the surgeon selected and one to the hospital selected. The registrant is given to understand that he need not accept the services of any of the surgeons named, but may employ one of his own choice. It is also provided that hospitals which cannot accept registrants for free treatment shall notify the local board of such fact and give their minimum charge for taking care of the registrant, so that the local board may arrange for the payment of such charges through some organization seeking to aid the government. Due publicity is to be given in the neighborhood of the circumstance of the registrant being willing to have his defect remedied that he may enter the service, so that he may be given credit for his patriotism, and also to encourage others to have their physical defects remedied.

INDIANA

Anesthetists to Meet.—The fourth annual meeting of the Interstate Association of Anesthetists was held in Indianapolis, September 25 to 27, at the Claypool Hotel. Dr. E. H. Embley of Melbourne, Australia, and Dr. James Cotton of Toronto, Canada, attended the meeting.

Returned Home on Account of Tuberculosis.—September 16, the Indiana Society for the Prevention of Tuberculosis received notice of the return of 161 Indiana boys who have been discharged from the Army on account of tuberculosis. This makes a total of 565 discharged from the Army on account of this disease.

Quarantine for Venereal Disease.—An ordinance recently passed by the Indianapolis City Council in the interest of the eradication of venereal disease became effective, September 2. All such cases must be reported and the afflicted person

must obtain treatment from a licensed physician and undergo detention in his own home.

Scholarship Provided by Will.—The will of Dr. Nikodem G. Borisowicz, South Bend, provides for a scholarship for a Polish student with a high school education at the Polish National Alliance College at Cambridge Springs, Pa., for the acquisition of an education in a civil profession. A committee is named to administer the trust.

Indiana Physician Receives Military Cross.—Under date of August 19 a list of Army orders by Gen. Sir Herbert Plumer announces the award of the military cross to Lieut. Glenn D. Ransom, M. C., U. S. Army, attached to the 5th Battalion of the Cameron Highlanders. Lieutenant Ransom resided in Hamilton, Ind., before entering the service.

Influenza Survey.—Dr. John N. Hurty, secretary of the state board of health, has ordered a survey of the state to ascertain how prevalent is the influenza. He has sent inspectors of the state board to visit Indianapolis factories engaged in war production and has asked the county health officers of the different cities in the state to report to him.

Addition to Antituberculosis Camp.—Mr. John W. Boehne, ex-mayor of Evansville, has contributed money to erect a new addition to the Boehne Antituberculosis Camp, near Evansville. The addition will cost about \$12,000 and will be used for the returned soldiers who are suffering from the white plague, twenty of these now being in Vanderburg County. The new addition will accommodate from forty to sixty soldiers.

County Tuberculosis Hospital.—It has been announced that a board of county commissioners has full power to establish a county tuberculosis hospital without first submitting the question to the voters of the county or without the board being petitioned to establish such a hospital. However, if a board should refuse to establish such a hospital, the citizens, by means of a petition signed by 200 freeholders and an election, can force it to do so if the majority of the voters are in favor of it.

For a Joint County Tuberculosis Sanatorium.—A campaign is being conducted by the Indiana Society for the Prevention of Tuberculosis to secure the vote of the electors at the November election for a tuberculosis sanatorium for four counties, Noble, DeKalb, Steuben and La Grange. At the Kendallville fair, a headquarter tent was maintained and the campaign carried on by means of lectures, literature and personal solicitation. Similar work is being carried on in other districts of the state. In Marion County a full-time teacher, hired for the purpose, will give regular instructions in measures to prevent tuberculosis in all public schools.

IOWA

State News.—At Vinton the main building of Tilford Academy has been sold to the city for a hospital for \$50,000, which sum has been left by the will of Miss Virginia Gay to establish a hospital in her name.—At Fort Dodge, the Eleanor Moore Hospital, given by Hon. S. L. Moore, who kept up the yearly financial deficit, is about to be closed on account of the scarcity of physicians. Unless Mr. Moore can make some other arrangements, the hospital will be closed until after the war.—The sum of \$24,000 has been allotted to Iowa, a part of the \$1,000,000 federal appropriation for the control of venereal disease. This expenditure will be under the supervision of the state board of health.—At Clinton, September 18, eight cases of infantile paralysis were under quarantine.

MAINE

State News.—The state department of health is now carrying on, in cooperation with the government authorities, important sanitary and disease prevention measures in the Portsmouth-Kittery Civil Sanitary District and Bath, in connection with the shipbuilding industry in which there are engaged several thousand workmen. Dr. Paul Treble of the U. S. P. H. S. has been placed in charge of the district on the recommendation of Dr. Leverett D. Bristol, state commissioner of health.—In the venereal disease campaign, Dr. Harry E. Hitchcock, formerly district health officer for the northern part of Maine, has been placed in charge.—According to the report of the state board of health during last month, 390 children were born in the state who had not been named at the time the reports were sent in. This omission makes the certificates worthless to the individual for establishing the date of his birth. During the time named there were 1,062 births. This shows that about one third were improperly reported.

MARYLAND

Infantile Paralysis.—An additional case of infantile paralysis occurred in southwest Baltimore, September 17, in a white baby 5 months old. Thirty cases have been reported in Baltimore since March 30.

Meetings.—The Baltimore County Medical Association held its monthly meeting at the base hospital at Camp Meade as the guests of Lieut.-Col. Lloyd A. Kefauver, Manila, P. I., and the medical officers, September 18. Following the medical meeting, supper was served at the camp.

Personal.—Major J. Albert Chatard, Baltimore, who, prior to his departure for Italy, was head of the medical service at the U. S. Army General Hospital No. 2 at Fort McHenry, Baltimore, has arrived overseas.—According to a cable dispatch, Capt. Harry W. Maxson of Baltimore, who was captured by the Germans last February, is now interned in the officers' camp at Rastatt, Baden.—Dr. Walter L. Denny of Baltimore has resigned as a member of the board of police surgeons to enter military service. Dr. Denny has been engaged in government medical work for the past year.—Dr. John D. Fiske, official physician to members of the crews of foreign vessels, who has been ill at Johns Hopkins Hospital, is now convalescent.—Dr. John M. T. Finney, surgeon in chief of the American Expeditionary Forces, on his recent visit to the United States laid plans before the president for the establishment of hospitals for the treatment of shell shock. The necessary funds have been provided and Dr. Finney has returned to France, where he has made a special study of shell-shock cases.

NEW YORK

Memorial Wing for Peekskill Hospital.—A fund is being raised to build a memorial wing to the Peekskill Hospital in memory of the seven volunteer firemen killed recently in the Fleischman Plant at Peekskill. Thus far \$12,000 has been subscribed.

Medical Meeting Postponed.—A meeting of the Medical Association of Central New York, which was scheduled to take place October 17, has been abandoned on account of the absence of many members at the front. The next meeting will be held in 1919. Dr. John J. Buettner, Syracuse, is president, Dr. Robert Burns, Syracuse, secretary, and Dr. Thomas F. Laurie, Syracuse, treasurer.

New York City

Personal.—Dr. Abraham Jacobi's summer home at Lake George was destroyed by fire on the night of September 20. Dr. Jacobi, whose sleeping apartments were cut off from the rest of the building by the flames, had a narrow escape, but suffered from nothing more serious than shock and a few bruises. A valuable collection of historical antiques was destroyed.

New York Academy of Medicine.—The first meeting of the New York Academy of Medicine for the season 1918-1919 will be held, Thursday evening, October 3, at 9 o'clock. At that time Prof. Graham Lusk, one of the representatives at the recent meeting of the Interallied Scientific Food Commission abroad, will deliver the Wesley M. Carpenter lecture, his subject being "The Scientific Aspect of the Interallied Food Situation."

Raising Funds for Hospital.—The women physicians of the New York Infirmary for Women and Children have started a campaign to raise \$200,000 for this institution. Dr. S. Josephine Baker is chairman of the campaign committee of 400 volunteer workers. Others active in the effort to reinstate this institution are Dr. Anna Howard Shaw, Dr. Alice E. Wakefield, Dr. Louis D. Ray and Dr. William Emmet Cuff, all of New York City.

More Women Doctors Sail for France.—The second unit of the American Women's Hospitals, which is to be added to the staff of the military hospital directed by Dr. Barbara Hunt, Bangor, Me., at present working with the Sixth Army Corps in cooperation with the American Committee for Devastated France, has sailed. The unit includes the following: Drs. Caroline M. Purnell, Philadelphia; Mary L. Evans, Middletown, Conn.; Charlotte Fairbanks, St. Johnsbury, Vt.; M. Ethel V. Fraser, Denver; Mary MacLachlan, Portland, Ore., and Ier Jay Manwaring, Norwich, Conn. Dr. Purnell is special commissioner for the American Women's Hospitals in France.

The Influenza Situation in New York.—According to a statement made by the health department, September 20, there

were at that time about 450 cases of influenza in the greater city. Health Commissioner Copeland expresses the opinion that the disease is not getting away from the control of the health department, but is decreasing. Citizens who have contracted the disease are quarantined and the health department is prepared to compel patients who may be so situated as to be a menace to the community to go into hospitals. The bacteriologists of the department of health find Pfeiffer's bacillus in a large percentage of the cases, and, in addition, a minute organism, as yet unidentified. In order to better control the spread of influenza the health board at its regular meeting, September 17, placed pneumonia and influenza on the list of diseases that must be reported by all physicians.

Change in Administrative Methods in Health Department.—Certain changes in the administrative system of the New York Department of Health are to go into effect, October 1, having for their purpose the coordination of the work of the department and the granting of autonomy to the boroughs. The chief officer in each borough, known as the assistant sanitary superintendent, will become the head of that borough. There will be attached to each of the boroughs, as at the present time, a representative of each of the bureaus of the department requiring field representatives. All the employees in a given borough will be under the direction, supervision and control of the assistant sanitary superintendent, though it is understood that, except in cases of emergency, each employee assigned to a borough office for the work of a given bureau will not be taken from that particular work without orders from the commissioner's office. Questions of policy, exceptional conditions, and changes in personnel will be brought to the personal attention of the commissioner, who will make final decisions in cases of disagreement between the sanitary superintendent and the head of any borough. It has been the belief of those directly interested in the administration of health department work that in a city as large as Greater New York the borough office should have greater authority in the administration of local affairs, since in this way there could be personal contact with an actual knowledge of local conditions impossible under the centralized bureau system, and especially impossible under the triple headed district now in force. The change will overcome these objections. The more minute details of the new plan have not yet been made public.

OHIO

State Meeting Abandoned.—The meeting of the State Medical Association, which was to be held at Columbus, October 1-3, has been abandoned on account of war conditions and the demands on the medical profession.

PENNSYLVANIA

Urge Better Medical Care.—According to a preliminary report submitted to the state health insurance commission by its investigating staff, there is an average loss of 8,400,000 working days a year in Pennsylvania. It is also asserted that a large number of the serious illnesses appear to be due to the lack of medical care for minor ailments; that present facilities for medical care of employees are not satisfactory and that a study of a typical working class district in Kensington, Philadelphia, showed that more than half of the illnesses were those of wage earners and that each sick worker lost an average of thirty-nine days' time and almost \$80 in wages. Recommendations for reducing this waste of industrial forces will be placed before the legislature next January.

Philadelphia

Influenza Made Reportable Disease.—September 21, the board of health made "Spanish" influenza a reportable disease in order to bring it under immediate control among the civilian population. All physicians are called on to report cases and to isolate every patient.

Gift to the Blind Fund.—The biggest individual subscription in the campaign to raise \$150,000 for the Pennsylvania Working Home for Blind Men was announced, September 19. It was \$10,000 and was given anonymously with the stipulation that an additional \$90,000 be collected before the end of the campaign. Up to September 19, \$61,000 had been collected.

Personal.—Dr. Cornelius T. McCarthy, now a first lieutenant in the United States Army Medical Corps attached to the British army, has been awarded the British military cross for the second time.—Dr. Samuel L. Baron has been made assistant school medical inspector, bureau of health, with a salary of \$600.—Dr. Edwin S. Darby, who resigned from the dental department of the University of Pennsylvania a

year ago, after more than thirty years of service, has returned to the institution at the request of the faculty and board of trustees.

Meeting of Babies' Welfare Association.—The Babies' Welfare Association held a meeting in the red room of the Bellevue-Stratford, Monday evening, September 23. The program follows: Neva R. Deardorff, Ph.D., American Red Cross, Washington, D. C.: "Birth Registration—A National Service"; Dorothy Reed Mendenhall, M.D., University of Wisconsin, representing the Federal Children's Bureau, Washington, D. C.: "The Reduction of Maternal Mortality"; John M. Baldy, M.D., president, Bureau of Medical Education and Licensure, Commonwealth of Pennsylvania: "The Demands of War-Time Obstetrics."

Medical College Reopens.—The Women's Medical College of Pennsylvania opened its sixty-ninth session, September 24. Dr. Martha Tracy, dean of the college, made the introductory remarks, and Dr. Eleanor C. Jones, professor of pediatrics, delivered the principal address. Announcement was made at the request of the government that a course for laboratory technicians had been added to the curriculum requiring seven months' study to complete it. Graduates in this course will be ranked as apprentice technicians in military hospitals. A high school education and a knowledge of chemistry and biology are necessary for matriculation. Seventy-five students were enrolled.

State Society Meeting.—The Medical Society of the State of Pennsylvania held its fifty-ninth session in Philadelphia at the Bellevue-Stratford Hotel, September 24 to 26, inclusive. General meetings were held Tuesday and Wednesday mornings and Thursday afternoon; specialty sessions, Tuesday and Wednesday afternoons and Thursday morning. Tuesday evening, a patriotic meeting was held in the ball room, and Wednesday evening, a reception for the president and officers of the society. Thursday evening, there were moving pictures of war activities and music. A meeting and supper of the secretaries of the component county society was held Tuesday evening at Kugler's. The commercial exhibit was open every day at the Bellevue-Stratford.

CANADA

Infantile Paralysis.—Infantile paralysis has broken out in Manitoba necessitating the closing of several schools, churches and moving picture theaters.

Spanish Influenza.—This new and stylish disease, if it is any other than our old friend the grip in a new dress, has appeared in various parts of Ontario, particularly in the Polish military camp at Niagara-on-the-Lake. Col. John W. S. McCullough, Toronto, the chief medical officer of health for Ontario, is sending an official circular to physicians throughout the province on the subject.

Personal.—Lieut.-Col. Ernest Raymond Selby, Calgary, Alta., a graduate in medicine, University of Toronto, 1910, who has seen prolonged service in the C. A. M. C., is reported wounded. Originally a captain with No. 2 Canadian Hospital, he was also attached to the First Casualty Clearing Station, and made M. O. 43d Battalion. He was mentioned in dispatches in June last.—Dr. James M. Johnston, Toronto, convicted last March of performing an illegal operation, has been sentenced for two years less one day at the Burwash Prison Farm, North Ontario. Dr. Johnston is 63 years of age, practiced in Toronto more than thirty years, and from real estate holdings in Toronto is possessed of an annual income of \$20,000. His counsel is endeavoring to secure his pardon from the minister of justice. In the meantime he will be assigned to medical duties at the prison farm.

GENERAL

Prevention of Epidemic Influenza.—The rapid spread of the pandemic of influenza has led to the issuance by the Surgeon-General of the Public Health Service of a circular letter addressed to the medical officers in each of the United States quarantine stations with reference to the prevention of the introduction into the country on vessels of the disease referred to as "Spanish influenza." A short description of the disease is given and the methods for its control and treatment summarized in *Public Health Reports*, Sept. 13, 1918.

Board on Excreta Disposal.—The Surgeon-General of the Public Health Service has created a board to make a general study of the question of sewage and excreta disposal. This board consists of C. W. Stiles, U. S. P. H. S., chairman; Prof. E. B. Phelps, U. S. P. H. S.; L. L. Lumsden, U. S.

P. H. S.; Prof. G. C. Whipple, of Harvard; W. S. Rankin, of Raleigh, N. C.; Col. V. C. Vaughan, M. C., U. S. Army, of Ann Arbor, and Prof. E. O. Jordan, University of Chicago. It will undertake an extensive study of small sewage units, such as the isolated farmhouse, small hotels, etc. The headquarters will be at Wilmington, S. C., with extensive laboratories and experimental facilities.

Regulations for Allotment of Venereal Disease Funds.—*Public Health Reports*, Sept. 13, 1918, contains the regulations promulgated by the Secretary of the Treasury under which state boards or state departments of health receive an allotment of funds appropriated by an act of Congress, approved July 9, 1918. This act provides that a million dollars shall be distributed to the states for the use of their respective boards or departments of health in the prevention, control and treatment of venereal diseases. The fund is to be distributed to the states in the proportion which the population of each bears to the population of the continental United States, according to the last census, exclusive of Alaska and the Canal Zone. The regulations under which this fund is distributed are fully set forth. The assistance of the United States Public Health Service is made available to state organizations in this work.

Government Desires Platinum.—The chief of the Section of Medical Industry of the War Industries Board has issued an appeal to every one, including especially physicians and dentists, that on account of the scarcity of platinum and the great need of that metal for war purposes, each should go over his instruments and pick out every scrap of platinum that is not absolutely essential for his work. These scraps, however small, should reach government sources either through accredited representatives of the Red Cross, who will make a canvass for the purpose of collecting the platinum, or through any bank under the supervision of the Federal Reserve Board. Current prices will be paid for the metal. A warning is issued against giving scrap platinum to any one not authorized to represent the Red Cross. Platinum absolutely required for dental and surgical instruments and purposes will be released from time to time.

FOREIGN

Spanish Medical Party Visits French Fighting Front.—The Spanish government appropriated 30,000 pesetas to pay the expenses of a party sent to study on the spot the progress realized during the war in the treatment of wounds. The party is in charge of Dr. R. Molla, professor at the University of Madrid, and includes one licentiate from the medical department of each of the ten universities of Spain. The term "licentiate" is applied to those who have finished the curriculum but have not yet received the doctor's degree. The one representing the University of Valencia is a young woman.

Campaign Against Birth Control.—A national association has been organized in the Netherlands to combat the new malthusianism. Dr. H. Pinkhof, one of the editorial writers of the *Nederlandsch Tijdschrift*, is the president. A two-day congress is planned for December, to be held at Utrecht, and eight addresses are to be presented. The meeting is open to any one on payment of the free of 2.50 florins which entitles one to take part in the discussions, vote and receive a copy of the transactions. The four sittings are open also to others interested on payment of 1 florin. Dr. Pinkhof's address is Plantage Franschelaan 11, Bijkantoor Prins Hendrikkade, Amsterdam. The name of the association is the Vereeniging tot bestrijding van het Nieuw-Malthusianisme.

Hospital Fare in Germany.—The *Nederlandsch Tijdschrift* quotes an article in the *Deutsche medizinische Wochenschrift* by Professor Hoeflmayer of Munich in which he protests against the investigating committee which visits the hospitals and interrogates patients and others, seeking to discover among the inmates some who without being sick, feign illness and stay in the hospitals in order to get better food to eat. He comments on the injury done the sick by these searching examinations, and the lack of confidence in the hospital physicians which they display. "Even if one physician should connive at such practices," he says, "they could not be carried out without the participation of the other medical attendants. It would be better if the physician suspected were given a chance to defend his diagnosis before the board of control. This would facilitate matters for all hands, while a physician who might not be acting in good faith would not dare to risk conviction for perjury."

PARIS LETTER

PARIS, Aug. 22, 1918.

Call for the Class of 1920

Legislation has been passed calling the class of 1920 (young men 18 years of age) to the colors. The minister of war has sent instructions to the prefects and the commanders in chief of the various regions that the most rigid medical examinations should be made in selecting men from this contingent. The medical examiners will be required to be as rigid in the examination of these young recruits as they are in the case of volunteers. They must not accept either for full or limited service men who are not physically sound, but they can postpone or temporarily exempt those who, without being the victims of a characteristic organic disturbance, nevertheless have a weak physique, with a general make-up and antecedents which predispose to tuberculosis. Only those men should be accepted who are sound physically, strong and robust, presenting physical attributes clearly adequate for service. A selection which sacrifices the quality of the recruits for numbers defeats the object sought. The development of diseases of all kinds and of epidemics is favored, besides needlessly exposing the men already in service. Hence, a most careful selection of new recruits is of first importance. In fact, it is an absolute necessity in the interests both of the army as well as of the country.

Personal

Dr. Pierre Delbet, clinical professor of surgery in the Medical Faculty of Paris, has been made commander in the Legion of Honor. The citation recalled his fame as a surgeon, known the world over, and that at the beginning of the war he placed his services at the disposition of the minister of war, without reservation. He has carried to a successful conclusion a number of missions which have had a most favorable influence on the treatment of the wounded. He is the originator of a new method of treating fractures which has yielded excellent results.

Dr. Hartmann, professor of clinical surgery, and Dr. Jean-Louis Faure, professeur agrégé, both of the Medical Faculty of Paris, have been named officers in the Legion of Honor.

Team Work Between the Surgeons at the Front and in the Interior

An important conference was held recently at the Ecole d'application de médecine et de pharmacie militaires du Val-de-Grâce under the presidency of Dr. Louis Mourier, under-secretary of state for the Service de Santé militaire. The purpose of the conference was to bring together the medical officers of armies and of army groups, the consulting surgeons of the armies engaged in the recent military operations, as well as the directors of the Service de Santé and the chief surgeons of the surgical sectors of the regions of the interior who have received the wounded directly from the front. It was desired to establish a *liaison* between the physicians and surgeons of the various armies, and permit an interchange of views between these and the physicians and surgeons of the interior, and to secure an expression of opinion as to the lessons that could be drawn, from the medical point of view, from the military operations carried out from March to June of this year. Questions of special importance discussed were: the placing and function of the advanced ambulance groups, the evacuability, transportation and apparatus needed for thigh fractures, and the indications and technic of suture of war wounds.

Honor to the American Red Cross

The American Red Cross has received a letter from General Gouraud, commander of the Fourth Army, in which he expresses his profound admiration of the excellent services rendered by the American canteens to the Fourth Army.

Legacy to the Hospice des Quinze-Vingts

An American, Mrs. William Taylor Moore, née Robinson, bequeathed to the "Hospital for the Three Hundred" (an asylum for the blind in Paris, founded by St. Louis) 100,000 francs for the care and instruction of French soldiers blinded by the war.

Spanish Mission to Paris

Dr. Molla, a member of the Medical Faculty of Madrid, and twelve other professors chosen from the faculties of various Spanish universities, have arrived in Paris. They will visit the principal medical and surgical centers, remaining in Paris for the entire month of August. The mission is charged to prepare a report on the progress made by French war surgery.

A New Type of Surgical Battle Formation

The Société française de secours aux blessés militaires has devised a new type of surgical ambulance which meets the needs arising during active military operations. This ambulance can be advanced and moved back quickly, being essentially different from those in use for some months. Furthermore, it enables the surgeons to render speedy, immediate and complete service to patients with extensive wounds of the thorax, abdomen or head. It consists of a number of large tents, one serving as a *salle de triage*, a second for local administration, another for preparing the wounded for operation, a fourth for radiography; an operating tent, connected with the sterilizer camion, which contains two autoclaves, and, finally, the hospitalization or ward tents. For transport, the whole outfit is carried in two camions or trucks and two trailers.

American Red Cross at the Belgian Front

The Belgian sovereigns received the delegation of the American Red Cross, headed by Major Perkins, European Red Cross commissioner, at the Belgian front. Major Perkins delivered to Queen Elizabeth the million offered by the American Red Cross to the Belgian Red Cross. The king thanked the delegation and expressed his appreciation of the assistance given by the United States.

LONDON LETTER

LONDON, Aug. 27, 1918.

The Maternity and Child Welfare Act

The powers of local authorities to safeguard the health of mothers and young children have been enlarged by the maternity and child welfare act, the introduction of which was reported in a previous letter. The act enables local authorities "to make such arrangements as may be sanctioned by the Local Government Board for attending to the health of expectant mothers and nursing mothers and of children who have not attained the age of 5 years and are not being educated in schools recognized by the board of education." A local authority exercising powers under the act must appoint a maternity and child welfare committee which must include at least two women. One third of the committee may consist of persons specially qualified by training or experience in subjects relating to health and maternity who are not members of the local authority. The government grant is now available for the following additional services: hospital treatment for children up to 5 years of age; lying-in homes; home helps; the provision of food for expectant and nursing mothers and for children under 5 years of age; crèches and day nurseries; convalescent homes; homes for children of widowed and deserted mothers and for illegitimate children, and experimental work for the health of expectant and nursing mothers and of infants and children under 5 years of age. The Local Government Board seeks to secure that, so far as practicable, there shall be an efficient midwifery service throughout the country, and it looks to the municipal councils to organize the necessary arrangements. It is considered important that the status of midwives should be raised, and that competent trained women who devote themselves to this service should be adequately remunerated. They consider that a competent trained midwife, devoting her whole time to the work, should be able to secure an income of from \$600 to \$750 a year. A local authority may pay or guarantee the salary of a competent midwife, and suggestions for improving the midwifery service are invited. Each midwife should be seen by the supervising authority's inspector of midwives at least once a quarter, and on these visits general instruction and assistance should be given. A sufficient staff of competent inspectors—preferably qualified medical women—is therefore needed. Local authorities should arrange to pay the fees of physicians called in by midwives during the period of confinement, though in cases which are not necessitous the patients would no doubt repay the cost.

The board's standard of 500 births to each health visitor has been modified. Experience has shown that when the duties properly required of a health visitor are fully performed, a district with about 400 births a year is ordinarily as much as one worker can undertake. Other offices, such as that of tuberculosis nurse, school nurse and mental deficiency visitor, may be held with that of health visitor in certain cases, so as to give the officer a compact district and save traveling. The salary of a whole-time officer acting as health visitor, with or without these other posts, should as a rule be not less than \$600 a year. In sparsely populated

districts it may be convenient to appoint the district nurse-midwives of nursing associations as health visitors.

The home nursing services in respect of which the grant is now available are nursing needed for expectant mothers, maternity nursing, the nursing of puerperal fever, and the nursing of measles, whooping cough, epidemic diarrhea in young children, and ophthalmia neonatorum. The board notes with satisfaction the recent increase in the number of welfare centers in which mothers receive medical and hygienic advice on the care of their children, and say that, when practicable, there should be a center for each health visitor's district. Centers may be combined with school clinics, especially for ophthalmic and dental cases, and, subject to certain conditions, cots may be provided experimentally at centers on a small scale, but not for acute cases of illness.

The provision of further lying-in accommodation in the many areas where it is needed is encouraged by the board; and suitable "home helps" may be employed and paid by the authority, to look after a woman's home during her confinement. The home help should undertake the mother's ordinary domestic duties, including cleaning, cooking, washing, care of children, mending and marketing. She should not undertake any work which properly belongs to the sphere of the trained nurse or midwife, nor assist at a confinement unless a physician or a midwife is in attendance. Home helps should be specially trained at maternity centers and day nurseries, receiving practical instruction in plain and invalid cookery, food values and prices, laundry work, mending, infant care and hygiene.

Civics and Eugenics

The Summer School of Civics and Eugenics, which will last for nearly a fortnight, was opened at Oxford. The opening address was delivered by Prof. J. H. Muirhead of the Birmingham University, who said that civics meant an intelligent interest in the whole organization of civilized society, and especially the society to which they themselves belonged. This extension of citizenship from devotion to the parish or the neighborhood to the state raised a difficulty in regard to their emphasis on civic education at the present time. He would be asked, Was not this the mistake which Germany had been making, that she had put the state in front of education? The education of the citizen had begun, innocently enough, in the call to look beyond the narrow interests of individual or family egoism, but had it not ended in the creation of another or more terrible egoism—the egoism of the state; and had not the state just at the present time tried to impress the idea of citizenship as the leading mark of education? He accepted the warning of a German writer against making the state the supreme object of devotion. Were they making a mistake in emphasizing civic education or citizenship as the oriflamme of their new education? Would it not be better to take as their guiding motto the free personality of the individual, and, instead of emphasizing the education of the citizen into a word like civics, should they not emphasize the freedom of the individual soul, and, perhaps in some new science yet unnamed, the doctrine of freedom? Passing to eugenics, he said it meant more than a kind of "adult hygiene" concerned with inheritance, rather than habits. What he understood by eugenics was a way of looking at their civilization which emphasized the mental and physical inheritance as something which was the result of the long ages of the struggle of mankind on earth. It seemed to him a good omen and a step founded on true insight as to the nature of civics and eugenics that the two societies had united in this school. It was the first effort, he understood, at cooperation between them.

Engineers and Public Health

In the *Times* engineering supplement, attention is called to the necessity for collaboration between medicine and engineering in undertakings that affect the public health. It is pointed out that at present engineers often take on themselves work that ought to be done by geologists, chemists and bacteriologists, and this without due consultation with physicians, although they cannot be specialists in all these subjects. On the other hand, health officers are sometimes imperfectly acquainted with the possibilities of engineering in connection with the treatment of water and sewerage work generally, and without such knowledge they are obviously at a disadvantage in suggesting improvements. Proper collaboration between the engineer and specialists in the various branches of science concerned is therefore required, and would be the means not only of saving needless expenditure but of enhancing the efficiency of the works carried out.

Deaths

Zina Goodell Harrington, Mankato, Minn.; Albany (N. Y.) Medical College, 1857; aged 88; at one time a member of the American Medical Association; and president of the Minnesota Valley Medical Association; who in 1907 was presented with a loving cup by his co-workers in celebration of the completion of fifty years of practice; for several years president of Mankato State Bank; died at his home, September 10, from senile debility.

William Franklin Barclay, Pittsburg; Long Island College Hospital, Brooklyn, 1866; aged 76; a member and once vice president of the Mississippi Valley Medical Association; who discovered in 1893 and applied methods whereby he successfully combined gold with bromine, mercury, arsenic and other metals; died at his home, September 9.

Lieut. Samuel Brody Leiser, M. C., U. S. Army, Chicago; University of Illinois, Chicago, 1917; aged 26; a Fellow of the American Medical Association; who had been on duty at U. S. General Hospital No. 9, Lakewood, N. J., and was on leave in Chicago; died at the Presbyterian Hospital, September 16, from ulcerative colitis.

Walter C. Taylor, Springfield, Ohio; Starling Medical College, Columbus, Ohio, 1898; aged 52; a Fellow of the American Medical Association; secretary of the Clark County Medical Society in 1915, and president in 1918; died in the City Hospital, Springfield, Ohio, September 12, from pulmonary tuberculosis.

Benjamin Charles Guldin, Minersville, Pa.; University of Pennsylvania, Philadelphia, 1870; aged 69; at one time a member of the Medical Society of the State of Pennsylvania, and coroner of Schuylkill County; died at his home, September 1, from cerebral hemorrhage.

James E. Wylie, Little Rock, Ark. (license, Arkansas, 1903); aged 68; a practitioner for forty-one years; night desk sergeant at police headquarters, North Little Rock, for several months; died at the home of his daughter in Los Angeles, June 18, from nephritis.



George Dexter Dulin, Las Animas, Colo.; College of Physicians and Surgeons, Keokuk, Iowa, 1891; Beaumont Medical College, St. Louis, 1892; aged 52; for two terms a member of the state legislature; died in St. Luke's Hospital, Denver, September 4, from pneumonia.

Lieut. Harold Greene Porter, Assistant Surgeon, U. S. N. R. F., Syracuse, N. Y.; University of Syracuse, N. Y., 1911; aged 25; a Fellow of the American Medical Association; on duty at the Naval Hospital, Chelsea, Mass.; died recently from influenza.

James Henry Briggs, Providence, R. I. (license, Rhode

Died in the Service
IN FRANCE
CAPT. HODDIE W. DANIELS, M. C.,
U. S. ARMY, 1872-1918

See *The Journal*, last week, p. 992

Island State Board of Health, years of practice, 1895); aged 64; a practitioner of Providence for twenty-five years; died in St. Joseph's Hospital in that city, September 8, six days after a surgical operation.

William H. Kinnier, Dubuque, Iowa; Albany (N. Y.) Medical College, 1870; aged 74; a member of the Iowa State Medical Society; died in Mercy Hospital, Dubuque, September 9, a short time after a surgical operation.

Felix Stanislaus Rynkiewicz, Shenandoah, Pa.; Jefferson Medical College, 1917; aged 27; until July an intern in the

State Hospital for the Northern Anthracite Coal Region of Pennsylvania; died at his home, August 30.

John McIntyre, Butte, Mont.; University of Bishop's College, Montreal, Quebec, 1898; aged 52; a member of the Montana State Medical Association; died at his home, September 11, from disease of the kidney.

Edgar Chapman Gates, Providence, R. I.; New York University, New York City, 1882; aged 59; formerly surgeon in the United States Marine Hospital Service; died at his home, September 10, from heart disease.

Lieut. John Houston Steen, M. C., U. S. Army, Vaughan, Miss.; University of Nashville, Tenn., 1907; aged 37; a Fellow of the American Medical Association; is reported to have been killed in action, August 11.



Died in the Service
IN FRANCE

LIEUT. JOHN HOUSTON STEEN, M. C.,
U. S. ARMY, 1881-1918

Robert Goodlove Harris, Sandersville, Ga.; Meharry Medical College, Nashville, Tenn., 1917; aged 33; died at his home, September 7, from tuberculosis.

Allen Schley Reynolds, Hancock, W. Va.; University of Maryland, Baltimore, 1880; aged 61; died at his home, September 9, from acute gastritis.

Lewis A. Shollenberger, Reading, Pa.; Hahnemann Medical College, Philadelphia, 1885; died in a sanatorium in New Jersey, September 2.

James Addison Ambrose, Dayton, Ohio; Medical College of Kansas City, Mo., 1882; aged 74; a veteran of the Civil War; died recently.

Nathaniel Gooch, Nashville, Tenn.; Vanderbilt University, Nashville, 1885; aged 78; a Confederate veteran; died at his home, September 7.

Marriages

LIEUT. FLOYD WALTER APLIN, M. C., U. S. Army, Waukesha, Wis., on duty at Waco, Texas, to Miss Elsie Evans of Washington, D. C., at Waco, recently.

ALEXANDER STEWART MACMILLAN, Boston, to Dr. ANNE LESLIE HOOPER of Somerville, Mass., in Boston, September 5.

MEFFORD RUNYON, Leak Island, N. Y., to Mrs. Katherine Flower Kip of South Orange, N. J., September 10.

JAMES M. PALMER, JR., Cumberland, Md., to Miss Ruth Maxwell of Morgantown, W. Va., September 7.

THEODORE F. THOMPSON, Lakewood, N. J., to Miss Ella Anderson of Toms River, N. J., September 4.

HARRY A. PAWLING, Watertown, N. Y., to Miss E. Louise Sweet of Adams, N. Y., September 2.

LEVI ST. JOHN HELY to Miss Sophie Wolters, both of Oakland, Calif., September 4.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

CARMINZYM

Report of the Council on Pharmacy and Chemistry

The Council has authorized publication of the following which explains why Carminzym was not accepted for New and Nonofficial Remedies. W. A. PUCKNER, Secretary.

Carminzym is a tablet sold by Fairchild Bros. and Foster, New York. Each tablet contains, according to claims made, approximately 32 mg. of an extract of pancreas, 50 mg. sodium bicarbonate, 172 mg. prepared chalk, 1.5 mg. powdered ipecac and "aromatics *q. s.*" Without considering other possible conflicts with its rules, the Council held the preparation inadmissible to New and Nonofficial Remedies for conflict with Rule 10 which holds that unscientific or useless articles are not acceptable products.

The Council holds that complex mixtures of remedial agents are, from every point of view, inimical to therapeutic progress and therefore to the public welfare. Such mixtures are especially objectionable because it is impossible accurately to determine the effects which follow the simultaneous administration of a number of drugs having dissimilar actions; because the practice of prescribing such mixtures tends to discourage careful consideration of the special needs of individual patients without which there can be no rational drug therapy. On the contrary, with the use of such mixtures therapeutic treatment becomes haphazard and mere guesswork.

The Council, appreciating that long established customs cannot be changed at once, has applied Rule 10 concerning the recognition of mixtures with the greatest leniency compatible with consistency. When there has been a reasonable doubt concerning the value of a mixture it has frequently directed that Rule 10 should not apply pending further clinical trial of such mixture. In no instance has subsequent experience shown that a strict interpretation of the rule would have worked hardship or injustice. The Council feels that there is no longer warrant for the admission of complex mixtures to New and Nonofficial Remedies or for the retention of any that have been admitted unless definite evidence of the therapeutic value of such combinations is available. In accordance with this decision several mixtures now described in New and Nonofficial Remedies will be omitted at the expiration of the three year period for which articles are accepted.

Reverting to the Carminzym tablet: When it is desired to obtain the effects of pancreatic extract by oral administration it must be administered with a view of preventing its destruction by the gastric fluid. With this end in view an antacid should be administered to decrease the acidity of the gastric juice. The amount of alkali may be supplied in the form of any of the official preparations, but the amount must be adjusted to the individual patient for the reason that no two successive patients are likely to have the same degree of gastric acidity.

Ipecac has a well defined though limited field of usefulness. When it is used, it should be given with a due regard to the amount needed by the patient and the frequency of the repetition of the dose. There is no reason to suppose that any two successive patients will require ipecac and extract of pancreas in a fixed proportion and with equal frequency. As a matter of fact, the amount of ipecac in Carminzym is so small that no definite therapeutic action can be assigned to it and its use in this combination is purely empirical.

In a word, the employment of mixtures of pancreatic extract, alkalis, ipecac and carminatives in fixed proportion

leads to slipshod treatment and irrational therapeutics. Carminzym is an irrational mixture the use of which is detrimental to therapy.

The preceding report was sent to Fairchild Bros. and Foster for comment in accordance with the Council's usual procedure. The following reply was received:

The long established custom of the use of mixtures of remedial agents rests upon considerations well known and generally accepted. This is equally true of combinations of drugs of similar and dissimilar properties. The drugs of these combinations, especially those of marked therapeutic action, are well known and used by themselves when indicated.

In fact, dissimilarity of action is a cause of combination, an essential of synergism.

Drugs classed as similar are by no means alike in action; laxatives, tonics, carminatives, diuretics are combined with distinct advantage, economy of dose, enhanced effect, potency not obtainable with the single drug.

Your sweeping arbitrary conclusions that complex mixtures of remedial agents are from every point of view inimical to therapeutic progress is not, it seems to us, sustained by fact and experience. There is therapeutic progress in the considerate use and observation of combinations as well as in the use of a single drug. Indeed, in the production of a synthetic chemical substance as a therapeutic agent, the combination of potent and dissimilar elements is worked out to mitigate and correct an objectionable side effect, and promote desirable action.

As for ourselves, at the very outset in our line of work we quite voluntarily declared our principles and our intentions as opposed to incompatible and therefore unstable or inert combinations of the enzymes; and against the "unnecessary multiplication of preparations"—see Fairchild's Hand-book of the Digestive Ferments.

Is not this after all the crux of the whole matter—does a combination contain the ingredients stated, does it possess the demonstrable properties which are to be attributed to it in consequence of this composition; and if for a certain purpose, is it well designed therefor?

Carminzym presents certain agents of well known properties, not in the least of incompatible or antagonistic action, but indeed especially suitable for the particular purpose designed; its efficacy not to be measured and judged by theory or opinion as to the efficiency of a certain dosage of a particular drug by itself. That the doses as contained are minimal and effective is distinctly advantageous.

The alkaline carbonates are in Carminzym in stated quantities; the physician adjusts the dosage to the individual patient and with obvious evidence of the efficiency of the adjustment. As we understand it, the employment of alkaline carbonates is not based on purely chemico considerations—a definite known quantity of acid of the gastric juice is to be neutralized; the whole literature and practice dealing with the alkaline carbonates show them to be accredited with a much wider field of use and repute in gastro-intestinal disorders.

The pancreatic extract in Carminzym is designed to be diffusible in the stomach, the tablet is preferable to be crushed in the mouth before swallowing, and we believe the pancreatic extract to be an effective constituent as administered in Carminzym.

You comment as follows:

"Ipecac has a well defined though limited field of usefulness. When it is used it should be given with due regard to the amount needed by the patient and the frequency of the repetition of the dose."

This in a sense may be said of any of the most useful drugs, but not in the least special degree does it apply to ipecac, which is, on the contrary, of quite characteristic, peculiar range of therapeutic properties, useful in varying combinations and in widely varying proportions and doses according to the purpose for which it is employed.

Ipecac in well known official alkaline, carminative, laxative preparations occurs in the "average dose" in the varying quantities of $\frac{1}{4}$, $\frac{1}{10}$, $\frac{1}{8}$ and $\frac{3}{16}$ of a grain.

The ipecac in combination with the other ingredients in Carminzym is designed for a tablet which shall carry a minimal quantity whilst capable of adequate remedial action, thus admitting of increase of dosage or repetition as occasion requires. This quantity of ipecac was not taken at random, but chosen after long trial and consideration.

We believe that Carminzym possesses carminative properties in a superior degree and that, furthermore, in consequence of its composition it directly stimulates the gland secretions and thus exerts a beneficial action upon the whole digestive functions.

Carminzym is for use as occasion requires, and this is to be especially noted. Thus it is not only of direct benefit, but helpful in promoting systematic therapeutic measures and regimen.

The Council takes the ground that complex mixtures of remedial agents are so wrong that there is no longer warrant for their admission into New and Nonofficial Remedies; and that Carminzym is an irrational mixture.

We hold that certain desirable therapeutic properties may rationally be attributable to Carminzym; and that these are manifested in practice.

During the time since the description was sent and the receipt of the statement of the action of the Council, some ten months, Carminzym has proved of constantly increasing service.

The statement in the letter of Fairchild Bros. and Foster "The long established custom of the use of mixtures of remedial agents rests on considerations well known and gen-

cally accepted" might well be paraphrased to read: The one-time prevalent custom of using ill-considered combinations of remedial agents has been thoroughly discredited and is generally abandoned by progressive practitioners. Such arguments as that "laxatives, tonics, carminatives, diuretics are combined with distinct advantage" have led to the use of irrational mixtures such as the compound syrup of hypophosphites and the electuary of theriaca. The Council is confident that no one who has studied the causes and treatment of digestive disorders will find occasion to prescribe at one time all the ingredients stated to be contained in Carminzym, and certainly not in the fixed proportions present therein.

The comments in the Council's report concerning ipecac certainly does apply to all active therapeutic agents. Ipecac was mentioned in the report because the several constituents of Carminzym were under discussion and hence it was necessary to point out the futility of the small dosage of ipecac in this mixture.

The announcement that "Carminzym has proved of constantly increasing service" is not convincing. The Council does not know of a single clinical study of the action of Carminzym under conditions which would have afforded satisfactory evidence of its therapeutic value.

INFORMATION WANTED

One of the Five Thousand Letters of Inquiry Received by the Propaganda Department Annually

Probably few of THE JOURNAL readers realize the service that the Propaganda department gives the public and the medical profession as an information bureau on the subjects of the nostrum evil and quackery. Ten years ago letters from laymen were an unusual thing in THE JOURNAL's editorial office. If more than one letter a week, for instance, was received, it was a subject of comment by the staff. Today the Propaganda department alone, answers between four and five thousand letters annually, and more than half of these are from the general public. Among such letters it is inevitable that some should be oddities. One of this type is given below. It may be of interest not only to the readers of THE JOURNAL generally, but especially to psychiatrists:

Dear Sir:—I Have inquired so much about The International Health Resort, 42nd St. & Grand Blvd., Chicago, if it will do all it claims & been told you will give information. Please explain fully. My Doctor said I was on verge of Diabetes. Also tell me about the National Distributing Co., 4311-19 Lincoln Ave., Chicago. Will you give me Address of Alexander Moseley in Chicago, the street and number as He is among the testimonials in the Evidences of Success published By The resort, saying He visited all resorts in Europe and None Cured Him till He went to the International of Chicago. I want His Address so I can write Him and verify the statement. Can you recommend any of Bernarr MacFadden's Health Resorts as Best place to go for Kidney and Diabetes Troubles, or would you advise to have treatment By Correspondence from Him.

Please explain about the Bodi-Tone Co., 2100 North Avenue, your City. Please state very Best place to get urine examined from Time to Time. Is The Life Extension Institute, 25 West 45th St., New York City the Best place, or if you Know of Better please state.

Probably you can state some Institution in East Here that treats on same plan as International of Chicago.

I've been taking Chologestine, 2 teaspoonful after meals since June 7th & Has stopped Brick Dust in Chamber. Also take Bell Ans Tablets Before & after meals. Please state if Peptenzymes is good also Nuclinated Phosphates Tablets, Abbotts. Phillips Wheat Phos. (Acid).

Please give address of U. S. Public Health Service Department & can you tell me if Dr. F. L. Sweany, State St., your City is dead, if so when, and was he such a great doctor?

I would like to know if Lionel Strongfort, Terminal Bldg., 86 Park Place is thoroughly reliable & will do all He says. He claims to Be Best developed man in World & issues pamphlets giving Him recommendations from the professors in Europe. He gives course by Correspondence in Physical Culture. Would you commence with Him or take Lessons in person from instructor? which I want to take as it is Beneficial.

Or could you name some professor or institution Here in east which would Be Best for me to attend to get Best results. Can you give me standing of some of these Physical Culture Methods also Bernarr MacFadden's Course By Mail in "Brain & Body Building". He gives this Course in Conjunction with His Encyclopedia of Physical Culture. One is guide to the other. Or would you take Course personally & what benefit thereby? If any. Also about Walter LaRauss, 825 Broad St., Newark, N. Jersey. He claims Best System. Anthony Barker, 127 West 42nd St., New York City.

Do you think I would get all Benefit I would derive from all above mentioned in a German Turn Verein, Newark Turn Verein? The Panelicator Co. of Cleveland, Ohio also sent testimonials Here from all over. Do you Know them? My Doctor Says it is my liver & Pancreas & if I take Physical Culture with Medicines I'm told I will get results. But must get the right & proper Movements to accomplish results. So many Systems advertised in *Health & Physical Culture* Magazines. Please give me list of those fraudulent ones.

Can you give me standing of Advance Thought Publishing Co., 159 No. State St., your City & William Walker Atkinson who edits a Magazine on Clairvoyance. I think he is in that Pub. Co. at 159 No. State St. Also Yogi Pub. Society of your city. Thanking you very much for same in Advance & Truly yours,

F————— D—————, New Jersey.

P. S.—Probably you can name very Best Physical Culture System that embraces all other System & get all in that System you recommend. I am interested also in Allicd & Occult Sciences & Clairvoyance. Are there reliable Systems in Chicago at all? Do you recommend advertisements in *Nautilus*, New Thought Magazine?

Correspondence

THE USE OF SEWAGE AS FERTILIZER

To the Editor:—The present world crisis calls for the exertion of every effort to meet the unusual demands made on the people of our nation. Nowhere is this realized with greater force than in the matter of food production. On the one hand, the demands of our allies and our own demands call for a great increase in production. And on the other hand, the problems of transportation, labor and fertilizer are all working to make the task of increased production more difficult.

Of the latter, the matter of fertilizer has become an acute problem. In the first place, intensive farming calls for an increase in the amount of fertilizer used. And in the second place there is a serious shortage of fertilizer due to the fact that America has been dependent for so long a time on that imported from Germany. The supply from Germany being cut off, the shortage has become serious, and in some places has already affected the crops.

The subject of fertilizer shortage has been ably discussed by Frank Parker Stockbridge in the *World's Work* for May, 1918. His article showed how Germany annually dumped about 250,000 tons of potash in the United States at about \$40 a ton. Today there is a call for 500,000 tons of the fertilizer. It cannot be bought for less than \$300 a ton, and in limited quantities at that price. The magnitude of the industry and the need is thus shown.

Human feces and urine possess a high fertilizing value. It is a knowledge of this fact which has made intensive farming of the highest type a possibility in China, and which has made possible the feeding of many millions of people in comparatively limited areas.

Yet notwithstanding its high value as fertilizer, the use of sewage has been condemned because of the extremely high risk of spreading water and sewage borne diseases, typhoid, dysentery, cholera and intestinal parasites. For this reason, a recent order (THE JOURNAL, April 27, 1918, p. 1242) has prohibited the use of sewage as fertilizer in California except for grasses.

The danger from the use of sewage as fertilizer is very real. One of the triumphs of sanitation has been the lowering of the typhoid rate by a realization and the control of the relation between sewage and the water supply of a community. In China the use of human feces and urine has resulted in widespread infection with hookworm and *Ascaris lumbricoides*. And the only reason why devastating epidemics of cholera and dysentery have not depopulated whole provinces is that the Chinese are accustomed to use boiled tea instead of fresh water, which is never drunk as a beverage.

Shall, then, all this valuable material, so necessary and so useful as fertilizer keep on going to waste as it is at the present time? If necessary to preserve the health of the nation by preventing epidemics, the answer must be "Yes."

My purpose, however, is to present for consideration of the profession, and public health officers in particular, an outline

of a plan by which it may be possible to use sewage as fertilizer, and with safety.

March 12, 1918, an experimental garden was planted for determining the value of the material from the second and third chambers of the septic tank, in use in the Kachek Hospital, as fertilizer. The purpose of the experiment (a report of which is to be published in the *China Medical Journal*) has been to work out a plan by which the Chinese may use human feces and urine as fertilizer with safety.

Three equal amounts of beans, millet and two other Chinese grains were planted in rows, one part to a row. One row was fertilized with material from the second chamber of the septic tank, one row was fertilized with material from the third chamber of the septic tank, and the third row—the control—was unfertilized. Thus there were three rows of beans, three of millet, etc. The results of the harvest are shown in the accompanying table. The value of the material from the septic tank as fertilizer has thus been demonstrated in a practical way.

FERTILIZING POWER OF MATERIAL FROM THE SEPTIC TANK

Foodstuff	First Row: Material from Second Chamber Used, Ounces	Second Row: Material from Third Chamber Used, Ounces	Third Row: Control; No Fertilizer Used, Ounces
Beans	42	20	12
Millet	5.0	2.9	1.7
Ku vae.....	84	66	49
Tiak kha	11.5	8.0	6.5

The action of the septic tank is well known, and needs no comment except to note that the material from the second and third tanks would contain no pathogenic bacteria, protozoa or ova, especially if treated with heat or chlorinated lime.

We have, then, a large quantity of fertilizer that can be made safe by means of the septic tank. That all the sewage of large towns and cities in America should go to waste in view of the present shortage of fertilizer, in view of the great demand for increased production of food, and in view of the fact that it can easily be made safe, is unpardonable. Steps should be taken at once to use this great asset. Not only will it solve the fertilizer problem during the war, but it will make America independent of outside sources of fertilizer after the war.

NATHANIEL BERCOVITZ, B.S., M.D.,
Kachek, Hainan, China.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SUGAR TREATMENT OF TUBERCULOSIS

To the Editor:—I read an article recently on "Sugar as a Cure for Tuberculosis." This article stated that Prof. Domenico Lo Monaco, director of the Biochemical Section of the Lincei Academy of Rome, is credited by the Italian scientific press with a discovery which will revolutionize the treatment of tuberculosis. Please inform me as to what form of saccharose is used, the strength of the solution, the number and frequency of injections, etc. I shall be grateful for an answer to the foregoing questions and for any other information you can give me concerning this treatment, as I have several cases of tuberculosis under my care.

L. C. J. NUNES, M.D., St. Martin, D. W. I.

ANSWER.—A brief note appeared in *Queries and Minor Notes* (*THE JOURNAL*, July 13, 1918, p. 142) concerning this treatment of Lo Monaco, merely stating that the subject was new and had thus far been referred to only in lay publications. The sugar treatment of tuberculosis is the result of researches since 1907 by Dr. Lo Monaco, who is professor of physiologic chemistry at the University of Rome. His researches have been concerned with the influence on the secretions of sugar parenterally introduced. He had previously considered the possibility of influencing the mammary

and other secretions by subcutaneous injection of small amounts of sugar. He found that when persons with copious bronchial secretion were given subcutaneous injections of 4 or 5 gm. of saccharose, expectoration rapidly diminished and ceased completely in many cases. When the injections of the sugar solution were stopped, expectoration returned and disappeared again when the daily injections were resumed. A study of various cases indicated that a complete cessation of bronchial secretion occurred when there was no dilatation of the bronchi or when the cavities in the lungs were not large. When these were present the secretion decreased, but did not disappear completely. The sugar has an inhibiting action on the secretions through vasoconstriction, which the injection of strong solutions of sugar will produce. This vasoconstricting action affects the lymphatics and mucous glands. The strong solutions of saccharose also seem to have an anti-spasmodic action on the bronchi and bronchioles. This was demonstrated by La Grotteria, who utilized this method in the treatment of two cases of whooping cough. The technic utilized by Professor Lo Monaco consists of a daily intramuscular injection of 4 or 5 gm. of sugar or two injections of 2.5 gm. each. In persons emaciated by long sickness, in order not to cause pain, a few cubic centimeters of cocaine solution are sometimes added to the solution. The solution is prepared by dissolving 5 gm. of saccharose in 5 c.c. of sterilized, distilled water.

In commenting on the treatment, the *Riforma medica* (1918, 34, 354) says:

The advantages of this new medication of the bronchi are truly notable, in addition to the fact that it avoids disturbing the gastrointestinal functions, which is such a frequent drawback to the administration of drugs to act on the expectoration. The sugar treatment can be continued as long as desired, because it is harmless, to say nothing of the advantages of the sugar as a source for energy, developing a goodly number of calories in the intra-organic metabolism.

In the tuberculous this method of treatment is of preeminent importance because even in the gravest cases it reduces the bronchial secretion and thus diminishes the cough and the annoying night sweats. On the side of prophylaxis, this new remedy, which, by the way, is entirely Italian in its inception, is destined to prove useful likewise, as if the expectoration is diminished there will not be so much sputum scattered about and hence there will not be so much chance of contagion from this vehicle of infection, the most dangerous and the most certain of all.

It is reported that the National Board of Health of Mexico is intending to organize free dispensaries to apply this treatment. One has already been opened in the capital, at the headquarters of the National Board of Health. It is in charge of Dr. M. Casas. It is also reported that this method is being tried in Italy in some of the sanatoriums for tuberculous soldiers and in France at the Bligny military tuberculosis sanatorium.

DIGESTIBILITY OF RAW WHITE OF EGG

To the Editor:—On the question in the subjoined paragraph; quoted from a recent publication, there seems to be a wide diversity of opinion among chemists and dietitians:

"Raw white of egg is much less digestible than cooked, and frequently causes diarrhea when taken regularly. Egg yolk, on the other hand, is easily digestible and is all utilized, whereas only 50 to 75 per cent. of raw white is assimilated."

May I have your opinion on this subject?

A. E. H., Illinois.

ANSWER.—This subject was discussed editorially in *THE JOURNAL*, Sept. 22, 1917, p. 1006. The supposed easy digestibility of raw white of egg was perhaps based on the observations of Dr. William Beaumont on Alexis St. Martin. Native egg white, he found, leaves the stomach very rapidly as compared with other foods. This observation does not take into account the subsequent fate of the substance after leaving the stomach. Bateman, and Mendel and Lewis, as well as other experimenters, have noted the poor utilization of egg white when fed to experimental animals, and its tendency to produce diarrheas. Bateman found that it was decidedly indigestible for dogs and when fed in any considerable quantities invariably caused diarrheas and sometimes vomiting. It was found also to be poorly utilized, and after tolerance was established to it in the animals it could be recovered unchanged from the feces, so that it was believed to be assimilated to the extent of not more than 85 per cent. It has been found to have a similar action in some persons, and its utilization in them has been found to be as low as 50 per cent. Reaching the large intestine in the unchanged state in considerable quantities, it may very well serve as a pabulum for putrefactive bacteria. This does not apply to the coagulated egg white cooked at a temperature of about 70 C.,

which removes the partial indigestibility and changes the egg white into a readily assimilable product. While perhaps raw egg may not be toxic in the correct sense of the word, yet aside from its indigestibility, in contrast to the yolk of eggs, which seems to be well digested and utilized, "the reputed relation of excess of egg white to renal damage, and the frequent hypersensitiveness to its proteins, offer additional reasons for debating the wisdom of the liberal use of raw eggs."

THE DETERIORATION OF ARGYROL SOLUTIONS, AND FLUID-EXTRACT OF ERGOT

To the Editor:—1. How rapidly do solutions of argyrol deteriorate? 2. Does fluidextract of ergot retain its strength indefinitely?

M.D., Binghamton, N. Y.

ANSWER.—1. The manufacturers of argyrol in their advertising matter repeatedly emphasize the necessity of using a "freshly prepared" solution. They state that office solutions "should be replaced by fresh solutions about every two weeks." Culver (*Jour. Lab. and Clin. Med.*, 1918, p. 487) found that the gonococidal activity of a 2 per cent. solution exposed at room temperature to ordinary light for two months lost, for a five minute exposure, 75 per cent. of its efficiency. This loss of strength began as early as the third day, and it continued to lose in almost direct proportion to the age. He condemns the practice of having stock solutions, and states that the quantity prescribed for home use of a patient should not exceed a "few days' supply. It would be better still, if possible, to have the solution prepared daily.

2. This subject has been the occasion for numerous painstaking investigations. A very complete bibliography is given by Eberhardt and Eldred in the *Journal of the American Pharmaceutical Association*, 1914, p. 42. The articles abstracted by these writers indicate that there is some difference of opinion among investigators. It is quite clear, however, that fluidextract of ergot kept under the ordinary conditions prevailing in the physician's office or in a drug store will lose its activity quite rapidly and may become inert within a year.

RANKS AND PAY OF MEDICAL OFFICERS AND OF ARMY CHAPLAINS

To the Editor:—1. Some time last spring you published a list of salaries paid to medical officers in the U. S. Army, their rank, etc. Please give me this information. 2. Can you inform me as to the rank of an Army chaplain and his pay?

L. L. H., Pennsylvania.

ANSWER.—1. The ranks given to medical officers and the annual pay received are as follows: lieutenant, \$2,000; captain, \$2,400; major, \$3,000; lieutenant-colonel, \$3,500; colonel, \$4,000; brigadier-general, \$6,000 and major-general \$8,000. Commutation for quarters: lieutenant \$432; captain, \$576; major, \$720; heat and light: approximately \$80, \$120 and \$160, respectively.

2. A chaplain receives the rank of lieutenant, captain and major, in accordance with his age and qualifications. His salary is the same as that of other officers of similar rank, beginning with lieutenant.

REPORTING FOR DUTY—EQUIPMENT

To the Editor:—I was examined for a commission four weeks ago and so far have heard nothing from it. As I am rather above the average size, I shall have to have my clothes made to order, which requires about ten days. Some of my friends are ordered to report in ten days from the date of the notice, which gives insufficient time in which to become equipped. 1. Should I take the chance and order the uniform now before I have been notified that a commission has been awarded to me? 2. May a man report in civilian clothes? 3. Should the uniform be worn when making the trip to the place at which one is to report? 4. Should a service hat or cap be worn when reporting for duty? Please omit my name.

K. G. E.

ANSWER.—1. See item, Medical Mobilization and the War: "Commissions Offered and Orders to Duty on Acceptance," this issue. 2. Yes; but preferably in a uniform, completely equipped. 3. Yes. 4. Either; preferably, the hat.

WHEN MEDICAL OFFICERS MAY WEAR THE UNIFORM

To the Editor:—Is it proper for a doctor to wear his uniform after accepting a commission, or only after orders have been received to report to camp for service?

R. L., Nebraska.

ANSWER.—It is not proper for medical officers to wear the uniform until ordered to active duty.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARIZONA: Phoenix, Oct. 1. Sec., Dr. Allen H. Williams, 219 Goodrich Bldg., Phoenix.

ARKANSAS: Little Rock, Nov. 12-13. Sec., Regular Bd., Dr. T. I. Stout, Brinkley, Ark.; Sec., Eclectic Bd., Dr. C. E. Laws, 803½ Garrison Ave., Ft. Smith.

CALIFORNIA: Sacramento, Oct. 21-24. Sec., Dr. C. B. Pinkham, Butler Bldg., San Francisco.

COLORADO: Denver, Oct. 1. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

CONNECTICUT: New Haven, Nov. 12-13. Sec., Regular Bd., Dr. C. A. Tuttle, 196 York St., New Haven; Sec., Eclectic Bd., Dr. James E. Hair, 730 State St., Bridgeport; Sec., Homeopathic Bd., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

DISTRICT OF COLUMBIA: Washington, Oct. 8. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington.

GEORGIA: Atlanta, Oct. 8-9. Sec., Dr. C. T. Nolan, Marietta.

IDAHO: Boise, Oct. 1-2. Sec., Dr. Ray H. Fisher, Rigby.

KANSAS: Topeka, Oct. 8-9. Sec., Dr. H. A. Dykes, Lebanon.

MAINE: Portland, Nov. 12-13. Sec., Dr. Frank W. Searle, 776 Congress St., Portland, Me.

MASSACHUSETTS: Boston, Nov. 12-14. Sec., Dr. Walter P. Bowers, No. 1 Beacon St., Boston, Mass.

MICHIGAN: Lansing, Oct. 8-10. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

MINNESOTA: Minneapolis, Oct. 1-4. Sec., Dr. T. McDavitt, 741 Lowry Bldg., St. Paul.

MISSOURI: Kansas City, Sept. 30-Oct. 2. Sec., Dr. George H. Jones, State House, Jefferson City.

MONTANA: Helena, Oct. 1. Sec., Dr. S. A. Cooney, Power Bldg., Helena.

NEVADA: Carson City, Nov. 4. Sec., Dr. G. L. Lee, Carson City.

NEW JERSEY: Trenton, Oct. 15. Sec., Dr. Alex. MacAlister, 438 E. State St., Trenton.

NEW MEXICO: Sante Fe, Oct. 14. Sec., W. E. Kaser, East Las Vegas.

OKLAHOMA: Oklahoma City, Oct. 8-9. Sec., Dr. J. J. Williams, Weatherford.

RHODE ISLAND: Providence, Oct. 3. Sec., Dr. B. U. Richards, 315 State House, Providence.

UTAH: Salt Lake City, Oct. 7-8. Sec., Dr. G. F. Harding, 405 Templeton Bldg., Salt Lake City.

Dental Colleges Classified

At the annual meeting of the Dental Educational Council of America, held in Chicago, July 31, 1918, a classification of the dental colleges in the United States was completed. The list as just furnished us by Dr. Henry L. Banzhaf, the secretary of the Council, is as follows:

CLASS A

Creighton University, College of Dentistry, Omaha, Neb.
Harvard Dental School, Boston, Mass.
Marquette University, College of Dentistry, Milwaukee, Wis.
Medical College of Virginia, School of Dentistry, Richmond, Va.
North Pacific Dental College, Portland, Oregon.
Ohio State University, College of Dentistry, Columbus, Ohio.
The Thomas W. Evans Museum and Dental Institute, University of Pa.
Tufts Dental College, Boston, Mass.
University of California, College of Dentistry, San Francisco, Calif.
University of Illinois, College of Dentistry, Chicago, Ill.
University of Iowa, College of Dentistry, Iowa City, Iowa.
University of Michigan, College of Dentistry, Ann Arbor, Mich.
University of Minnesota, College of Dentistry, Minneapolis, Minn.
University of Pittsburgh, College of Dentistry, Pittsburgh, Pa.
University of Southern California, College of Dentistry, Los Angeles.
Northwestern University Dental School, Chicago, Ill.

CLASS B.

Colorado College of Dental Surgery, Denver, Colo.
Georgetown University, School of Dentistry, Washington, D. C.
Howard University Dental School, Washington, D. C.
Atlanta-Southern Dental College, Atlanta, Georgia.
Louisville University, College of Dentistry, Louisville, Ky.
Chicago College of Dental Surgery, Chicago, Ill.
Indiana Dental College, Indianapolis, Ind.
Loyola University, School of Dentistry, New Orleans, La.
Tulane University, School of Dentistry, New Orleans, La.
Baltimore College of Dental Surgery, Baltimore, Md.
University of Maryland, Dental Department, Baltimore, Md.
St. Louis University, College of Dentistry, St. Louis, Mo.
Washington University Dental School, St. Louis, Mo.
Kansas City, Dental College, Kansas City, Mo.
Western Dental College, Kansas City, Mo.
University of Buffalo, Dental Department, Buffalo, N. Y.
New York College of Dentistry, New York.
College of Dental and Oral Surgery of New York.
Western Reserve University Dental School, Cleveland, Ohio.
Ohio College of Dental Surgery, Cincinnati, Ohio.
Philadelphia Dental College, Philadelphia, Pa.
Vanderbilt University, School of Dentistry, Nashville, Tenn.
University of Tennessee, College of Dentistry, Memphis, Tenn.
Meharry Dental College, Nashville, Tenn.
George Washington University Dental School, Washington, D. C.

College of Physicians and Surgeons, Dental Dept., San Francisco, Calif.
Baylor University Dental Department, Dallas, Texas.

CLASS C

Lincoln Dental College, Lincoln, Neb.
College of Jersey City, N. J.
Cincinnati College of Dental Surgery, Cincinnati, Ohio.
Texas Dental College, Houston, Texas.

Connecticut July Examination

Dr. Charles A. Tuttle, secretary of the Connecticut Medical Examining Board, reports the practical and written examination held at New Haven, July 9-10, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. Of the 23 candidates examined, 17 passed and 6 failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Yale University	(1918)	77.9, 79.6, 84.7, 85.3	
Georgetown University	(1918)	79.6, 85.9	
Johns Hopkins University	(1917)	76.2, 77.3	
University of Maryland	(1916)	75.1	
Harvard University	(1918)	75.2	
Tufts College Medical School	(1918)	75, 79.7	
Columbia University	(1913) 82.1; (1917) 79.6; (1918)	83.9	
Cornell University	(1918)	81.9	
University and Bellevue Hosp. Med. Coll.	(1918)	79.5	
FAILED			
College of Phys. and Surg., Los Angeles	(1912)	63.6	
University of Louisville	(1917)	71	
Tufts College Medical School	(1918)	68.7	
Jefferson Medical College	(1905)	67.5	
University of Vermont	(1914)	67.1	
National University, Athens	(1911)	57.3	

Connecticut Homeopathic July Examination

Dr. E. C. M. Hall, secretary of the Connecticut Homeopathic Medical Examining Board, reports the written examination held at New Haven, July 9, 1918. The examination covered 7 subjects and included 70 questions. An average of 75 per cent. was required to pass. One candidate was examined, who passed. One candidate was licensed by endorsement. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1918)	79	
College	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement with
Hahnemann Med. Coll. and Hosp. of Philadelphia	(1911)	New York	

Connecticut Eclectic July Meeting

Dr. James E. Hair, secretary of the Connecticut Eclectic Medical Examining Board, reports that 2 candidates were licensed through reciprocity at the meeting held at New Haven, July 9, 1918. The following colleges were represented:

College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Eclectic Medical Coll. of the City of New York	(1907)	New York	
Eclectic Medical Institute	(1906)	Texas	

District of Columbia July Examination

Dr. Edgar P. Copeland, secretary of the Board of Medical Supervisors of the District of Columbia, reports the oral and written examination held at Washington, July 9-11, 1918. The examination covered 16 subjects and included 80 questions. An average of 75 per cent. was required to pass. Of the 16 candidates examined, 14 passed and 2 failed. One candidate was licensed through reciprocity. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent.
Georgetown University	(1918)	82.8, 89.9	
George Washington University	(1918)	80.5, 81.2, 85.5, 88.6, 89.1	
Howard University	(1915) 85.8; (1917) 80.3, 82.4, 86.1; (1918)	79.4, 85.8, 88.4.	
FAILED			
Howard University	(1907)	59.1	
University of Maryland	(1917)	70.7	
College	LICENSED THROUGH RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University	(1908)	Maryland	

Book Notices

SURGERY OF THE SPINE AND SPINAL CORD. By Charles H. Frazier, M.D., Sc.D., Professor of Clinical Surgery and Surgeon to Hospital of University of Pennsylvania. With the collaboration of Alfred Reginald Allen, M.D., Associate in Neurology and Neuropathology, University of Pennsylvania. Cloth. Price, \$8. Pp. 971, with 386 illustrations. New York: D. Appleton & Co., 1918.

As one reads the pages of this book, one does so with a sense of increasing satisfaction. The bringing together of the essentials of anatomy, normal and pathologic physiology, various methods of examination and the surgery of the cord in one volume is an enormous undertaking and one for which the medical man and the surgeon should thank the man who has accomplished it. The chapter on spinal tumors is interesting and complete. There is a feeling of increased optimism in treatment after reading this portion of the work. In the section on surgery of the spinal roots the discussion of gastric crises in tabes dorsalis and operative relief is dwelt on at length in the hope of better things in the future development of this field of surgery. This monograph is one of the hopeful signs in American medical literature. The author has limited himself to a definite field and dealt with it so comprehensively that the volume should stand as a landmark for some time to come.

THYROID AND THYMUS. By André Crotti, M.D., F.A.C.S., LL.D., Surgeon to Grant and Children's Hospitals, Columbus, Ohio. Half morocco. Price, \$10. Pp. 567, with 129 illustrations. Philadelphia: Lea & Febiger, 1918.

This work presents in a fairly satisfactory manner a general review of the thyroid and thymus questions, but it cannot be said that anything materially new has been added to our knowledge of the subject. The book reminds one very much of a basket of berries in which all the good ones are placed on the top layer. It has a beautiful mottled red cover and heavy glazed paper, both of which may add to the cost of the book without increasing its value.

THE CONTROL OF THE DRINK TRADE. A Contribution to National Efficiency, 1915-1917. By Henry Carter. With a preface by Lord D'Abernon. Cloth. Price, \$2.50 net. Pp. 323, with 19 illustrations. New York: Longmans, Green & Co., 1918.

In this interesting study of a great social and economic problem, the author describes the conditions that led the British government to regulate the use and sale of alcoholic liquors in Great Britain—a measure dictated by military necessity. The development of complete national control is traced from the early days of the war when work in the shipyards, in the munitions factories and in the transport areas was greatly hampered by drinking among the battleship workmen, crews, dock laborers and porters. The control began in a limited area of Great Britain, but as it was soon found that liquor was easily obtained from a zone outside this area, the regulation was extended by 1917 to every part of the island. The hours during which drink might be sold were curtailed by more than one-half the usual day in Scotland and by about two-thirds the usual day in England and Wales. Treating was prohibited, spirits were diluted, "credit" trade in liquor was cut off, and registered clubs were placed under the same regulations as licensed liquor houses. The control board did not confine its work to restrictive action, however. The author devotes some interesting pages to its constructive activities, which include regulation of the public sale of food served without intoxicating liquors; improvement of licensed houses, on the theory that more wholesome surroundings will promote temperance; the establishment of rival attractions, such as bowling greens, reading rooms and moving pictures, and provision for the holding of trade union meetings elsewhere than on licensed premises. Among the results of government regulation, the author emphasizes increased sobriety, a decrease in the number of convictions for drunkenness and of attempted suicides, and above all, a marked decline in the death rate not only from alcoholism but also from cirrhosis of the liver. In 1916, when national regulation became general, the number of certified deaths

from alcoholism was 47 per cent. less, and that from cirrhosis of the liver was 26 per cent. less than in 1914. As a guide to other countries wishing to make what has been called "the greatest social experiment of modern times," the book should be most valuable.

Social Medicine, Medical Economics and Miscellany

State Care of Mental Defectives

According to a survey of Nassau County, New York, made by Dr. A. J. Rosanoff in 1916, the proportion of mental defectives to the general population is one in every 183 people. This large proportion is not alarming, in view of the fact that a considerable percentage of these defectives are not seriously enough affected to require institutional care. They do, however, need medical and psychologic advice from trained specialists in mental diseases, and in his interesting study of "The Problem of the Mental Defective and the Delinquent," Dr. C. L. Carlisle points out how this aid may be the most effectively given in state clinics for mental hygiene. He recommends that these clinics, unlike both public and private clinics already established, be kept open daily. They should not be considered as interfering in any way with the development of institutional clinics, which have a special field limited by the needs of their respective institutions. They should be distributed throughout the state with reference to the needs of the adjacent population. They should provide advice and treatment for the patients, educate the parents and friends of the patients on topics of mental hygiene, and act as a clearing house for cases subject to examination for state institutions and as a way station for patients discharged from those institutions. Each clinic should be directed by a well educated physician with general hospital experience, as well as experience in mental and nervous disorders, whose appointment should come as a result of a civil service examination. In addition, there should be a field worker for each clinic, also under civil service regulations, for the purpose of investigating family histories, following up paroled patients, and the like. The chief of the clinic should try to enlarge its field of usefulness by delivering lectures to the general public and bringing technical facts before the medical profession and facts of sociologic value before lay and civic bodies. One of its duties should be the proper disposal of patients brought before it, some of whom must be sent to hospitals for the insane, and others of criminal tendencies back to the courts for trial. In discussing the treatment of patients, Dr. Carlisle condemns the use of "disciplinary" measures, strong rooms and restricted diet as punishment, urging that such measures are antiquated and that "modern therapeutic methods adapted to abnormal mental states must be used." In order that the state may always know the number of mental defectives within its borders, he recommends a system of registration covering the various recognized fields of genetics and personality, under the auspices of the state board of charities.

Color Blindness

Studies were made by Dr. George L. Collins for the U. S. Public Health Service to determine the comparative value of the Jennings worsted skein tests and the Edridge-Green lantern test for color blindness, and to determine the effect, if any, of refractive conditions, lesions and anomalies of the eye, and also the effect of sex on different degrees of color perception. The examinations were made as a part of other studies of the effect of illumination on vision, conducted as a part of an illumination survey of the federal department buildings in Washington, D. C.

The Jennings test is a modification of the Holmgren test, and like it uses for test skeins, first, a green test skein of the color corresponding to that part of the spectrum in which those with abnormal sense for red or green see a neutral band, and secondly, a test skein of rose color made by dyeing

the worsted with blue and red. The Edridge-Green lantern has seven slides containing specially prepared colored glasses and six others containing modifying glasses which may be placed in front of the colored glasses to simulate mist, fog or rain, and produce their modifying effects on signal lights in actual practice. The test is constructed on the principle of presenting colors which, while very easily named by the normal sighted, are most liable to be miscalled by the color blind.

Comparing the results of the Jennings test with the Holmgren tests, both tests detected the markedly color-blind dichromic, and both tests failed to detect the individual with shortening of the red end of the spectrum. Thirty-two persons either with normal color sense or with only such slight defects as to permit them to be passed as not color blind, and who passed the Holmgren test, made mistakes of some kind with the Jennings test. From this it would appear that persons who should be passed as of normal or nearly normal color sense are more apt to be rejected by the Jennings than by the Holmgren test.

The results of the test were too confusing to permit of definite diagnostic interpretation or to be considered final in determining accurately and definitely the presence of dangerous color blindness. The results were so contradictory as to make it impossible to decide whether a person could be considered fit for passing or should be rejected. Nothing more than a general idea was to be deduced from the results. It would appear that the Jennings test is quite inferior to the lantern tests, and the results are more confusing, more irregular, and more difficult of interpretation than those of the Holmgren test. It is impossible to lay down definite rules for the examiner to use in deciding when the examinee should be accepted or rejected, as can be done with the lantern tests. It may be concluded, then, that the Jennings test is not adapted for testing sailors and trainmen, and that its use in that way is dangerous. Collins believes, however, that this test has a distinct function, particularly during the present general state of warfare, and that it is an exceedingly ingenious and acceptable addition to the many forms of color testing apparatus now at our disposal.

The Elimination of Quinin by the Urine

Working with the urine of troops in the East, Porak (*Journal of Tropical Medicine and Hygiene*, 1918, **21**, 138) found that from 30 to 40 per cent. of ingested quinin was excreted in the urine, and further, that in cases under continuous treatment the cycle of elimination was comparable from day to day. There are three stages in the elimination of quinin; in the initial and terminal stages only traces are found, but in the middle stage, generally from the fourth to the tenth hour after absorption, there is a much increased elimination. In health the periods and modes of elimination are the same, no matter what the dose or mode of administration. When there are gastro-intestinal disturbances, such as vomiting and diarrhea in severe cases of malaria, quinin merely irritates the mucous membrane without being absorbed; hence giving it by mouth is contraindicated. In slight renal diseases there is but little change in quinin excretion. In severe nephritis, however, the alkaloid appears but slowly in the urine, and there is no third stage of elimination. When there is an enlargement of the liver in malaria it seems as if there is diminished retention by this organ, for the second stage of elimination in the urine comes on earlier. In cardiac insufficiency or decompensation only traces of quinin are found in the urine. In several cases of typhoid and leukemia, Porak found no alterations in the elimination of the drug. There is a marked diminution in the elimination of quinin in certain cases of malaria with cachexia and anemia. With improvement, the curve of elimination approaches normal, while if the condition of the patient becomes worse the elimination decreases. As the kidney is but slightly affected in malaria as a rule, and as the quinin rapidly disappears from the blood, there must be some fixation or retention in the organs in such cases. This retention appears to cause no harm, provided not more than 2 gm. are given daily.

In view of these observations it appears that for optimal effect it would be best in most cases to give quinin every three or four hours in approximately 0.25 gm. doses, preferably by mouth, except when there are gastro-intestinal disturbances, and here subcutaneous or intermuscular injection is indicated. Needless to say, the daily 2 gm. should be exceeded in cases of pernicious and primary malaria. The intravenous method should be employed in pernicious cases. The quinin treatment should be continued for several consecutive months with frequent intermissions, and the elimination by the urine should be watched.

Medicolegal

Rights and Duties Under Employer's Contract to Furnish Medical Services

(*Crites v. Willamette Valley Lumber Co. (Ore.)*, 169 Pac. R. 339)

The Supreme Court of Oregon affirms a judgment in favor of the plaintiff, a former employee of the defendant company who sued it to recover \$125 which he paid a surgeon for an operation and treatment when he had an attack of appendicitis and the company physician was out of town. The company had posted a notice which stated that in consideration of a hospital fee charged employees, each employee was entitled to full medical and surgical attendance and necessary medicines and appliances for the treatment of any injuries or sickness, all medical and surgical attendance to be furnished by the company physician or surgeon. The court says that the following facts and the legal conclusions resulting therefrom might be taken as indisputable: First, that the notice posted by the defendant and the payment by the plaintiff to it of the fees specified constituted a complete contract requiring the defendant to furnish the services of its physician to the plaintiff under the circumstances mentioned; second, that it was the duty of the plaintiff to apply for such service before employing another physician; third, it was the duty of the plaintiff to use reasonable diligence to find the company physician and request his services before employing another physician, and if he failed to use such diligence he could not hold the defendant. Whether or not he used such diligence was a question of fact for the jury to determine.

If the party requiring the services of a physician was ignorant as to who the physician was, it was his duty to inquire and ascertain from the company that employed him; but when the name and place of business or residence of the physician was known the injured should apply at the place where, under all the circumstances, it was reasonable to suppose the physician might be found. In this case the company physician had an office and a young woman attendant; also had his telephone so connected with that of an adjoining drug store that any call for his office also rang up the drug store, the employees in which in his absence were accustomed to give such information as to his whereabouts as might be necessary. But the plaintiff's wife went to the physician's residence at about 8 a. m., when it would be only reasonable to assume that he would be at his residence rather than at his office, and was informed that he was out of town. At 1:30 p. m. she went to a neighbor's and called up the physician's residence over the telephone, and was again informed that he was absent. Becoming alarmed concerning the plaintiff's condition, she called in the other surgeon. Under the circumstances the court is not prepared to say that there was any such lack of diligence on the part of the plaintiff, or his wife, as would preclude a recovery in this case.

There is no rule for the construction of this species of contracts different from the rules that apply generally to all contracts. So far as the defendant was concerned, it was in writing, and by its terms the defendant promised absolutely to furnish the services of its physician in case of sickness or injury. It was not a contract to furnish the ser-

vices of its physician in the event he could be reached or was available, but to furnish his medical services when needed. The court does not wish to be understood as holding that under all circumstances it would be obligatory on the employer to have a physician at hand at the very hour or minute his services were required, or be responsible for the services of some other physician whom the employee might secure. The right to apply to another physician must depend on the circumstances and the urgency of the case. A man with a boil on his person might reasonably wait for a day for the service of a physician, while one suffering from a severe attack of appendicitis would be rash to wait for a single hour. The "rule of reason" applies here, as in all cases of a similar character. To say that having bought and paid the company for this service in advance, the plaintiff should be required to pay for it a second time and stand the loss, because the company was not in a position to furnish it, would not be just and would be to apply to this contract a rule not applied to other contracts.

Leaving Pad in Drainage Gauze—Admissible Evidence—Defining "Operation"

(*Barrett's Administrator v. Brand (Ky.)*, 201 S. W. R. 331)

The Court of Appeals of Kentucky, on the second appearance before it of an appeal from a judgment for the defendant, affirms such judgment, in this action for alleged malpractice in an operation for chronic ovaritis. The court says that the patient showed signs of dissolution, and the cavity was hurriedly closed up to prevent it. A gauze drainage was arranged, and in it was one of the gauze pads, which was discovered four days later by the wound being opened up, at which time some of the parts, including some of the smaller intestines, were found to be inflamed and the patient shortly died. The chief act of negligence complained of was that of leaving the pad in the patient; but under the evidence and instructions of the court the jury found that this was not an act of negligence, or, if it was, it could not be termed the proximate cause of the patient's death.

It was insisted that there was error in permitting the professional witnesses to state, in substance, that the case was practiced according to the approved methods of the medical profession, and that, according to the opinions of those witnesses, the patient, in her diseased and run-down condition, would have died, and as a matter of fact did die, from those conditions, notwithstanding there might have been negligence in the manner complained of. It is, of course, fundamental that although an act may be negligent and involve a violation of duty, still, before a cause of action can be predicated thereon, the injury flowing therefrom must have been the proximate result of such derelictions. While it was not denied in this case that the pad was overlooked and left in the patient's body, yet it was clear that it was confined in the drainage gauze, which was an essential and necessary part of the operation, and it was therefore not in a condition to produce injurious consequences. But, however that might be, the rule is that while an expert witness may not take the place of the jury by stating whether certain acts constitute negligence, he may give his opinion in regard to matters which require scientific or specialized knowledge or experience, and for which the general common sense and practical experience of the jury are inadequate. The defendant's expert witnesses were permitted to state whether in their opinion the case was practiced according to the approved methods of surgery, but they were not asked, nor were they permitted to state, whether any particular act done or omitted to be done was or was not a careless or negligent one. According to the court's view, there is quite a distinction between whether a case has been practiced according to the rules of surgery and whether those rules or any of them are dictated by the soundest prudence and the most careful considerations. A case might be practiced according to such approved methods of surgery, and still not be characterized by careful and prudent action, and the court is clearly of the opinion that the complained of questions and answers did not invade the province of the jury and were proper subject-matters of inquiry of the expert witnesses.

Objection was made to evidence given by some of the assisting physicians concerning statements made by the defendant relating to the conditions which he found, and other subjects connected with the operation, during and while he was performing it. But this objection was untenable because the evidence complained of constituted a part of the *res gestae* or essential circumstances of the case growing out of the main transaction, which was the operation, and serving to explain it.

It was claimed in regard to the instructions that the court should have defined what constituted an operation, that is, that the court should have said to the jury in its instructions that the operation commenced at the beginning of making the incision and ceased when the incision was closed; but this court does not regard the term "operation" to be one of such technical meaning as to require a definition at the hands of the court. Every act necessary to its performance is included within the known meaning of the term.

Burden of Proof in Prosecution for Unlawfully Practicing Medicine

(*Denton v. State (Tex.)*, 201 S. W. R. 183)

The Court of Criminal Appeals of Texas, which reverses a judgment of conviction of defendant Denton and remands the cause, says that the conviction was for practicing medicine in violation of Article 750 of the Penal Code, which makes it unlawful for any one to practice medicine "who has not registered in the district clerk's office of the county in which he resides, his authority for so practicing, . . . verified by oath." The statute also contains a statement that the clerk shall indorse on the certificate the fact that the oath has been made and recorded, and concludes as follows:

The holder of the certificate must have the same recorded on each change of residence to another county, and the absence of such record shall be prima facie evidence of the want of possession of such certificate.

There was no evidence introduced to the effect that the defendant's authority had not been registered as required by the statute. It is not unlawful to practice medicine, but it is unlawful to do so without compliance with the statute. The offense is the practice of medicine without compliance with the statute, and the burden is on the state to prove the offense. There will be found decisions of other states holding that, under certain circumstances, the burden of making proof of authority to practice medicine is not on the state because a fact within the peculiar knowledge of the accused. Such is not the case here, as the statute itself prescribes a rule of evidence making the absence of the record prima facie evidence of the want of such certificate; and requiring that the certificate be recorded in the county in which the accused is residing at the time renders it easy for the state to make the proof of records of the particular county. The failure to make the proof in this instance characterized the evidence as insufficient. But the defendant's suggestion that the evidence showed that the occupation in which he was engaged was that of a masseur and exempted by Article 754 of the Penal Code from the provisions of Article 750 could not, the court thinks, be sustained as a matter of law. The character of his occupation was a question of fact.

Society Proceedings

COMING MEETINGS

American Association of Railway Surgeons, Chicago, Oct. 16-18.
American Public Health Association, Chicago, Oct. 14-17.
Assn. for S. & P. of Inf. Mort., Asheville, N. C., Nov. 11-14, 1918.
Delaware State Medical Society, Wilmington, Oct. 8.
Mississippi Valley Medical Assn., St. Louis, Mo., Oct. 2-4, 1918.
New Mexico Medical Society, Albuquerque, Oct. 7-8.
Ohio State Medical Association, Columbus, Oct. 1-3.
Southern Medical Association, Asheville, N. C., Nov. 11-14, 1918.
Vermont State Medical Society, Burlington, Oct. 10-11.
Virginia State Medical Society, Richmond, Oct. 22-25.
West Virginia State Medical Association, Martinsburg, Oct. 1-3.
Wisconsin State Medical Society, Milwaukee, Oct. 2-4.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

September, 1918, 16, No. 3

- 1 *Immunity Reactions in Hydrated and Concentrated Tissue. F. W. Schlutz, Minneapolis.—p. 135.
- 2 Congenital Atresia of Esophagus: Report of Four Additional Cases. J. Brennemann, Chicago.—p. 143.
- 3 Kala-Azar in Child (the First American Case). F. B. Talbot and A. B. Lyon, Boston.—p. 154.
- 4 *Cure of Syphilitic Meningitis (Developed After Head Injury) by Arsphenamin and Mercury. I. M. Snow, Buffalo.—p. 161.
- 5 Psychogenic Disturbances in Childhood and Their Treatment. A. Strauch, Chicago.—p. 165.
- 6 Head Shaking with Nystagmus in Infants. C. Herrman, New York.—p. 180.
- 7 *Effect of Injections of Pituitary Solution on Urinary Output in Case of Diabetes Insipidus. S. W. Clausen, St. Louis.—p. 195.

1. Immunity Reactions in Hydrated and Concentrated Tissue.—The work Schlutz reports was undertaken to show whether there was any difference in the defensive mechanism of hydrated or concentrated tissue, using determinations of immune reactions as an index. The lysin reaction was compared in fifteen fat animals and eighteen lean animals. The animals were immunized against blood cells by intraperitoneal inoculations. About 0.25 c.c. of washed blood cells were injected intraperitoneally at from two to three day intervals. Two weeks following the third or fourth injection the animals were exsanguinated, the blood allowed to clot, and then centrifuged in order to separate the serum from the clot. The serum was then diluted with salt solution 1:10, and its lytic titer determined in the usual way. The precipitin reaction was carried out on eleven fat and eleven lean animals. The animals were treated with from 0.25 to 0.5 c.c. of ascitic fluid or human blood serum intraperitoneally as was done with the lysin pigs. The precipitin titer of the serum was then determined by the dilution method. The agglutination was determined in seven fat and seven lean animals. The procedure was much the same as in the precipitin reaction. Pigs were inoculated intraperitoneally with a twenty-four hour killed culture of the typhoid bacillus. Four injections were made at three or four day intervals. Ten days following the last injection the titer of the serum was determined by the dilution method. The lysin reaction was negative or nearly so in practically all of the fat animals, but was positive, sometimes to a marked degree, in over 60 per cent. of the lean pigs. The precipitin reaction was uniformly negative in both the fat and lean series. The agglutinin reaction, while present in only 11 per cent. of the fat animals, was positive in over 70 per cent. of the lean animals. The lysin and agglutinin reaction would seem to indicate that there is a difference in favor of concentrated tissue and that the theoretical considerations expressed by Czerny and other observers are substantially correct.

4. Syphilitic Meningitis Cured by Arsphenamin and Mercury.—A boy, 10 years of age, was well up to March 1, 1917, when he fell from the roof of a standing freight car, striking on his head. After the accident he seemed in great pain for several hours. During the night he had a chill and vomited until morning. Two weeks later he commenced to have crying attacks and twitching and pain in the left arm. These emotional attacks increased in severity and were associated with convulsions, which occurred every second night. Four months after the injury (July 10) the patient entered the hospital as a case of epilepsy. During the first ten days of his stay he had one convulsion, frequent screaming attacks and periods of maniacal excitement. He cried, swore and talked incoherently, and complained of pain and muscular twitching in his left arm. After a few days it was noticed that his movements were awkward and constrained; that he held his head and back very rigidly, the head being inclined to the right. The knee jerks were very active; ankle clonus of right leg; Kernig sign present, most marked on right side;

muscles of arms and legs very spastic. The pupils were widely dilated; reacted to accommodation but not to light. There was a double optic neuritis of 2 diopters, each side. Leukocytes, 9,350; hemoglobin, 80 to 90 per cent. The spinal fluid contained 466 cells per cubic millimeter. Globulin and albumin were each + + + +; Wassermann, + + + +. The father and mother each showed a Wassermann + +. The child was evidently suffering from a syphilitic cerebrospinal meningitis. He was given daily inunctions of mercury and arsphenamin every one or two weeks. After the first dose of arsphenamin there was a prolonged chill and fever of 102 F., the only rise of temperature in the disease. About December 24, the Wassermann was negative, and the optic neuritis had disappeared. The boy was sent home and attended school regularly. In April he complained of frequent momentary headache. The spinal fluid, however, was negative to the Wassermann and colloidal gold tests. About May 1, the optic disks were normal. On May 14, fourteen months after the beginning of symptoms, the child was free from all symptoms and had been for seven months. Neither the parents nor the child had any symptoms of syphilis, hereditary or acquired. The fall on the head acted as a provocative agent causing cerebrospinal symptoms in a case of presumably latent hereditary syphilis. The lesion in the cerebrospinal meninges was probably a proliferative gummous leptomeningitis involving the cortex and spinal meninges; also an ependymitis with an increase of cerebrospinal fluid and some hydrocephalus. The choked disks were due to intracranial pressure from fluid and not to a direct inflammation of the optic nerve. Decompression and aspiration were followed by no immediate relief save that the lessening of intracranial pressure gave the cerebral circulation a little more freedom. The patient was very responsive to treatment; the acute symptoms lasted about three months. Mercurial inunctions were given every day for five months and arsphenamin at first every week; later every two weeks.

7. Effect of Pituitary Solution on Urinary Output in Diabetes Insipidus.—A study was made by Clausen of the urinary output of a 9½ year old boy suffering from diabetes insipidus, as influenced by injections of pituitary solution. Following injections of from 0.25 to 1 c.c. of surgical pituitary solution, there is a marked diminution of the urine volume. This diminution persists for from five to six hours, sometimes much longer. The volume of night urine is reduced when pituitary solution is injected at any time on the preceding day. The hourly rate of elimination of chlorids is always reduced after injections of pituitary solution. The hourly rate of elimination of urea is usually only slightly, if at all, reduced by injection of pituitary solution. The hourly rates of elimination of creatinin and uric acid are only slightly reduced by injection of pituitary solution. The hourly rate of elimination of titratable acids in the urine is only slightly influenced by these injections. The hourly rate of elimination of no substance studied is increased by injections of pituitary solution. When the hourly ingestion of water and sodium chlorid or urea is maintained at a constant high level, the urea elimination is quite uninfluenced by the injection of pituitary solution, whereas, the chlorid elimination is considerably diminished, and the water elimination very much diminished. Pituitary solution injections in diabetes insipidus control urine output primarily and thirst secondarily.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September, 1918, 78, No. 3

- 8 *Significance of Fever at Time of Labor. J. M. Slemons, New Haven, Conn.—p. 321.
- 9 *Cystocele: Review of Literature, Report of an Operation for Its Relief. R. M. Rawls, New York.—p. 328.
- 10 *Cancer of Cervix Complicating Triplet Pregnancy. B. P. Watson, Toronto, Canada.—p. 347.
- 11 Pathogenesis and Further Growth of Carcinoma of Uterus in Relation to Clinical Symptoms and Early Diagnosis. I. C. Rubin, New York.—p. 353.
- 12 Elusive Ulcer of Bladder. Twenty-Five Cases of Rare Type of Bladder Ulcer. G. L. Hunner, Baltimore.—p. 374.
- 13 Treatment of Puerperal Blood Stream Infections with Arsenobenzol; Report of Cases. H. A. Miller and S. A. Chalfant, Pittsburgh.—p. 395.

- 14 *Graduate Degree in Obstetrics and Gynecology. J. C. Litzenberg, Minneapolis.—p. 404.
- 15 *Study of Fifteen Hundred Selective Cases of Myomata Uteri. L. Broun, New York.—p. 410.
- 16 *Final Results of Roentgen Ray Treatment of Fibroids of Uterus. J. Brettauer, New York.—p. 415.
- 17 Use of Neutral Solution of Chlorinated Soda in Suppurative Conditions Within Peritoneal Cavity. R. R. Huggins, Pittsburgh.—p. 423.
- 18 Study of Dystrophy Adiposa Genitalis in Women. E. A. Schuman, Philadelphia.—p. 428.
- 19 Complete Laceration of Perineum. G. M. Boyd, Philadelphia.—p. 434.
- 20 Two Cases of Placenta Previa with Identical History, Suggesting Common Etiologic Factor. J. S. Taylor, Washington, D. C.—p. 438.

8. Fever at Time of Labor.—The histologic picture presented by the placenta was studied by Slemons in thirty-four cases. Typically, the bacteria are found in the subamniotic connective tissues where they come in contact with the large fetal blood vessels which cross the surface of the placenta. Occasionally, it is possible to demonstrate bacteria in the act of penetrating the walls of the vessels. In most instances the epithelium covering the villi is intact; the capillaries within the villi are normal and bacteria are not demonstrable on the surface or in the interior of the villi. Under these circumstances, it is evident that the infection does not proceed from the maternal circulation and does not pass through the walls of the villi. Bacteria enter the placenta by way of the amniotic membrane and the amniotic fluid. Generally, the latter becomes infected because the membranes rupture prematurely, labor is prolonged and repeated vaginal examinations are made. In one series of 600 labors, Slemons noted placental bacteremia in ten instances; and in another series of 1,000 labors it occurred twenty-four times. On this basis, he estimates its frequency as 2 per cent. of all labors at term. In other words the incidence of placental bacteremia and of intrapartum fever is identical. Slemons urges that as a matter of routine, the placenta should be subjected to careful examination, especially in hospital practice. The examination should not be limited to the gross study of the organ to determine its weight, dimensions and complete separation from the uterus. Portions should be selected for microscopic study. Placental bacteremia explains a great many of the fetal and infant deaths heretofore impossible of explanation.

9. See abstract in THE JOURNAL, April 13, 1918, p. 1118.

10 and 14. Abstracted in THE JOURNAL, June 22, 1918, p. 1976.

15. Myomata Uteri.—All of the 1,500 patients whose cases were analyzed by Broun had some form of hysterectomy or myomectomy. As a result of the operations, twenty-eight patients (1.86 per cent.) died; of these seven died from embolus, chiefly between the eighth and twentieth day, seven from peritonitis, and the remainder from various causes. Sixty-six malignant conditions were found. There were fifty-eight cases of associated ovarian pathology. There were 265 cases of associated tubal disease, the majority of which would have required at some time surgical interference. Tuberculous endometritis was present in two instances, and in 105 myomas, necrotic or calcareous changes were present. One hundred and sixty-seven chronic or subacute inflammatory appendixes were found. There were nine instances of associated extra-uterine pregnancy and fifty-one of normal pregnancy. Three hundred and fifty-five cases, 23.7 per cent., contraindicated the use of radium and roentgen ray. The average therefore of 23.5 per cent., or practically one out of every four patients seeking relief from symptoms resulting from the presence of uterine myoma, have also some other pathologic condition that would contraindicate the use of radium and roentgen ray. After a review of the cases and noting the coincident conditions, Broun is convinced that the symptoms on account of which the majority of patients entered the hospital were due in the greatest measure to conditions outside of the uterus and not to the presence of the tumor itself, unless it was from hemorrhage. That radium and roentgen ray have their field in gynecology is unquestionable. Broun believes, however, that this field should be limited to cases in which it is inadvisable to do any form of

operation and to hemorrhage of myopathic origin or from small and absolutely uncomplicated myomas of the uterus.

16. Roentgen Therapy of Fibroids of Uterus.—This report covers a series of thirty-two cases of fibroids up to Oct. 1, 1917, which were subjected to massive roentgen-ray exposures on account of severe menorrhagia. The tumors varied in size, some reaching above the umbilicus and filling the entire abdomen. All were under observation and the diagnosis positively established before treatment was instituted. Permanent amenorrhea resulted in twenty-five, or 78 per cent., and temporary amenorrhea in seven, or 22 per cent. Four of the seven patients were between 30 and 40 years of age and the character of the uterine bleeding was that of a scanty regular menstruation; in the other three, the flow was very irregular, small in amount and occurred at intervals of from three to six months. In nearly every case a decided reduction in the size of the uterus was perceptible; in some no vestige could be detected of former large fibroids. Brettauer concludes that at an age below 45 the roentgen-ray treatment for fibroids should not be the choice, but should be employed only when operative measures are not advisable or are refused. Between the ages of 45 and 55, roentgen-ray treatment should be the method of choice and no patient should be deprived of the right to undergo it. Uterine hemorrhages due to fibroids in women beyond the age of 55 should raise a suspicion of sarcomatous degeneration and operative measures are preferable to any other form of treatment.

Illinois Medical Journal, Chicago

August, 1918, 34, No. 2

- 21 Work of American Medical Association in World War. J. W. Van Derslice, Chicago.—p. 57.
- 22 Plastic Surgery. L. Ryan, Chicago.—p. 64.
- 23 Diagnosis and Treatment of Tuberculosis of Kidney. D. N. Eisen-drath, Chicago.—p. 71.
- 24 Menopause from Standpoint of Mental Disorder. F. P. Norbury, Springfield, and A. H. Dollear, Jacksonville.—p. 77.
- 25 Auricular Fibrillation. J. G. Carr, Chicago.—p. 83.
- 26 Some Undesirable Results Produced by Some Present Health Laws as Now Enforced. A. E. Mowry, Chicago.—p. 87.

Journal of Experimental Medicine, Baltimore

September, 1918, 28, No. 3

- 27 Bovine Mastitis: Relation of Hemolytic Streptococci to Udder Infections. F. S. Jones, Princeton, N. J.—p. 253.
- 28 *Etiology of Epidemic Poliomyelitis. E. T. H. Tsen, New York.—p. 269.
- 29 Production of Acid by Pneumococci. G. E. Cullen and A. M. Chesney, New York.—p. 289.
- 30 *Influence of Temperature on Velocity of Complement Fixation Reaction in Syphilis. H. Noguchi, New York.—p. 297.
- 31 *Restorative Effect of Salts of Magnesium and Calcium After Lethal Doses of Sodium Oxalate. F. L. Gates, New York.—p. 305.
- 32 *Urobilin Elimination in Normal and Anemic Dog. H. Dubin, Philadelphia.—p. 313.
- 33 Modifications of Culture Media Used in Isolation and Differentiation of Typhoid, Dysentery and Allied Bacilli. I. J. Kligler, New York.—p. 319.
- 34 *Experimental Test of Nuzum's Antipoliomyelitic Serum. H. L. Amoss and F. Eherson, New York.—p. 323.
- 35 Pleomorphic Bacillus from Pneumonic Lungs of Calves Simulating Actinomyces. T. Smith, Princeton, N. J.—p. 333.
- 36 Optimum Hydrogen Ion Concentration for Growth of Pneumococcus. K. G. Dernby and O. T. Avery, New York.—p. 345.
- 37 *Determination of Quantity of Secreting Tissue in Living Kidney. C. K. Watanabe, J. Oliver and T. Addis, San Francisco.—p. 359.

28. Etiology of Epidemic Poliomyelitis.—Streptococci have been isolated by Tsen and his associates from the central nervous system of monkeys dead of poliomyelitis and from the central nervous system of monkeys dead of other causes, as well as from the brains of normal rabbits. Streptococci isolated from poliomyelitic monkeys do not differ from those isolated from monkeys and rabbits dead from other causes. An etiologic relation has not been established between streptococci and poliomyelitis. Several times an organism was isolated that was similar to the globoid bodies culturally, morphologically, and in staining reaction, but it could not be carried along for more than three generations. The pathogenicity of these organisms has therefore not been tested on monkeys. Typical

lesions of poliomyelitis were not produced in rabbits by the injection of either the poliomyelitic virus or streptococci.

30. Effect of Temperature on Complement Fixation Reaction in Syphilis.—Noguchi says that the examination of syphilitic serum or cerebrospinal fluid can be made at any temperature between 23 and 37 C. The velocity of the fixation reaction, including the fixation of complement and subsequent hemolysis, is greater at a higher temperature, the optimum point being 37 C. The maximum reaction is also reached, however, when the mixture of lipoids, syphilitic serum, and complement is allowed to stand for a long enough period at a lower temperature, the minimum thermal point being near 23 C. For the optimum temperature (37 C.) an incubation of thirty minutes is sufficient, while for the minimum temperature (23 C.) two hours are necessary. At the temperature 30 C. the reaction proceeds with moderate velocity and is complete within sixty minutes. Guinea-pig complement gave a sharper reaction with the serums which contained less than one unit of the fixing substance. Fixation is complete, however, at any of the three temperatures within twenty minutes when there are more than two units present. A serum containing one unit of fixing substance will complete reaction within thirty minutes at 37 C., sixty minutes at 30 C. and two hours at 23 C., irrespective of whether human or guinea-pig complement is used. For many reasons a properly adjusted thermostat for 37 C. is recommended for conducting the serum diagnosis of syphilis when possible, but it should not be overlooked that at a temperature near 30 C. an entirely reliable result can be obtained without a special incubator. Even at a temperature as low as 23 C. the test can be carried out if sufficient length of time is allowed. These conclusions refer only to the systems in which the acetone insoluble fraction of tissue lipoids is used as antigen.

31. Restorative Effects of Salts of Magnesium and Calcium.—The experiments presented by Gates brought out the following facts. Intramuscular injections of sodium oxalate into rabbits in doses of 0.18 and 0.2 gm. proved to be invariably fatal, death generally occurring in a comparatively short time. The symptoms consisted in excitation and tonic and clonic convulsions of diminishing strength if death was delayed. Some animals succumbed in the first convulsion. From the experiments in which magnesium or calcium was added, it was evident that massage of the site of the oxalate injection is unmistakably an aggravating factor. In the experiments with the addition of magnesium or calcium, doses of 0.2 gm. of oxalate were used, with or without massage. There was practically in all cases clear evidence that the effect of the additional injections was in the nature of an antagonism to the oxalate effects. An injection of 0.6 gm. of magnesium not only alleviated or abolished the excitation and convulsions, characteristic of oxalate poisoning, but also reduced the mortality by 30 per cent. When the dose of magnesium was only 0.4 gm. per kilogram of body weight and the site of the injection of the oxalate was not massaged—a condition in which 0.2 gm. of oxalate alone was invariably fatal—the mortality was reduced by 80 per cent. The favorable effect of injections of calcium chlorid depended on the quantity injected and the length of the interval elapsing between the injection of the oxalate and that of the calcium. When the site of the oxalate was massaged and only 5 c.c. of the calcium solution were injected, the animals succumbed to the oxalate poisoning. When 10 c.c. of calcium were given one minute after the oxalate injection, the animals survived. When the site of the oxalate injection was not massaged, then even 5 c.c. of the calcium were sufficient to save life.

32. Urobilin Elimination.—Dubin found that the output of urobilin is increased in experimental trypanosome anemia, presumably as a result of the increased blood destruction. The administration of arsphenamin during the anemic period, if it checks the blood destruction, reduced the urobilin elimination, but this result does not follow unless the blood picture improves. Following splenectomy in the normal dog an increase in the urobilin elimination of varying degree occurs, the significance of which is doubtful. Splenectomy during the period of anemia does not cause a decrease in

urobilin elimination. The experiments support the view that the elimination of urobilin may be considered as an index of blood destruction, but they do not explain the decrease in the elimination occurring in man in certain forms of hemolytic anemia following splenectomy.

34. Nuzum's Antipoliomyelitic Serum.—The value, in general, of antistreptococcic serums in combating streptococcus infections is unproved. The antistreptococcic serum of Nuzum and Willy has failed to show in the monkey neutralizing or therapeutic power when applied by their methods against small doses of the virus of poliomyelitis. Under the same conditions the serum of monkeys recovered from experimental poliomyelitis proved neutralizing and protective. The experimental and other evidence adduced by those who regard the streptococcus as playing an essential part in the pathology of epidemic poliomyelitis and the antistreptococcic serums as exhibiting therapeutic properties for man and monkeys is regarded by Amoss and Ebersson as being imperfect and inconclusive.

37. Quantity of Secreting Tissue in Living Kidney.—Under the strain induced by the administration of urea, the authors were able to demonstrate the relation between the degree of anatomic damage in the kidney and the degree of defect in the urea-excreting capacity induced by uranium. The closest correlation between structure and function was obtained when the ratio between the urea content of the urine and of the blood was used as the measure of function.

Journal of Infectious Diseases, Chicago

September, 1918, 23, No. 3

- 38 *Precipitin Reaction in Urine in Pneumonia. W. J. Quigley, Chicago.—p. 217.
- 39 *Effect of Culture Medium on Agglutinative Properties of Bacillus Paratyphosus B. R. Victorson, Chicago.—p. 220.
- 40 *Methyl Red and Voges-Proskauer Reactions with Special Reference to Routine Water Analysis. W. D. Stovall and M. S. Nichols, Madison, Wis.—p. 229.
- 41 *Respiratory Stimulant and Toxic Substance Extractable from Lung Tissue. W. B. Wherry and D. M. Ervin, Cleveland.—p. 240.
- 42 Food Accessory Factors (Vitamins) in Bacterial Culture. D. J. Davis, Chicago.—p. 248.
- 43 *Sporotrichosis Following Mouse Bite. J. J. Moore and D. J. Davis, Chicago.—p. 253.
- 44 *Cultivation of Tubercle Bacilli from Sputum by Petroff's Method. H. J. Corper, L. Fiala and L. Kallen, Chicago.—p. 267.
- 45 *Brilliant Green Agar and Other Plating Mediums for Isolation of Typhoid and Paratyphoid Bacilli, from Feces. C. Krumwiede, Jr., L. A. Kohn, A. G. Kuttner and E. L. Schumm, New York.—p. 275.
- 46 *Thermal Death Point and Limiting Hydrogen Ion Concentration of Pathogenic Streptococci. S. H. Ayers, W. T. Johnson, Jr., and B. J. Davis.—p. 290.
- 47 *Study of Neutralizing Properties of Antipoliomyelitic Horse Serum. J. W. Nuzum, Chicago.—p. 301.
- 48 *Protective Properties of Antipoliomyelitic Horse Serum. J. W. Nuzum, Chicago.—p. 309.

38. Precipitin Reaction in Urine in Pneumonia.—Quigley has made study of the sputum for the type of infection, and of the urine for precipitin reactions in 100 cases of lobar pneumonia due to the pneumococcus, occurring in Chicago during the winter of 1917-1918. There were 33 instances of infection with pneumococci of Type I, 36 of Type II, 13 of Type III, and 18 of Type IV. Of eighty-two cases of Types I, II and III, the urine of sixty-seven showed at some time during the disease a specific precipitin reaction. The strength of the reaction gradually increased during a period of three or four days, persisted from two to nineteen days, and gradually disappeared. It was present during the third week in a few convalescents when discharged from the hospital. Thirty of the 100 patients died. The group mortality was approximately 39, 36, 8 and 17 per cent., respectively, for the four types. Of the twenty-seven deaths due to Types I, II and III infections, twenty-three showed a precipitin reaction in the urine; four were negative. Of the sixty-seven showing a precipitin reaction twenty-three, or 34 per cent., died. Of the fifteen with negative reactions four, or 27 per cent., died. It therefore appears that a large percentage of fatal cases of pneumonia have a substance in the urine capable of giving a specific precipitin reaction with antipneumococcus serum, but

that the presence of this substance in the urine is not of great unfavorable prognostic value, as the mortality when it could not be demonstrated was only slightly lower than when it was present.

39. Effect of Culture Medium on Agglutinative Properties of B. Paratyphosus B.—The effect of the medium on the agglutination of *B. paratyphosus* B was studied by Victorson. The mediums tested were sugar-free agar as a control medium, 10 per cent. rabbit blood agar, Loeffler's serum, 1 per cent. dextrose and 1 per cent. lactose broth and agar, potato, and Jordan's nonprotein medium to which was added 1.5 per cent. agar. The reaction of the sugar mediums and sugar-free agar was 0.5 per cent. acid to phenolphthalein. The organism was transferred forty-four times. The following results were obtained: Each strain, as a rule, agglutinated better with its homologous serum than with any heterologous serum. The serum produced by the potato strain, however, was an exception, since it agglutinated the organisms grown in dextrose broth and on Loeffler's serum better than its own strain. The variations in agglutination were not marked, consisting merely of slight differences in the highest dilutions to which the strains are agglutinated.

40. Methyl Red and Voges-Proskauer Reactions.—In the routine analysis of sixty-eight water samples from private and public supplies received from many sections of the state Stovall and Nichols isolated 200 cultures which fulfilled the requirements of the completed test for members of the colon group of organisms of the Standard Methods of Water Analysis. They found that 120 of these reacted acid to methyl red, thirty-eight gave a Voges-Proskauer positive reaction, and that forty-two gave irregular reactions. The intensity of these reactions varied considerably.

41. Toxic Substance from Lung Tissue.—The method described by Wherry and Ervin of producing accelerated respiration or death was discovered accidentally in an experiment with tuberculous tissue from a rabbit's lung. A piece of the tissue, 6 by 8 mm., filled with tubercles, was ground up with sand, suspended in 8 c.c. of 0.9 per cent. sodium chlorid solution, centrifuged to remove coarse particles, and 1 c.c. of the supernatant fluid injected intravenously into another rabbit, which immediately fell on its side with marked inspiratory dyspnea, followed by convulsions and opisthotonos, and died a few second later. Rabbit lung is more fatal for the rabbit than for the guinea-pig and vice versa. Many of the symptoms of anaphylactic shock are produced—the acceleration of the respiration and peripheral irritation, both best shown by sublethal doses, the inspiratory dyspnea, the convulsions, the tolerance produced by graded repeated doses, the delay in the coagulation of the blood, all make one think of a possible relationship to anaphylaxis, but the lungs collapse on opening the thorax. Atropin does not protect. Morphin does not protect. Similar extracts of rabbit liver, kidney, ileum and spleen were harmless for rabbits. The lethal agent will not pass Berkefeld filter N at 600 mm. pressure. It is removed by animal charcoal. It is not extracted by ether. It can be removed by centrifugal force (36,000 revolutions per minute) and is apparently composed of, or adsorbed to, particles visible under the microscope. By beginning with a sublethal dose, and then injecting at short intervals thereafter larger doses, a rabbit will survive, without symptoms, several lethal doses. The authors are inclined to favor the idea that colloidal particles are responsible for the lethal action.

43. Sporotrichosis Following Mouse Bite.—An instance of an infection with *Sporotrichum schenckii* following the bite of a field mouse in North Dakota is described by Moore and Davis. The infection has persisted for about eighteen months, improving with administration of iodid and relapsing when the iodid is discontinued. Repeated spore-agglutination tests gave positive results at serum dilutions varying from 1:320 to 1:80. At one time, when the patient had almost recovered, the test was slight at 1:20, but later became stronger. In general this test parallels the clinical course. Complement fixation tests made at various times generally yielded definitely positive results, corresponding thus to the agglutination

tests. In the icebox the antibodies in the serum retain their activity for over one year.

44. Cultivation of Tubercle Bacillus from Sputum.—Investigations were made by Corper and his associates to obtain cultures of tubercle bacilli for the study of their virulence and to gain information on the various steps involved in the technic of cultivating tubercle bacilli according to the method devised by Petroff. The routine cultivation of tubercle bacilli from microscopic positive sputum by Petroff's method, seeding two gentian violet egg medium tubes from each sputum, resulted in obtaining positive macroscopic cultures of varying grades on primary culture from 144 (27.3 per cent.) of 526 sputums. There was noted no relationship between the number of bacilli found in the original sputum and the percentage of positive growths obtained or their intensity. Egg medium prepared as directed by Petroff with fresh beef juice revealed no particular advantages over mediums in which was substituted sodium chlorid, beef extract, and peptone as used in ordinary broth. The inspissation of the Petroff gentian violet egg medium on three successive days also proved to have no advantages over a single autoclaving. Petroff's findings that the gentian violet egg medium is not suitable for the continued cultivation of tubercle bacilli was corroborated (24 per cent., six of twenty-five, failing to grow on two tubes in the first seeding and 43 per cent., six of fourteen, failing to grow on two tubes in the second seeding).

45. Isolation of Bacilli of Typhoid Group from Feces.—Since describing a method of preparing a brilliant green agar plating medium for the isolation of typhoid and paratyphoid bacilli from feces, the number of specimens examined by the authors has reached 7,111. Of this number 920 were endo-positive and 1,235 were dye-agar positive. The results in the isolation of *B. paratyphosus* have been somewhat better than in the isolation of *B. typhosus*.

46. Thermal Death Point of Pathogenic Streptococci.—The thermal death point of twenty-seven strains of pathogenic streptococci from pathologic sources was never higher than 60 C. (140 F.) when heated in milk for thirty minutes. This fact seems to indicate that pathogenic streptococci are destroyed by the proper pasteurization of milk at 60 C. (140 F.) for a period of thirty minutes.

47. Neutralizing Properties of Antipoliomyelitic Serum.—Nuzum claims that antipoliomyelitic horse serum, prepared by repeated intravenous injections of the coccus isolated from the central nervous system in human and monkey poliomyelitis possesses neutralizing properties against the virus of poliomyelitis. The neutralizing properties of antipoliomyelitic horse serum in vitro for the virus of poliomyelitis afford a convenient and satisfactory test of the potency of this serum for use in the treatment of poliomyelitis. The neutralizing, protective and curative properties of antipoliomyelitic horse serum for experimental poliomyelitis of monkeys are in direct accord with the favorable results observed in the serum treatment of human poliomyelitis and argue strongly for the etiologic relationship of the coccus to this disease.

48. Protective Properties of Antipoliomyelitic Serum.—Nuzum has applied the therapeutic test, recently devised by Amoss and Ebersson, to fresh samples of immune horse serum prepared by injections of the poliomyelitic coccus in the horse. Under the conditions of the test, three monkeys were completely protected while the fourth animal developed mild symptoms on the fourteenth day and subsequently recovered completely. The control monkeys receiving normal horse serum all developed a fatal poliomyelitis and died as early as the fourth day following injection of virus. Fresh immune horse serum protected perfectly against infection while pooled immune monkey serum served only to delay the onset of a fatal infection.

Kentucky Medical Journal, Bowling Green

September, 1918, 16, No. 9

- 49 Toxemic Convulsions. B. F. Robinson, Berea.—p. 418.
- 50 Case of Dementia Praecox. H. B. Scott, Louisville.—p. 420.
- 51 Two Obscure Cases of Intracranial Infection. A. O. Pfingst, Louisville.—p. 422.

Minnesota Medicine, St. Paul

September, 1918, 1, No. 9

- 52 Changes Ahead. M. L. Burton, Minneapolis.—p. 327.
- 53 Differential Diagnosis and Modern Treatment of Idiopathic Pernicious Anemia. J. P. Schneider, Minneapolis.—p. 334.
- 54 Comparison of Various Tuberculin Tests in Childhood. E. F. Warner, St. Paul.—p. 337.
- 55 Medical Cooperation in Problem of War Syphilis. J. H. Stokes, Rochester.—p. 341.

New Orleans Medical and Surgical Journal

September, 1918, 71, No. 3

- 56 Ruptured Gastric and Intestinal Ulcers. H. W. Kostmayer, New Orleans.—p. 125.
- 57 Society Largely Responsible for Some of Most Potent Factors of Nervous and Mental Diseases. J. C. King, Atlanta, Ga.—p. 132.
- 58 Vomiting in Infancy. L. R. DeBuys, New Orleans.—p. 141.
- 59 Minor Matters. H. D. Bruns, New Orleans.—p. 145.
- 60 Biologic Research on Wounds of War; Phenomena of Proteolysis in Wounds of War. A. Policard.—p. 154.

Pennsylvania Medical Journal, Athens

August, 1918, 21, No. 11

- 61 Health Hazards to Women as Result of War Emergency. S. Semple, Harrisburg.—p. 661.
- 62 How Industrial Surgeon Can Best Cooperate with Government to Win War. E. Martin, Washington.—p. 665.
- 63 Nation's Neglect; Failure to Reconstruct and Rehabilitate Wounded in Industry. L. A. Shoudy, Bethlehem.—p. 668.
- 64 The Way Out. A. H. Samuels, Washington, D. C.—p. 671.
- 65 Hernia: Should It Be Classed as Compensable Injury or Disease? A. W. Colcord, Clairton.—p. 672.
- 66 Does Two Years' Experience with Workmen's Compensation Law of Pennsylvania Demand Its Amendment, and if So, How? From Viewpoint of the Board. H. A. Mackey, Harrisburg.—p. 684.
- 67 Id.: From Viewpoint of Physician. F. L. Van Sickle, Olyphant.—p. 687.
- 68 Id.: From Viewpoint of Insurance Company. W. H. Hotchkiss, New York.—p. 693.
- 69 Id.: From Viewpoint of Industry. C. B. Auel, East Pittsburgh.—p. 697.

Surgery, Gynecology and Obstetrics, Chicago

September, 1918, 27, No. 3

- 70 *Injuries of Cervical Spine. J. Ransohoff, Cincinnati.—p. 241.
- 71 Utility of End-to-End Anastomosis Between Small and Large Intestine. D. C. Balfour, Rochester, Minn.—p. 249.
- 72 Etiology of Ureteral Calculus. G. L. Hunner, Baltimore.—p. 252.
- 73 Recurrence of Stone in Kidney. C. R. Robins, Richmond, Va.—p. 270.
- 74 *Management of Subparietal Injuries of Kidney; Report of Cases. J. M. Mason, Birmingham, Ala.—p. 277.
- 75 Medical Profession and Great War. W. D. Haggard, Nashville, Tenn.—p. 281.
- 76 *Treatment of Certain Forms of Subacute Pancreatitis. S. H. Watts, University, Va.—p. 286.
- 77 Surgery of Soft Parts, Bones and Joints, at a Front Hospital. E. H. Pool, B. J. Lee and P. A. Dineen, France.—p. 289.
- 78 Transplantation of Bone in Repair of Cranial Defects. C. H. Gilnour, Toronto.—p. 311.
- 79 Problems of Reconstruction of Hand. A. Steindler, Iowa City, Iowa.—p. 317.
- 80 *New Operation for Prolapse of Uterus. C. U. Collins, Peoria.—p. 326.
- 81 *Practical Value of Electric Light in Treatment of Infections. A. J. Ochsner, Chicago.—p. 328.
- 82 Bone Graft and Arthrodesis in Reconstruction Surgery. F. G. Dubose, Selma, Ala.—p. 331.
- 83 Technic of Ureterovesical Anastomosis. H. D. Furniss, New York.—p. 339.
- 84 *Bunion, Its Causes and Cure. H. A. Robinson, Kenosha, Wis.—p. 343.
- 85 Cranial Decompression for Head Injuries Accompanied by Signs of Increased Intracranial Pressure. R. L. Payne, Jr., Norfolk, Va.—p. 345.
- 86 *New Operation for Cure of Femoral Hernia. J. W. Dowden, Edinburgh, Scotland.—p. 348.

70 and 74. Abstracted in THE JOURNAL, Feb. 2, 1918, p. 341.

76. Abstracted in THE JOURNAL, Feb. 9, 1918, p. 414.

80. Operation for Prolapse of Uterus.—Collins sutures a transverse strip of the anterior aponeurosis of the abdominal rectus into the cervical trough formed after a supravaginal hysterectomy. The stumps of the broad ligaments are sutured to the posterior surface of the cervix and to each other. The cervix is thus held securely in the abdominal wall by a strip of aponeurosis that will not stretch and cannot come loose

from its attachments, because they are natural and have not been separated.

81. Value of Electric Light in Treatment of Infections.—Ochsner directs attention to the great value of electric light rays, especially because of their influence in controlling pain due to infection. He has used this method in seventy-eight cases of infection of the extremities, and invariably the pain has disappeared promptly. Sixty-one of these cases were infections of the upper extremity, and seventeen of the foot. Equally satisfactory results were obtained in the use of the electric light in treating peritonitis following abdominal sections for the relief of suppurating conditions such as appendiceal abscesses, perforated gallbladder, etc., also in tuberculous and gonorrheal joint infections, in carbuncles and furuncles. In case of roentgen-ray burns the light treatment causes a rapid improvement of the conditions.

84. Bunion, Its Causes and Cure.—Robinson claims that enlarged sesamoids are the cause of bunions. The two sesamoids which develop normally under the head of the first metatarsal bone enlarge and grow downward and outward toward the head of the second metatarsal, and as the plantar fascia is tough it resists the sesamoids and with each step pushes them upward and inward and causes the head of the metatarsal to give in the line of least resistance, which is upward and inward. Because there is no pressure inward on the proximal phalanx of the great toe, it is held firmly by the strong ligaments and gradually the head of the metatarsal is displaced inward. This turns the great toe outward toward the other toes until in many cases the head is almost completely dislocated from the articular surface of the phalanx. Roentgenograms show that this dislocation corresponds to the size of the sesamoids. Bunion occurs on top of the foot when the sesamoids are enlarged and point straight downward toward the sole of the foot. The tough plantar fascia forces the sesamoids upward against the head of the metatarsal so as to displace it perpendicularly upward and the phalanx being held firmly to the tendon is not displaced. This produces a bunion on top of the foot. The cure in both cases is the same, namely, removal of both sesamoids. By way of preventive surgery, Robinson advises the removal of both sesamoids as soon as the first symptoms of bunion are discovered.

86. Operation for Femoral Hernia.—The principle of Dowden's operation is the placing of a ball of fat or other tissue, bigger than the abdominal aspect of the femoral ring, and fixing the ball in situ, the ligated sac of the hernia being displaced above the ball. The result of this is that the greater the intra-abdominal pressure, the more this ball is forced against the femoral ring, this effectually closing it.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Indian Journal of Medical Research, Calcutta

April, 1918, 5, No. 4

- 1 *Study of Kala-Azar. J. W. Cornwall and T. K. Menon.—p. 541.
- 2 Some Results in Kala-Azar. R. Knowles.—p. 548.
- 3 Bilharziosis Among Animals in India. Life-Cycle of *Schistosomum Spindalis*. W. G. Liston and M. B. Soparkar.—p. 567.
- 4 *Biochemistry of Postcholeraic Uremia. Blood in Cholera Patients. J. A. Shorten.—p. 570.
- 5 *Action of Liquor Calcis on Comma Vibrios. J. C. Mukherji.—p. 608.
- 6 Thorax and Wing of Mosquito (*Anopheles*). B. Prashad.—p. 610.
- 7 Development of Dorsal Series of Thoracic Imaginal Buds of Mosquito; Phylogeny of Insects. B. Prashad.—p. 641.
- 8 *Margosic Acid and Its Salts in Syphilis and Skin Diseases. K. K. Chatterji and C. Ray.—p. 656.

1. Study of Kala-Azar.—Pure subcultures of the flagellates of *Leishmania tropica* and of *L. donovani* were readily obtained by Cornwall and Menon by inoculating N N N tubes from the stomachs of infected bugs up to ten days from the date of the feed. No subcultures of the flagellates of *L. donovani* could be obtained from the rectal contents of bugs from three to thirty-three days after an infected feed. No subcultures could be obtained from the rectal contents when the infected bugs had fed on a normal rabbit in the

interval. No resistant forms could be detected microscopically in the rectal contents of bugs infected with *L. donovani*. Neither leukocytes nor erythrocytes remain stranded in the bug's sucking tube after a feed. The authors suggest that kala-azar may perhaps be transmitted by the rupture of an infected bug on an excoriated skin, but proof is wanting.

4. Blood of Cholera Patients.—A new method of preparing urease from Soya beans and new methods of determining the percentage of inorganic phosphates and chlorids in the blood serum are described by Shorten. Studying the blood of cholera patients Shorten found that there is a definite increase in the urea content of the blood in all cases of cholera of more than a few hours' duration. In cases which recover, there is an increase to a maximum in a few days, and then a gradual decline to normal. In fatal cases of postcholeraic uremia a very high percentage may be reached before death. On the other hand, retention of urea would seem to have nothing to do with the symptoms of this so-called uremia. The figures for nonprotein nitrogen follow those for urea more or less closely. It would appear that an excess of nitrogenous metabolites in the blood is not responsible for the symptoms in these cases. The observations on the variations of the alkalinity of the blood confirm the previous work of Sir Leonard Rogers. The occurrence of phosphatic retention in these cases is definitely established. It corresponds in a general way to diminution in the alkalinity—a high phosphatic content being usually found with low alkalinity and vice versa. Postcholeraic uremia is a misnomer. The condition really is a retention acidosis, as shown by the diminished alkalinity, phosphatic retention, and peculiar type of dyspnea. The concomitant retention of urea and other nitrogenous metabolites does not appear to be of any importance, except in so far as it denotes abeyance of the functions of the kidneys. Improvement in treatment resolves itself into measures directed toward controlling phosphatic retention.

5. Action of Liquor Calcis on Comma Vibrios.—It would appear from Mukherji's bacteriologic experiments that liquor calcis is distinctly inimical to the growth of comma vibrios if used in sufficient quantity.

8. Margosic Acid and Salts in Syphilis and Skin Diseases.—After passing the oil derived from Nim seeds (*Margosa tree*) through various chemical processes, a chemist obtained margosic acid and sent Chatterji 4 ounces of a 15 per cent. alcoholic solution. Later, he prepared the calcium and zinc salts of this acid. These were found to be insoluble in water. Local application of them in powder, and as an ointment, prepared from them with petrolatum and lanolin, to syphilitic ulcers and tuberculous sinuses caused rapid healing. The ulcers showed a healthy healing margin after two or three applications. The chemist also prepared for Chatterji the sodium salt of the acid, sodium margosate. Intramuscular injections of this salt did not produce any toxic effects. Intravenous injections were followed by a sharp reactionary rise of temperature, but there was no other toxic effect. Investigations with the margosates show that along with their strong parasitotropic properties they have the advantage of possessing very low organotropic properties. The phenol co-efficient of the soluble salts of margosic acid has been determined to be only two. Laboratory experiments show, therefore, that the antibacterial or bactericidal property of the drug, is low, in vitro, but clinical evidence appears to show that this property is not inconsiderable in vivo. The Nim is a reputed remedy for skin affections and, in view of the parasitotropic properties of the margosates, they have been used in a number of cases of scabies, eczema and pemphigus with remarkably good results.

The margosates are strongly antiprotozoal in their action. A solution of 1 in 2,000 killed *Paramecium* instantly and a much weaker solution of 1 in 10,000 killed the flagellate *Pro-wazekia*. In the treatment of syphilis, clinical experience proved its value. Sodium margosate was given in solution, the doses varying from 0.01 to 0.325 gm., subcutaneously, intramuscularly or intravenously in the primary, secondary and tertiary stages of syphilis, also in parasyphilis and congenital syphilis. In the primary and secondary stages the

initial lesion and secondary manifestations disappeared under its influence much more readily than in untreated cases. In the late secondary and tertiary stages the skin lesion, gummas, etc., soon subsided. A case of parasyphilis showed marked improvement. In congenital syphilis, the condylomas, ulcers, eye lesions, etc., yielded rapidly to treatment with the margosates. Incidentally Chatterji observed some aspects of the physiologic action of the drug. For example, it caused leukocytosis which was maintained for over a week after a single injection. It is not known how the margosates produce these results.

Indian Medical Gazette, Calcutta

June, 1918, 53, No. 6

- 9 Metamorphosis and Standardization of Licensed Medical Practitioner. R. Bryson.—p. 201.
- 10 Importance of Some Minor Eye Operations. J. N. Macphail.—p. 205.
- 11 *Treatment of Thirty Lepers with Sodium Gynecardate "A." E. Muir.—p. 209.
- 12 Case of Syphilitic Fever. E. H. Wright.—p. 213.
- 13 Some New Principles in Nutrition. R. F. E. Austin.—p. 214.
- 14 Forgotten Pages of Jail History. J. Mulvany.—p. 216.

11. **Leprosy Treated with Sodium Gynecardate "A."**—This report is made by Muir after three months' treatment. A 3 per cent. solution of sodium gynecardate "A" in distilled water, with 1 per cent. of pure phenol and 1 per cent. of sodium citrate, was prepared, and sterilized by boiling in a flask immersed in another vessel containing water. Of this solution, from 0.5 c.c. up to 5 c.c. was given thrice weekly, intravenously. Tablets of the same drug were given by mouth, but it was not always found possible to give these regularly, and so far as could be judged the oral administration made little or no difference. The principle adopted was to begin with 0.5 c.c. and increase the dose by 0.5 c.c. each time, giving the injections thrice weekly. Anesthesia was present in all the patients. There were marked tubercular nodules in twenty cases. One patient after a few injections developed dysenteric diarrhea and the treatment had to be stopped. He, however, made some improvement, and the treatment is being resumed with care. Three patients, who had been ill, five, four and eighteen years, respectively, have entirely lost all traces of anesthesia and the nodular swelling which was found in the last of these has practically disappeared. The most rapid progress was recorded in the youngest patients and in those who had been ill for the shortest time; but this latter does not always hold, as the disease may advance more rapidly in some cases than in others. Many of the patients felt very weak at the end of the three months, but they were extremely cheerful. Muir has used leprolin in the treatment of leprosy for some years, and obtained improvement in many cases and the entire disappearance of anesthetic patches in a few initial cases. The original gynecardate of soda prepared under Sir L. Rogers' instructions gave better results than leprolin. Sodium gynecardate "A," however, has given vastly superior results to either of these.

Annales de Médecine, Paris

March-April, 1918, 5, No. 2

- 15 *Soldier's Gastritis with Hyperchlorhydria. M. Loeper and G. Verpy.—p. 97.
- 16 *Central Neurofibromatosis. G. Humbert and F. Naville.—p. 108.
- 17 *Wounds of Spine with Intact Dura. Guillain and Barré.—p. 115.
- 18 Typhoid Lesions in Arachnoid. R. Lutenbacher.—p. 148.
- 19 *French Spirochetosis. N. Fiessinger.—p. 156.
- 20 Paratyphoid with Epilepsy. Pagniez and Valléry-Radot.—p. 179.
- 21 Spirochetosis. R. Dujarric de la Rivière.—p. 184.

15. **Soldier's Gastritis with Hyperchlorhydria.**—Loeper and Verpy have encountered seventy-two cases of this type among 135 cases of dyspepsia in soldiers. The symptoms indicate actual gastritis, the result of repeated functional hyperstimulation. Restriction to a nonirritating diet, milk, potatoes and sugar, aids in recuperation. Solutions of sugar are soothing, they induce by their concentration a mucous exudation, and they supply calories. The highly sweetened diet recommended in cases of gastric ulcer is particularly useful here, as it tends to reduce gastric secretion. Among the active measures, emptying the stomach and rinsing it with weak solutions of bicarbonate are effectual, also ingestion half an

hour before meals of some alkaline solution, phosphates, sulphates, with sodium citrate. Also a suspension of bismuth carbonate taken fasting.

16. **Central Neurofibromatosis.**—Bilateral central deafness is common with this disease; Henschen declares that there are always two neuroma on the eighth pair of nerves. This was the case in the sixteen instances he has compiled, but in the family here described only the father presents this bilateral deafness. The two sons are deaf only on one side. One son of 32 has a neurofibroma on the optic nerve and retina, visible with the ophthalmoscope since the age of 7. The brother died at 18 and the father at 31.

17. **Paraplegia After Wounds of Spine with Intact Dura.**—Fifteen cases are described of organic paraplegia following a war wound of the spine, but in which the dura was found intact. The points which distinguish between the set of symptoms from total section of the cord and those from a focal lesion are an extensive plantar skin reflex on both or even on one side, conservation of sensibility over an area, even if quite limited, and pain when the thigh is flexed at the hip. Lumbar puncture shows when there is subarachnoidal hemorrhage.

19. **French Spirochetosis.**—The clinical picture may resemble that of catarrhal jaundice or of meningitis with myalgia and nausea, the symptoms subsiding after lumbar puncture, or it may appear as war nephritis, trench foot, or as an infectious disease of unknown nature. A. Pettit was the first to insist that the spirochete involved is not identical with Inada's icterohemorrhagic spirochete in Japan. The spirocheturia with the latter appears only after defervescence, not until after the first week, while in the French spirochetosis, spirocheturia was pronounced from the first to the fourth day in the Lorient epidemic. In the sporadic cases the spirocheturia is tardy. The French spirochete is also longer, with more twists, and guinea-pigs seem absolutely immune to it. The serum of patients contains no immunisins against the Japanese spirochete. The French spirochetosis is essentially polymorphous, and includes undoubtedly a number of pyrexias of hitherto unknown origin. It is possible that trench foot belongs in another category, but at present it seems to fit into this elastic frame.

Archives Médicales Belges, Paris

May, 1918, 71, No. 5

- 22 Dysentery in 1917 in Belgian Army. P. Nolf and others.—p. 521.
- 23 Concussion Psychoses. H. Hoven.—p. 540.
- 24 *Pneumatic Mobilization of Joints. Loveday and Stouffs.—p. 548.
- 25 *Visual Acuity and Military Service. E. Rasquin.—p. 564.
- 26 *Disability with Mutilation of Face and Jaws. F. Watry.—p. 583.
- 27 Psychogenous Motor Psychoses. M. Molhant.—p. 591.

24. **Pneumatic Mobilization of Stiff Joints.**—Eighteen illustrations show the apparatus and the method of use for stiff joints. The principle is the application of pressure by a rubber bag alternately inflated and collapsed by air from a pump worked by an electric motor. The motor is connected with iron piping which has manifold outlets with pinch-cocks at regular intervals, the inflatable bags being connected with these branching tubes. All are inflated simultaneously with the compressed air, for about a minute, and the joints thus get a succession of small efforts at mobilization which aggregate in time enough force to correct the ankylosis. This principle was first applied for massage. It is accomplishing results in the line of mobilization beyond the highest anticipations, it is said, not only for knees, wrists and fingers but for constriction of the jaws, and for the elbow, talipes varus and equinus, etc. Continuous traction accomplishes the same purpose, but the soft parts are rendered anemic in the process, blood and lymph are expelled, and conditions are not favorable for recuperation of function. With the rapid alternating application of force and its release, the soft parts undergo a constant massage as the muscles repeatedly stretch and retract. One unexpected advantage of the method is that it shows up factitious ankylosis. The sittings are given every day or twice a day.

25. **Visual Acuity in Soldiers.**—Rasquin discusses from the military standpoint the evaluation of the disability from reduction of visual acuity.

26. **War Wounds of Jaws and Face.**—Watry discusses the mutilations of jaws and face from the same standpoint of military disability and reduction of the earning capacity.

Bulletin de l'Académie de Médecine, Paris

July 23, 1918, 80, No. 29

28 *Arteriovenous Aneurysm. L. Sencert.—p. 114.

29 *Hemoptysis after War Wounds of Chest. Courtois-Suffit.—p. 116.

28. **Subclavian Arteriovenous Aneurysm.**—Sencert reports the complete functional recovery after resection of an arteriovenous aneurysm in the subclavian vessels. In order to reach it, he temporarily disarticulated the clavicle.

29. **Hemoptysis After War Wounds of Chest.**—Courtois-Suffit refers to the hemorrhages which occur after a long interval and display a tendency to recurrence after a war wound of the chest. In one of the four cases summarized, the interval was thirty months. Nothing can be found in any of the cases suspicious of tuberculosis, and the recurring hemoptysis is not accompanied by any impairment in the general health. Tuberculosis is proving extremely rare as a complication of war wounds of the chest. He cites seven other hospital physicians, besides himself, who have never encountered an instance of it. The war wound, especially when a foreign body is left in the tissues, may keep up a latent inflammatory process which may bleed at times.

Bulletins de la Société Médicale des Hôpitaux de Paris

May 10, 1918, 42, No. 16

30 *Gangrene of Uvula in Purpura. L. Galliard.—p. 435.

31 *Lethargic Encephalitis. Lortat-Jacob and Hallez.—p. 439.

32 *Meningitis. M. Beauchant, Baudoin and Dubois.—p. 444.

33 *Trauma and Tuberculosis. A. Lemierre and Lantuéjoul.—p. 449.

30. **Gangrene in Purpura.**—The purpura was relatively mild in the man of 49 but gangrene developed in the uvula and it sloughed off leaving only a stub. Bleeding from the gums had been the first symptom and the uvula was swollen. The physician ordered local treatment with diluted hydrogen peroxid. Netter has reported the cultivation of what seemed to be meningococci in the vesicles in a case of purpura in an infant, as also in several cases in adults, and others have reported gangrene in meningococcus purpuras. Some of the patients recovered without having been given serotherapy. In Elliot and Kaye's case, both feet had to be amputated.

31. **Lethargic Encephalitis.**—The woman of 49 was brought to the hospital because for a week she had not been able to keep awake, and she complained of feeling tired all the time, and there was ptosis of the eyelids. Three weeks before she had suffered for a week from severe headache. The lethargy, the tendency to catatonia and loss of pupil reflex to light gradually subsided in this order. The somnolency in this and similar cases seems to be a symptom of exhaustion, a phenomenon comparable to what occurs in the motor system in bulbar myasthenia.

32. **Puncture of Ventricles in Meningitis.**—The young aviator developed suddenly acute meningitis with violent delirium; serotherapy was pushed for a week without apparent benefit. Then, on account of the aggravation of the symptoms notwithstanding the specific serotherapy, both lateral ventricles were punctured, followed by injection of 10 c.c. of the specific serum in one ventricle and 5 c.c. in the other. Meningococci were found in the 15 c.c. of fluid aspirated from the first ventricle punctured. By the next day improvement was pronounced, and it continued without further setbacks except a subcutaneous abscess at the point where the scalp had been trephined for each puncture of the ventricle. Pure cultures of meningococci were derived from the pus, but recovery continued undisturbed. The facility with which the ventricles can be punctured always astonishes those who try it. In the case reported a fixation abscess had been induced, as this is deemed useful in grave meningitis, and it may have contributed to the favorable outcome.

33. **Traumatism and Tuberculosis.**—In two of the three cases of war wounds of the chest reported, a latent tuberculous process flared up, but in the third case a contusion of the chest was followed by development of acute pleuro-tuberculosis, almost at once, which seemed to be primary.

Presse Médicale, Paris

July 22, 1918, 26, No. 41

34 *Access to Base of Neck in Front. R. Le Fort.—p. 373.

35 Papulous and Nodular Forms of Chancre. M. Ferrand.—p. 375.

36 Copper in Treatment of Streptococcus Lesions. A. Mauté.—p. 377.

37 *Osteomyelitis of the Spine. J. Luzoir.—p. 378.

July 25, 1918, 26, No. 42

38 *Constipation in Men on Active Service. M. Labbé.—p. 385.

39 *Bimanual Percussion. O. Peyret.—p. 387.

40 Febrile Bilious Hemoglobinuria. F. Roux.—p. 390.

34. **Access to the Mediastinum and Neck.**—Le Fort analyzes the different methods that have been proposed for access to the cervicomediastinal space, at the base of the neck, and advocates what he calls the sternocleidocostal flap. The skin is incised along the median line for 10 or 12 cm. to the first intercostal space, and then at right angles to the first incision for 12 or 14 cm. along the intercostal space to the deltoid, thus forming an L. His illustrations show how this avoids mutilation while it affords ample access. By this means he was able to remove without mishap a shrapnel ball just above and back of the aorta which, for sixteen months, one surgeon after another had refused to remove. Except for temporary incision of the sternum—which is a spongy bone and consolidation afterward is rapid and sure—no bone, vessel, nerve or important muscle is injured in the least, the clavicle and its articulation and the sternomastoid being unmolested, while it gives ample access to the organs at the base of the neck, the entire upper mediastinum and the apex of the lung. The integral repair of the chest wall requires only suture of the intercostal space, of the pectoralis and the fibro-aponeurotic plane.

37. **Acute Osteomyelitis of the Spine.**—Luzoir summarizes some recent cases that have been published, emphasizing the vital importance of an early diagnosis. Kirmisson called attention in 1909 to the characteristic oblong shape of the swelling over the inflamed vertebrae, almost spindle shaped. In one of his four cases the swelling along the side of the spine reached from the scapula to the crest of the ilium. Another symptom is the manifest collateral circulation in the region. The temperature is subfebrile, and puncture brings pus with usually the *Staphylococcus aureus* in pure culture. The absence of any tendency to curvature of the spine and the presence of some focus of infection elsewhere aid in differentiating the acute osteomyelitis. In one of the cases cited the spinous processes of the eleventh and twelfth dorsal vertebrae were found denuded, with four perforations in the sacrolumbar aponeurosis. The focus was cleared out and cauterized with phenol neutralized at once with alcohol, and in less than two months the lesion had completely healed. In other cases a subacute, almost chronic course would suggest tuberculosis if it were not for the long outline which is in such contrast to the round Pott's lesion. In other cases the symptoms of septicemia predominate, suggesting typhoid or meningitis. In one such case the young man was being treated for typhoid until the casual discovery of the swelling in the lumbar region. The operation then came too late to save him. Only thorough examination in all cases of supposed typhoid would avert blunders of this kind. In a more recent case the grave general condition and signs of meningeal irritation pointed to meningitis, but the finding of staphylococci in the spinal fluid led to more careful examination of the spine and discovery of the acute osteomyelitis, with recovery after draining the spinal canal. The first symptoms in this case had been acute retention of urine, without discoverable cause, and pains in the spine.

38. **Constipation in Men on Active Service.**—The lack of fresh vegetables in the soldiers' rations at the front entails constipation. It may be simple or spastic, or of the atonic or toxic type, or with inflammation. The gravity of the latter groups shows that constipation should never be neglected, to ward off these more serious developments. In prophylaxis, efforts should be made to supply the soldiers with vegetables and fruits, fresh or dried. Labbé advises in the toxic form disinfection of the bowels by means of cultures of lactic and paralactic bacilli, calomel, benzonaphthol and

naphthol, used alternately. Liver extracts and bile extracts are useful to stimulate the liver and bowel functioning.

39. **Bimanual Percussion.**—Peyret gives illustrations of this means of determining the dulness characteristic of pulmonary tuberculosis. The two hands are not applied opposite each other but on radii from the common center being percussed. The palms are applied flat, one over the anterior margin of the clavicle at the middle of a line joining the bifurcation of the sternum with the outer point of the acromion above the head of the humerus. The other hand is placed on the spine of the scapula. A line is drawn to connect these points, passing over the shoulder and extending a few inches beyond them. This he calls the *ligne directrice* as the percussion is applied along this line. He devotes nearly nine columns to describing the exact technic and the information to be derived from the percussion.

Revue Médicale de la Suisse Romande, Geneva

July, 1918, 38, No. 7

- 41 *Pneumococcemia in Children. D'Espine and Reh.—p. 413; Turrettini.—p. 436.
- 42 *Mechanism of Conjugated Deviation of Eyes and Rotation of Head in Hemiplegia. L. Bard.—p. 423.
- 43 Carbonated Baths for Intermittent Claudication. E. de La Harpe.—p. 429.
- 44 *Imperforate Anus. Veyrassat.—p. 433.

41. **Pneumococcemia in Children.**—D'Espine and Reh state that the mortality was 3.7 per cent. in 374 cases of pneumonia in children in the seven years ending with 1917. Then came a series of 32 cases with 9 per cent. mortality. In one family there were 2 cases with early fatal empyema, although there did not seem to be mixed infection. In 9 cases there was pneumococcus meningitis with only one recovery. Netter has reported 17 cases of meningococcus meningitis with tardy pneumococcus invasion, all terminating fatally notwithstanding serotherapy. But D'Espine here relates a case of similar mixed infection with recovery under antimeningococcus serum treatment. One of the children had a pneumococcus sore throat and the pneumococci were found in the blood, but prompt recovery followed. A case is also described of febrile pneumococcemia in a girl of 3 without any manifest localization of the infection. The pneumococci were cultivated from the blood repeatedly during nearly a month, the fever keeping up with a typhoidal condition for three weeks; under six intravenous injections of a silver preparation the temperature finally dropped to normal.

Turrettini reports the case of an infant less than 5 months old who developed pneumonia, and the pneumococcus was found in the blood on repeated examinations during the following six months, with final complete recovery. The child increased in weight during the 180 days of its septicemia and occasional febrile temperature. The autovaccine from the persisting septicemia evidently attenuated the virulence of the pneumococci to such an extent that the growth of the child was scarcely interfered with.

42. **Rotation of Head and Eyes with Hemiplegia.**—Bard explains how the loss of the gyratory reflexes on the paralyzed side induces an automatic predominance of the gyrations in a determined direction, a sensorial hemi-agyria, as he calls it.

44. **Imperforate Anus.**—The rectum opened in the vagina but this was not discovered by any one, it is said, till the babe was 6 months old and wasting away from abdominal disturbances and general debility. The transplantation of the anus to the perineum was peculiarly difficult in such a young and restless child, but the operation was a perfect success. The child is now 5 years old and free from both retention and incontinence. After the operation the mother was instructed to dilate the anus occasionally with her finger.

Annali d'Igiene, Rome

May 31, 1918, 28, No. 5

- 45 *Passage of Rabies Virus to Fetus. Lanfranchi and Lenzi.—p. 233.
- June 30, 1918, 28, No. 6
- 46 Mixed Infection in Glanders. M. Carpano.—p. 273.
- 47 *Monophagism, Pellagra and Scurvy. G. Volpino.—p. 280. Cont'n.
- 48 *Immunity of Fowls and Pigeons to Anthrax. C. Sarti.—p. 291. Commenced in No. 5, p. 226.
- 49 The Prevailing Three-Day Fever Epidemic. G. Sampietro.—p. 300.

45. **Passage of Rabies Through Placenta to Fetus.**—Lanfranchi and Lenzi report the case of a gravid bitch that had succumbed to rabies at term. Rabbits inoculated with medulla tissue from the mother and from the fetuses all died with symptoms of rabies.

47. **One-Sided Diet, Pellagra and Scurvy.**—Volpino has been studying deficiency diseases for years, and here describes his extensive experimental research and compares the results with those that have been reported by others. Among the experiences reported was the finding that pellagrins respond with a pronounced local and general reaction to injection of extracts of spoiled and sound maize. Similar series reported by others bring the total to 136 positive and eleven dubious or negative responses in 147 pellagrins, while positive responses were obtained only in thirty-three of 130 nonpellagrins. He regards these findings as testifying to sensitization of the pellagrins. The article is to be continued.

48. **Immunity of Fowls to Anthrax.**—Sarti inoculated hens and pigeons with the anthrax virus subcutaneously, by the vein or in the anterior chamber. The fowls proved to be immune even to large doses of the virus, but a few of the pigeons developed anthrax septicemia. Study of the blood and other factors involved shows that several factors evidently cooperate in this natural immunity. The ferments in the blood serum sensitize the micro-organisms so that they fall easy prey to the phagocytes. Fasting reduces the defensive forces and may practically suspend the immunity.

Pediatrics, Naples

July, 1918, 26, No. 7

- 50 *Roentgen Examination of Child's Chest. F. P. Sgobbo.—p. 385.
- 51 *Vaccine Prophylaxis of Scarlet Fever. G. Caronia.—p. 406.
- 52 *Diphtheria Bacilli Carriers. S. Cannata.—p. 414.

50. **Roentgen Examination of Chest in Children of Different Ages.**—Sgobbo examined eighteen boys and twelve girls from families of working men; only 20 per cent., including the supposedly healthy, gave normal findings in the lymphatic glands of the mediastinum and lung. In those with pathologic antecedents of any kind, the findings were always positive. It is possible that some of the glandular lesions may have been the result of other than tuberculous processes.

51. **Vaccine Prophylaxis of Scarlet Fever.**—Caronia and Di Cristina's previous work in this line has been duly chronicled in these columns. Di Cristina makes the vaccine from an extract of the scales, an antigen having been found in them which seems to be able to confer permanent immunity. He makes the vaccine by dissolving out the antibodies, soaking the scales in serum from convalescents. Subcutaneous injection of this vaccine induces the production of a specific antibody for the alcoholic extract of the desquamated scales. This confirmed that the reaction observed is not a simple reaction of the lipoids contained in the scales, but is also due to the presence of antigens in the true sense of the word. Children from 2 to 9 years old, treated with the vaccine until the immunity reaction appeared, in close contact with scarlet fever patients or with peeling convalescents, never developed scarlet fever. These experiences substantiate that the branny scales are the last stronghold of the causal germs in the organism. They further demonstrate the feasibility of the biologic differential test by this means, and also of effectual prophylaxis and possibly of treatment.

The Clinica Pediatrica at Naples consists merely of two large contiguous halls, each containing ten beds. One of these wards is given up to infants, the other to the larger children. There are no provisions for isolation, and not even for observation, so that when a recent arrival proved to have scarlet fever, its epidemic spread seemed inevitable. One of the children in the ward soon presented symptoms of the disease, and all the other children in the ward were injected with the scale vaccine. He also injected the vaccine in some children in private families when one had developed scarlet fever. None of the twenty-three children thus treated developed the disease, and only two, both feeble infants under 2 years old, presented a few symptoms indicating an abortive type of infection. Possibly these infants had been injected after infection was already under way. The immunization of

The vaccinated children was rendered apparent by the deviation of complement test. He injected 1 c.c. of the vaccine on three alternate or consecutive days. The two primary cases of scarlet fever remained in the ward throughout their disease and desquamation, but no other cases developed.

52. Diphtheria Bacilli Carriers.—Cannata compares a number of recent publications on this subject. He had to stamp out an incipient epidemic of diphtheria in a battalion in active service. As bacteriologic examination of the 1,200 men was out of the question under the circumstances, he swabbed the pharyngeal mucosa of all the men with iodized glycerin, and no further cases developed. Smears from the throat of 250 later showed the bacilli in only one case. Schiøtz noticed that children with a staphylococcus sore throat placed by mistake in the diphtheria ward never contracted diphtheria. He accepted this as a suggestion to apply cultures of the staphylococcus in local treatment of the pharynx, and has reported excellent results. Ten other writers have published favorable results confirming the efficacy of this antagonistic bacterial treatment. They spray the nose and nasopharynx with eighteen or twenty-four hour bouillon cultures of the *Staphylococcus aureus*, and only a few have reported disappointing results. Lactic acid bacilli; pyocyanase; a diphtheria vaccine, and desiccated horse serum previously treated with cultures of diphtheria bacilli have also been used. With the latter method no further bacilli were found after twenty-four hours in the thirty-five cases tested.

Archivos Españoles de Enf. del Ap. Digestivo, Madrid

July, 1918, 1, No. 7

- 53 Innervation of Digestive Apparatus. J. Vilato.—p. 289.
54 Necropsy with Hematemesis in Syphilitic. Gallart.—p. 309.

Brazil-Medico, Rio de Janeiro

July 6, 1918, 32, No. 27

- 55 Flagellate Parasites. (Opalina Bras. n. sp.) Pinto.—p. 209.
56 Internal Secretions and Pediatrics. A. Hymanson (New York).—p. 209. Concluded in No. 28, p. 217.

Prensa Medica Argentina, Buenos Aires

July 10, 1918, 5, No. 4

- 57 *Joint Manifestations of Tardy Inherited Syphilis. M. R. Castex and R. Denis.—p. 37. Commenced in No. 1, p. 1.
58 *Rectal Medication in Syphilis. C. A. Castaño.—p. 42.
59 Tetanus and Industrial Accident Insurance. L. Bard.—p. 42.

57. Joint Manifestations of Tardy Inherited Syphilis.—Castex and Denis report in detail a large number of cases which demonstrate that tardy inherited syphilis is able to induce a clinical picture deceptively resembling that of acute polyarticular rheumatism. If the causal syphilis is overlooked, these cases may degenerate into chronic and absolutely incurable conditions, simulating ordinary chronic rheumatism. In differentiating the syphilitic origin, other members of the family should be examined for stigmata of syphilis, and the personal, familial and inherited antecedents investigated with minute care. In any event, they advise vigorous treatment as for syphilis, as it can never do harm while it is the only means to ward off irreparable lesions. The most common forms of the tardy joint manifestations of inherited syphilis simulate white swelling and hydrarthrosis, usually affecting the knee or hip joint. They may subside completely under specific treatment in the early stages. The mode of onset and the progress are important points in differentiation, as also the exclusion of tuberculosis and rheumatism. The long serial article is profusely illustrated.

58. Rectal Treatment of Syphilis.—Castaño states that when circumstances render injections impracticable, he has obtained excellent results by administering mercurial treatment by way of the rectum. In his several years of experience with this technic he has never had any inconveniences from it. Farini of Buenos Aires has even administered both mercury and arsphenamin by this route, with surprisingly good results. In some of Castaño's cases the patients developed stomatitis in a few days, confirming the absorption of the mercury. He administers it in a coco butter suppository, one on retiring, suspending the treatment for three or four weeks after the suppositories have been administered for twenty days, then resuming the treatment again. When the patient has bad

veins, he prefers to administer neo-arsphenamin by the rectum, instilling it slowly and keeping the patient reclining for a time. He uses the same doses with this as for intravenous injection.

Revista Argentina de Obst. y Ginecologia, Buenos Aires

March-April, 1918, 2, No. 2

- 60 *Acute Dilatation of the Stomach. J. Iribarne.—p. 121.
61 *Inaccessible Vesico-Vaginal Fistulas. J. C. Ahumada.—p. 137.
62 Extraperitoneal Cesarean Section. T. A. Chamborro.—p. 149.
63 *Cervical Embryotomy. J. A. Beruti.—p. 159.
64 Anteversion and Retroversion of Pelvis. E. A. Roero.—p. 172.
65 Technic for Classic Cesarean Section. N. Fernandez.—p. 175.

60. Acute Postpartum Dilatation of the Stomach.—Iribarne is convinced that this is of more frequent occurrence than generally supposed, but often escapes recognition. P. Ramos could find only seventeen cases on record during the nine years that had elapsed since Audibert reported the first case in 1907, but during the two years since, six cases have been encountered in Argentina alone. Iribarne reports an exceptionally severe case in a secundipara. The delivery of a normal child had been spontaneous and expeditious, and the general condition was good, but about twenty minutes after expulsion of the after-birth there was slight hemorrhage. The midwife injected ergot and camphorated oil, and massaged the uterus, but the slight hemorrhage still persisted. By the end of the hour the pulse was fast and small, and the woman complained of feeling suffocated, and there was much pain. The pallor was extreme, but the uterus had contracted well and the hemorrhage had practically ceased. Iribarne injected saline subcutaneously and by the vein, and injected a pituitary extract. The general condition was growing rapidly worse, the pain and sense of oppression intense, the pulse 150 and almost imperceptible, although the conditions in the genital sphere were physiologic. The woman's expression of distress increased, the pulse became 160 and 170, and then became totally imperceptible. There was no vomiting or thirst, but the bulging of the stomach confirmed the suspicion of acute dilatation of the stomach, and on turning the woman into the prone position, with the mouth open, there was a rush of gases from the stomach and rectum, followed by vomiting and great relief. But the pulse was still imperceptible, and the woman was chilly. Pituitary extract was injected anew, hoping to act on the musculature of the stomach and on the heart. The woman felt relieved, but was unable to lie prone and was turned on her back; oxygen was administered, with saline, epinephrin, caffeine and strychnin, while hot water bottles were packed around her and she was rubbed with alcohol. Then the oppression and suffocation returned, as severe as before, but were relieved again by making the woman lie prone. An attempt at lavage of the stomach was then made, but the woman stopped breathing as the tube was introduced into the esophagus, and her eyes rolled up. The tube was withdrawn and ether was injected, and the skin rubbed vigorously, and she revived but the condition was still very grave. Pituitary extract was given and the woman turned on her stomach, which was followed by belching of gases and vomiting. From 10 p. m. to 2 a. m. they were thus working over her, the pulse absolutely imperceptible throughout. Then the pulse began to be felt and by 2:30 the condition was no longer alarming, and recovery proceeded although there was a tendency to gastric intolerance and lassitude for some weeks.

Iribarne explains the mechanism of the arteriomesenteric occlusion which accompanies the dilatation of the stomach, and the cessation of the occlusion in the prone position. The woman should be turned to this position on the slightest suspicion of acute dilatation of the stomach. It does no harm in any event, whatever is the matter, while it is a life-saving measure with true arteriomesenteric occlusion of this kind.

61. Treatment of Inaccessible Vesicovaginal Fistulas.—The transvesical operation is the most logical because it goes direct to the fistula; it is the easiest technic, and the most effectual. Three cases are described which illustrate the advantages of this method.

63. Embryotomy.—Beruti's modified instrument consists of a curving spiral spring that is pushed through a stiff

cannula. The spiral spring curves of itself around the fetal neck, and the end can be drawn down and attached to a Gigli wire saw. The saw is drawn up by pulling the flexible wire spiral spring back into the cannula.

Revista de la Asociacion Medica Argentina, Buenos Aires

April, 1918, 28, No. 161

- 66 *Pancreatic Infantilism. R. A. Bullrich.—p. 303.
- 67 *Cyst in the Prostate. E. Castaño.—p. 317.
- 68 Syphilis in Medical Diagnosis. R. P. Escalier.—p. 325.
- 69 Roentgen Therapy of Fibromas. J. Guardado.—p. 337.
- 70 Torticollis Tic. T. Martini and J. J. Berterini.—p. 349.
- 71 Mercurial Treatment of Children. J. C. Navarro.—p. 360.

66. **Pancreatic Infantilism.**—Bullrich reports a typical case of Byrom Bramwell's pancreatic infantilism, with the necropsy findings. The case was distinguished further by the patient's being a diabetic. Necropsy revealed that the trouble was not in the pancreas so much as in the thyroid and pituitary body. There were lesions in the pancreas but they were insignificant compared to those in the thyroid and pituitary body. The case was one therefore of pluriglandular derangement. He had been normal and well grown till about the age of 11 when he began to grow thin and at 16 had pronounced diabetes mellitus. Then came eight months of rebellious diarrhea. At the age of 20 he was intelligent but was only about 4 feet tall and weighed only 21 kg. The skin was very dry and wrinkled like that of an old man, and the urine contained from 38 to 45 per thousand sugar. The stools showed signs of pancreas deficiency. Death occurred suddenly in an epileptiform convulsion, with nothing to suggest diabetic acidosis.

67. **Prostatic Cysts.**—In the two cases which Castaño has encountered, the cyst was in carcinomatous degeneration. The one patient whose case is described with illustrations has been in good health during the nine months or more since the prostatectomy. Prophylactic radium therapy was applied systematically during the first six months.

Revista de Medicina y Cirugia, Havana

June 25, 1918, 23, No. 12

- 72 *The Mammary Fluid in the Newly Born. J. F. Arteaga.—p. 323.

72. **The Mammary Fluid in the Newly Born.**—Arteaga investigated on fifty-two infants the fluid that could be expressed from the mammary glands, just after birth up to twelve days or nineteen days. The findings in 97 per cent. indicated that the fluid was of the nature of a secretion, a physiologic phenomenon, independent of sex, breast feeding, and the obstetric and pathologic antecedents of the mother. In some the secretion kept up for from twelve to sixty-two days, with an average of forty-three days. In another child it kept up for 128 days.

Revista de Medicina y Cirugia Practicas, Madrid

June 22, 1918, 121, No. 1512

- 73 Experimental Research on the Secretory Innervation of the Thyroid. L. Asher and M. Bañuelos.—p. 353.

Revista Medica Cubana, Havana

June, 1918, 29, No. 6

- 74 *Microbian Associations. J. A. Figueras.—p. 291.
- 75 Gastro-Intestinal Resections. Chavez and Yaniz.—p. 296.
- 76 Solid Tumors of Spermatie Cord. G. Pujadas.—p. 299.

74. **Mixed Infections.**—Figueras reports a case of diphtheria in which streptococci were found in the smears, as well as diphtheria bacilli. The child was treated with both diphtheria antitoxin and an antistreptococcus serum, and also with serum from the renal vein of a goat as the condition was grave and the anuria persisted. Improvement was evident in a few hours, and under renewed injection of the goat serum and antistreptococcus serum the child recovered, the symptoms on the part of kidneys, and myocardium gradually subsiding. There were no signs of serum sickness although 17,000 units of the antistreptococcus serum had been given besides the goat serum and the antitoxin. This child's brother had pure diphtheria at the same time, and was left a carrier until the tonsils were removed.

Revista Medica del Rosario, Argentina

Jul., 1918, 8, No. 3

- 77 *Bacteriology of Blood in Puerperal Fever. E. Mazzini.—p. 171.
- 78 *Syphilitic Diabetes Insipidus. T. Fracassi.—p. 197.
- 79 *Visit to Lyons Maternity. B. Abalos.—p. 208.
- 80 *Brain Tumor in Girl. J. Muniagurria.—p. 221.

77. **Bacteriologic Examination of the Blood in Puerperal Fever.**—Mazzini charts the bacteriologic findings in sixteen cases of puerperal fever, and emphasizes that clinical examination alone is not enough for the diagnosis and prognosis in this disease. Bacteriologic examination is indispensable not only for the blood but also for the lochia. The discovery of virulent bacteria and their increasing numbers on repeated examinations point to a fatal outcome. On the other hand, the diagnosis and prognosis cannot be based exclusively on negative bacteriologic findings. In his series, staphylococci or streptococci were found in the blood in 30 per cent. and half of these cases terminated fatally. In one of two cases with streptococci in the blood, the general condition was very grave but the numbers of streptococci grew constantly less and the woman recovered. The other seemed to have a mild case but the increasing numbers of streptococci in the blood warned of the impending fatal termination. The bacteriologic findings were positive in six of fifteen cases; typhoid bacilli were found in one fatal case, and, associated with staphylococci, in one woman who recovered. Jaundice was present in two cases with hemolytic streptococci but one of the two women recovered. He cites literature on the subject, mentioning Veit's experience that the prognosis was less unfavorable when gonococci were found with the streptococci or with colon bacilli.

78. **Syphilitic Diabetes Insipidus.**—Fracassi reviews the theories of defective or excessive pituitary functioning as the cause of diabetes insipidus, and the theories based on hormones and trophic centers. They all seem to accept a single origin for all forms of diabetes insipidus, namely, some organic or functional disturbance in the pituitary body or polyuric brain centers. In a case described, the young man within three months developed polyuria up to 15 liters in the twenty-four hours. He had had three attacks of gonorrhea during the last seven years and an indurated chancre during the sixth year, but there had been no secondary manifestations. In the last month there had been lightning pains in the legs and quite recently a little fever. All the symptoms subsided under mercurial treatment, the amount of urine dropping from 10,000 to 6,500 c.c. in the course of eight daily intravenous mercurial injections. By the twentieth injection the total output of urine was only 2,000 c.c. Muniagurria has published a similar case of cure of diabetes insipidus under specific treatment.

79. **Obstetric Technical Points.**—Abalos gives an illustrated description of his visit to the Clinique Obstétricale in charge of Fabre at Lyons. One pavillion is devoted to "girl-mothers" and abortion cases. The morbidity has shown great improvement since the pregnant are given only douche baths, after the first all-over cleansing bath. Fabre believes in "mathematical obstetrics." He has found that the uterus grows each month 4 cm. By the end of the fourth month it should reach 14 cm. above the pubis, and with approaching term it should reach to about 32 cm. By weekly measurements, this normal upward progress can be traced. If it does not occur, the death of the fetus is probable. If the uterus reaches higher than 32 cm., hydramnios or twin gestation or contracted pelvis should be suspected. Fabre determines the measurements of the pelvis with a roentgen tube 50 cm. above or 20 cm. below the level of the pubis, the woman lying prone on a barred frame on which the shadow of the bones is outlined, each square representing 1 cm., the squares drawn as by Mercator's projection. Three illustrations show the system and the precision of the measurements thus obtained. Another illustration shows Fabre's dynamometer used in connection with the forceps to gage the force applied. A description is also given of a pneumatic device, strapped around the waist, to record the contractions of the uterus.

Fabre insists on isolation for every parturient harboring the streptococcus. He regards the turpentine fixation abscess

as the sovereign remedy for puerperal fever. It acts, he thinks, by inducing the production of antibodies from the irritation of the tissues, and it has besides a direct and elective action on the streptococcus. He uses turpentine also in prophylactic injections into the uterus in a 5 per thousand solution; after delivery, in a 10 per thousand solution. For cauterizing, he uses a 10 or 20 per cent. suspension in oil. For the fixation abscess, from 1 to 5 c.c. of pure turpentine. For artificial serum, he dissolves 1 gm. of turpentine in 1 gm. of alcohol and pours it into 200 gm. of artificial serum. The mortality has been reduced by 10 per cent. since this turpentine treatment has been systematically used. The total mortality in the ten years ending with 1913 has been 0.47 per cent. in 11,582 obstetric cases, and puerperal infection was responsible for less than half of this. The total morbidity dropped from 21.7 to 11.1 per cent. between 1906 and 1913.

80. **Brain Tumor.**—Three months of intense headache and vomiting with slight paresis of the arm in a girl of 12 were explained by an echinococcus cyst in the parietal lobe, invading the lateral ventricle. There was no eosinophilia.

Revista Sud-Americana de Endocrinologia, etc., Buenos Aires
June, 1918, 1, No. 6

81 Fatal Gonococcus Endocarditis. C. Spada, Jr.—p. 145.

Semana Medica, Buenos Aires

May 16, 1918, 25, No. 20

82 *Systematized Prophylaxis of Tuberculosis. N. Lozano and C. Mainini.—p. 551.

83 The Endocrine Function of the Ovary and the Mammary Secretion. F. A. C. Bazan.—p. 570.

84 *Test Precipitation of Alkaloids. J. A. Sanchez.—p. 571.

85 Infectious Diseases at Buenos Aires in Last Fifty Years. E. R. Coni.—p. 574.

86 *Treatment of Varicocele. O. Ivanissevich and H. Gregorini.—p. 575.

82. **Systematized Prophylaxis of Tuberculosis.**—This extensive article gives numerous statistical tables of the death rate from tuberculosis in the different districts throughout Argentina, classified by trades and professions and compared with other countries. On this basis are outlined the measures that are proposed in prophylaxis.

84. **Precipitation Test for Nicotin and Other Alkaloids.**—Sanchez' reagent is a sulphomolybdate. It is exceptionally sensitive and has a number of advantages, he says, over other reagents for testing organic bases, especially in dosage of nicotin in tobacco and in extracts. The technic is simple and is described in detail.

86. **Treatment of Varicocele.**—The anatomic and clinical cure is realized by exposing the left anterior spermatic vessels and severing all the spermatic veins in this bunch between ligatures. The return circulation is thus diverted to the posterior vessels and epigastric vein, a tributary of the external iliac. The method has been applied only in three clinical cases to date.

Siglo Medico, Madrid

July 20, 1918, 65, No. 3371

87 Physicians and the State. J. F. Rodriguez.—p. 563.

88 *Epigastric Hernia plus Duodenal Ulcer. L. Urrutia.—p. 565.

88. **Epigastric Hernia Plus Double Duodenal Ulcer.**—Urrutia adds another to the list of cases on record in which an epigastric hernia was accompanied by ulceration in the digestive tract below. There were two ulcers in the duodenum, and each had bored through the wall. The perforation of each at a ten months' interval had induced a severe set of symptoms, but they had subsided spontaneously each time, the opening having evidently become obstructed after the acute phase was past. Conditions were corrected by resecting the segment of bowel involved and a gastro-enterostomy.

Vida Nueva, Havana

July, 1918, 10, No. 7

89 Necessity for Introducing Systematic Prophylactic Treatment of Venereal Disease. J. E. Lopez-Silvero.—p. 201.

90 Diet in Nephritis. M. A. Serra.—p. 206.

Mededeelingen van den Burg. Geneesk. Dienst, Batavia

1918, No. 1

91 *Racial Cholesterol Metabolism. C. D. de Langen.—p. 1.

92 Retention of Nitrogen and Constant of Ambard in Inhabitants of Tropics. C. D. de Langen.—p. 36.

91. **Cholesterol Metabolism in the Tropics.**—De Langen discusses the pathology of races, particularly in regard to cholesterol metabolism. He investigated the latter in natives of Java, having been impressed by the rarity of gallstone cases at the polyclinic and surgical clinic in his charge. He found only one case on the records among the 15,000 patients at the hospital and this was not a native of the East Indies, while not a single instance was encountered among the 40,000 outpatients. The hospital at Sourabaja reports only seven cases among 67,500 inmates and outpatients. The figures from Semarang are eight cases in 47,000. In 1914, throughout the whole of Java, three cases of gallstones were recorded among the 58,021 hospital and outpatients. The cholesterol content of the blood of the natives is exceptionally low. This fact suggests a causal connection and disproves the theory that infection or stagnation is the prime factor in cholelithiasis. This assumption is the more plausible as the natives of the East Indies are subject to infections of the liver and biliary passages, and pregnancies there do not differ from pregnancies in other countries where gallstones are common. The few gallstones found in Java are usually of the rare pigmented type, such as is found with hemolytic jaundice. Pruritus seems also to be exceptionally rare among the natives, which in turn may be explained by the low cholesterol content of the blood. Diabetes and chronic nephritis, with which hypercholesterolemia is often associated, are likewise rare in Java. In conclusion de Langen tentatively recalls that beriberi is a disease locating in the nervous system—which is the most lipid-rich tissue in the body—and hence study of beriberi may yet reveal that the vague notion of vitamins will merge into the problem of lipid metabolism. Certain data he has accumulated sustain this hypothesis, and it is attractive further from a therapeutic point of view. *Chercher la physiologie c'est éclairer la pathologie.* The article is in parallel columns of Dutch and English.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

June 15, 1918, 1, No. 24

93 The Separable Minimum in Testing Vision. C. O. Roelofs.—p. 1616.

94 Tuberculosis in Netherlands Asylums. F. J. Stuurman.—p. 1631.

June 22, 1918, 1, No. 25

95 Farewell Address. C. A. Pekelharing.—p. 1680.

96 Origin of Porphyrins in the Intestinal Canal. I. Snapper.—p. 1692.

97 *Acute Pseudoleukemia. I. Van Esso.—p. 1698.

97. **Acute Pseudoleukemia.**—A previously healthy man of 31 developed fever. He died in four months during which there had been six recurring attacks of fever, not influenced by quinin or arsenic. The highest point of the fever was generally in the afternoon. The acute onset suggested an infectious disease, but the fever curve indicated a blood disease. By the second month, with 3 or 4 million reds there were only 1,530 whites; no nucleated cells; no polychromatophilia; 39 per cent. lymphocytes, and 51 per cent. neutrophils.

Hospitalstidende, Copenhagen

June 26, 1918, 61, No. 26

98 *Diaphragmatic Hernia. V. Schaldemose.—p. 849.

July 3, 1918, 61, No. 27

99 *Operation for Diaphragmatic Hernia. A. Helsted.—p. 881; Roentgen Findings. H. J. Panner.—p. 890.

98. **Suture for Diaphragmatic Hernia.**—Schaldemose remarks that a large proportion of diaphragmatic hernias cause no appreciable symptoms of any kind. When symptoms do develop they may be of the most diverse nature, depending on the organs which are most affected by pressure or by strangulation. Operative measures are the only treatment, and by way of the thorax seems the preferable route. It is difficult if not impossible to reduce the hernia from below and suture the opening.

99. **Diaphragmatic Hernia.**—Helsted's patient was a robust young man; a fall in getting out of a vehicle and a contusion of the neck not long after may have contributed to the hernia. The symptoms were those of periodically recurring partial incarceration of the stomach, with displacement of the heart and compression of the lung. The pains radiating to the left shoulder and down the outer side of the arm, plus the roentgen findings, differentiated the hernia. The roentgenograms all show the high curving convex line reaching, like a rainbow, from the median shadow to the left thorax wall. This line represents the air bubble of the stomach. Roentgenoscopy showed that this line moved up and down, synchronous with the movements of the right diaphragm, both in time and direction, although more sluggishly. He operated through the thorax with complete success. The suturing of the diaphragm was difficult on account of its constant movements. In another case of the kind he would try blocking the phrenic nerve on that side; this has been found effectual in keeping that half of the diaphragm quiet for several hours at a time. In the cases on record, catgut was used to suture the diaphragm, but he did not dare to trust to it and used fine silk, doubled. Five months later nothing abnormal can be discovered objectively, but the young man complains of palpitations and pain in the left chest, and inability to sleep lying down.

99. **Roentgen Findings with Diaphragmatic Hernia.**—Panner examined with the roentgen rays the two cases reported in the preceding two abstracts, and also a third case elsewhere. When several viscera are involved in the hernia, there may be several rainbow-like lines cast by the rounding tops of the air bubble in the different organs. The incurvation of the sides of the stomach—where it is grasped by the diaphragm—is also instructive. In the discussion that followed these three reports, read at a meeting of the Danish Surgical Association, Bartels described the conditions found in some cases in which necropsy had revealed an unsuspected diaphragmatic hernia. In one of the cases the sudden symptoms had suggested perforation of a gastric ulcer, but the roentgenoscopy findings seemed to indicate left pneumothorax. The lung cast scarcely any shadow on the left side, and a horizontal shadow seemed to indicate an effusion. The heart was displaced upward. The roentgen picture was typical for pneumothorax, except for the upward convex line arching across, but this was so indistinct in the roentgenogram that it was overlooked. The young man had been in the hospital for ten days when he complained of sudden intense pain in the chest, and died within a few minutes. Necropsy showed a hole in the diaphragm large enough to admit the fist; the viscera had slid through this opening: the stomach down to the pyloric region, the spleen and the greater omentum. There was no history of trauma in the case.

Hygiea, Stockholm

May 15, 1918, 80, No. 3

100 *Tuberculosis Mortality at Stockholm. E. Lindhagen.—p. 497.

101 *The Exudative Diathesis. A. Lichtenstein.—p. 544.

June 16, 1918, 80, No. 11

102 The New Era in the Study of Syphilis. G. Ahman.—p. 671.

100. **Tuberculosis Mortality at Stockholm.**—Lindhagen's analysis of the tuberculosis mortality at Stockholm during the last few decades shows that it is considerably higher than that of Christiania and Copenhagen. The decline in the mortality since 1881 has been only 39.3 per cent. while in Christiania it has been 43.7 per cent. and in Copenhagen 56.4. His tables show a remarkable decline in the general mortality at all ages under 60, the difference amounting to 66 per cent. for children under 1 year old and 77 and 70 per cent. for children of 1 to 5 and 5 to 10. The tuberculosis mortality in women was only two-thirds that of men. The mortality between the ages of 15 and 40, both sexes, has declined very little in the last twenty years or has even increased a little. Between the ages of 15 and 20 the tuberculosis death rate in women has increased by 18 per cent. while that of men has been reduced by 12 per cent.

101. **The Exudative Diathesis.**—Lichtenstein presents an able exposition of what is meant by the exudative diathesis and the measures required to combat it, with analysis of about seventy-three different European publications on the subject. He emphasizes that treatment must seek to prevent and cure the various symptoms, as the diathesis itself cannot be transformed by our efforts. Surgical and medical measures are called for with the exudative diathesis, as well as dietetic measures. Atropin has never proved satisfactory in his hands in treatment of the eczema, but it has been strikingly effectual in treatment of the tendency to asthma in some cases, while others did not seem to derive any benefit from it. Children with the exudative diathesis should be guarded against infections of all kinds with special care. The conception of the exudative diathesis represents progress in the insight it has afforded as to the influence of diet on the course of a diathesis. But we have taken only the first steps in the field thus opened up. All the means for research in biology, chemistry and pathology should be called to aid in seeking the pathogenesis of the diatheses, the therapeutics, the diagnosis of latent diatheses, and the nucleus for the diatheses in questions of heredity.

Ugeskrift for Læger, Copenhagen

July 4, 1918, 80, No. 27

103 *Diabetes. V. Scheel.—p. 1039.

104 *Test for Albumin. Lilliendahl-Petersen.—p. 1054.

105 *Vaginal Sarcomas. E. Himmelstrup.—p. 1056.

103. **Pathology of Diabetes.**—Scheel remarks that as a general thing theories in regard to diabetes follow on practice, instead of practice being based on theoretical reasoning. The connection between high sugar content of the blood and diabetes is still a question; he reports a case in which diabetes developed in a man of 59, apparently from a trauma. The sugar content of the blood was 0.30 per cent. (0.08 to 0.10 is the normal range), but the urine showed less than 0.5 per cent. sugar and none at all when the blood sugar had been reduced to 0.17 per cent. on antidiabetic diet, not even when the carbohydrates were given freely up to 80 gm. a day. There were no evidences of acetonuria at any time. At first there was some disturbance in vision, but this subsided with the hyperglycemia. There was no albuminuria and the blood pressure was only slightly above normal. Experience has shown that the blood sugar and urine sugar may behave in diabetes with chronic interstitial nephritis just the same as in others free from nephritis. The permeability of the kidneys for sugar does not seem to be modified by kidney disease. The latest research, on the other hand, has confirmed the importance of disease of the pancreas as a factor in diabetes, and that hormones from the chromaffine system are likewise involved.

In discussing the formation of sugar from fat, he relates the case of a diabetic man of 35 who was in the hospital for a year and a half, and the metabolic findings were recorded each day. In one thirty-day period the intake of carbohydrates was 3,525 gm. and the output 5,925 gm.; the intake of albumin 262 gm.; the output of nitrogenous substances, 297 gm. No assumption to explain this seems plausible except that the excess of sugar was formed from fat.

104. **Quantitative Determination of Albumin.**—Petersen remarks that the reagents for the usual tests for albumin are difficult to obtain at present. He proposes what he asserts is an excellent substitute for Claudius' reagent, while it is inexpensive and available. Comparative tests with the Esbach and Claudius methods have demonstrated its reliability. The formula for the reagent is phosphomolybdic acid, 2 gm.; concentrated sulphuric acid, 6 gm.; kaolin, 6 gm., and distilled water to 400 gm. It is used like the Esbach reagent, but takes only six hours. He prefers for the test an ordinary centrifuge glass, graduated as for the Claudius test.

105. **Vaginal Sarcoma in Little Girl.**—Himmelstrup has found records of thirty-three cases of primary vaginal raiemose sarcoma, like the case he describes in a girl of 4. The majority were in children under 3. Operative measures gave only brief respite, all the patients dying in a year or two after the first symptoms.

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SOCIETY	PRESIDENT	SECRETARY	ANNUAL MEETING
Alabama, Med. Assn. of the State of	I. L. Watkins, Montgomery.....	H. G. Perry, State Bd. of Health, Montgomery	1919
Arizona Medical Association.....	Wm. A. Holt, Globe.....	D. F. Harbridge, Goodrich Bldg., Phoenix....	
Arkansas Medical Society.....	E. F. Ellis, Fayetteville.....	C. P. Meriwether, 309 S. Tr. Bldg., Little Rock	Little Rock, 1919
California, Med. Soc. of the State of	C. Van Zwahlenburg, Riverside...	Saxton Temple Pope, Butler Bldg., San Francisco	Santa Barbara, 1919
Colorado State Medical Society....	Edward Jackson, Denver.....	Crum Epler, Pueblo.....	
Connecticut State Medical Society..	Charles J. Bartlett, New Haven....	J. E. Lane, 59 College St., New Haven.....	1919
Delaware State Medical Society....	G. W. K. Forest, Wilmington.....	W. O. La Motte, 2011 Monroe Pl., Wilmington	Wilmington, Oct. 8, '18
District of Columbia, Med. Soc. of..	Philip S. Roy, Washington.....	H. C. Macatee, 1478 Harvard St., N.W., Wash'n	1918
Florida Medical Association.....	Frederick J. Walter, Daytona.....	Graham E. Henson, Jacksonville.....	Miami, May, 1919
Georgia, Medical Association of....	J. W. Palmer, Ailey.....	Wm. C. Lyle, 105 Capitol Sq., Atlanta.....	Atlanta, Apr. 17, 1919
Hawaii, Medical Society of.....	Hubert Wood, Honolulu.....	H. H. Blodgett, Kanikolam Bldg., Honolulu...	1918
Idaho State Medical Association...	William F. Smith, Boise.....	Ed. E. Maxey, 204 Idaho Bldg., Boise.....	
Illinois State Medical Society....	E. W. Fiegenbaum, Edwardsville...	W. H. Gilmore, Mt. Vernon.....	Peoria, May, 1919
Indiana State Medical Association..	J. Rilus Eastman, Indianapolis.....	Chas. N. Combs, Terre Haute.....	
Iowa State Medical Society.....	Max E. Witte, Clarinda.....	T. B. Throckmorton, Equitable Bldg., Des Moines	Des Moines, May 7-9, 1919
Isthmian Canal Zone, Med. Assn. of	F. F. Monroe, Ancon.....	L. M. Drennan, Ancon.....	
Kansas Medical Society.....	W. S. Lindsay, Topeka.....	John F. Hassig, Kansas City.....	Ottawa, 1919
Kentucky State Medical Association..	Jas. S. Lock, Barbourville.....	Arthur T. McCormack, Bowling Green.....	
Louisiana State Medical Society....	W. H. Knolle, New Orleans.....	Paul T. Talbot, 141 Elk Pl., New Orleans....	Shreveport, Apr. 8-10, 1919
Maine Medical Association.....	George H. Coombs, Waldoboro....	B. L. Bryant, 265 Hammond St., Bangor.....	Portland, June, '19
Maryland, Med. and Chir. Faculty of	Wm. S. Halsted, Baltimore.....	John Staige Davis, 1211 Cathedral St., Baltimore	1919
Massachusetts Medical Society....	Samuel B. Woodward, Worcester	Walter L. Burrage, 42 Eliot St., Jamaica Plain, Boston	Boston, June 10-11, '19
Michigan State Medical Society....	A. M. Hume, Owosso.....	F. C. Warnshuis, 531 Powers Bldg., Gr. Rapids..	1919
Minnesota State Medical Assn....	Arthur J. Gillette, St. Paul.....	Thos. McDavitt, 814 Lowry Bldg., St. Paul...	
Mississippi State Medical Assn....	W. S. Leathers, University.....	T. M. Dye, Clarksdale.....	Hattiesburg, 1919
Missouri State Medical Association..	M. P. Overholser, Harrisonville..	E. J. Goodwin, 3517 Pine St., St. Louis.....	1919
Montana, Medical Association of...	E. W. Spottswood, Missoula.....	E. G. Balsam, Billings.....	Missoula, 1919
Nebraska State Medical Association..	J. M. Banister, Omaha.....	Jos. M. Aikin, 466 Brandeis Block, Omaha...	Lincoln, May, 1919
Nevada State Medical Association..	Henry A. Brown, Reno.....	H. J. Brown, Goldfield.....	June, 1919
New Hampshire Medical Society...	Chas. P. Bancroft, Concord.....	D. E. Sullivan, 7 No. State St., Concord....	1919
New Jersey, Medical Society of....	Thos. W. Harvey, Orange.....	William J. Chandler, South Orange.....	1919
New Mexico Medical Society.....	John W. Kinsinger, Roswell.....	R. E. McBride, Las Cruces.....	Albuquerque, Oct. 7-8, '18
New York, Med. Soc. of the State of	Thos. H. Halsted, Syracuse.....	Floyd M. Crandall, 17 West 43d St., N. Y....	Syracuse, May 6, 1919
N. Carolina, Med. Soc. of the State of	Cyrus Thompson, Jacksonville....	Benjamin K. Hays, Oxford.....	Pinehurst, Apr. 15, 1919
North Dakota State Med. Assn....	Edgar A. Pray, Valley City.....	H. J. Rowe, Casselton.....	Grand Forks, 1919
Ohio State Medical Association....	E. O. Smith, Cincinnati.....	C. D. Selby, 659 Spitzer Bldg., Toledo.....	Columbus, Oct. 1-3, 1918
Oklahoma State Medical Assn....	Leonard S. Willour, McAlester...	C. A. Thompson, Surety Bldg., Muskogee....	Muskogee, 1919
Oregon State Medical Association..	C. M. Barbee, Portland.....	Andrew J. Browning, Portland.....	
Pennsylvania, Med. Soc. of State of	Walter F. Donaldson, Pittsburgh..	Cyrus Lee Stevens, Athens.....	
Philippine Islands Medical Assn....	B. C. Crowell, Manila.....	R. B. Gibson, Coll. of Med. & Surg., Manila..	Ponce, Dec. 14-15, 1918
Porto Rico, Med. Assn. of.....	José S. Belaval, San Juan.....	Rafael Bernabe, San Juan.....	1919
Rhode Island Medical Society.....	Gardner T. Swarts, Providence...	J. W. Leech, 111 Broad St., Providence.....	1919
South Carolina Medical Association..	James A. Hayne, Columbia.....	Edgar A. Hines, Seneca.....	Florence, Apr. 15-16, 1919
South Dakota State Med. Assn....	D. L. Scanlon, Volga.....	R. D. Alway, 202 S. Main St., Aberdeen....	1919
Tennessee State Medical Assn....	Richmond McKenney, Memphis...	Olin West, 601 Cedar St., Nashville.....	1919
Texas, State Medical Association of..	S. P. Rice, Marlin.....	H. Taylor, Texas State Bk. Bldg., Fort Worth	1919
Utah State Medical Association....	Frederick Stauffer, Salt Lake City..	W. Brown Ewing, 801 Boston Bldg., S. L. City	
Vermont State Medical Society....	Clayton W. Bartlett, Bennington..	W. G. Ricker, St. Johnsbury.....	Burlington, Oct. 10-11, 1918
Virginia, Medical Society of.....	Ennion G. Williams, Richmond...	Paulus A. Irving, Farmville.....	Richmond, Oct. 22-25, '18
Washington State Medical Assn....	G. M. Horton, Seattle.....	C. H. Thomson, Walker Bldg., Seattle.....	
West Virginia State Med. Assn....	Samuel R. Holroyd, Athens.....	J. Howard Anderson, Marytown.....	Martinsburg, Oct. 1-3, 1918
Wisconsin, State Med. Society of...	G. Windesheim, Kenosha.....	Rock Sleyster, Waupun.....	Milwaukee, Oct. 2-4, 1918
Wyoming State Medical Society...	W. V. Gage, Worland.....	J. R. A. Whitlock, Powell.....	

List of National Societies appeared in this space two weeks ago: officers of the A. M. A. last week.

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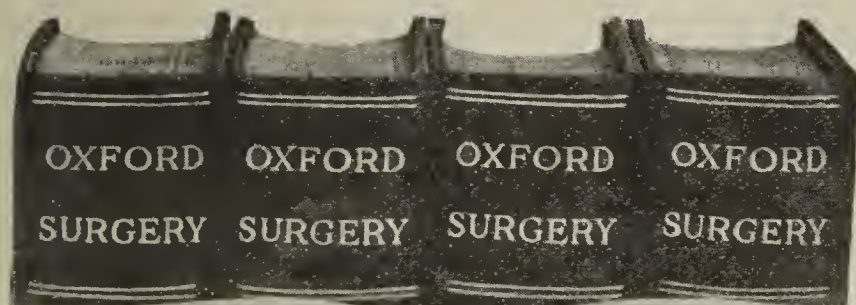
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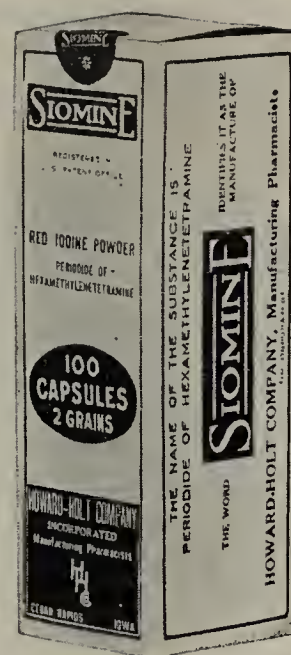
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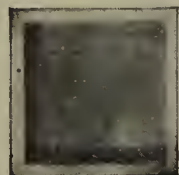


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
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Apparatus	Partnership	Drug Stores
Assistant	Situation	Locations for Sanit.
Books	FOR SALE	FOR RENT
Intern	Apparatus	EXCHANGE
Location	Practice	MISCELLANEOUS
Locum Tenens		

RESULTS are better when an advertisement receives several insertions, and to those who remit \$8 (8.25 if answers are to be sent through this office) for four consecutive insertions of a classified advertisement we will give, free, two more insertions provided the first four do not consummate a deal.

NOTICE FOR FREE INSERTIONS must be received after the fourth appearance of the advt. and within two weeks following. Requests with original order for such free insertions will not be considered.

COUNTING WORDS.—Two initials, each abbreviation, figures consisting of five numerals or less are counted as separate words. Headings, and name and address are part of advertisement. When answers are sent % AMA—the key, "Add—%AMA" is considered four words. Count words carefully. Write your copy plainly.

For the following classifications the rate is \$2 for 20 words or less; additional words 10c each. This rate applies for each insertion. No gratuitous insertions given under these headings.

Abstracting	Medical Brokers	Med. Illustrators
Automobiles	Educational	Vacation Trips
Auto accessories	Publishers	Typewriters
Carriages	Tr. Sch. for Nurses	Printers
Collections	Nurses Wanted	Salesmen
	Miscellaneous Commercial Advt.	

SPECIAL NOTE—A fee of 25c. is charged advertisers who have answers sent % A.M.A. No information can be furnished on keyed advertisements. Do not wire or write us for an address; mail your letter placing key number on envelope and it will be promptly forwarded.

Classified Ads. are payable in advance. To avoid delay in publishing, remit with order

OVER 50% of the classified ads are keyed, answers being sent in care of The Journal; each week we transmit to advertisers over 500 replies.

Occasionally we receive notification from one who has answered an advertisement stating that he has had no reply and asking if his letter was transmitted. Letters sent in our care are forwarded promptly, but naturally we cannot compel an advertiser to answer all replies he receives.

It is advisable to send copies instead of original references. For current issue, ad must reach us by 4:30 p. m. Monday.

Journal A.M.A., 535 N. Dearborn St., CHICAGO

N. B.—We exclude from our columns all known questionable ads. and appreciate notification from our readers relative to any misrepresentation.

ASSISTANTS WANTED

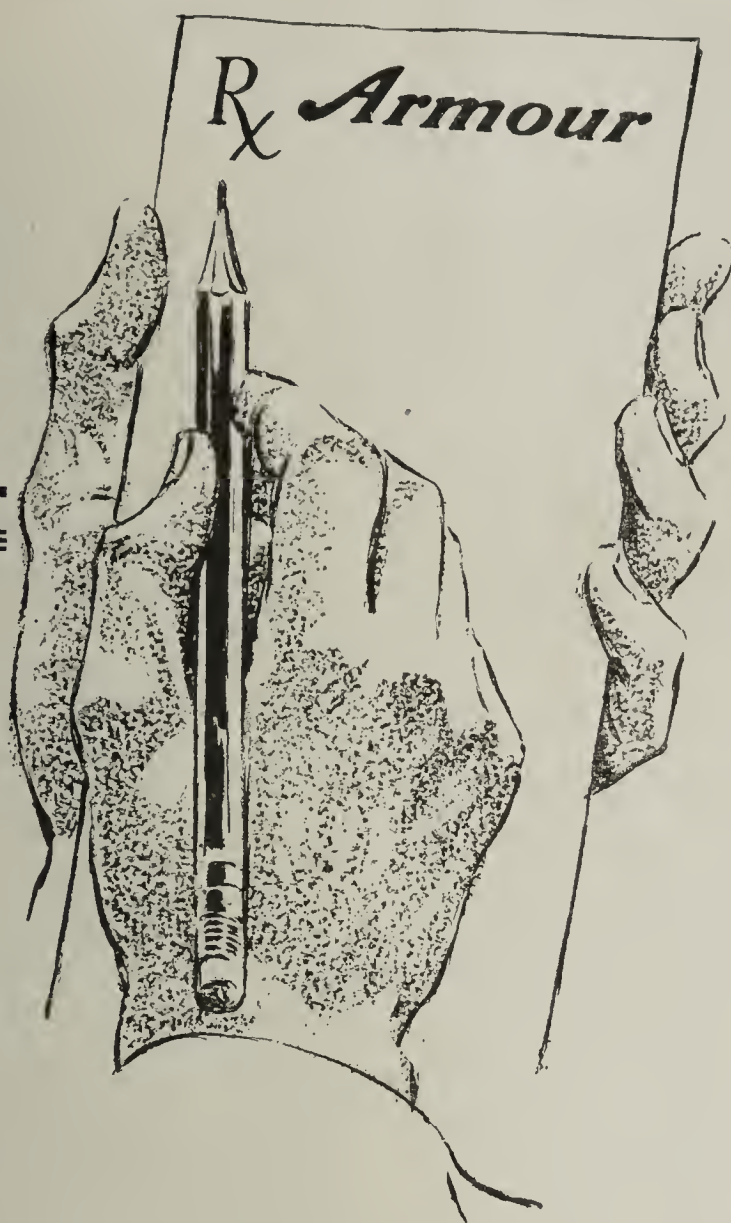
WANTED — ASSISTANT FOR GENERAL hospital, surgical and medical practice; single, American, preferred; orderly habits, having served internship; graduate A1 school; salary \$150 per month and maintenance; splendid opportunity, plus increase salary. Add. 4846 B, % AMA.

WANTED—ASSISTANT AND INTERN IN office and private hospital in central west; practice limited to eye, ear, nose and throat; \$100 per month, with board and room; state full particulars, personal and professional, and send photo. Add. 4878 B, % AMA.

WANTED — ASSISTANT OR PARTNER—Must be exempt from draft; general practitioner and surgeon; tell all about yourself first letter; am expecting to enter army service and will put on salary or sell interest to responsible party; after entering army will turn over my practice during war and resume relation of partner or assistant after the war if party proves satisfactory; private hospital; splendid opportunity. Add. 4860 B, % AMA.

WANTED — ASSISTANT PHYSICIAN, draft exempt, general mining contract practice, Minnesota; live, modern town 10,000; excellent schools; initial salary \$200 for first two months; after that, \$225 and up; no extras. Add. 4889 B, % AMA.

(Continued on page 22)



First Write
the Name
"Armour"

Then Every Item
on Your Dietetic
List Will Meet the
Standard of Qual-
ity You Demand

THE doctor, above everyone else, realizes the importance of food products of unvarying excellence. His mission is to restore and conserve health. Pure, nutritious food is insisted on as a pre-requisite to the building up of those powers of resistance that aid and accentuate remedial agencies.

Armour's Oval Label Products meet every test of the most exacting dietary. Regardless of shortage and the increasing demand for over-seas shipment, the peace-time standards that have been associated with the name "Armour" are being upheld. Armour is giving the physician just what he has the right to expect—superiority in food selection and preparation.

The doctor *knows* that he can today, as he did in the past, recommend Oval Label Products with the assurance that their high quality persists in all seasons and at all times. He knows that in prescribing a diet Armour offers a line that supplies every need.

HERE ARE A FEW OVAL LABEL LEADERS:

Stockinet Star Ham

Star Bacon

Armour's Grape Juice

Vegetole

Cloverbloom Butter

Veribest Eggs

Veribest Oleomargarine

Veribest Peanut Butter

Veribest Evaporated Milk

Veribest Package Foods (over 100 varieties, including meats, fruits, vegetables, condiments, etc.)

ARMOUR AND COMPANY
CHICAGO



"AMBUMATIC" WASHABLE ABDOMINAL SUPPORTERS



Patented. Made buckled or laced.

DO THE WORK "JUST RIGHT" ADJUSTABLE FOR "LIFT-UP" OR "BINDER SUPPORT"

To any part of the abdomen. Adapted to any person, any condition requiring efficient, comfortable support.

Call or send to day for folder, order blanks and catalog.

We Are Experts in Corrective

ORTHOPEDIC APPLIANCES

ELASTIC STOCKINGS, TRUSSES, CORSETS, ETC.

Your correspondence solicited, given careful attention and full information. Phone Cent. 4623

ORDER

THE AMBULATORY PNEUMATIC SPLINT

To secure greatest comfort, shortest period of confinement, best results and health for your

FRACTURES

of leg, knee, thigh, and hip patients. All dealers and direct from us. Wire order. State fracture, which limb, sex. Send for booklet, prices, etc. Recommend it.

Amb. Pneu. Splint Mfg. Co., 30 (A.) E. Randolph Street, Chicago

POSTAGE PAID

Special Delivery mailing containers furnished FREE.

CAMPBELL LABORATORY

Urinalysis (Complete chemical and microscopical), \$10; other prices reasonable.

Write for free containers and price list.

Noel H. M. Campbell, Director 339 South St., Jamaica, N. Y.

KALMERID CATGUT
2 Hf L 2 KI 3 Hf O
A Physiologically Correct Germicidal Suture
DAVIS & GECK, INC.
217-221 Duffield Street
Brooklyn, N.Y., U.S.A.

The class of physicians who patronize us speaks for our work

THE MEDICAL RESEARCH LABORATORIES

Incorporated.

B. GRUSKIN, M.D., Director.

800-42-44 Marshall Field Annex Building,

25 East Washington St., Chicago.

Phones Randolph 3848-49

Most reliable Pathological, Bacteriological and Chemical Analyses. Wassermann's and all other fixation tests. All Functional Tests. Each department under a reliable head.

Calcreose

An agreeable form of creosote medication. Contains 50% creosote.

As high as 120 grains of Calcreose has been given daily without digestive disturbance.

Of value in bronchitis, especially the bronchitis associated with pulmonary tuberculosis, and in gastrointestinal infections.

Formulae and Price List

Calcreose Powder. A reddish brown powder, containing 50 per cent. creosote in combination with calcium. Per pound, \$3.00

Calcreose Tablets coated brown, 4 grains. 100, 40c.; 500, \$1.60; 1000, \$3.00.

Literature and samples free to physicians.

The Maltbie Chemical Co., Newark, N.J.

Tonics and Sedatives

Bill, the Kaiser, is now on the run,
Under fire from many an Allied gun;
You can help to straff the sonofagun

And begin a fund for your baby son.

Buy many bonds if you've the "mun,"
Or, if you haven't, sure buy one;
Now, a final thought, and then I'm done,
D—the Kaiser and the murd'rous Hun.

HOOT! HOOT! HIT HOWLED

Two cockneys visiting the U. S. A. held an argument as to the kind of bird perched on the top of a tall tree.

"It's either a 'en or a howl!" said the first.
"En or howl be blowed; that bird's a heagle, the hembem of this 'ere country."—Everbody's.

DIFFERENTIAL DIAGNOSIS

Having finished his meal, the diner called for his check.

"Let's see," said the waiter; "what did you have?"

"Can't tell you for the life of me," was the reply; "but what I ordered was minced chicken."—Boston Transcript.

'Twas Ever Thus

From the Hatchet, published on American transports

Oh, Surgeon Sir, this bird exclaimed.
I'm sick and wounded, maybe maimed;
My head it aches, my feet are sore,
I just feel rotten o'er and o'er.

If that's the case, the surgeon said,
You're quite, if not completely, dead;
I'll do my very best, I will.

Here, take this nice cathartic pill;
Your tongue now looks a trifle sooty
And just for luck I'll mark you "duty."

The Immortals

The local draft board of Jefferson County has appointed a board of instruction to registrants for this county. Some of the duties imposed upon boards of instruction are:

To instruct the selectives of their duty to enter the service willingly and with loyalty to country.

To show selectives the necessity that requires them to enter the service clean and sober by avoiding immortality and the use of intoxicating liquors.

Meetings of selectives should be held as early as and as frequently as possible. There should be addresses by a reliable and competent physicians to acquaint them with the dangers of immortality and alcoholic dissipation; . . . —Charlestown (W. Va.) Advocate.

THE SAME AND MORE OF IT

A party of New Yorkers were hunting in the "piny woods" of Georgia, and had as an attendant an old negro whose fondness for big words is characteristic of the race. One of the hunters, knowing the old African's bent, remarked to him:

"Uncle Mose, the indentations in *terra firma* in this locality render traveling in a vehicular conveyance without springs decidedly objectionable and painful anatomically. Don't you think so?"

Uncle Mose scratched his left ear a moment and replied, with a slow shake of his woolly head:

"Mistah Geo'ge, the exuberance ob yoh words am beyon' mah jurydiction."—London Fun.

(Continued on next page)

(Continued from page 20)

WANTED—AT THE WRENTHAM STATE School, Wrentham, Mass., a woman assistant physician; salary, first year \$1,080, with maintenance. B

WANTED — ASSISTANT PHYSICIAN, Athens State Hospital; married or single; draft exempt; salary according to hospital experience, with maintenance. Dr. O. O. Fordyce, Superintendent, Athens, Ohio. B

WANTED — ASSISTANT PHYSICIAN IN state hospital for insane, single man, exempt from military service; state fully age, qualifications, experience and religious affiliations. Add. 4806 B, % AMA.

WANTED—ASSISTANT IN HOSPITAL OF 80 beds in Chicago; man or woman who can combine the work of anesthetist and laboratory routine; will pay \$100 per month to start. Add. 4901 B, % AMA.

WANTED — ASSISTANT IN GENERAL practice, California, competent to do surgery and industrial work; draft exempt; good permanent position to right man. Add. 4854 B, % AMA.

WANTED—ASSISTANT PHYSICIAN IN A private sanitarium for mental and nervous diseases, near New York; an unmarried man, draft exempt, and experienced in state hospital or sanitarium work; salary \$1,500 per annum and maintenance; apply own handwriting, stating age, nativity, religion, experience, references, etc. Add. 4881 B, % AMA.

PHYSICIANS WANTED

WANTED — UNION HOSPITAL, FALL River, Mass., requires resident physician not subject to draft; women considered; salary \$1,800 year with maintenance. Apply superintendent, giving qualifications. Union Hospital, A. E. Rotherick, Supt. C

WANTED — PHYSICIAN — DRAFT EX-empt, to take charge of eye, ear, nose and throat work in office and in private 50-bed hospital on stated salary while our man is in service; he will enter within the next 30 or 60 days. Lakeview Hospital, Suffolk, Va. C

WANTED — PHYSICIAN, EXEMPT FROM service, to buy my office outfit and automobile; price, \$1,500, and take charge of my general practice; cash collections over \$500 per month; competition very light and an excellent field for surgery; live town in timber section, 2,500 population; county seat; hard surfaced roads; three railroads; good schools, churches and an ideal climate; pleasant summers with mild winters; entering service. Add. Box 101, Perry, Fla. C

WANTED—A PHYSICIAN TO LOCATE AT Moline, Kan., to care for lucrative practice left vacant by owner entering army service; one well qualified can earn \$400 to \$600 per month; I have nothing to sell; any one interested go there at once. C. E. Shaffer, M.D.

WANTED—RESIDENT HOUSE OFFICER—Salaried position; draft exempt; must have had experience in traumatic surgery. Apply to Dr. G. V. Buehler, Cambridge Relief Hospital, Cambridge, Mass. C

WANTED — A COMPETENT PHYSICIAN and surgeon with New York state license to care for industrial workmen and families at a plant located in a small village midway between Plattsburgh and Saranac Lake, N. Y.; must be exempt from military service and a single man preferred; climatic conditions favorable for any one with tubercular tendencies; attractive inducements. Apply P. O. Box 58, Plattsburgh, N. Y. C

WANTED — PATHOLOGIST, BACTERIOLOGIST, serologist; must be thoroughly trained medical man; assume charge laboratory, sanitarium 50 beds; give full particulars, references and state salary first letter. Add. 4876 C, % AMA.

WANTED — A WELL-TRAINED AND EXPERIENCED internist; a man not subject to the draft preferred; a good salary insured from the start and an interest in a live and well-established business to the right man; also a thoroughly trained eye, ear, nose and throat specialist; reliable references which will establish the fitness, reliability, etc., must be furnished. Add. 4818 C, % AMA.

(Continued on next page)

(Continued from preceding page)

WANTED — PHYSICIAN FOR GENERAL contract practice; permanent position for the right party; state age, amount of experience and school of graduation; married man preferred. Add. 4826 C, % AMA.

INTERNS WANTED

WANTED — PHYSICIAN LICENSED TO practice in Illinois, to serve as intern or house physician in 100-bed hospital, located in Chicago suburb; \$100 a month, room and board. Add. 4862 D, % AMA.

WANTED—INTERN — \$50 PER MONTH and maintenance. Milwaukee Maternity Hospital, 1529 Grand Ave., Milwaukee, Wis. D

WANTED—INTERNS — LARGE GENERAL hospital, central west, over 300 beds; all departments represented; 70 per cent. surgical; rotating service of one year; has vacancies for resident interns; six months junior, six months senior; latter term with expense allowance. Add. 4823 D, % AMA.

WANTED — INTERN — WOMAN PRE-ferred, for the Henry Heywood Memorial Hospital, Gardner, Mass.; some knowledge of x-ray desirable; mixed service; salary and maintenance. For further particulars add. the Superintendent. D

WANTED—FEMALE INTERN — SALARY and full maintenance. Apply, giving particulars as to age, graduation, etc., Chairman Medical Board Nassau Hospital, Mineola, L. I., N. Y. D

WHAT AN INTERN DESIRES—OPPORTU-nities to work with men who rank well as physicians and surgeons. Opportunities to practice under interested and competent supervisor. Thoroughly adequate modern equipment and apparatus with which to work. A broad scope for experience in all branches of surgery and medicine. Good food, comfortable living quarters, an open-minded and fair hospital administration. A stipend of \$50 a month and maintenance, with opportunities for increased income. All of these may be obtained by a high grade man at the Delaware Hospital, Wilmington, Del. A good chief resident is also wanted. D

WANTED — INTERNS — AT LYING-IN hospital of city of New York; outdoor service; graduates of recognized medical colleges or students who have completed the fourth year and are awaiting a year of hospital service before graduation; four months' service; \$45 monthly and full maintenance. Apply to Superintendent, 307 Second Ave., New York, N. Y. D

LOCUM TENENS WANTED

WANTED—LOCUM TENENS — IOWA—General practice and surgery, \$6,500 cash yearly; modern town 5,000; electric lights, sewage and water systems; excellent schools, fine; division point railroad; introduction; no real estate. Add. 4819 F, % AMA.

WANTED—PERIOD OF WAR — COMPE-tent physician; Minnesota country practice; no competition; no money required; fine opportunity for right man able to do some surgery; salary and commission. Add. 4851 F, % AMA.

WANTED—INDIANA — PHYSICIAN TO take over my practice during the war; practice will net \$250 per month; town of 900; growing; in largest coal field in state; one elderly physician; nothing to sell; answer at once; leaving Oct. 18, 1918. J. A. Scudder, Edwardsport, Ind. F

WANTED—LOCUM TENENS, DURATION war in Toulon, Ill.; two physicians leaving for service; combined practice \$10,000; nothing to sell; will lease modern office; town 1,500, with large surrounding territory; come immediately. Dr. Clyde Berfield. F

WANTED—PHYSICIAN NOT QUALIFIED for military service to take over central Iowa practice while owner is in navy; town of 3,500; work very largely office, including x-ray and simple refraction; averages \$7,000 to \$9,000; give full details. Add. 4900 F, % AMA.

WANTED—PHYSICIAN TO TAKE OVER practice duration of war; partnership then if agreeable; \$300 per month cash office; \$300 more country and town calls; opening for small hospital; mild climate. C. D. Rollins, Lake City, S. C. F

(Continued on next page)

TONICS AND SEDATIVES

(Continued from preceding page)

SAYS NATE SALISBURY

The word "agronomy," informs the contrib who reads the Official Bulletin, is "Landwirtschaftswissenschaft" in German. Not that anybody cares, except that isn't it just like those birds to invent a word like that to describe a word that nobody else knows the meaning of?

MORE MILITARY MORSELS

From Judge's Collection

NONESSENTIAL

Following a small explosion of gas at one of the arsenals now under construction, a panic ensued among those working near and the men broke and ran in all directions. Leading a party bound in the general direction of the railroad station was a negro, hot-footing it with a shovel still grasped in his hand. As he passed another party of sprinters, some one shouted:

"Throw that shovel away, you, throw it away!"

"Man," shouted the negro, without pausing in his flight, "I ain't got time to throw it away."

A SOLEMN FACT

It was the evening of the day the recruit had made his application for government insurance—applying for the amount of \$10,000. Just before going into quarters for a night's rest he turned to his companions and said:

"Well, fellows, I have a new prayer to say before turning in tonight."

They asked in one voice: "What is it?"

He (solemnly):

*"Now I lay me down to sleep,
I pray the Lord my soul to keep.
If I should die before I wake
McAdoo made a \$10,000 mistake."*

THE ULTIMATE OUTRAGE

ORDERS LIMIT ON DIAPERS; MUST BE SMALLER NOW

From the Chicago Tribune

Washington, D. C., Sept. 20.—Conservation has been applied to babies' diapers, which must be smaller in the future, the war industries board announced today.

THE BABY'S LAMENT

Oh mother dear, and did you hear
The news that's goin' round,
They've cut the size of diapers
And we cannot make a sound.
The news is surely awful,
It makes me very sore,
I hope you will not blame me
If you find things on the floor.

—♦—

SAYS ABE MARTIN

Don't worry! They ain't nobuddy thet sumbuddy don't knock.

—♦—

THE RECKONING

A pawnshop was on fire. In the crowd that collected was a dapper student of our medical college who attracted much attention by his cries of despair. A policeman, watching him wring his hands, asked curiously, "What's the matter; you don't own the shop, do you?"

"No," responded the student, "but my roommate's Sunday-suit is in there and he doesn't know it."—Orange Peel.

—♦—

SAYS PUNCH

There are only two classes when the gas alarm is sounded—the quick and the dead.

(Continued on next page)

MAN-A-CEA WATER

Not a Laxative Non-Carbonated

Many physicians find MAN-A-CEA most useful in the sickroom regimen. It can be made a useful adjunct wherever the therapeutic effects of a pure mineral water with essential inorganic salts are desired.

SAMPLES ON REQUEST

PARK & TILFORD

SOLE AGENTS

529 WEST 42D STREET, NEW YORK

Chicago Pasteur Institute

For the Preventive Treatment of Hydrophobia

25th Year 812 N. Dearborn St., CHICAGO
Antonio Lagorio, M.D., LL.D., Medical Director
Frank A. Lagorio, M.D., Assistant

Special Catalogs

free on request

Indicate by Number

1. Complete Cut Price List
2. Complete List of All Books Issued
3. Nurses' Text Book Guide
4. Dental Text Book Guide
5. Pharmacy Text Book Guide
6. Medical Text Book Guide

L. S. MATTHEWS & CO.
MEDICAL BOOKS
3563 Olive St., St. Louis

LABELS AND STATIONERY

OUR STYLES ARE ORIGINAL

Many of our customers have dealt with us for 12 years. There's a reason. JACOBUS PRINTING COMPANY 1627 Madison St. CHICAGO. Send for Catalogs Now

"QUALITY FIRST" BOOK BINDING

We will bind THE JOURNAL A. M. A. for \$1.75 per volume in the BEST GRADE of Full Buckram. Same price applies also to other journals of a similar size. OUR STRONG POINT is magazine binding. Send your books or a postal for additional information to

THE BOOK SHOP BINDERY
314-322 W. Superior St. CHICAGO

See Announcement

regarding change in Classified Advertising Rates. Page 20

TONICS AND SEDATIVES

(Continued from preceding page)

THE WRONG PRESCRIPTION

The great ocean liner rolled and pitched and the suffering bride faintly asked: "Henry, do you still love me?"

"More than ever, darling," was the language of the clause he used in reply.

After a silence, she turned her ghastly face away and gasped: "That ought to make me feel better, but it doesn't."

PATRIOTIC

A patriotic arm I own,
Said Jabez, spitting.
I fractured it, and now the bone
Is knitting.

—Detroit Free Press.

THE NEW TOBACCO

Cigar Smoker—I don't call it unpatriotic to smoke a cigar occasionally.

Pipe Smoker—I do. Why, you've got enough stuff in that cigar to feed a rabbit for a week.—Punch.

HIS MANLINESS

"What a manly looking little fellow!" admiringly said the candidate, indicating 4-year-old Bearcat.

"He shore is, Podner!" admitted Mr. Gap Johnson, of Rumpus Ridge, Ark. "You just ort to hear him cuss when he takes his quinin."
—Judge.

HE NEEDED THE HELP OF THE LORD

A long and patient but vain effort on the part of a khaki-clad driver to induce a mule, drawing what appeared to be a load of laundry, through the gateway of a local hospital afforded considerable amusement to the boys in blue who were watching the proceedings. The mule would do anything but pass through the gateway.

"Want any 'elp, chum?" shouted one of the boys in blue to the driver, as he rested a moment.

"No," replied the driver, "but I'd like to know how Noah got two of these blighters into the Ark!"—Tit-Bits.

On Vacation

Little bank roll, ere we part, let me hug you to my heart; all the year I've clung to you; I've been faithful, you've been true. Little bank roll, in a day, you and I will go away to a gay and festive spot. I'll come back, but you will not."
—Dallas Ad League.

AT GALLIPOLI

It was at Gallipoli that the Anzacs first met the Turk. They needed no scouts because they could smell him coming. As the Turks ate no pork the prisoners were provided with a herd of goats. Soon an argument went up and down the line as to which smelled the worst—the Turks or the goats. It threatened to disrupt the whole Army. So General Ian Hamilton decided to settle it once and for all. He ordered that a goat and a Turk be brought to him for a comparative test. A goat was brought in. General Hamilton took a strong whiff and promptly fainted. Then a Turk was brought in—AND THE GOAT FAINTED.

THE MOST UNKINDEST CUT OF ALL

At our house we've had a lot of operations,
Skin-grafting, tonsils, even amputations,
But the worst of all, the tale is sad to hear
Was when Dr. Wilson cut out father's beer.

Brooks' Baby Barley

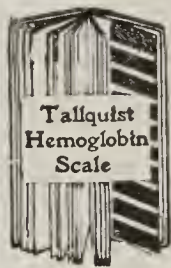
Send for samples and literature
BROOKS BARLEY COMPANY
2080 Washington St., Boston, Mass.

APINOL

A pine oil surgical dressing having the endorsement of many well known physicians and surgeons.

Physicians' samples furnished on request.

WHITE CHEMICAL COMPANY
Wilmington, N. C.



Pat. June 26, '02

150 tests or more, in book form.

"Makes hemoglobin estimation as easy as feeling the pulse."—(Cabot.)

AT ALL DEALERS

\$1.75

EDWARD PENNOCK

Sole American Agent and Licensee.

36th and Woodland Ave.
Philadelphia

U. S. Army Officers' Uniforms

when supplied by us
are absolutely correct in cut, fit and exact fidelity to U. S. Army Regulations.

Write us for samples and catalog

JACOB REED'S SONS

Oldest Military Tailors in America

1424-1426 Chestnut Street, Philadelphia

See announcement regarding change in classified adv. rates, page 20.

(Continued from preceding page)

WANTED—LOCUM TENENS — CENTRAL California; \$25,000 to \$30,000 practice; well established and largely transferable; competition very light; practice includes surgery, nose and throat, obstetrics, medicine; many lodge, industrial and life insurance appointments; town 6,000, county seat 20,000; prosperous community; collections excellent; hospital facilities unsurpassed for size town; paved roads; excellent climate; no winter; little night work or country driving; nothing to buy; no slacker or neer-do-well need apply; for duration of war want successful top-notch, hospital trained, draft exempt man; must be absolutely competent, all-around man, sober, ethical, responsible; California license or reciprocity in effect Jan. 1, 1919 imperative; will take right man on salary till Jan. 1, 1919, then 50-50 during duration war; afterward form partnership if mutually agreeable; must contract to leave if not satisfactory; bank references given and required; send photo, full particulars, first letter; a real find for first-class eastern man seeking large profitable practice in mild climate. Add. 4904 F, % AMA.

WANTED — YOUNG MAN, UNDER 30, draft exempt, with sufficient experience to take charge of an exclusively G.-U. practice of 15 years' standing on a 50 per cent. basis; office fully equipped; must be able to register in Missouri; references required; am entering military service; assistantship after war optional. Add. 4902 F, % AMA.

WANTED—LOCUM TENENS FOR \$15,000 eye, ear, nose and throat practice, in southern Ohio city of 400,000, for period of my war service, on a percentage basis; will introduce; must be thoroughly capable, qualified and reliable and not subject to Army service; reference required. Add. 4776 F, % AMA.

PARTNERS WANTED

WANTED—PARTNER—NORTH DAKOTA —Village 500; my general practice amounts to from \$8,000 to \$10,000, which includes no surgery; I want a man of some surgical ability to enter into full partnership; you will require no money; only first-class recommendations, ability and energy; this is an ideal location for a small hospital. Add. 4897 G, % AMA.

NURSES WANTED

WANTED — SUPERINTENDENTS — SUR-gical and general duty nurses, etc.; send for free book. Aznoe's Central Registry for Nurses, 30 N. Michigan Blvd., Chicago.

NURSES FURNISHED FOR ANY KIND work any where. Quick service; also attendants, institutional employees, office help, etc. F. V. Kniest, Bee Bldg., Omaha, Neb.

WANTED — GRADUATE NURSE FOR head nurse or superintendent. Charlotte Sanitarium, Charlotte, Mich.

WANTED — REGISTERED NURSE AS laboratory technician and assist in major surgical work in a 30-bed hospital. Apply Superintendent, Sarah Elizabeth Hospital, Henderson, N. C.

DIETITIANS WANTED

WANTED — DIETITIAN, HOUSEKEEPER —Average number of patients, 32; 30 nurses; state age, health, copy of references, where and when a graduate, salary desired, earliest date you could report for duty; post card photo taken recently. Add. Winona General Hospital, Winona, Minn.

LAB. TECHNICIAN WANTED

WANTED — LABORATORY TECHNICIAN in physician's office; must be able to examine urine, feces, gastric contents, make blood count, Wassermanns and to stain for Tb. and Gc., and do secretarial work; state remuneration desired. Add. 4899 V, % AMA.

LOCATIONS WANTED

WANTED — TO PURCHASE MINING OR industrial contract practice; price must be right, based on actual equipment value; will consider high class unopposed practice or salaried appointment. Add. 4816 E, % AMA.

WANTED — \$10,000 EYE, EAR AND throat practice; healthy southern location with educational and religious advantages; best rigid inspection; full description in reply. Add. 4811 E, % AMA.

(Continued on next page)

Books Received

Books received are acknowledged in this column, and such acknowledgement must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for review in the interests of our readers and as space permits.

NEUROPSYCHIATRY AND THE WAR. A Bibliography with Abstracts. Prepared by Mabel Webster Brown, Librarian, The National Committee for Mental Hygiene. Edited by Frankwood E. Williams, M.D. Associate Medical Director, The National Committee for Mental Hygiene. Cloth. Pp. 291. New York: War Work Committee, The National Committee for Mental Hygiene, Inc., 1918.

THE EVOLUTION OF NATIONAL SYSTEMS OF VOCATIONAL REEDUCATION FOR DISABLED SOLDIERS AND SAILORS. By Douglas C. McMurtie. Prepared at the Red Cross Institute for Crippled and Disabled Men. Issued by the Federal Board for Vocational Education, Washington, D. C. Cloth. Pp. 319, with illustrations. Washington: Government Printing Office, 1918.

I. A REPORT UPON THE SEASONAL OUTBREAK OF CEREBRO-SPINAL FEVER IN THE NAVY AT PORTSMOUTH, 1916-1917. II. The Treatment of Cerebro-spinal Meningitis by Anti-meningococcus Serum at the Royal Naval Hospital, Haslar, 1915-16-17. Paper. Price, 2s. 6d. Pp. 154, with illustrations. London: Medical Research Committee, 1918.

SIR WILLIAM RAMSAY AS A SCIENTIST AND MAN. By Tarini Charan Chaudhuri, M.A., Professor of Chemistry, Edward College, Pabna. With an Introduction by Panchanan Neogi, M.A., Ph.D., Professor of Chemistry, Government College, Rajshahi. Cloth. Price, Re. 1/4 net. Pp. 66. Calcutta: Butterworth & Co. (India), Ltd., 1918.

SURGICAL AND WAR NURSING. By A. H. Barkley, M.D., M.C., F.A.C.S., Lecturer at Good Samaritan Hospital Training School for Nurses. Cloth. Price, \$1.75. Pp. 208, with 79 illustrations. St. Louis: C. V. Mosby Company, 1918.

NURSING IN DISEASES OF CHILDREN. By Carl G. Leo-Wolf, M.D., Chief of Clinic for Sick Babies and Children for the Health Department of the City of Buffalo, N. Y. Cloth. Price, \$2.50. Pp. 314, with 72 illustrations. St. Louis: C. V. Mosby Company, 1918.

HYGIENE FOR NURSES. By Nolie Mumey, M.D., Lecturer in Hygiene, Chemistry, and Bacteriology, Logan H. Roots Memorial (City Hospital) Training School. Cloth. Price, \$1.25. Pp. 160, with 75 illustrations. St. Louis: C. V. Mosby Company, 1918.

STANDARDS OF THE DEPARTMENT OF HEALTH AND SANITATION OF THE UNITED STATES SHIPPING BOARD EMERGENCY FLEET CORPORATION. Director Lieut.-Col. Philip S. Doane. Paper. Pp. 31. Philadelphia: United States Shipping Board Emergency Fleet Corporation, 1918.

LA CURA DELLE FERITE TORACO-POLMONARI. Pneumotorace Artificiale Toracentesi Cura Dell'empima. By Prof. Eugenio Morelli, Aiuto Alla Clinica Medica della R. Università di Pavia. Paper. Pp. 181, with illustrations. Bologna: Lucinio Cappelli, 1918.

THE ORGANIZATION, WORK, AND METHOD OF THE RED CROSS INSTITUTE FOR CRIPPLED AND DISABLED MEN. By Douglas C. McMurtie. Second edition. Paper. Pp. 38, with illustrations. New York: Red Cross Institute for Crippled and Disabled Men, 1918.

AN INVESTIGATION INTO THE EPIDEMIOLOGY OF PHTHISIS IN GREAT BRITAIN AND IRELAND. Medical Research Committee. Paper. Price, 1s. 3d. Pp. 45, with illustrations. London: His Majesty's Stationery Office, 1918.

WAR SURGERY OF THE ABDOMEN. By Cuthbert Wallace, C.M.G., F.R.C.S., M.B., Surgeon St. Thomas' Hospital. Cloth. Price, \$3 net. Pp. 152, with 26 illustrations. Philadelphia: P. Blakiston's Son & Co., 1918.

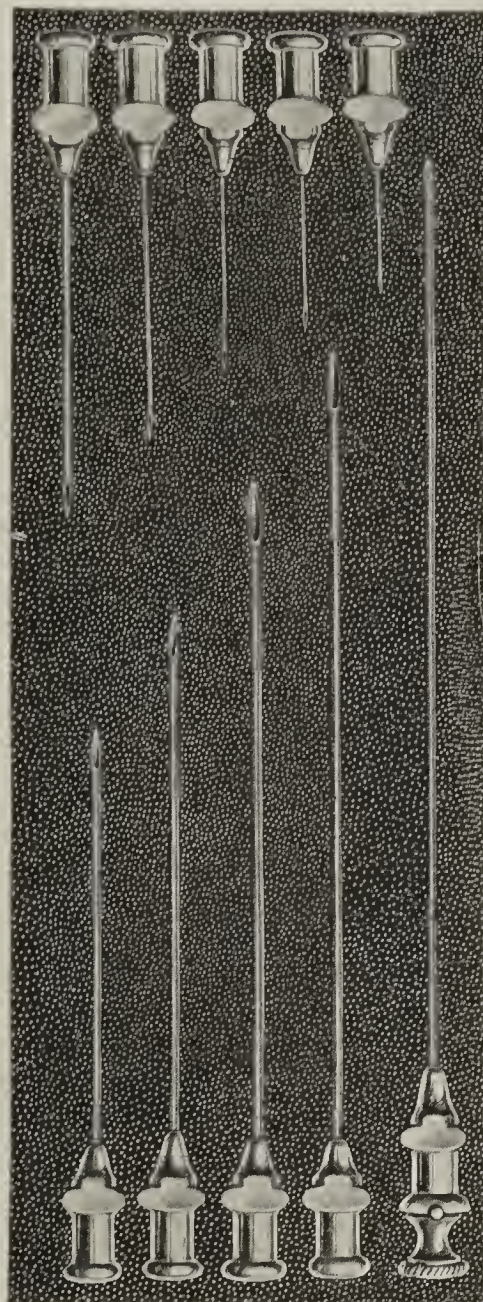
RECONSTRUCTING THE CRIPPLED SOLDIER. By Douglas C. McMurtie. Paper. Pp. 40, with illustrations. New York: Red Cross Institute for Crippled and Disabled Men, 1918.

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Classified Rates Change

October 1, 1918

See page 20

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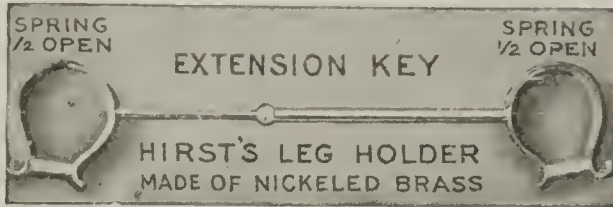
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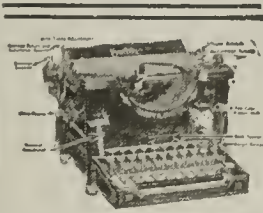
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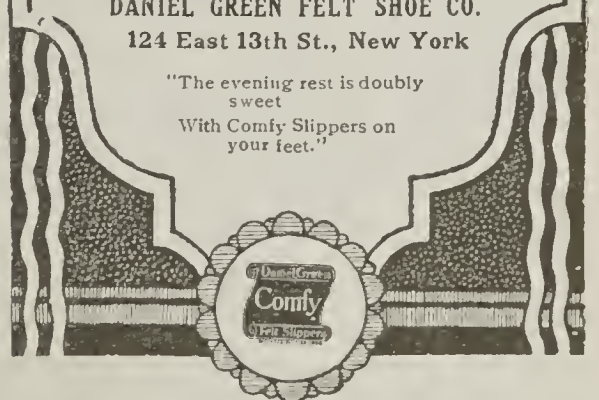
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Change of rates becomes effective Oct. 1. Page 20

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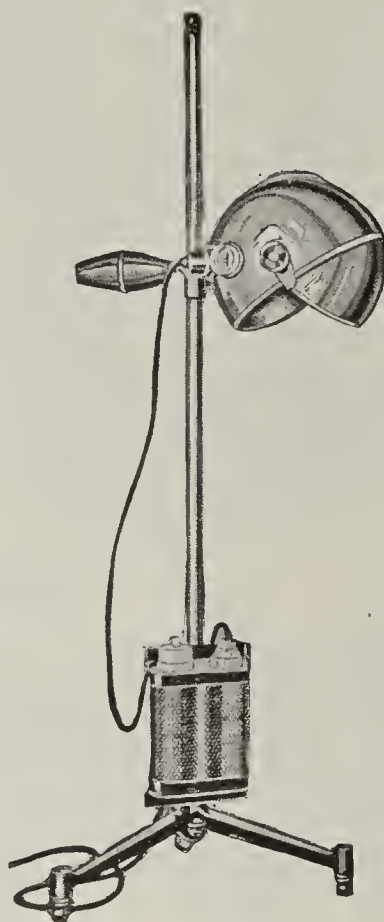
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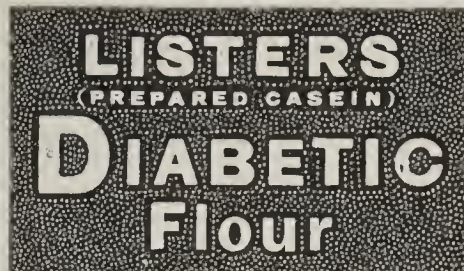
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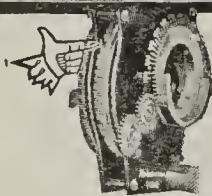
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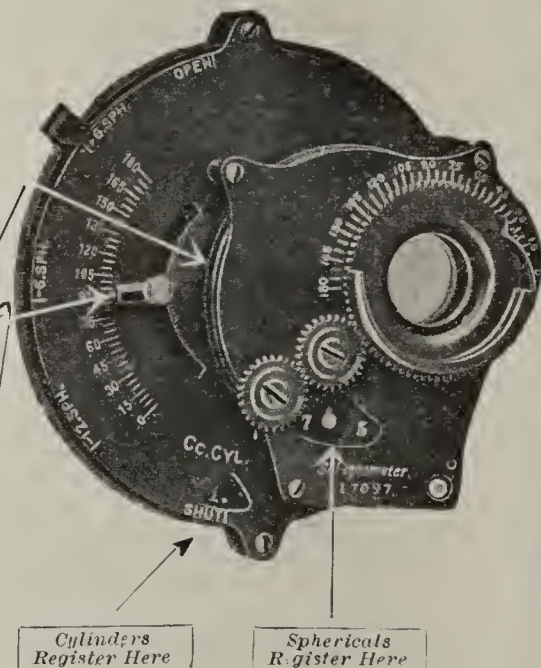
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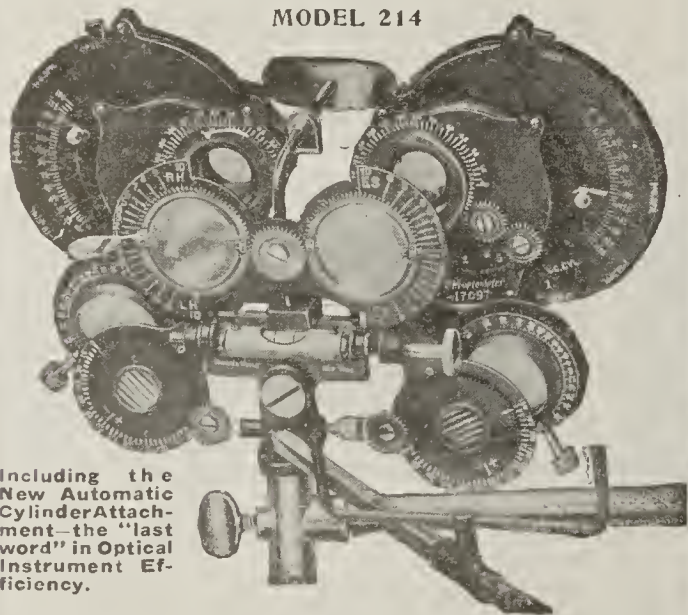
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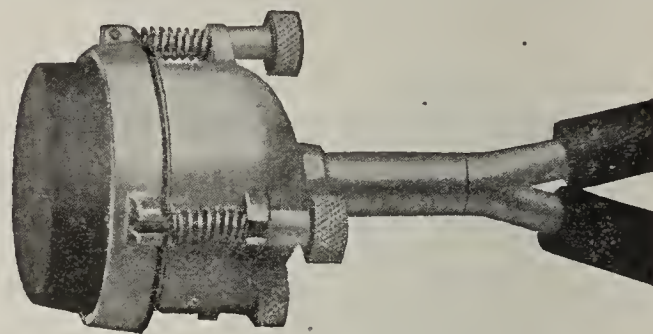
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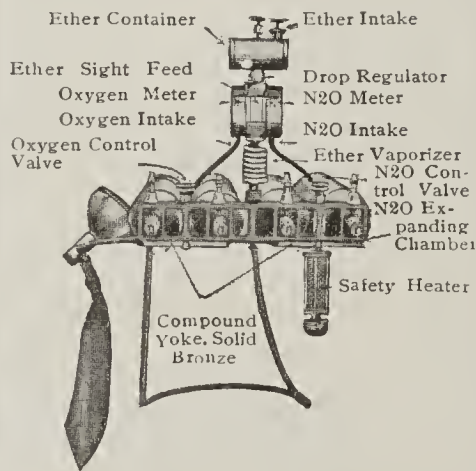
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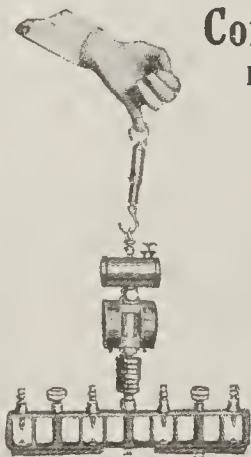
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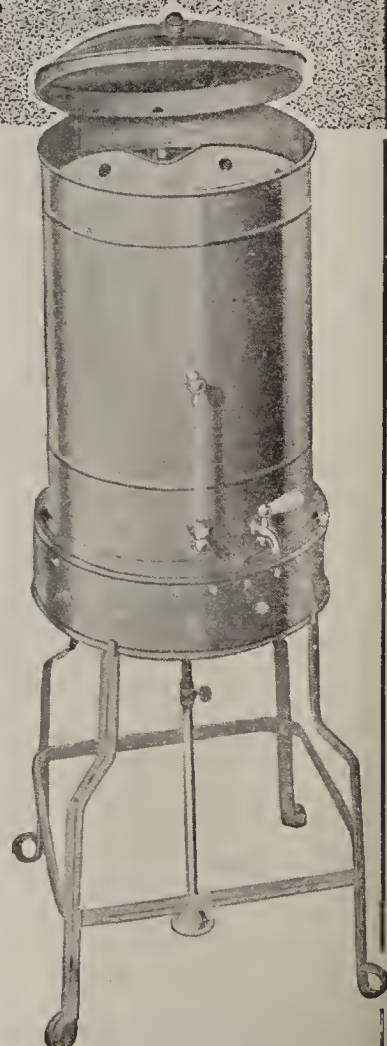
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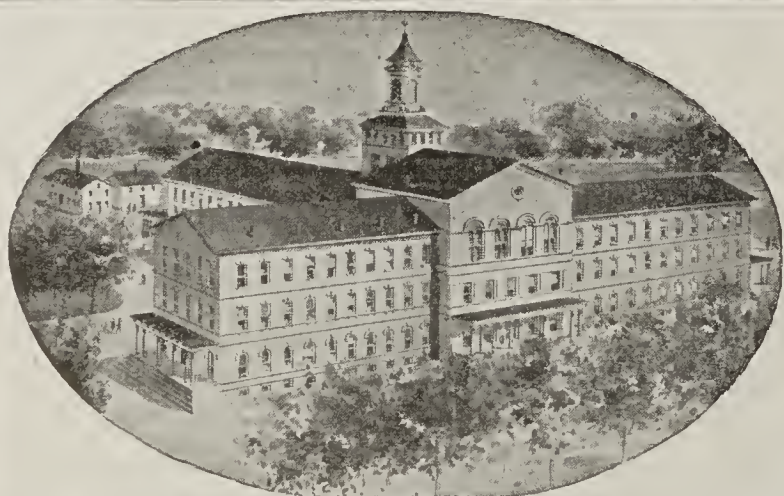
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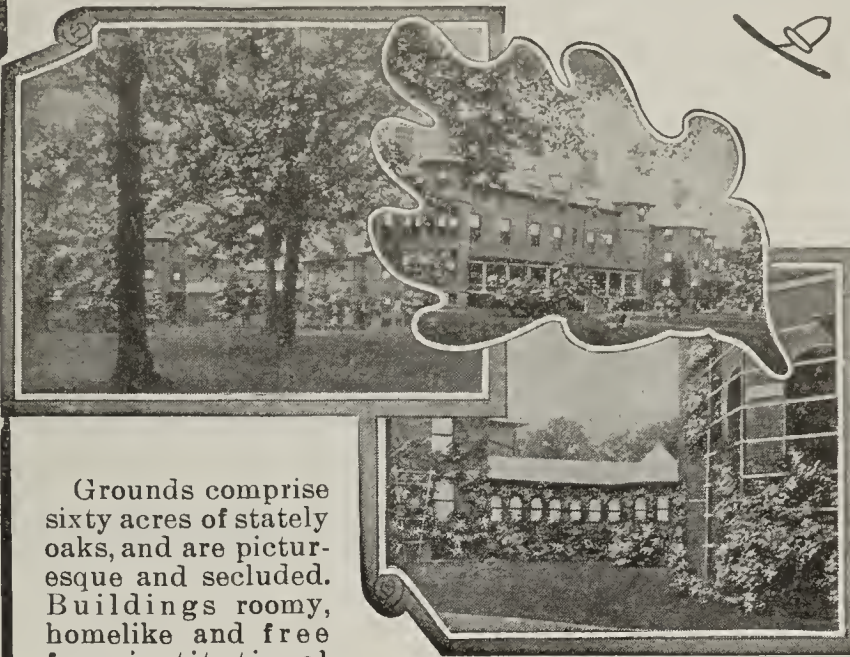


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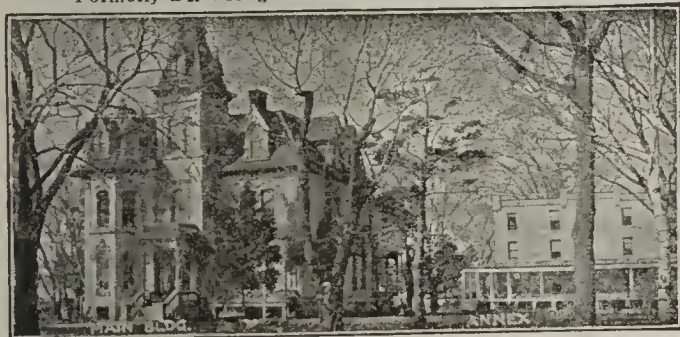
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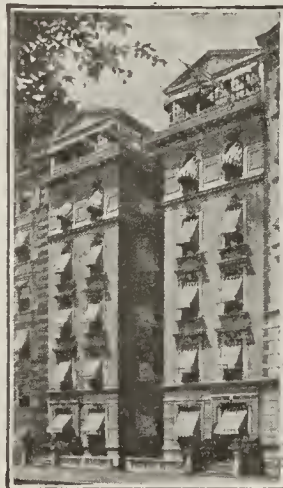
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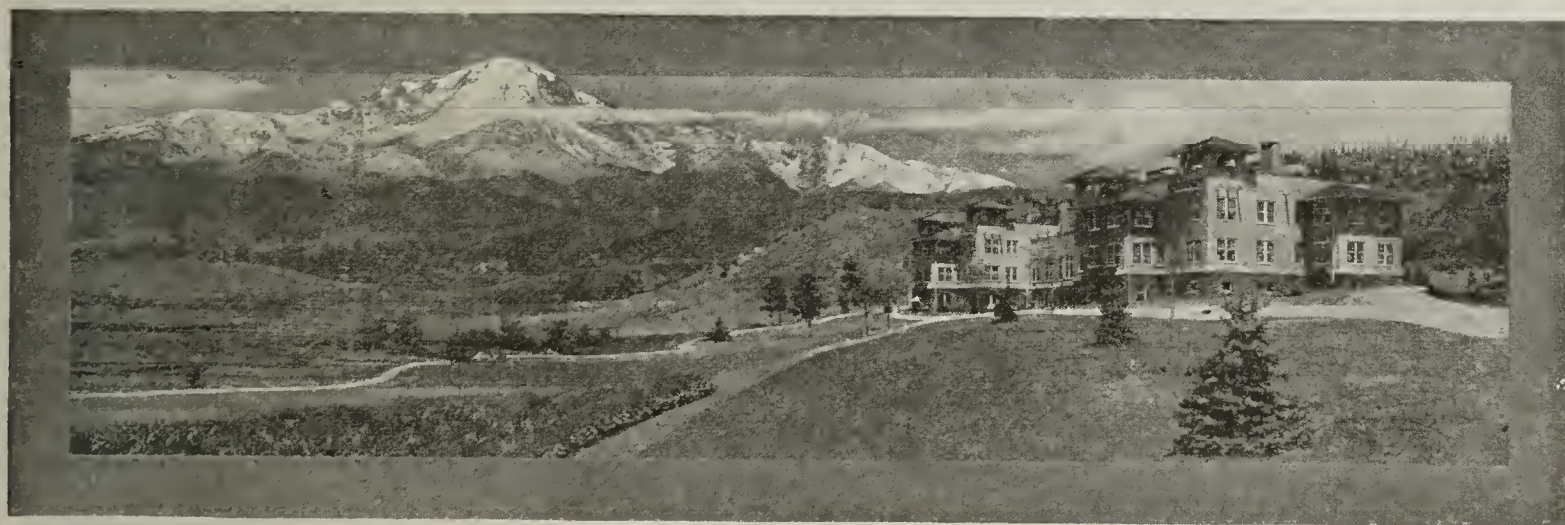
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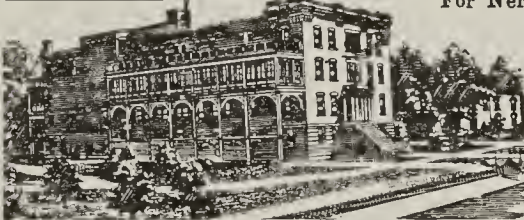
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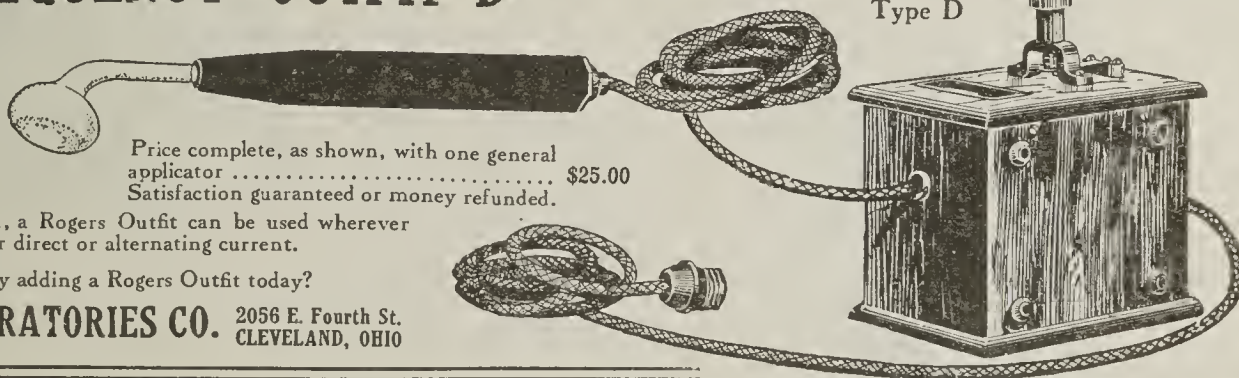
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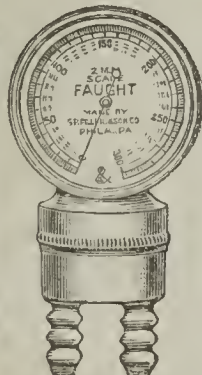
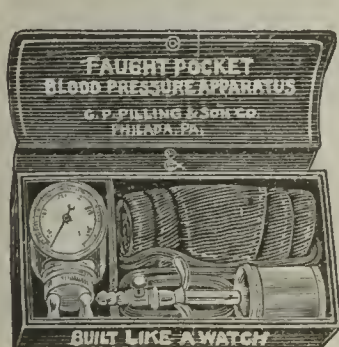
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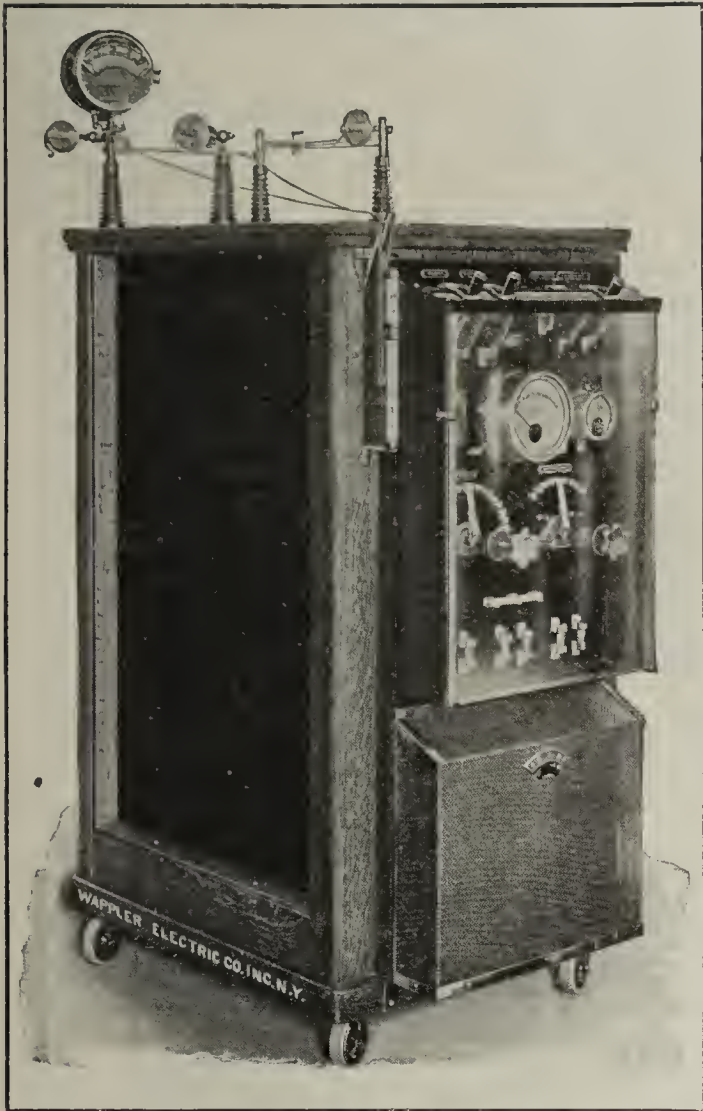
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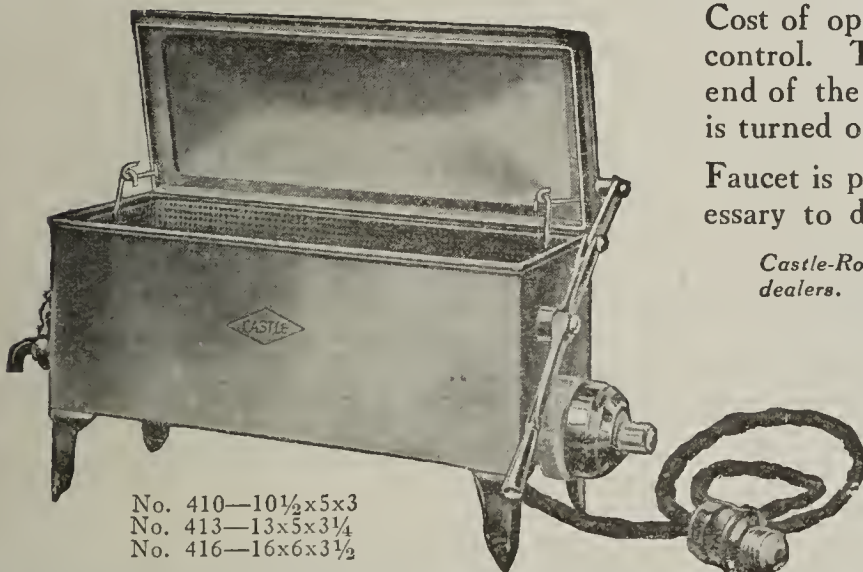
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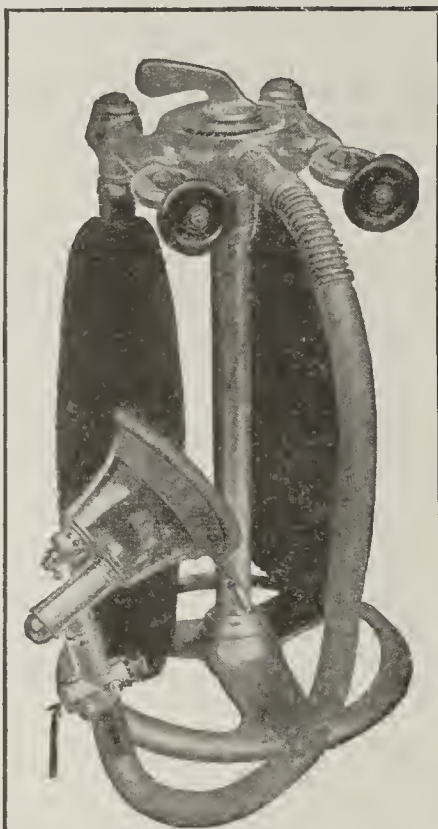


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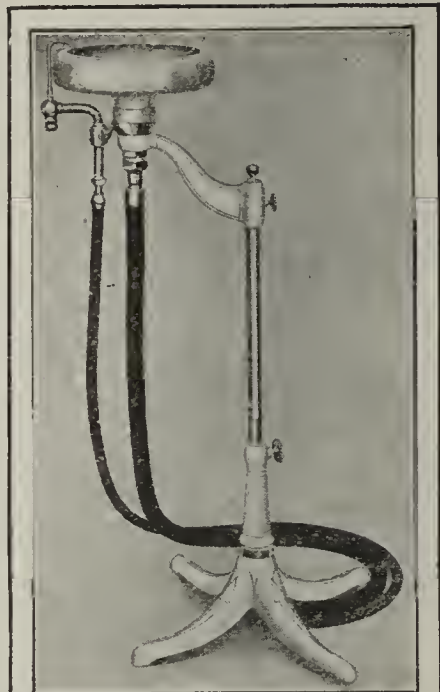
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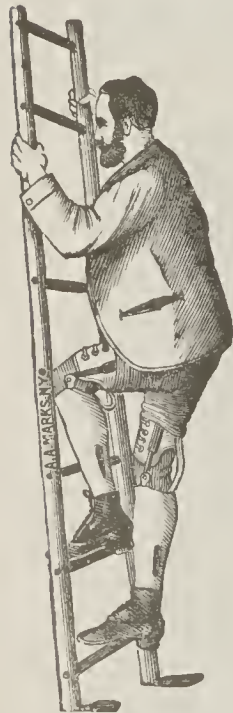
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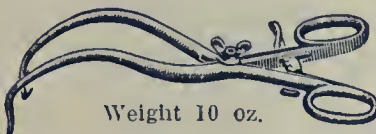
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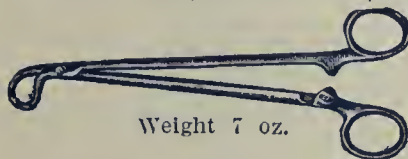
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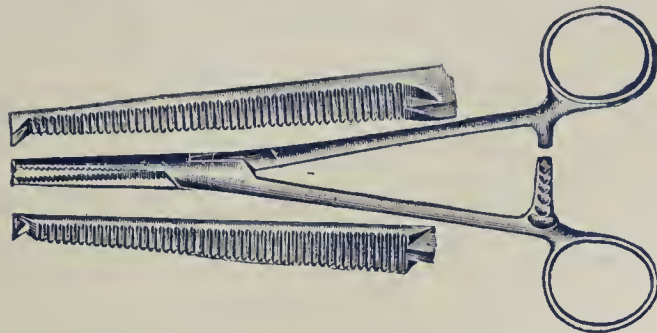
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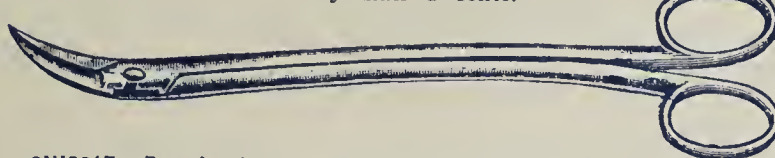


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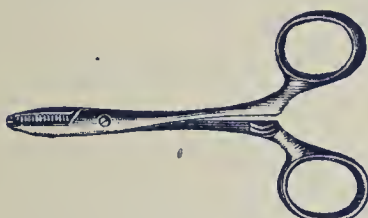
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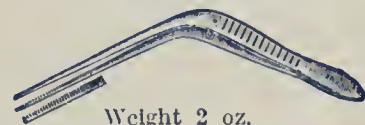


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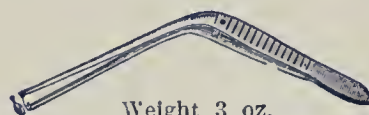
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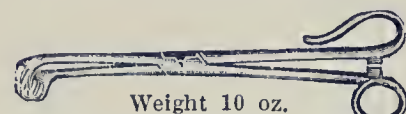


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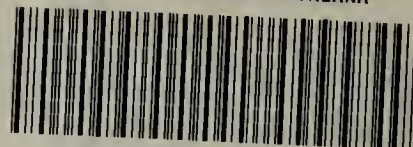
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